Psychological Treatment of Eating Disorders

G. Terence Wilson — *Rutgers, The State University of New Jersey*
Carlos M. Grilo — *Yale University School of Medicine*
Kelly M. Vitousek — *University of Hawaii*

Significant progress has been achieved in the development and evaluation of evidence-based psychological treatments for eating disorders over the past 25 years. Cognitive behavioral therapy is currently the treatment of choice for bulimia nervosa and binge-eating disorder, and existing evidence supports the use of a specific form of family therapy for adolescents with anorexia nervosa. Important challenges remain. Even the most effective interventions for bulimia nervosa and binge-eating disorder fail to help a substantial number of patients. A priority must be the extension and adaptation of these treatments to a broader range of eating disorders (eating disorder not otherwise specified), to adolescents, who have been largely overlooked in clinical research, and to chronic, treatment-resistant cases of anorexia nervosa. The article highlights current conceptual and clinical innovations designed to improve on existing therapeutic efficacy. The problems of increasing the dissemination of evidence-based treatments that are unavailable in most clinical service settings are discussed.

Keywords: anorexia nervosa, bulimia nervosa, binge-eating disorder, cognitive behavioral therapy, dissemination

According to the American Psychiatric Association's (1994) *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV*), anorexia nervosa and bulimia nervosa are the two best characterized eating disorders. Patients who do not meet criteria for either anorexia nervosa or bulimia nervosa may be diagnosed as "eating disorder not otherwise specified" in the *DSM–IV* classification system. Binge-eating disorder, for which there are provisional diagnostic criteria, has been the most intensively researched disorder within the category of eating disorder not otherwise specified. In this article we summarize the evidence on the efficacy of current psychological treatments for eating disorders and discuss ways in which their application and effectiveness in clinical practice might be enhanced.

ANOREXIA NERVOSA

Anorexia nervosa is defined by the successful pursuit of thinness through dietary restriction and other measures, resulting in body weight below the normal range (usually operationalized as $< 85\%$ of expected weight or a body mass index [BMI] < 17.5 kg/m^2). Patients' views of their symptoms are complex and variable, often combining feelings of being "too fat" with pride in the achievement of thinness and restraint. Patients are intensely fearful of losing control and becoming overweight; over time, nearly half succumb to binge eating. Semi-starvation brings about profound and predictable changes in mood, behavior, and physiology. These include depression, social withdrawal, food preoccupation, altered hormone secretion, amenorrhea, and decreased metabolic rate. Anorexia nervosa typically begins during adolescence and principally affects girls and young women; its prevalence rate among females is 0.3% (Hoek & van Hoeken, 2003). Aggregate results from long-term follow-up studies indicate that nearly 50% of patients eventually make a full recovery, 20%–30% show residual symptoms, 10%–20% remain severely ill, and 5%–10% die of related causes (Steinhausen, 2002).

Treatment Efficacy

The most salient fact about psychotherapy research on anorexia nervosa is that there is remarkably little evidence to review. Over the past 20 years, only 15 comparative trials have been completed and published. The persistent deficit of controlled treatment research in anorexia nervosa is attributable to distinctive features of the disorder, including its rarity, the presence of medical complications that sometimes require inpatient management, and the extended period of treatment necessary for full symptom remission in established cases. Patients' ambivalent attitudes about recovery compound these challenges at every phase of research, making it more difficult to recruit samples, prevent attrition, and secure participation in follow-up assessments (Agras et al., 2004).

Family Therapy

Family therapy is the most extensively researched treatment for anorexia nervosa, contributing at least one cell to more than half of all randomized controlled trials. In general, the results have been encouraging; unfortunately, they

G. Terence Wilson, Rutgers Eating Disorders Clinic, Rutgers, The State University of New Jersey; Carlos M. Grilo, Department of Psychiatry, Yale University School of Medicine; Kelly M. Vitousek, Department of Psychology, University of Hawaii.

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Correspondence concerning this article should be addressed to G. Terence Wilson, Eating Disorders Clinic, Rutgers University, Piscataway, NJ 08854. E-mail: tewilson@rci.rutgers.edu

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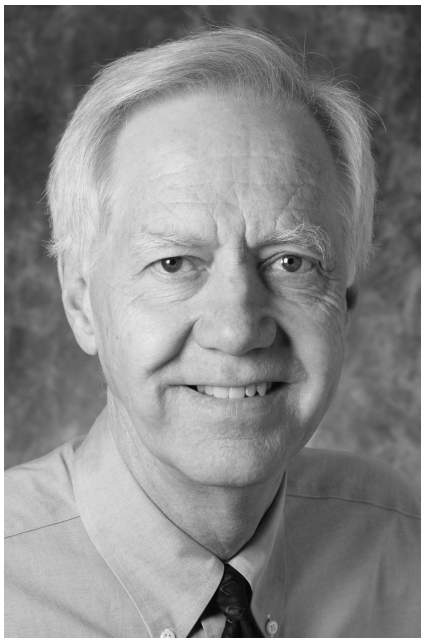

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are widely misunderstood (Fairburn, 2005; Vitousek & Gray, 2005).

The best studied approach is a specific form of family therapy known as the Maudsley model (Dare & Eisler, 1997; Lock & le Grange, 2005). A published manual outlines treatment procedures in detail (Lock, le Grange, Agras, & Dare, 2001). As applied to adolescent patients, the intervention involves 10–20 family sessions spaced over 6–12 months. The recommended "conjoint" format specifies that all family members should be seen together. In the first phase of treatment, parents are directed to take complete control over their anorexic child's eating and weight and are coached to find effective means of doing so. Once the child begins to comply with parental authority, external control is gradually faded. In the later stages of therapy, the adolescent's right to age-appropriate autonomy is explicitly linked to the resolution of her eating disorder.

The Maudsley model was first tested as a means of preventing posthospitalization weight loss in different subgroups of anorexia nervosa patients in a study by Russell, Szmukler, Dare, and Eisler (1987). The study yielded several striking results. In the subset of younger patients with more recent onset, conjoint family therapy produced an impressive rate of recovery (90% symptom-free at 5 years) and was far more effective than a dynamically oriented individual approach (Eisler et al., 1997; Russell et al., 1987). For patients with an older age at onset or a longer history of illness, neither treatment appeared beneficial.

Two of the three conclusions suggested by this small study have been supported by subsequent research. The higher-than-expected rate of recovery has also been evident in case series (e.g., le Grange, Binford, & Loeb, 2005) and randomized controlled trials (e.g., Eisler et al., 2000; le Grange, Eisler, Dare, & Russell, 1992; Lock, Agras, Bryson, & Kraemer, 2005) of family therapy for adolescents with anorexia nervosa. Such favorable results, however, may simply reflect the characteristics of the samples to which this approach has been delivered (Fairburn, 2005; Vitousek & Gray, 2005). In both controlled trials and naturalistic catchment-area studies, outcomes for young adolescents are much more encouraging than the aggregate 50% recovery rate cited for all patients with anorexia nervosa (e.g., Nilsson & Hagglof, 2005; Steinhausen, 2002).

The second confirmed finding of the Russell et al. (1987) study is that symptom duration is a strong predictor of response to family therapy (as it is for other modes of treatment). In a trial of family therapy for adolescents with relatively recent onset, patients who attained a good outcome had been symptomatic for just 8 months at the start of treatment, compared with 16 months for those with intermediate or poor outcomes (Eisler et al., 2000). At the other end of the prognostic spectrum, use of the Maudsley model in an adult sample with an average duration of 6 years yielded minimal clinical improvement in the majority of patients (Dare, Eisler, Russell, Treasure, & Dodge, 2001).

The third notable finding of the Russell et al. (1987) study—that the Maudsley model was much more effective than individual treatment for adolescent patients—has little support. Subsequent research by the same group of investigators has focused on examining different formats and intensities of the Maudsley approach (Eisler et al., 2000; le Grange et al., 1992; Lock et al., 2005) rather than testing it against alternative models of treatment. Two other teams did compare a similar version of family therapy with individual treatment, finding it slightly more effective than ego-oriented psychotherapy in an adolescent sample (Robin, Siegel, Koepke, Moye, & Tice, 1994) and equivalent to cognitive behavioral therapy in a mixed sample of adolescents and young adults (Ball & Mitchell, 2004). At present, then, there is little basis for the widespread belief that family therapy is specifically efficacious for adolescents with anorexia nervosa (Fairburn, 2005). There are, however, other sound reasons for adopting the approach. The Maudsley model has been examined more often than any other psychological treatment and is readily disseminable.

The National Institute for Clinical Excellence (NICE, 2004) in the United Kingdom has conducted arguably the most comprehensive and rigorous evaluation of the available evidence on the treatment of eating disorders. The NICE evaluation process includes professionals from different disciplines and applies consistent standards across medical specialty areas. Recommendations of best clinical practice are assigned a grade from A (reflecting strong empirical data) to C (expert opinion in the absence of strong data). For anorexia nervosa, NICE (2004) specified that family interventions directly addressing the eating disorder should be offered to younger patients (although not necessarily in place of individual therapy). This recommendation was awarded a grade of B for the strength of the supporting evidence; reflecting the general paucity of

treatment research, all other suggested guidelines for anorexia nervosa were given a grade of C. Few clinicians would disagree that parents should be included in the treatment of young patients. Optimal means of doing so, however, have yet to be determined.

The only evidence-based argument against using the Maudsley method of conjoint family therapy comes from studies conducted by its proponents. Two randomized controlled trials have compared the conjoint format to a "separated" version in which the anorexic child and her parents attend different sessions (Eisler et al., 2000; le Grange et al., 1992). In both trials, there was a trend favoring the theoretically less-preferred "separated" format over the conjoint model, which reached significance for the subset of families rated high in the expression of negative emotion (Eisler et al., 2000). It is not clear either why the published manual strongly recommends the conjoint model despite these findings or why it is being used preferentially in ongoing research.

Cognitive Behavioral Therapy

Cognitive behavioral therapy is the most frequently tested individual treatment for anorexia nervosa, having been included in six randomized controlled trial designs. The results are difficult to interpret, however, as four used abbreviated forms of the approach and two could not be analyzed because of attrition from the comparison conditions.

A cognitive behavioral therapy framework for conceptualizing and treating anorexia nervosa was described initially by Garner and Vitousek[1] (Garner & Bemis, 1982, 1985; Garner, Vitousek, & Pike, 1997). A number of expansions and alternative perspectives have been presented (e.g., Fairburn, Cooper, & Shafran, 2003; Fairburn, Shafran, & Cooper, 1999; Kleifield, Wagner, & Halmi, 1996; Wolff & Serpell, 1998), most of which are at least broadly consonant with the original proposal.

The model outlined by Garner and Vitousek overlaps substantially with Fairburn's (1985) analysis of bulimia nervosa, reflecting the shared view that these disorders have core features in common. Many of the same strategies are included in both approaches, with key differences in emphasis for anorexia nervosa being shaped by the importance of motivational issues, the problems associated with semi-starvation, and the need for substantial weight gain (Garner et al., 1997). Considerable attention is allocated to enhancing motivation for change and engaging patients as active collaborators (Vitousek, Watson, & Wilson, 1998). The recommended approach specifies 1–2 years of individual therapy for patients who begin treatment at low weight and approximately 1 year for those who are weight-restored.

Three studies have compared a cognitive behavioral therapy condition with one or more alternative psychotherapies (Ball & Mitchell, 2004; Channon, de Silva, Hemsley, & Perkins, 1989; McIntosh et al., 2005). In each, no clear differences were found between cognitive behavioral therapy and the comparison conditions. Across trials, the general pattern was for patients in most conditions to improve to some degree without achieving full recovery. Unfortunately, each of these studies implemented a version of cognitive behavioral therapy for anorexia nervosa that has not been described or recommended in the literature. All offered truncated courses of treatment (18–25 sessions) that differ from those specified by cognitive behavioral therapy experts (Fairburn et al., 2003; Garner et al., 1997).

Interpretation of the other three trials is hampered by the poor showing of the nonpsychological treatments with which cognitive behavioral therapy was compared. Two attempted to examine the effects of cognitive behavioral therapy relative to nutritional counseling. One failed after 100% of participants assigned to nutritional counseling dropped out and refused to participate in follow-up assessments; almost all of those receiving cognitive behavioral therapy completed treatment (Serfaty, Turkington, Heap, Ledsham, & Jolley, 1999). In the second, cognitive behavioral therapy was superior to nutritional counseling for preventing relapse after inpatient treatment (Pike, Walsh, Vitousek, Wilson, & Bauer, 2003). Compared with patients assigned to nutritional counseling, patients receiving cognitive behavioral therapy were less likely to drop out or be withdrawn (22% vs. 73%), slower to relapse, and more likely to achieve a good outcome (44% vs. 7%). The third study was a large multisite trial comparing cognitive behavioral therapy, fluoxetine, and combined treatment (Halmi et al., 2005). The medication-alone condition was rejected by such a high proportion of patients that it was not possible to analyze the relative effectiveness of treatments.

The strongest conclusion that can be drawn from this second set of studies is that the use of nutritional counseling or medication in the absence of psychotherapy is contraindicated for anorexia nervosa patients, within or outside the conduct of research. Ironically, the choice of weak comparison conditions made it difficult to gauge the efficacy of cognitive behavioral therapy. There were indications in all three trials that cognitive behavioral therapy (or perhaps psychotherapy more generally) does further the crucial objectives of increasing engagement and persistence.

There is no empirical basis for the widespread use of antidepressants with this population. Fluoxetine is ineffective with low-weight patients (Attia, Haiman, Walsh, & Flater, 1998), and initial indications that it might support maintenance of gains after inpatient treatment (Kaye et al., 2001) have not been confirmed. A large, well-controlled trial showed no evidence that fluoxetine was superior to placebo or offered any incremental benefit to cognitive behavioral therapy in a sample of weight-restored patients (Walsh, Kaplan, et al., 2006).

Current Challenges and Future Directions

Challenges to the identification of evidence-based treatments for anorexia nervosa are formidable. The record is discouraging: few comparative trials; inconclusive results;

[1] Kelly M. Vitousek's former name is Kelly M. Bemis.

Carlos M. Grilo

generally modest benefits. The most positive outcomes have been obtained in studies of briefly symptomatic adolescent patients. None of the modalities tested—including family therapy, behavior therapy, cognitive behavioral therapy, interpersonal psychotherapy, several forms of dynamic therapy, and supportive therapy—has achieved comparable success with more established cases of anorexia nervosa. Sample sizes are small, and attrition rates high and often differential. The few results favoring one form of treatment over another have not been replicated. In consequence, impressions about "promising" and "disappointing" treatments for anorexia nervosa are shaped by single studies with 8–10 participants per cell and are inappropriately extrapolated across patient groups of differing age, duration, and severity.

From another perspective, however, it is an error to view the persistent scarcity of controlled trials and the modest results obtained as an "absence of evidence." They are most usefully construed as data about the problems that must be addressed in order to study and treat anorexia nervosa more effectively. Current evidence offers some guidance about the next stages of research.

The relatively favorable outcomes associated with adolescent anorexia nervosa make these adolescents the best candidate population for large-scale comparative trials. It seems paradoxical to give priority to the subgroup of patients who do fairly well, but there are sound research and clinical grounds for that decision (Strober, 2005). Precisely because younger patients are more responsive to treatment, randomized controlled trials are more likely to yield interpretable results. Attrition rates are lower (through parental enforcement), and simpler, shorter interventions may be effective (Lock et al., 2005; Lock, Couturier, & Agras, 2006). In view of the intractability of established anorexia nervosa and its high personal and economic cost, prevention of chronicity must be a paramount objective (Agras et al., 2004; Halmi et al., 2005).

It should be noted that age at treatment is an imprecise proxy for duration of symptoms, which is a stronger predictor of outcome. Putative reasons for this linkage are unclear and almost certainly multiple. Results may be more positive for young, recent-onset samples because early intervention prevents the entrenchment of anorexia nervosa—or because some cases would be short-lived and self-limited even in the absence of treatment (Fairburn & Harrison, 2003).

Particularly informative studies will involve comparisons between family and individual therapies, as well as between thoughtfully chosen pairs of each. In some previous trials, the choice of conditions has led to trivial or uninterpretable results. For example, two of the three randomized controlled trials comparing family and individual therapy have confounded the modes and targets of treatment, comparing a form of family therapy that emphasized direct work on eating and weight with two forms of individual therapy that did not. The interventions to be compared should be selected on the basis of their potential to illuminate a dimension of key conceptual, clinical, and pragmatic significance to the treatment of anorexia nervosa (Agras et al., 2004).

For more established cases of anorexia nervosa, the merits of randomized controlled trials are debatable. For years, the field has deplored the lack of controlled trials; recently, some experts have argued that they would be premature (Fairburn, 2005; Halmi et al., 2005; Strober, 2005). The results of the most ambitious project attempted to date support this conclusion: Despite an extraordinary expenditure of effort, the trial produced uninterpretable findings as a function of astronomical attrition (Halmi et al., 2005).

Instead of large-scale controlled trials of existing treatments, efforts should concentrate on the development and pilot testing of promising approaches (Fairburn, 2005). Fine-grained observational studies are the appropriate means of identifying potentially beneficial treatments, particularly for rare disorders that are difficult to treat. Systematic strategies to examine the contribution of specific treatment components are particularly likely to be informative (Fairburn et al., 2003).

Decisions about the best candidates to test should be informed by existing data on anorexia nervosa—including the accumulated record of failures to treat it effectively. For example, in view of what we know about the nature of this disorder in adult patients, it was not reasonable to anticipate that the attenuated 20-session treatments provided in some randomized controlled trials would transform the attitudes and behavior of ambivalent patients with long-standing anorexia nervosa. Future studies should offer interventions that are better matched to the well-studied features of this disorder.

With reference to one crucial question, there are grounds for proceeding with randomized controlled trials, even at the risk of obtaining messy results. The exception

concerns the indications for inpatient, day treatment, and outpatient care. The research literature offers minimal guidance for choosing among levels of care for different subgroups of anorexia nervosa patients. For both clinical and economic reasons, there is an urgent need for more instructive data (Gowers, Weetman, Shore, Hossain, & Elvins, 2000; Striegel-Moore, 2005).

In the United States today, approximately half of the patients referred to specialty centers are still hospitalized at least once over the course of their disorder. Although some admissions are dictated by medical crises, the objectives and outcomes of many are unclear. Correlational research suggests that patients who are discharged before reaching target weight are more likely to fail in transitional day patient programs (Howard, Evans, Quintero-Howard, Bowers, & Andersen, 1999) and may need more rapid and frequent readmissions (Wiseman, Sunday, Klapper, Harris, & Halmi, 2001). Some experts argue that efforts to conserve resources by restricting inpatient care may instead increase cumulative costs (Andersen, 1998; Crow & Nyman, 2004). Others note, however, that there is no compelling evidence that treatment intensity or duration deflects the long-term course of anorexia nervosa. Data from prospective naturalistic studies suggest that hospitalization is unrelated (Ben-Tovim et al., 2001) or negatively related (Gowers et al., 2000) to follow-up status. Clearer information on all of these points can be gained only through random assignment of eligible patients to differing levels and lengths of care.

In addition to economic considerations, there are other arguments for minimizing the use of inpatient and residential treatment for anorexia nervosa. The benefits of more rapid and reliable weight gain must be balanced against the disadvantages of disrupted continuity of care, separation from the natural environment, and increased identification with the disorder (Gowers et al., 2000; Vitousek & Gray, 2006). Qualitative research affirms that anorexia nervosa patients often perceive inpatient treatment as demeaning, although most acknowledge simultaneously that enforced intervention can be both necessary and beneficial (Colton & Pistrang, 2004; Tan, Hope, Stewart, & Fitzpatrick, 2003; for a discussion of compulsory treatment of anorexia nervosa, see Carney, Tait, Saunders, Touyz, & Beumont, 2003). Many also report that exposure to thinner and more experienced patients can have deleterious effects, prompting competition to be the "best anorexic" on the unit.

The NICE guidelines specify that most anorexic patients should be managed on an outpatient basis using psychological treatment methods (NICE, 2004). Hospitalization should be considered when there is substantial medical or suicidal risk or after failure to improve despite an adequate course of psychotherapy. Inpatient programs should provide structured regimens focused on refeeding and weight gain in combination with broader psychosocial interventions. Whenever possible, hospitalization should occur within or near the patient's own community and should be followed by a minimum of 12 months of outpatient treatment.

The prominence of outpatient therapy in the NICE guidelines underscores that it would be a mistake to construe research on levels of care as comparisons of inpatient versus outpatient care. Whatever contribution inpatient treatment may make to the management of some cases, outpatient therapy will remain the cornerstone of treatment for anorexia nervosa (Fairburn, 2005; Vitousek & Gray, 2006). Moreover, even if randomized controlled trials establish that extended lengths of stay are clinically desirable and perhaps cost-effective, the trend toward shorter periods of hospitalization may be irreversible (Treat et al., 2005). Accordingly, modified strategies for making optimal use of brief admissions should be developed and tested.

Above all, the disappointing findings of treatment research highlight the need for a better understanding of anorexia nervosa psychopathology. Randomized controlled trials fail because many individuals with anorexia nervosa reject treatment, drop out prematurely, and sustain few behavioral changes in the absence of external contingencies. All of these outcomes are linked to patients' attitudes about their symptoms—which often include the conviction that thinness and restraint are more important and somehow more "correct" than recovery. The influence of such overvalued ideas helps to explain why "this oldest eating disorder remains impressively resistant to a wide range of interventions" (Walsh, 2004, p. 6). The search for more effective forms of psychotherapy (Vitousek & Gray, 2005) and pharmacotherapy (Attia & Schroeder, 2005) should begin with closer examination of the factors that make anorexia nervosa distinctively difficult to study and to treat.

BULIMIA NERVOSA

Bulimia nervosa is characterized by recurrent binge eating (uncontrolled consumption of a large amount of food); regular compensatory behavior designed to influence body shape and weight (e.g., self-induced vomiting, laxative misuse, or excessive exercise); and negative self-evaluation that is unduly determined by body shape and weight. Individuals with bulimia nervosa diet in a rigid and dysfunctional manner (American Psychiatric Association, 1994). Their body weight is typically normal or low normal, although bulimia nervosa does occur in some overweight individuals. Associated general psychopathology (e.g., depression and personality disorders) and psychosocial impairment are common. The disorder primarily occurs in young females, and prevalence is roughly 1% to 2% in community samples (Hoek & van Hoeken, 2003). Bulimia nervosa has a chronic course (Fairburn, Cooper, Doll, Norman, & O'Connor, 2000) and tends to be self-perpetuating (Fairburn & Harrison, 2003). Estimates of remission over time range from 31% to 74% (Ben-Tovim et al., 2001; Grilo et al., 2003; Milos, Spindler, Schnyder, & Fairburn, 2005). Remission is often fleeting, and relapse is common (Ben-Tovim et al., 2001; Herzog et al., 1999). As with other eating disorders, bulimia nervosa appears to be unstable and often morphs into eating disorder not otherwise specified (Milos et al., 2005).

Kelly M. Vitousek

Treatment Efficacy

Manual-based cognitive behavioral therapy is the most researched evidence-based treatment for bulimia nervosa. Interpersonal psychotherapy has also received empirical support. Controlled outcome research on alternative forms of psychotherapy for bulimia nervosa is lacking. The evidence consists of outpatient studies. The vast majority of bulimia nervosa patients can be treated on an outpatient basis, and the need for inpatient or day patient treatment is very limited. The latter treatments might be indicated in the event of risk of suicide or severe self-harm (NICE, 2004).

Cognitive Behavioral Therapy

Theory-driven, manual-based cognitive behavioral therapy is based on a cognitive model of the mechanisms that are thought to maintain bulimia nervosa (Fairburn, Marcus, & Wilson, 1993). The core psychopathology is said to be a negative overconcern with body shape and weight that leads to dysfunctional dieting and other unhealthy weight-control behaviors. The dysfunctional dieting predisposes to binge eating. The treatment consists of cognitive and behavioral procedures designed to enhance motivation for change, replace dysfunctional dieting with a regular and flexible pattern of eating, decrease undue concern with body shape and weight, and prevent relapse. Treatment typically has consisted of 16 to 20 sessions of individual therapy over four to five months, although it has also been successfully implemented as group therapy (Chen et al., 2003; Nevonen & Broberg, 2006).

The NICE (2004) guidelines concluded that manual-based cognitive behavioral therapy (Fairburn, Marcus, & Wilson, 1993) was the treatment of choice for adults with bulimia nervosa. The clinical recommendation was given the grade of A. This was the first time NICE recommended a psychological therapy as the initial treatment of choice for a psychiatric disorder (Wilson & Shafran, 2005). Cognitive behavioral therapy has been shown to be more acceptable and effective than antidepressant medication, especially in producing a complete cessation of binge eating and purging. It is important to note that in contrast to cognitive behavioral therapy's enduring clinical effects, evidence of the long-term efficacy of antidepressant medication is still conspicuously lacking. Manual-based cognitive behavioral therapy for adults has proven superior to other psychological treatments with which it has been compared, at least in the short term (Wilson & Fairburn, 2002).

Cognitive behavioral therapy typically eliminates binge eating and purging in roughly 30% to 50% of all cases. Of the remaining patients, many show improvement, whereas others drop out of treatment or fail to respond. The therapy reduces the level of general psychiatric symptoms and improves self-esteem and social functioning. Therapeutic improvement is reasonably well maintained at one-year follow-up. Consistent with the conceptual model on which cognitive behavioral therapy is based, the reduction of dietary restraint partly mediates treatment efficacy in eliminating binge eating and purging (Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002).

Interpersonal Psychotherapy

Originally developed as a short-term, structured psychotherapy for depression (Klerman, Weissman, Rounsaville, & Chevron, 1984), interpersonal psychotherapy has been adapted for bulimia nervosa by Fairburn (Fairburn, Jones, Peveler, Hope, & O'Connor, 1993). The primary emphasis is on helping patients identify and modify current interpersonal problems that are hypothesized to be maintaining the eating disorder. The treatment is both nondirective and noninterpretive and does not focus directly on eating disorder symptoms.

The NICE (2004) guidelines give interpersonal psychotherapy a methodological grade of B and recommend that it be considered as an alternative to cognitive behavioral therapy. In one study, interpersonal psychotherapy was inferior to cognitive behavioral therapy at posttreatment but equally effective at one- and six-year follow-ups (Fairburn, Jones, et al., 1993). Both cognitive behavioral therapy and interpersonal psychotherapy were significantly superior to a stripped-down behavioral treatment. A second study similarly found that whereas manual-based cognitive behavioral therapy was significantly superior to interpersonal psychotherapy at posttreatment, there was no statistically significant difference at one-year follow-up (Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000).

The focus of our review is on evidence-based treatment outcome studies. Following widely accepted scientific convention, evidence is ranked hierarchically from the "gold standard" of rigorously conducted randomized controlled trials down to expert consensus (NICE, 2004). We reiterate, however, the caution that just because a treatment approach has not been evaluated in randomized controlled trials does not mean that it is ineffective. There remains a

need to more rigorously evaluate alternative psychological therapies. Such research is critically important, as prospective outcome investigations of bulimia nervosa suggest that treatments naturalistically delivered by practicing clinicians in representative treatment settings do not appear to affect outcome (Ben-Tovim et al., 2001).

Current Challenges and Future Directions

The efficacy of evidence-based psychological treatments is good news for individuals seeking relief from bulimia nervosa. Nevertheless, the success of even the most potent present treatments is limited. Too many patients fail to make sufficient improvement. They need still more effective treatments. A second challenge is to demonstrate the effectiveness of evidence-based treatments for a wider range of patients than is currently the case. A third challenge is improved dissemination—the need to increase the availability of these treatments in routine clinical service settings.

Improving Treatment Efficacy

Ultimately, the development of more effective treatments will depend on improved understanding of the mechanisms whereby psychological treatments produce therapeutic change and the identification of robust moderators of outcome (Kraemer, Wilson, Fairburn, & Agras, 2002). The latter is essential if we are to match specific interventions to particular patients on a scientific basis. Experimental analyses of treatment mechanisms and moderators have lagged far behind the development and evaluation of treatment packages such as cognitive behavioral therapy. We know little about the mechanisms responsible for cognitive behavioral therapy's success other than that reduction of dysfunctional dietary restraint is a partial mediator. Neither reliable pretreatment predictors nor moderators of response to any treatment—psychological or pharmacological—have been identified. Some evidence indicates that borderline personality, impulsivity, concurrent substance misuse, and a history of obesity may predict poorer treatment outcome (NICE, 2004). It is important to note, however, that early response to cognitive behavioral therapy (and antidepressant medication; Walsh, Sysko, & Parides, 2006) has been shown to be a clinically significant predictor of treatment outcome (Fairburn, Walsh, Agras, Wilson, & Stice, 2004). Here we briefly evaluate three different options for developing still more effective treatments than current cognitive behavioral therapy.

Combining cognitive behavioral therapy with antidepressant medication. Concurrent combined treatment is not reliably more effective in addressing specific eating disorder psychopathology than is cognitive behavioral therapy alone, although combined treatment may successfully address comorbid psychopathology such as depression. An alternative would be to adopt a sequential strategy that provides nonresponders to cognitive behavioral therapy with antidepressant medication. Although a pilot study showed that fluoxetine was significantly more effective than a pill placebo after patients had failed to respond to either cognitive behavioral therapy or interpersonal psychotherapy (Walsh et al., 2000), a second study found that nonresponders to cognitive behavioral therapy who were randomly assigned to antidepressant medication showed little additional improvement (Mitchell et al., 2002).

Integrating cognitive behavioral therapy with other psychological therapies. It is common clinical lore that complex cases of bulimia nervosa with comorbid personality disorders might require a blend of cognitive behavioral therapy and psychodynamic psychotherapy (e.g., Dennis & Sansone, 1997). Research showing that some form of integrated psychotherapy is effective with bulimia nervosa, let alone more effective than cognitive behavioral therapy, is nonexistent. Wilson (2005) has critiqued the potential pitfalls of pursuing a "psychotherapy integration" strategy. Combining cognitive behavioral therapy with a psychotherapy that has no evidence of efficacy is premature at best. Integrating cognitive behavioral therapy with a conceptually incompatible framework of dubious validity cannot be recommended. Finally, combining other approaches with cognitive behavioral therapy carries the risk of undermining the efficacy of cognitive behavioral therapy by diluting the focus on essential mechanisms and targets of change. Care must be taken to ensure that combined treatments are conceptually and clinically consistent.

It is no coincidence that evolving cognitive behavioral therapy has drawn on the principles and strategies of Linehan's (1993) dialectical behavior therapy (Wilson, 2004). The blend works because dialectical behavior therapy is a variation of behavior therapy and enjoys empirical support (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004). Dialectical behavior therapy is a promising stand-alone treatment for bulimia nervosa (Safer, Telch, & Agras, 2001), and specific strategies of dialectical behavior therapy have been incorporated within cognitive behavioral therapy for bulimia nervosa. For example, training in mindfulness, distress tolerance, and emotional regulation are well-suited to treating the high levels of negative affect that frequently characterize bulimia nervosa (Fairburn et al., 2003; Stice & Agras, 1999). Borderline personality disorder itself is a not uncommon comorbid condition of bulimia nervosa that can be addressed in this way.

The principles and procedures of dialectical behavior therapy are part of a broader development that Hayes (2004) has called the "third wave" of behavior therapy, which also includes acceptance and commitment therapy. A defining feature of this general approach is the balancing of the traditional focus on behavior change with the value of acceptance, and the relationship between the two. Acceptance is important in overcoming dysfunctional body shape and weight concerns (Delinsky & Wilson, 2006) as well as in coping with negative affect. A distinctive and seminal therapeutic strategy in dialectical behavior therapy is mindfulness training, which comprises the following five skills: observing emotions without trying to terminate them when painful; describing a thought or emotion so as not to

take it literally (e.g., not confusing a thought ["I feel unloved"] with facts ["I am unloved"]); being nonjudgmental; staying in the present; and attending to one thing at a time (Linehan, 1993).

Another strategy might be to treat nonresponders to cognitive behavioral therapy with some other form of evidence-based psychological treatment. An uncontrolled study in which cognitive behavioral therapy was followed by interpersonal psychotherapy produced a positive effect comparable to that of cognitive behavioral therapy alone (Nevonen & Broberg, 2006). However, Mitchell et al. (2002) randomly assigned nonresponders to cognitive behavioral therapy either to interpersonal psychotherapy or to antidepressant medication. Neither condition produced much incremental improvement. It remains to be shown whether sequencing interpersonal psychotherapy after cognitive behavioral therapy produces a significantly better outcome.

Enhancing manual-based cognitive behavioral therapy. An obvious option would be to improve on the efficacy of existing cognitive behavioral therapy. Cognitive behavioral therapy for adult disorders in general continues to be the focus of active clinical research and innovation aimed at increasing its efficacy and clinical applicability. An illustration of what form this might take is summarized below in the section on eating disorder not otherwise specified.

Generalizability of Evidence-Based Treatment

It is often argued that randomized controlled trials are of limited relevance to "real patients" treated in "real world" clinical practice. The misconception is that randomized controlled trials exclude difficult patients with multiple comorbidities in a limited focus on patients with a single problem who may have a better prognosis. Although some studies have used broader exclusion criteria than others, randomized controlled trials have increasingly included patients with severe psychopathology, high rates of psychiatric comorbidity, and frequent histories of previously failed therapy (e.g., Agras et al., 2000; Stirman, DeRubeis, Crits-Christoph, & Rothman, 2005; Weisz, Weersing, & Henggeler, 2005). For example, Fairburn (2004) reported a randomized controlled trial of the treatment of eating disorders that had no exclusion criteria. All patients seeking treatment at two community psychiatric centers offering specialty treatment for eating disorders were randomly assigned either to cognitive behavioral therapy or its enhanced version. The patients in this study exemplified a clinically representative sample. As has been pointed out for randomized controlled trials in general (Jacobson & Christensen, 1996), in the largest randomized controlled trial of bulimia nervosa to date, the most common reason for excluding potential patients was that their problem was not severe enough (Agras et al., 2000).

The generalizability of the findings of efficacy studies to diverse clinical samples across different clinical settings must be evaluated directly in clinical effectiveness research. The critical dimensions along which generalizability must be assessed include heterogeneous patient groups, diverse clinical settings, and levels of therapist training and expertise (Wilson, in press). Only one published study of bulimia nervosa has targeted this question directly, with results that suggest findings from efficacy studies may generalize to unselected bulimia nervosa patients treated in a clinical setting (Tuschen-Caffier, Pook, & Frank, 2001). The eating disorders field lags behind progress made in anxiety and mood disorders, for example, where innovative research strategies, including quasi-experimental and nonexperimental designs, have shown that the results of efficacy studies are generalizable to treatment in routine clinical settings (e.g., Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000; Merrill, Tolbert, & Wade, 2003; Wade, Treat, & Stuart, 1998; Wilson, in press).

Surprisingly, there are no published controlled treatment studies of adolescents with bulimia nervosa (Commission on Adolescent Eating Disorders, 2005). Addressing bulimia nervosa in adolescence is important because bulimia nervosa usually begins close to puberty, which indicates the role of developmental factors in the onset of the disorder (Commission on Adolescent Eating Disorders, 2005). Moreover, bulimia nervosa and related eating disorders in adolescence are also risk factors for a variety of other physical and mental disorders during early adulthood (Johnson, Cohen, Kasen, & Brook, 2002; Stice & Bearman, 2001). Lock (2005) and Wilson and Sysko (2006) have described adaptations of cognitive behavioral therapy that take account of the specific developmental features of adolescence. Two controlled trials of family-based treatment for adolescents with bulimia nervosa are in progress (Lock & le Grange, 2005).

Evidence is emerging that eating disorders among Hispanic and African American minority groups remain undetected because of barriers to treatment (Cachelin & Striegel-Moore, 2006). These groups are typically underrepresented in treatment trials. Evidence-based psychological therapy administered with appropriate cultural sensitivity has been shown to be as effective in these populations as with traditional majority group samples in the treatment of other clinical disorders such as depression (Miranda et al., 2005). Comparable adaptations of cognitive behavioral therapy and interpersonal psychotherapy to members of minority groups are needed.

Dissemination of Evidence-Based Treatment

Consistent with the application of evidence-based treatments to other clinical disorders (Barlow, Levitt, & Bufka, 1999), evidence-based cognitive behavioral therapy is relatively rarely implemented in routine clinical practice (Crow, Mussell, Peterson, Knopke, & Mitchell,1999; Haas & Clopton, 2003; Mussell et al., 2000). A recent survey of mental health professionals providing psychotherapy for eating disorders in Calgary, Alberta, Canada, revealed that 35% of the doctoral-level respondents listed cognitive behavioral therapy as their primary orientation (von Ranson & Robinson, 2006). A much higher percentage of therapists reported frequently using cognitive behavioral therapy techniques, which were the most common component of self-described eclectic therapists' approaches. Cognitive

behavioral therapy techniques were reportedly combined with a diverse array of psychological treatments, including addiction-based approaches. Not only is there no empirical support for the latter, but they are also theoretically and procedurally incompatible with cognitive behavioral therapy (Wilson & Latner, 2001). Examples such as this reinforce concerns about the questionable nature of some forms of "psychotherapy integration" expressed earlier. Another cautionary finding of this survey was that few therapists "could name the primary author of the cognitive behavioral therapy and interpersonal psychotherapy manuals with which they were trained [which] raises questions about whether they were really using those [evidence-based treatments]" (von Ranson & Robinson, 2006, p. 32). The single exception to the apparent lack of usage of cognitive behavioral therapy in clinical practice thus far has been a survey of academic medical center providers, who reported relatively frequent implementation (McAlpine, Schroder, Pankratz, & Maurer, 2004).

The barriers to dissemination of evidence-based treatments are well-known and much debated in the literature (Addis, Wade, & Hatgis, 1999; Hayes & Gregg, 2001; Weisz et al., 2005; Westen, Novotny, & Thompson-Brenner, 2004). They include misconceptions about manual-based treatment and the relevance of randomized controlled trials to clinical practice, lack of adequate training opportunities, and philosophical opposition. Illustrating the latter, von Ranson and Robinson (2006) found that therapists typically relied more on their own clinical experience and judgment in selecting treatment than on the evidence of controlled research.

Therapist training in evidence-based treatment. Fewer than half of von Ranson and Robinson's (2006) respondents had received formal training in any treatment for eating disorders in the context of graduate training. Of note is that the vast majority of their respondents expressed a desire to receive training in cognitive behavioral therapy or interpersonal psychotherapy for eating disorders if it were available to them. Involved as we are in the training of graduate students in clinical psychology, it is our view that doctoral training programs in the United States provide insufficient and inadequate educational opportunities for training in eating disorder treatment. More specifically, opportunities for learning evidence-based treatments are too limited. Woody, Weisz, and McLean (2005) have reported that, if anything, supervised training in empirically supported treatments in doctoral and internship training programs in the United States and Canada is declining. They concluded that "most of the treatments that have robust empirical support are not taught by the majority of training programs" (p. 8). For example, only 36% of doctoral programs reported offering supervised training for "bulimia." Unhappily, the situation seems little better in the United Kingdom, where Salkovskis (2004) observed that "the vast majority of people completing psychotherapy training over the next three years will be well qualified to offer treatment which the NICE guidelines do not recommend" (p. 129).

Part of the problem is that the current accreditation guidelines in the United States allow individual clinical psychology training programs to adopt any philosophy of clinical training they wish. No training in evidence-based treatment is required. The profession of psychology and the patients it serves would benefit from an increased commitment to evidence-based training. The Academy of Psychological Clinical Science has proposed a model of training that emphasizes a closer connection between science and practice with a focus on the importance of training in and dissemination of evidence-based treatment (McFall, 2006).

Self-help interventions. Aside from a shortage of adequately trained therapists, other barriers reduce access to evidence-based treatments. For example, the current health care system in the United States often provides limited insurance that might not cover 16 to 20 sessions of therapy. Moreover, it needs underscoring that the treatment of anorexia nervosa would typically necessitate substantially longer treatment (e.g., Fairburn et al., 2003). Self-help interventions based on the principles of cognitive behavioral therapy provide a potentially important means of disseminating this treatment approach more broadly (Sysko & Walsh, in press). Research has focused on what is called "guided self-help," which combines a self-help manual with a limited number of brief "therapy" sessions administered by health care providers of varying levels of expertise and experience.

Studies of guided self-help have varied widely in methodological quality and in where and how the intervention was implemented. Varying outcomes have been reported. Nonetheless, it appears that guided self-help is effective with at least a subset of bulimia nervosa patients (Banasiak, Paxton, & Hay, 2005; Palmer, Birchall, McGrain, & Sullivan, 2002). Suitable candidates for guided self-help cannot yet be identified on the basis of pretreatment characteristics, but the use of guided self-help by inexperienced and unsupervised therapists in a primary care setting cannot be recommended (Walsh, Fairburn, Mickley, Sysko, & Parides, 2004). Finally, research on the dissemination of cognitive behavioral therapy via the use of computer-based interventions is under way (Schmidt & Grover, in press).

EATING DISORDER NOT OTHERWISE SPECIFIED

Eating disorder not otherwise specified is a heterogeneous and poorly specified diagnostic category. As discussed below, the exception is binge-eating disorder, for which provisional diagnostic criteria are available (American Psychiatric Association, 1994). The remaining disorders in this category consist primarily of variations of bulimia nervosa and anorexia nervosa, or "mixed" disorders containing features of both bulimia nervosa and anorexia nervosa. Studies from different countries are consistent in showing that the disorders encompassed by eating disorder not otherwise specified are the most common eating disorders health care professionals encounter in routine clinical practice (Fairburn & Bohn, 2005). A diagnosis of eating disorder not otherwise specified is especially common when treating adolescents, who often do not report one or more

of the clinical features of bulimia nervosa or anorexia nervosa (Commission on Adolescent Eating Disorders, 2005). The disorders within eating disorder not otherwise specified tend to be no less clinically severe than bulimia nervosa and anorexia nervosa (Fairburn & Bohn, 2005).

With the exception of binge-eating disorder, there have been no published controlled treatment trials of these disorders despite the prevalence and clinical severity of eating disorder not otherwise specified. Yet existing evidence-based treatments seem potentially adaptable to patients with eating disorder not otherwise specified. In the most promising development to date, Fairburn et al. (2003) have developed an enhanced, second-generation manual-based treatment for the full range of eating disorders. They have expanded the cognitive behavioral model of the mechanisms that maintain bulimia nervosa, on which the original cognitive behavioral therapy was based (Fairburn, Marcus, & Wilson, 1993), and extended it to all eating disorders. A major goal of the enhanced treatment is to identify specific patient profiles so that an expanded range of treatment techniques drawn from cognitive behavioral therapy as a whole can be tailored to them using specific modules that target the expanded range of maintaining mechanisms.

An innovative feature of this enhanced cognitive behavioral therapy is a major move away from *DSM–IV* to what Fairburn et al. (2003) called the "transdiagnostic" theory and treatment of all eating disorders. Diagnosis is "not of relevance to treatment" because the approach is predicated on the assumption that all the eating disorders share common maintaining mechanisms. Fairburn et al. (2003) underscored the "idiographic nature" of "personalized treatment formulations" (p. 523) in this new framework, which is more compatible with the functional analysis of individual cases that has always been a defining feature of behavior therapy. An initial report on the outcome of this enhanced cognitive behavioral therapy approach indicates that it is more effective than the 1993 cognitive behavioral therapy protocol with bulimia nervosa (Fairburn, 2004). Moreover, it seems to be as effective for eating disorder not otherwise specified as it is for bulimia nervosa (Fairburn, 2006). A preliminary investigation by Ghaderi (2006) has also suggested the superiority of a broader, more individualized cognitive behavioral therapy approach over a more focused, standardized cognitive behavioral therapy treatment for bulimia nervosa.

Binge-Eating Disorder

Binge-eating disorder is defined by recurrent binge eating without the regular use of inappropriate compensatory weight control methods that are a defining feature of bulimia nervosa. The research diagnostic criteria for binge-eating disorder include several behavioral indicators to help determine loss of control in addition to the overeating of large quantities of food, and require that the binge eating be associated with emotional distress, occur regularly (at least two days per week), and be persistent (at least six months). Individuals with binge-eating disorder, compared with overweight or obese patients without binge-eating disorder, are characterized by higher levels of overevaluation of shape and or weight (Allison, Grilo, Masheb, & Stunkard, 2005), and the intensity of these features is similar to that seen in bulimia nervosa (Hrabosky, Masheb, White, & Grilo, 2007; Masheb & Grilo, 2000).

Although questions remain about the nosological status of binge-eating disorder (Devlin, Goldfein, & Dobrow, 2003; Grilo, 2002), it is a prevalent and important clinical problem (Wilfley, Wilson, & Agras, 2003). The prevalence of binge-eating disorder is estimated to be roughly 3% of adults, but it is higher in obese persons (Grilo, 2002). The distribution of binge-eating disorder is broader and more diverse than that of bulimia nervosa or anorexia nervosa; it is evenly distributed throughout adulthood and is not uncommon in men or in persons of color (Grilo, 2002). Individuals with binge-eating disorder who seek treatment are typically older than patients with either bulimia nervosa or anorexia nervosa. Emerging research, however, suggests that the onset of binge eating frequently dates back to adolescence (Grilo & Masheb, 2000) and may be a contributor to the development of obesity in some persons (Yanovski, 2003). Binge-eating disorder is associated with obesity, and obese individuals with binge-eating disorder are at increased risk for morbidity and mortality (Flegal, Graubard, Williamson, & Gail, 2005). Individuals with binge-eating disorder often suffer from multiple co-occurring problems including high levels of eating disorder psychopathology, psychiatric comorbidity, psychological distress (e.g., low self-esteem, impulsivity), and medical disorders (Johnson, Spitzer, & Williams, 2001; Grilo, Masheb, & Wilson, 2001; White & Grilo, 2006). Thus, binge-eating disorder signals the need for comprehensive assessment, and ideally, effective treatments would be able to address the multiple problem areas (Goldfein, Devlin, & Spitzer, 2000).

Treatment Efficacy

In contrast to bulimia nervosa, relatively few well-controlled studies on the treatment of binge eating disorder have been performed. The first generation of treatment studies, which evolved primarily from the obesity field, resulted in equivocal findings as reviewed by Yanovski (1993). Mixed findings from behavioral weight loss treatments and from very-low-calorie-diets for obese binge eaters fueled concerns that such interventions might be inappropriate for these obese patients with features of eating disorder. Those clinical concerns stimulated research on interventions adapted from the treatment literature for bulimia nervosa, most notably specialized psychological treatments such as cognitive behavioral therapy and interpersonal psychotherapy and the use of antidepressants. Subsequent research has produced evidence that dietary restriction provided as part of a comprehensive obesity program does not exacerbate binge eating (de Zwaan et al., 2005; Wadden et al., 2004). Research has not yet conclusively determined whether obese persons with binge eating disorder benefit less from behavioral weight loss treatments than obese persons who do not binge-eat (Gladis et al., 1998; Sherwood, Jeffery, & Wing, 1999) or established the

relative efficacy of behavioral weight loss compared to other psychological treatments (Grilo & Masheb, 2005).

We review here the current status of the emerging treatment literature from binge eating disorder. Overall, manual-based cognitive behavioral therapy for binge eating disorder is the most researched and, at present, the best-supported treatment. There is some empirical support for other specialized psychological treatments including interpersonal psychotherapy and dialectical behavior therapy and some empirical support for behavioral weight loss treatment. Studies have reported that certain medications have efficacy for binge eating disorder although the clinical significance of these findings is less certain.

Cognitive behavioral therapy. Cognitive behavioral therapy for binge-eating disorder (Fairburn, Marcus, & Wilson, 1993) uses a slightly adapted version of the cognitive model of the putative mechanisms for the maintenance of bulimia nervosa. Most of the model and structure of cognitive behavioral therapy (Fairburn, Marcus, & Wilson, 1993) has been retained for the treatment of binge-eating disorder, although there is increasing recognition that the unhealthy and chaotic eating in binge-eating disorder (e.g., Masheb & Grilo, 2006a) is much less restrictive than that in bulimia nervosa (Masheb & Grilo, 2000) and that obesity is frequently a co-occurring problem. The NICE (2004) review and guidelines concluded that this specifically adapted cognitive behavioral therapy is the treatment of choice. This clinical recommendation was assigned a grade of A, reflecting strong supporting empirical evidence for cognitive behavioral therapy.

Overall, in controlled trials of cognitive behavioral therapy for binge-eating disorder, substantial reductions in binge eating and in most associated problems, except for weight loss, have been reported, reductions that are significantly superior to those of controls (Wilfley et al., 1993) and that are well-maintained through 12 months of follow-up (Agras, Telch, Arnow, Eldredge, & Marnell, 1997; Wilfley et al., 2002). Cognitive behavioral therapy is generally associated with high treatment completion rates (roughly 80% across different methods), remission from binge eating in over 50% of patients, and broad improvements in associated depression and psychosocial functioning. The positive findings for cognitive behavioral therapy for binge-eating disorder cannot be attributed to the exclusion of patients with poor prognoses that are due to psychiatric comorbidities. The binge-eating disorder profiles (symptom severity and long duration of illness) and rates of psychiatric comorbidity in recent trials of cognitive behavioral therapy (Grilo & Masheb, 2005; Grilo, Masheb, & Wilson, 2005; Wilfley et al., 2002) indicate that these patients are complex. The typical patient in cognitive behavioral therapy trials has exhibited the disorder for many years, has not benefited from various previous treatments, and has additional serious forms of psychiatric disorders and psychosocial deficits. Grilo, Masheb, and Wilson (2005), for example, noted that 73% of their participants had at least one additional lifetime psychiatric disorder (e.g., 46% had major depressive disorder, 32% had an anxiety disorder, and 24% had an alcohol use disorder) and 32% had at least one personality disorder.

Grilo, Masheb, and Wilson (2005), in a randomized double-blind placebo-controlled trial, found that cognitive behavioral therapy was significantly more effective than either fluoxetine or placebo. In this study, the remission rate for cognitive behavioral therapy plus placebo was 61%, compared with 22% for fluoxetine. These findings, along with an earlier report that cognitive behavioral therapy is superior to open-label use of fluoxetine (Ricca et al., 2001), provide important support for the specificity of cognitive behavioral therapy for binge-eating disorder.

Alternative specialized psychological treatments for binge-eating disorder. Two alternative specialized psychological treatments have shown promise for the treatment of binge-eating disorder. In two studies, interpersonal psychotherapy has demonstrated robust short-term and longer term outcomes that are essentially identical to those for cognitive behavioral therapy (Wilfley et al., 1993, 2002). Wilfley and colleagues (2002) reported impressive remission rates (above 70%) for both interpersonal psychotherapy and cognitive behavioral therapy that were nearly indistinguishable through 12 months of follow-up. Dialectical behavior therapy has also demonstrated efficacy (relative to wait-list controls) and impressive durability of effects, with 56% remission rates observed six months after treatment completion (Telch, Agras, & Linehan, 2001). The dialectical behavior therapy model and some of its specific strategies (i.e., training in greater awareness and in emotional regulation) appear well-suited to addressing the chaotic eating patterns and high levels of negative affect that characterize some binge-eating disorder patients (Grilo et al., 2001). The NICE (2004) review assigned a grade of B for the use of these two specialized focal manual-based treatments for binge-eating disorder. There is currently no support for alternative psychological or nondirective forms of therapy.

Behavioral weight loss and very-low-calorie-diet treatments. Expert reviews have suggested that obesity treatments—notably, behavioral weight loss treatment with moderate caloric restriction as well as with a very-low-calorie diet—have utility for treating binge eating in obese patients (Gladis et al., 1998; National Task Force on the Prevention and Treatment of Obesity, 2000). However, the findings for both behavioral weight loss treatment (e.g., Gladis et al., 1998; Sherwood et al., 1999) and for very-low-calorie diets (e.g., Telch & Agras, 1993; Wadden, Foster, & Letizia, 1992) are mixed. Some controlled trials of behavioral weight loss treatment have failed to produce weight loss (Devlin et al., 2005; Goodrick, Poston, Kimball, Reeves, & Foreyt, 1998; Grilo & Masheb, 2005; Porzelius, Houston, Smith, Arfken, & Fisher, 1995). Much of the obesity literature suggesting the possible utility of behavioral weight loss treatment or very-low-calorie diets has relied on self-report measures of binge eating that are well-known to be inadequate and to have poor diagnostic efficacy. Last, and most concerning, is that the few available data for behavioral weight loss treatment suggest weight regain posttreatment (Nauta, Hos-

pers, Kok, & Jansen, 2000), much like the literature for non-binge-eating obese patients (National Task Force on the Prevention and Treatment of Obesity, 2000). For example, in their recent study, de Zwaan and colleagues (2005) reported that a comprehensive behavioral weight loss treatment with a very-low-calorie diet resulted in 55% binge abstinence rates and an impressive average weight loss of 16.1%. Unfortunately, rapid and substantial weight regain occurred after treatment, with 29% of the patients weighing more than they did before treatment by the one-year follow-up. Collectively, these concerns highlight the need for more definitive research on behavioral weight loss treatment, both as a treatment for obesity and as a treatment for obese binge-eating disorder patients.

Pharmacotherapy for binge-eating disorder. Several medications have been tested for binge-eating disorder in randomized placebo-controlled trials. In general, pharmacological trials have been of relatively short duration, have used less stringent measures of outcome than the psychotherapy trials, have had higher dropout rates (an average of 40% across studies), and have not reported follow-up data after discontinuation of medication. Some (Arnold et al., 2002; Hudson et al., 1998; McElroy et al., 2000, 2003), but not all (e.g., Alger, Schwalberg, Bigaouette, Michalek, & Howard, 1991; Grilo, Masheb, & Wilson, 2005; Pearlstein et al., 2003), controlled trials of antidepressants have reported statistically superior reductions in binge eating and modest or equivocal findings for weight loss relative to controls. Two controlled trials tested antiobesity medications: sibutramine (Appolinario et al., 2003) and d-fenfluramine, which has been withdrawn from the market (Stunkard, Berkowitz, Tanrikut, Reiss, & Young, 1996). One trial tested the antiepileptic topiramate (McElroy et al., 2003). Two of these studies reported promising outcomes: Both sibutramine and topiramate resulted in significantly greater reductions in binge eating and weight loss than did placebo. In contrast to these statistically significant findings, meta-analyses of the pharmacotherapy literature concluded that there is limited evidence to suggest that a clinically significant difference exists between medication and placebo for either binge eating or weight loss in patients with binge-eating disorder (NICE, 2004). Finally, the few available follow-up data from pharmacotherapy studies with binge-eating disorder suggest high rates of rapid relapse (Stunkard et al., 1996) and high noncompliance with open-label extended treatments for binge-eating disorder (McElroy et al., 2004).

Current Challenges and Future Directions

Dissemination of treatments for binge-eating disorder. To date, much of the treatment research on binge-eating disorder has been performed in specialty research clinics. The relevance of such findings for "real-world" clinical settings remains uncertain. Pharmacotherapy can probably be reasonably performed in primary care settings by nonspecialists. Indeed, much of the controlled pharmacotherapy research for obesity has been performed in primary care settings (Davidson et al., 1999; Hauner, Meier, Wendlan, Kurscheid, & Lauterbach, 2002). This cannot be said for specialized psychological therapies. Clinicians in typical clinical and primary care settings are unlikely either to receive the necessary training or to have sufficient time with patients to deliver complex and time-intensive specialized interventions. This is especially relevant for binge-eating disorder because it appears that this patient group utilizes high levels of health care comparable to those used by patients with other psychiatric conditions except that they make use of less psychotherapy (Striegel-Moore et al., 2004) and they infrequently receive treatments found to have efficacy in specialized centers (Crow, Peterson, Levine, Thuras, & Mitchell, 2004). There is a gap between (a) the treatment needs and requests for help of obese patients who binge eat and (b) what their primary care clinicians currently offer in the way of treatment or referral (Crow et al., 2004).

Progress has been made in developing self-help manuals for patient use that are based on professional therapist manuals. Research has tested different methods by which clinicians can facilitate the use of these manuals. This is logical for a number of reasons. It is possible that some patients with binge-eating disorder require or respond to less intensive treatments (Wilson, Vitousek, & Loeb, 2000). It is clear that most countries will not have sufficient specialist clinicians or resources to address the full scope of the problem.

Guided and self-help treatment studies for binge-eating disorder. A number of controlled studies have tested the effectiveness of the Fairburn (1995) self-help patient care version of cognitive behavioral therapy (Fairburn, Marcus, & Wilson, 1993) as well as the effectiveness of broader "psychoeducational" behavioral approaches (Peterson et al., 1998). These studies have tested therapist-guided self-help approaches as well as pure self-help (see Grilo, 2000, in press). The NICE (2004) review and guidelines concluded, with a methodological grade of B, that patients with binge-eating disorder could be encouraged to attempt such an evidence-based cognitive behavioral therapy self-help program. Emerging research suggests that self-help guided by cognitive behavioral therapy has some advantage over pure self-help and therefore that guidance or facilitation may be worth seeking (Grilo, in press). Although the empirical support for self-help guided by cognitive behavioral therapy is robust in research conducted at specialty clinics, it is mixed in research conducted in generalist settings (Carter & Fairburn, 1998; Ghaderi & Scott, 2003).

A recent study conducted in a specialty setting provided specific support for self-help guided by cognitive behavioral therapy. Grilo and Masheb (2005) found that self-help guided by cognitive behavioral therapy was significantly superior to both self-help guided by behavioral weight loss treatment and a second control condition. Self-help guided by cognitive behavioral therapy resulted in approximately 50% remission rates, compared with less than 20% for the two other treatments. In addition, across broad outcome measures, self-help guided by cognitive behavioral therapy was significantly superior to both self-

help guided by the behavioral weight loss treatment and control conditions, which differed little from each other. These findings demonstrating the superiority of self-help guided by cognitive behavioral therapy over self-help guided by behavioral weight loss treatment—a credible and logical active treatment—provide further support for the specificity of self-help guided by cognitive behavioral therapy for binge-eating disorder. As in all other studies of self-help for binge-eating disorder, no weight loss occurred.

Can cognitive behavioral therapy or other psychological treatments for binge-eating disorder be enhanced? To date, most studies of cognitive behavioral therapy for binge-eating disorder have utilized the cognitive behavioral therapy protocol for bulimia nervosa adapted slightly to address some of the special needs of obese persons who binge but do not purge (Fairburn et al., 2003). For example, some additional modifications for obese persons with binge-eating disorder include providing some guidance around heart-healthy and moderate eating as well as encouragement to increase lifestyle physical activity. The cognitive behavioral model of binge-eating disorder, still based generally on the model of the putative mechanisms of bulimia nervosa, may not sufficiently address some important differences in the nature and extent of dietary restraint between binge-eating disorder and bulimia nervosa (Masheb & Grilo, 2000, 2002). Undoubtedly, the meal regularity and structure fostered by cognitive behavioral therapy for binge-eating disorder play an important role in reducing binge eating. Insufficient attention, however, paid to the low levels of restraint that characterize patients with binge-eating disorder (in contrast to the excessively high restraint levels in bulimia nervosa) may be one reason for the failure of cognitive behavioral therapy for binge-eating disorder to produce weight loss. Similarly, behavioral weight loss interventions for obese patients likely pay insufficient attention to the frequent problems with high negative affect (Grilo et al., 2001) and emotional overeating (Masheb & Grilo, 2006b) that characterize obese patients with binge-eating disorder. The next wave of treatment development for binge-eating disorder must pay greater attention to model development rather than just relying on modifications of treatments for other disorders that share some similarities.

As noted above for bulimia nervosa, the development of more effective treatments will likely be facilitated by an improved understanding of the mechanisms (mediators) whereby treatments effect change and by the identification of moderators of outcome. At present, little is known about how cognitive behavioral therapy for binge-eating disorder produces its broad improvements. To date, no reliable patient predictors have been identified. It is important to note that rapid response to treatment was found to be a clinically significant predictor of treatment outcome. Grilo, Masheb, and Wilson (2006) found that rapid response had different prognostic significance and time courses across different treatments for binge-eating disorder. Rapid response predicted remission rates of 73% for cognitive behavioral treatments versus 46% for pharmacotherapy treatments. Rapid response to cognitive behavioral therapy predicted improvement that was sustained or even added to during the remaining course of treatment. In contrast, when rapid response occurred in pharmacotherapy, some of the improvement tended to be lost, although it was reasonably maintained during the remaining treatment course. Clinically important findings were observed for patients without a rapid response to treatment. In the case of cognitive behavioral therapy, patients without a rapid response showed a subsequent pattern of continued improvement throughout treatment, although it did not reach the very high levels of improvement achieved by the rapid responders.

Clinically, these findings suggest that continuing or extending cognitive behavioral therapy—rather than switching to another intervention—may be best. Indeed, one study provided empirical support for extending the course of cognitive behavioral therapy for initial nonresponders (Eldredge et al., 1997). In the case of pharmacotherapy treatment, patients who did not have a rapid response were unlikely to derive any further benefit from the continued pharmacotherapy. Thus, the absence of a rapid response in a patient receiving antidepressant pharmacotherapy for binge-eating disorder suggests that the patient will be quite unlikely to respond eventually to that medication and may need to try a different intervention.

Virtually nothing is known about mediators of treatment for binge-eating disorder. It seems logical that the structure and the meal regularity emphasized during the early stages of cognitive behavioral therapy play a critical role in reducing binge eating, but this conjecture has yet to be demonstrated. Grilo and colleagues (2006) reported that rapid response (early and substantial reductions in binge eating during the first month of treatment) prospectively predicted significant subsequent weight loss during the remaining course of treatment. This finding sheds further light on other reports that binge abstinence is associated with significant, albeit modest, weight loss in binge-eating disorder trials (Agras et al., 1994; Devlin et al., 2005; Grilo, Masheb, & Wilson, 2005; Wilfley et al., 2002). Although producing significant weight loss in patients with binge-eating disorder has been an elusive goal, it has been emphasized that the elimination of binge eating may help to prevent future weight gain (Yanovski, 2003).

A few studies have tested whether combining additional treatments or sequencing additional interventions enhances cognitive behavioral therapy (or other treatments for binge-eating disorder). Overall, to date, multiple strategies have yielded disappointing findings. Two controlled studies (Agras et al., 1994; Grilo, Masheb, & Wilson, 2005) and one open-label study (Ricca et al., 2001) found that combining antidepressant treatment with cognitive behavioral therapy did not enhance outcomes. Similarly, Devlin and colleagues (2005), in a randomized double-blind placebo-controlled study, found that the addition of cognitive behavioral therapy—but not antidepressant medication—to behavioral weight loss treatment significantly enhanced outcomes. Similarly, studies that have tested whether adding antidepressant medication enhanced the

effects of behavioral weight loss treatment for obese binge eaters have reported disappointing outcomes (Devlin et al., 2005; Laederach-Hofmann et al., 1999). Agras and colleagues (1995) found that a course of interpersonal psychotherapy administered to patients with binge-eating disorder who did not respond to cognitive behavioral therapy produced no further improvements. Similarly, Agras et al. (1994), in the first study of sequenced approaches, found that providing behavioral weight loss treatment following cognitive behavioral therapy produced little weight loss ($M = 2.0$ kg) or additional benefit of any kind. Agras and colleagues (1995) found that a course of interpersonal psychotherapy administered to patients with binge-eating disorder who did not respond to cognitive behavioral therapy produced no further improvements. Thus, two studies that sequenced treatments with some established evidence base following cognitive behavioral therapy observed no additional benefit. NICE (2004) concluded that little is known about combination or sequenced approaches, especially with regard to managing obesity, and provided a methodological grade of C. One exception is the more recent study by Grilo, Masheb, and Salant (2005), a randomized placebo-controlled study that found that adding an obesity medication (orlistat, a non-centrally-acting lipase inhibitor) to self-help guided by cognitive behavioral therapy facilitated weight loss in patients with binge-eating disorder. At a 3-month follow-up after completing and discontinuing all treatments, 52% of patients in both treatment conditions had sustained remissions from binge eating. Participants in the orlistat plus self-help guided by cognitive behavioral therapy were significantly more likely to achieve a 5% weight loss than were participants receiving placebo plus self-help guided by cognitive behavioral therapy (32% vs. 8%, respectively). These findings provide further support for the robust and durable nature of cognitive behavioral therapy and provide preliminary support for the potential benefits of adding orlistat to self-help guided by cognitive behavioral therapy to facilitate weight loss in obese patients with binge-eating disorder. These findings also suggest that it is possible to add a weight loss focus to cognitive behavioral therapy without any apparent difficulties or dilution of effects. Fossati et al. (2004) previously noted the utility of concurrent behavioral lifestyle intervention with cognitive behavioral therapy. Pendleton, Goodrick, Poston, Reeves, and Foreyt (2002) reported that an exercise intervention administered with cognitive behavioral therapy that was extended in length resulted in significant weight loss (an average of 14 lb [6.4 kg]) and a 58% remission rate.

CONCLUDING COMMENTS

Significant advances have been made in the psychological treatment of eating disorders over the past 25 years. Evidence-based psychological therapies are presently the treatment of choice for bulimia nervosa and binge-eating disorder in adults. Determining whether these approaches can be successfully adapted to the effective treatment of currently understudied populations of adolescents and patients diagnosed with eating disorder not otherwise specified is a research priority. Finding effective treatments for anorexia nervosa remains a challenge, although a promising specific form of family therapy has been developed for adolescents with anorexia nervosa.

Despite this progress, however, formal opportunities for professional training in evidence-based psychological treatment of eating disorders remain very limited. Few doctoral programs in psychology in the United States offer a systematic focus on eating disorders despite the widespread interest among some of the most talented undergraduate students aspiring to careers in clinical psychology. For the most part, clinical research on the treatment of eating disorders is confined to departments of psychiatry in medical schools. We look forward to increased attention to the study of eating disorders within psychology programs. In addition to continuing to refine and improve upon current treatment approaches, psychologists are well-positioned to make important contributions to the analysis of eating behavior, to explore the psychobiological mechanisms that cause and maintain eating disorders, and to identify the mechanisms (mediators) of therapeutic change.

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