Introduction to Magellan's Adopted Clinical Practice Guideline for the Assessment and Treatment of Patients With Eating Disorders

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Purpose of This Document

Magellan Healthcare has adopted the American Psychiatric Association's (APA) *Practice Guideline for the Treatment of Patients With Eating Disorders, Third Edition* (2006) and *Guideline Watch (August 2012): Practice Guideline for the Treatment of Patients with Eating Disorders, 3rd Edition* to serve as an evidence-based framework for practitioners' clinical decision-making with adult patients who have an eating disorder. The adopted guideline indicates that while APA practice guidelines are for the care of adults, this particular guideline for eating disorders includes recommendations that apply to adolescents, since anorexia nervosa and bulimia nervosa often begin during this period. This guideline makes special notations when recommendations apply exclusively to a certain age group.

An extensive literature review suggests that the APA guideline is among the most comprehensive, evidence-based clinical practice guidelines (CPGs) for this disorder, and in general, APA guidelines are widely used. The guideline covers most areas of psychiatric management of patients with eating disorders, from clinical features and epidemiology to numerous aspects of treatment approach and planning. Since the guideline is widely accepted by managed behavioral healthcare organizations (MBHOs), this adoption will minimize the burden on practitioners serving multiple MBHOs.

As with all guidelines, these adopted guidelines and Magellan's introduction augment, but do not replace, sound clinical judgment. As a matter of good practice, clinically sound exceptions to the treatment guidelines should be included in the member's record. Additionally, this guideline does not supersede Food and Drug Administration (FDA) determinations or other actions regarding withdrawal or approval of specific medications or devices, and their uses. It is the responsibility of the treating clinician to remain current on medication/device alerts and warnings issued by the FDA and other regulatory and professional bodies, and to incorporate such information in treatment decisions.

Additional Recommendations Based on Recent Literature Review

The APA guideline is based on a literature review through 2004, while the APA Guideline Watch is based on information from randomized, controlled trials and meta-analyses published through December 13, 2011. Magellan conducted a further review of the clinical literature on assessment and treatment of eating disorders published through March 2017. We summarize key relevant recommendations from this more recent literature review here. Magellan encourages providers to be familiar with this information, as well as the information discussed in the guideline.

Executive Summary

(Discussion of changes/new information in this updated guideline)

First Ever Eating Disorder Legislation December 2016

A piece of federal legislation, the 21st Century Cures and Mental Health Reform Package, was passed by Congress in December 2016 and is the first ever eating disorder legislation (Eating Disorders Coalition, 2016). The legislation clarifies existing mental health parity law to improve health insurance coverage for eating disorders, and includes plans to better educate health professionals and the general public on early identification of eating disorders.

Epidemiology

Although eating disorders are not very common in the population as a whole, morbidity is high and eating disorders' mortality rate is the highest of any psychiatric diagnoses (Green et al., 2016; Claudino et al., 2015). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the twelve-month prevalence of *anorexia nervosa* among young females is approximately 0.4%, much more common in females than in males, with a female to male ratio of 10:1 (APA, 2013). The prevalence of subthreshold anorexia nervosa is estimated to be 1.5% and 0.1% in adolescent females and males, respectively (Lock et al., 2015). Some studies have suggested that the disorder is less common among persons of African origin (Lock et al., 2015). The twelve-month prevalence of *bulimia nervosa* (BN) among young females is approximately 1% to 1.5%, also more common in females than in males, with a female to male ratio of 10:1 (APA, 2013). According to Lock et al., diagnosis of BN in children and adolescents is rare, although older patients have indicated that onset began in adolescence (Lock et al., 2015). The twelve-month prevalence of *binge eating disorder* in adult females and males is 1.6% and 0.8%, respectively, with a far less skewed gender ratio (APA, 2013). Lock et al. reported that this disorder is the most common eating disorder, and that it affects 3.5% of females and 2% of males among adults, with rates in children and adolescents estimated at 2.3% in adolescent females and 0.8% in adolescent males. Lock et al. reported that there are no epidemiological studies available for the diagnosis of *avoidant restrictive food intake disorder*. In a recent review of literature,

Mitchison and Mond focused on the prevalence of eating disorders in males, not by conducting a systematic review of epidemiological studies of eating disorders in males due to the "relative infancy of epidemiological studies of eating disorders in males, but by focusing on functional impairment and help-seeking behavior" (Mitchison and Mond, 2015).

The Mitchison and Mond study reported that eating disorders are often not included in national mental health surveys due to low population prevalence, and when considered, only anorexia nervosa and/or bulimia nervosa are usually included (Mitchison and Mond, 2015). The majority of eating disorder cases in males are in binge eating disorders. Authors suggest that eating disorders have been, historically, conceptualized as occurring in young females and that "although we are currently in a climate of increased appreciation of eating and body image problems in males, our methods of identification, assessment, classification, and treatment are yet to catch up" (Mitchison and Mond, p. 2). Authors reported studies showing that extreme dietary restriction and purging increased at a faster rate in males between 1998 and 2008 than in females during the same period. They also noted that some authorities have suggested the classification of muscle dysmorphia, currently classified with the Obsessive Compulsive and Related Disorders section of DSM-5, as an eating disorder (seeking muscularity as opposed to seeking thinness), especially as muscle dysmorphia is associated with symptoms of eating disorder. Authors further noted that higher levels of psychopathology, psychosocial impairment, and suicide risk are associated with muscle dysmorphia than in other forms of body dysmorphic disorder. Authors concluded, "The prevalence of binge eating may be nearly as high in males as in females and the prevalence of extreme weight control behavior, such as extreme dietary restriction and purging, may be increasing more rapidly in males than females" (Mitchison and Mond, p. 7). They suggested that future epidemiological studies should include more males and male-relevant variables, and that research should focus on behaviors, rather than on diagnoses.

Assessment of Eating Disorders in Children and Adolescents

Assessment and diagnosis of feeding and eating disorders in children and adolescents is complex. Although the prevalence of full threshold eating disorders is only approximately 3% among youths, problematic eating behaviors and cognitions, e.g., preoccupation with weight and shape, and loss of control eating, are common in adolescents and children (Walsh et al., 2016). To prevent the onset of full threshold eating disorders, early detection and diagnosis are vital. Measures, e.g., interviews and self-reports, have been developed or adapted from adult measures for this purpose. Walsh et al. recommend assessment of children for diagnostic criteria as well as for subthreshold features. Authors noted that the Eating Disorder Assessment – 5 (EDA-5) is available for assessment of AN, BN, BED, pica, rumination disorder, and ARFID, and that there is a need for research focusing on measurement development to assess diagnostic criteria and categories of eating disorders in children and adolescents (Walsh et al., 2016).

Anorexia Nervosa (AN)

A recent study summarized the results of a scoping review of published literature (between 2010 and 2015) on functional magnetic resonance imaging (fMRI) research in anorexia nervosa that investigated brain activation in patients with the disorder (Fuglset et al., 2016). Authors noted the growing body of evidence indicating "that risk for AN is genetically linked with underlying neural networks sustaining the illness" as in other psychiatric illnesses (Fuglset et al., p. 1). This *scoping* review of 49 studies addresses broader topics than a *systematic* review, which is limited to "the best available research on a specific research question" (Fuglset et al., p. 2). These studies involved various paradigms, e.g., body-related stimuli, neuropsychological tests, food-related stimuli, reward, emotions, taste, pain stimulation, social cognition, compulsivity, and self-identify, and collectivity found altered neural activity across the brain in regions related to the fronto-striato and the limbic circuits. Authors remarked on how the studies demonstrated that altered neural activity was present even in individuals who had recovered from AN, and that scarring effects in the brain may persist. They suggested follow-up studies including long-term recovered individuals, as well as studies investigating how viewing images of bodies that are of various sizes and weight may affect neural activity. Other future studies suggested by authors include those investigating whether neural alterations, common in AN, are also seen in other mental disorders.

A recent study analyzed data obtained from diagnostic interviews, investigator-rated interviews, health surveys, and questionnaires collecting demographic data and clinical history of participants (n=355) with anorexia nervosa who were enrolled in two academic medical center eating disorder programs (Wildes et al., 2016). The data from the assessments, completed within about two weeks of admission to inpatient or partial hospital, were analyzed to characterize population heterogeneity in the severity and chronicity of AN to develop a definition of severe and enduring anorexia nervosa (SE-AN) psychopathology. Authors noted that this is the "first effort to utilize empirical methods to characterize associations among putative indicators of severity and chronicity in eating disorders, with the goal of developing an evidence-based definition of SE-AN" (Wildes et al., p. 6). The analysis found that illness duration and number of hospitalizations vary continuously among individuals with AN, and do *not* distinguish SE-AN. Instead, they documented that *impairment in quality-of-life* differentiates severity profiles in AN. Authors reported a past study (Touyz, 2013) emphasizing quality-of-life as a primary clinical outcome of treatment for SE-AN. In summary, they concluded that a holistic approach to the assessment of severity and chronicity in eating disorders is important, highlighting the importance of quality of life (Wildes et al., 2016).

A recent study examined the impact of parental expressed emotion (EE) on adolescent treatment outcome among families, including adolescents (n=121), primarily females aged 12-18, participating in a larger treatment study for adolescent AN comparing two forms of treatment: family-based therapy (FBT) and individual adolescent-focused therapy (AFT) (Rienecke et al., 2016). In the recent study, assessment at baseline, end of treatment, and 6- and 12-month follow-ups occurred. Families completed the Standardized Clinical Family

Interview (SCFI) at baseline, and the Family Assessment Device (FAD), a self-report measure of family functioning, at baseline and at end of treatment. Data analysis included an examination of the relationships between EE and self-reported family functioning. The study found that no main effects of maternal or paternal hostility, emotional over-involvement, positive remarks or warmth on improvement in expected body weight or eating disorder psychopathology, although paternal criticism predicted significantly less improvement in eating disorder psychopathology at end of treatment. For adolescents whose mothers expressed any hostility, however, AFT was associated with greater gains in expected body weight compared with FBT. At the end of treatment, family functioning was better for families whose mother expressed no hostility. Authors suggested that although parental EE did not positively affect weight gain, it may "influence eating-related cognitions for adolescents with AN, and impact family functioning" (Rienecke et al., p. 11). They suggested future studies to explore effective modification of EE in treatment.

A recent study randomized adolescents (n=45) aged 12–18 with AN to standard family-based therapy (FBT) or to FBT with a novel three-session adaptive intervention, i.e., intensive parental coaching (IPC) (Lock et al., 2015). IPT seeks to enhance parental self-efficacy related to re-feeding skills in children who are poor early responders to FBT by providing *in vivo* coaching. It adds three additional sessions that re-invigorate the family "to make definitive behavioral changes to support weight restoration (Lock et al., p. 5). Authors noted that when adolescents with AN who are treated with FBT do not gain 2.3 kg by the fourth week of treatment, they have a 40-50% lower chance of recovery and greater risk of developing enduring AN than those who gain weight. Not powered to compare treatment effects between the randomized groups, researchers compared weight gain during treatment of early poor responders to a sample of adolescents treated within another randomized controlled trial who did have early response to FBT, but did not receive the intensive parental coaching. Results of this study showed no differences in most clinical outcomes, rates of attrition, and suitability between the randomized groups, but found that full weight restoration by end of treatment in the group of poor early responders who received IPC was similar to that of those who had responded early. Researchers suggested, "Using IPC for poor early responders significantly improves weight recovery rates to levels comparable to those who respond early" (Lock et al., p. 2).

Grave et al. provided an update on recent developments in cognitive behavioral therapy (CBT) for AN in a recent study (Grave et al., 2016). They discussed a "specific" form of CBT, CBT-Enhanced (CBT-E), adapted to focus on eating disorder psychopathology instead of on the diagnosis of eating disorders. Authors reported results of studies investigating the effect of CBT-E in both adults and adolescents with AN. Data from various studies indicated the viability of CBT-E, suggesting that in adolescents, it "seems to be a potential alternative to family-based treatment (FBT)" (Grave et al., 2016, p. 3). Authors reported that 40% and 60% of adults and adolescents, respectively, treated with CBT-E reached and maintained a normal weight range, and in 50% and 80% of adults and adolescents, respectively, the decrease was accompanied by a decrease in eating disorder psychopathology. Authors noted the need for studies comparing the efficacy of CBT-E and FBT in the treatment of adolescents with AN.

A pilot randomized controlled trial examined the use of D-cycloserine facilitated exposure therapy to increase weight gain in participants diagnosed with anorexia and experiencing anxiety during mealtimes (Levinson et al., 2015). Participants (n=36) from a community eating disorder treatment center with a mean age of 25.44 were randomized to receive exposure therapy plus D-cycloserine or plus placebo. All participants completed psychoeducation and four group exposure sessions, including mealtime exposures across two weeks, led by a cognitive behavioral therapist. They were reminded to experience any anxiety they felt (e.g., not perform anxiety-reducing behaviors such as tearing food). Participants received either 250 mg of D-cycloserine prior to the first three sessions of exposure therapy or placebo. Study results showed that participants in the D-cycloserine group had a greater increase in body mass index (BMI) at the end of the sessions than the participants in the control group. At one-month follow-up, BMI continued to increase for those in the D-cycloserine group whereas it decreased in the placebo group. Researchers suggested that "D-cycloserine increases positive learning during exposure sessions by disruption of the connection between fear and eating, which may then generalize to similar meals complete outside of the exposure sessions" (Levinson et al., p. 7).

Researchers in a new observational study, which utilized a retrospective chart review of patients (n=87) with restrictive eating disorders hospitalized with medical complications of malnutrition, evaluated the safety of a higher calorie nutritional rehabilitation protocol (NRP) than the lower levels recommended by guidelines of the APA and the Academy of Nutrition and Dietetics (Maginot et al., 2017). The guidelines use a more conservative approach to prevent refeeding syndrome and resulting low serum electrolyte levels. Patients began oral nutritional rehabilitation upon admission based on recent dietary history, with initial caloric levels ranging from 1500 to 1800 kcal/day; it was lower (1200 kcal/day) for patients with past extreme dietary restriction. To achieve an overall goal of 1-2 kg of weight gain per week, the daily caloric intake was titrated, increased in increments of 300 kcal/day in the absence of expected body weight (EBW) gain for two days and when a patient had cardiac complications even while meeting weight restoration goals. Patients received three meals (orally) per day and up to three snacks per day in a group setting. Nutrition provided by nasogastic or nasojejunal tubes occurred if a patient had difficulty eating or drinking by mouth, and intravenous fluids provided nutrition in dehydrated patients unable to tolerate oral fluid replacements. Results found that electrolyte abnormalities in this sample were associated more with a lower % EBW on admission than the initial calorie level or rate of increase in caloric intake during treatment. Researchers reported that their data "**suggested** that with every 1% decrease in % EBW on admission, the odds of hypophosphatemia increased by 6%. However, among the subset of severely malnourished patients presenting at <75% EBW, starting at a higher calorie diet was not associated with a higher risk of hypophosphatemia, hypomagnesemia, or hypokalemia" (Maginot et al., p. 8). **Magellan continues to consider an increased caloric inpatient refeeding protocol investigational for the treatment of AN and has determined that large, randomized, controlled, multi-site trials are necessary to address questions of safety and efficacy for refeeding protocols that are more aggressive than those**

recommended by professional association consensus guidelines (Magellan Health, 2012).

A recent article discussed anorexia nervosa as a biologically based severe and enduring brain disorder with little to no effective treatments for adults with the disorder (Hill et al., 2016). They described shifting the focus from family and social influences to internal influences integrating genetic and neurobiological contributions. Authors reported genetic studies indicating the role of heredity (50-80%) in the risk of developing the disorder and imaging studies revealing, "common temperament and personality traits related to neural circuit function, which are heavily implicated in the development and maintenance of the disorder" (Hill et al., p. 3). Authors proposed a new anorexia nervosa model reflecting temperament and alterations in brain circuitry to inform and help guide treatment interventions. Heritable traits identified include harm avoidance, perfectionism, anxiety and inhibition. The treatment approach authors discussed includes both neurobiological research findings and family-based approaches for adults, e.g., CBT or CBT-Enhanced. This new five-day intervention for adults with AN "treats to the trait" by addressing the heritable traits identified above, via "experiential, neurobiologically based activities and playful clinical tools" (Hill et al., p. 8). "It is a neurobiologically informed, interactive, family-based treatment that draws upon the specific etiological traits characterizing anorexia nervosa" (Hill et al., p. 5). Preliminary results of NEW FED TR (Neurobiological research findings Enhanced With Family/Friends of those with Eating Disorders) have shown that adults with AN who received the treatment improved their understanding of the illness, "while better conceptualizing how to respond to their traits and manage their symptoms" (Hill et al., p. 1).

Bulimia Nervosa (BN)

Thompson-Brenner et al. have discussed an association between outcomes for patients with BN and two co-occurring problems: mood intolerance and interpersonal problems (Thompson-Brenner, et al., 2016). In a randomized study, patients (n=50) with BN and borderline personality disorder, and current or recent mood or anxiety disorders, were assigned to receive either broad or focused protocols of enhanced CBT (Thompson-Brenner, et al., 2016). Broad CBT (CBT-Eb) includes modules addressing co-occurring problems that interfere with treatment response, while focused CBT (CBT-Ef) includes interventions related to concerns with weight and shape. Analysis of data from this study found substantial improvement in both eating disorder symptoms and associated psychopathology across the entire sample. Remission from objective binge eating and purging at termination occurred at the rate of 42% of those who began treatment and 53% of those who completed treatment, with no significant differences between groups. Results were similar for remission from objective binge eating and purging at follow-up: 41.2% of all participants reported remission from binge eating and purging at follow-up, again with no significant differences between groups. However, multivariate analyses suggested that CBT-Ef was associated with better eating disorder outcomes at both termination and follow-up when compared to CBT-Eb. "Analyses indicated that severity of affective and interpersonal problems moderated treatment condition response" (Thompson-Brenner et

al., p. 46). They further suggested, "higher treatment effect associated with focused treatment was especially strong in patients with lower levels of affective and interpersonal problems at baseline, while those patients with more severe affective and interpersonal problems at baseline showed relatively favorable response to broad treatment." Researchers concluded that this research supports CBT-E for patients with both BN and complex comorbidity and that CBT-Eb "appears to be more efficacious for patients with more severe BPD symptoms" (Thompson-Brenner et al., p. 36).

Cognitive-behavioral therapy continues to be regarded as a first-line treatment for BN, as it has been "proven superior to wait list, placebo, medication, and other forms of psychotherapy, with the exception in interpersonal psychotherapy, which was found to be equally effective, but slower in achieving positive effects" (Watson et al., 2016, p. 1). Nonetheless, Thompson-Brenner has reported results of first generation of studies of CBT for BN showing that 40-60% of patients receiving CBT in clinical trials did not achieve remission from BN (Thompson-Brenner et al., 2016). In a recent randomized control, researchers sought to determine whether internet-based CBT (CBT4BN) would increase engagement and decrease dropout compared with face-to-face CBT (CBTF2F) in the treatment of BN (Watson et al., 2016). Researchers examined significant predictors and moderators in analysis of data from a multicenter randomized control trial of CBT4BN and CBTF2F including participants (n=191) 19+ years (98% female). In that trial, trained therapists conducted assessments at baseline, weekly during treatment, mid-treatment, post-treatment, and at 3-, 6-, and 12-month follow-ups. CBT4BN included communication via online chat groups including patients, therapist and group members in a chat room open for 90-minute periods without video or audio. Weekly homework worksheets and performance of daily self-monitoring via the website were required of the participants. The CBTF2F group met the therapist and group members in person and completed weekly homework worksheets and self-monitoring using hard copy. Study found that risk of failure to engage was associated with higher body mass index and a perception of less likely to succeed, while dropout was associated with novelty-seeking, previous CBT experience, less education, and assignment to a non-preferred treatment group. Unlike the expected result of the researchers, the study found that CBT4BN did not decrease failure to engage or dropout compared with CBTF2F. Researchers suggested the need for studies "evaluating clinical strategies to enhance retention" in CBT for BN and identifying people at high risk of failure to engage and drop out of treatment" (Watson et al., 2016).

Prior studies have suggested that both CBT and FBT are effective in the treatment of adolescent bulimia nervosa. In a recent randomized clinical trial, researchers compared the efficacy of cognitive behavioral therapy adapted for adolescents (CBT-A) and family based treatment (FBT-BN) (Le Grange et al., 2015). Adolescents (n=131) with BN were randomized to CBT-A, FBT-BN, or non-specific treatment (SPT), and outcomes, of which the primary outcome was abstinence from binge eating and purging for 4 weeks prior to assessment, were assessed at baseline, end of 6-month treatment, and 6- and 12-month post-treatment. To promote behavioral change, FBT-BN engaged the adolescent and parents in a more collaborative relationship; the emphasis was more on parental control and management of eating disorder behaviors without emphasis on cognitions related to

shape and weight. CBT-A, primarily an individual therapy, included emphasis on therapeutic alliance, elicitation of support of treatment from parents, while focusing on changing cognitions concerned with shape and weight. SPT was non-directive in nature and was an exploratory comparison only. Results showed that abstinence rates of binge eating and purging were 39.4% and 19.7% (difference of 19.7%) for FBT-BN and CBT-A, respectively, at end of treatment. At 6-month follow-up, abstinence rates were 44.0% and 25.4% (difference of 18.5%) for FBT-BN and CBT-A, respectively. At 12-month follow-up, the abstinence rate difference between the two treatments was statistically insignificant. The Beck Depression Inventory (BDI) showed individuals receiving FBT-BN had lower BDI scores at end of treatment than the group receiving CBT-A. Lower conflict Family Environment Scale (FES) scores responded better to FBT-BN than to CBT-A, whereas in families with higher FES scores, there was no difference between the two treatments. Researchers concluded that although abstinence occurs more rapidly in FBT-BN and with fewer hospitalizations, both treatments are viable treatment options for adolescents with bulimia nervosa (Le Grange et al., 2015).

Authors considered the integration of family-based treatment and dialectical behavior therapy for adolescent bulimia nervosa in an article referencing studies of the treatment of BN (Anderson et al., 2015). Authors discussed how dialectical behavior therapy (DBT) and family-based treatment (FBT), both of which have been applied in the treatment of BN, complement one another and, in a blended treatment approach, "can address the range of symptoms and behaviors typically seen in adolescent BN" (Anderson et al., p. 325). They discussed the complexity of BN etiology, with characteristics of frequent episodes of binge eating/purging, compensatory behaviors, and comorbid complexities. Anderson et al. noted how DBT "does not fully articulate a role for the family in assisting with recovery, and similarly that FBT-BN's primary focus is on regular eating and not emotional regulation" (Anderson et al., p 327). They suggested that integration of DBT and FBT, two distinct clinical approaches, may provide significant advances in current treatments of adolescent BN and indicated the need of controlled trials of this integrated treatment model.

Binge Eating Disorder (BED)

A recent study examined the short- and long-term significance of rapid response, during the first weeks of treatment, to cognitive-behavioral guided self-help (CBT-gsh), interpersonal psychotherapy (IPT), and behavioral weight loss (BWL) in the treatment of binge eating disorders (Hilbert et al., 2015). In this randomized clinical study, adults (n=205) with BED were assigned to one of the treatments over a 24-week period consisting of 16 individual, weekly sessions followed by four sessions at two-week intervals. In this study, rapid response was indicated by decreased binge eating (≥70 %) by the fourth week of treatment. Results showed that rapid responders in CBTgsh had 27.3% greater rates of remission from binge eating than non-rapid responders in CBTgsh 5 to 18 months after treatment. In IPT and BWL, rates of remission did not differ significantly by rapid response, although both rapid and non-rapid responders in IPT, and rapid responders in CBTgsh, had greater remission from binge eating than non-rapid responders in CBTgsh and BWL. Remission was also greater in CBTgsh than in BWL. Authors suggested "the results may

inform a model of evidence-based stepped care to be further investigated" and that "monitoring rapid response may offer the advantage of identifying CBTgsh patients early who are not likely to benefit from this treatment in order to offer an alternative treatment (Hilbert et al., p. 7).

The most strongly supported treatments for BED are CBT and IPT, although they do not produce weight loss; BWL produces modest weight loss over the short-term while achieving good outcomes for BED (Grilo, 2017). Grilo discussed the two predictors of treatment outcomes, i.e., presence of overvaluation of body shape and weight, and occurrence of rapid response to treatment. He suggested, "Clinicians should train to provide patients with evidence-supported psychological and behavioral treatments and follow these intervention protocols faithfully to increase the chances of good outcomes" (Grilo, p. 1).

A recent study, using data from a large, multicenter randomized controlled trial of outpatient group CBT (gCBT) for adults with BED, sought to identify whether group dynamics early in treatment resulted in improved BED symptomatology at end of treatment and at follow-up (Pisetsky et al., 2015). Another quest was to determine whether group dynamics were associated with treatment retention and whether "group cohesion may actually be greater in self-help groups than therapist-led groups" (Pisetsky et al., p.76). In the randomized trial, participants (n=190) were randomized to one of these conditions: wait list, self-help treatment group, therapist-assisted treatment group, or therapist-led treatment group. Treatment occurred over 20 weeks with the active treatment groups receiving identical content; only the level of therapist involvement differed. Outcome measures included Group Attitude Scale (GAS); Group Climate Questionnaire – Short Form (GCQ); and Eating Disorder Examination (EDE). Results of the study found stronger engagement at session two associated with lower EDE Global score (greater improvements in global eating disorder psychopathology) at 12 month follow-up and greater reductions in binge eating frequency at 12 month follow-up associated with more positive group attitudes. The results also suggested that adherence to self-monitoring during the entire treatment period was associated with treatment outcomes. Additionally, researchers noted, "This study found participants with BED reported high positive group attitudes and engagement in three delivery methods of gCBT including self-help, therapist-led, and therapist-assisted groups, and that the variables did not differ across delivery methods" (Pisetsky et al., p.78).

The evidence base for pharmacotherapy in the treatment of BED remains limited (Reas and Grilo, 2015). A medication, Vyvanse (lisdexamfetamine dimesylate), has won approval for treating moderate to severe BED by the FDA in the treatment of this disorder (FDA, 2015). The FDA approved this drug in 2007 to treat ADHD in patients ages 6 and older (FDA, 2015). The FDA News Release reported results of two clinical studies including adults (n=724) with moderate-to-severe BED. The studies showed that participants taking Vyvanse had decreased number of binge eating days per week and fewer obsessive-compulsive binge eating disorders compared to participants receiving placebo. Serious risks associated with the medication are psychiatric problems and heart complications; it

may also cause psychotic or manic symptoms. Vyvanse labeling also warns that CNS stimulants have high potential for both abuse and dependence. The FDA has not approved or recommended Vyvanse for weight loss (FDA, 2015).

In two multicenter, double-blind, placebo-controlled trials, lisdexamfetamine dimesylate (LDX) was evaluated in terms of both efficacy and safety (McElroy et al., 2016). Participants (n=773) ages 18 to 55 were randomized to dose-optimized LDX (50 or 70 mg/day) dose titration or placebo during the 12-week treatment period. The LDX group showed statistically significant reductions in binge eating days/week, and greater response on outcomes, i.e., global improvement in BED pathology, 4-week cessation of binge eating at endpoint, BED-related obsessive and compulsive psychopathology, relative to placebo. Additionally, a significantly greater percent weight gain was associated with LDX compared to placebo. Researchers cautioned that these studies were limited in that participants were mainly female, white, overweight, and with no current psychiatric comorbidities. These studies were of a short-term nature, precluding extrapolations to long-term efficacy. McElroy et al indicated that although LDS may be an effective pharmacotherapy for BED, further long-term studies are needed (McElroy et al., 2016).

In an overview of pharmacotherapy for BED, authors focused on 22 randomized clinical trials that tested pharmacotherapy (antidepressant medications, antiepileptic medications, anti-obesity medications, stimulant medications, and other medications) as monotherapy or combined with psychological-behavioral methods (Reas and Grilo, 2015). The primary outcome measure was binge eating with weight loss (not a core criterion of BED), the secondary outcome measure. Authors noted that although BED is "more prevalent than the two other formal eating disorders combined and is associated strongly with obesity, with heightened risk for psychiatric and medical comorbidities, and functional impairment in the U.S. and worldwide," limited number of randomized controlled trials have been performed and published for BED (REAS and Grilo, p. 1468). Results of the 22 randomized controlled trials including participants (n=2001) with BED showed that the majority of patients do not achieve abstinence from binge eating. Most of them report little weight loss over the short term. Studies do not report longer-term effects of medications for BED, and authors reported that the little available data shows that relapse occurs following discontinuation. They indicated that improved binge eating outcomes are greater for psychological interventions, e.g., CBT, and combination of medication with CBT/behavioral interventions, compared to pharmacotherapy alone. However, they also noted that the combination of medications with CBT/behavioral interventions do not significantly improve binge-eating outcomes. Specific medications, e.g., topiramate and orlistat) may be associated with modest weight loss. Authors emphasized the need for studies that consider treatment for obesity and view weight control as an ongoing treatment need. In closing, they stated, "For example, four new anti-obesity medications (phentermine/topiramate, lorcaserin, naltrexone/bupropion, and liraglutide) have been recently approved by the FDA for the treatment of obesity but none has been tested for BED" (REAS and Grilo, p. 1468).

A summary of findings of a later overview of 11 published randomized controlled trials testing combination treatments for BED follows (Grilo et al., 2016):

- Lack of evidence suggesting an advantage for adding antidepressant medications to either CBT or BWL;
- Addition of anti-obesity medications to CBT or BWL showed little advantage; certain medications, i.e., orlistat, were associated with significantly greater weight loss than addition of placebo; orlistat may promote weight loss in BED with hypocaloric diets;
- Topiramate with 21 weeks of CBT resulted in significantly greater binge eating abstinence rates compared to placebo with CBT; topiramate added to CBT was not associated with significantly greater reductions in binge eating frequency, eating disorder pathology, or depression; and
- BWL may be effective for BED with the advantage of producing weight loss over short to intermediate term.

Authors concluded, "The empirical base regarding treatment for BED remains limited" (Grilo et al., 2016).

Summary

The above sections include brief discussion of the results of several recent studies examining the effectiveness of various treatments for eating disorders. In some cases, evidence is both limited and low quality, suggesting the need for additional large, multicenter randomized controlled trials of commonly used treatments in adolescents and children with eating disorders.

The American Academy of Child & Adolescent Psychiatry's *Practice Parameter for the Assessment and Treatment of Children and Adolescents with Eating Disorders* provides an **evidence-based approach** to evaluating and treating eating disorders in children and adolescents (Lock et al., 2015). Although designed for child psychiatrists, the Practice Parameter also provides information useful for other medical and mental health professionals collaborate with child psychiatrists. Recommendations from the Practice Parameter related to all eating disorders follow (Lock et al., 2015):

- Mental health clinicians screen all children and adolescent patients with eating disorders;
- Follow a positive screening with a comprehensive diagnostic evaluation (including laboratory tests and imaging studies);
- Treat severe acute physical signs and medical complications;
- Consider psychiatric hospitalization, day programs, partial hospitalization programs, and residential programs only when outpatient interventions have been unsuccessful or are unavailable;
- A multidisciplinary team that is developmentally aware, sensitive, and skilled in the care of children and adolescents with eating disorders treats eating disorder in youth;

- Initial treatment of choice for children and adolescents with eating disorders is outpatient psychosocial interventions; and
- Reserve use of medications, including complementary and alternative medications, for comorbid conditions and refractory cases.

Information specifically related to treatment for child and adolescent eating disorders is included in the *Practice Parameter for the Assessment and Treatment of Children and Adolescents with Eating Disorders.* A summary follows:

Family-based treatment (FBT) – Randomized controlled trials have supported efficacy of this treatment for treating *AN* and trials support usefulness of FBT for *BN.* Parental management of eating and related behavior continues until adolescent shows improvement (Lock et al., 2015).

Adolescent-focused treatment – Randomized controlled trials have shown that adolescent-focused therapy, i.e., individual therapy that targets autonomy and self-efficacy in the context of adolescent development, performs worse than FBT for *AN* while still effective. It is useful for adolescents when FBT is not feasible (Lock et al., 2015).

Cognitive-behavioral therapy (CBT) – In a randomized controlled trial and a case series for adolescents with *BN,* this individually focused therapy targeting adolescent management of behaviors and distorted cognitions may be appropriate treatment of adolescents with *BN* (Lock et al., 2015).

Interpersonal psychotherapy (IPT) – Randomized controlled trials in adults with *BN* and *binge eating disorders* (BED) have shown support for the use of IPT in the treatment of these disorders, and preliminary studies have suggested IPT may be useful for adolescents with *BED*. IPT may be useful as an alternative to CPT in patients with *BN* and binge eating disorder. This treatment focuses on changing problematic interpersonal relationships triggering or maintaining symptoms of eating disorders (Lock et al., 2015).

Antidepressants – Antidepressants target symptoms of depression, anxiety, and obsessionality in *AN* and *BN*; they also treat binge eating and purging in *BN*. An uncontrolled trial has suggested that antidepressants may be helpful for treating *BN*; they may also be useful for treating comorbid disorders and as a second-line treatment in adolescent *BN* (Lock et al., 2015).

Atypical Antipsychotics – Atypical antipsychotics treat distortions of body image, fears of weight gain, and anxiety related to *AN*. Randomized trials and case series have provided insufficient evidence to suggest efficacy for use in treatment of *AN*. However, they may be useful in the treatment of comorbid conditions. More studies are needed to determine efficacy in treatment of core symptoms of *AN* (Lock et al., 2015).

Introduction

First Ever Eating Disorder Legislation December 2016

A piece of federal legislation, the 21st Century Cures and Mental Health Reform Package, was passed by Congress in December 2016 and is the first ever eating disorder legislation (Eating Disorders Coalition, 2016). The legislation clarifies existing mental health parity law to improve health insurance coverage for eating disorders, and includes plans to better educate health professionals and the general public on early identification of eating disorders.

Epidemiology

Although eating disorders are not very common in the population as a whole, morbidity is high and eating disorders' mortality rate is the highest of any psychiatric diagnoses (Green et al., 2016; Claudino et al., 2015). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the twelve-month prevalence of *anorexia nervosa* among young females is approximately 0.4%, much more common in females than in males, with a female to male ratio of 10:1 (APA, 2013). The prevalence of subthreshold anorexia nervosa is estimated to be 1.5% and 0.1% in adolescent females and males, respectively (Lock et al., 2015). Some studies have suggested that the disorder is less common among persons of African origin (Lock et al., 2015). The twelve-month prevalence of *bulimia nervosa* (BN) among young females is approximately 1% to 1.5%, also more common in females than in males, with a female to male ratio of 10:1 (APA, 2013). According to Lock et al., diagnosis of BN in children and adolescents is rare, although older patients have indicated that onset began in adolescence (Lock et al., 2015). The twelve-month prevalence of *binge eating disorder* in adult females and males is 1.6% and 0.8%, respectively, with a far less skewed gender ratio (APA, 2013). Lock et al. reported that this disorder is the most common eating disorder, and that it affects 3.5% of females and 2% of males among adults, with rates in children and adolescents estimated at 2.3% in adolescent females and 0.8% in adolescent males. Lock et al. reported that there are no epidemiological studies available for the diagnosis of *avoidant restrictive food intake disorder*. In a recent review of literature, Mitchison and Mond focused on the prevalence of eating disorders in males, not by conducting a systematic review of epidemiological studies of eating disorders in males due to the "relative infancy of epidemiological studies of eating disorders in males, but by focusing on functional impairment and help-seeking behavior" (Mitchison and Mond, 2015).

The Mitchison and Mond study reported that eating disorders are often not included in national mental health surveys due to low population prevalence, and when considered, only anorexia nervosa and/or bulimia nervosa are usually included (Mitchison and Mond, 2015). The majority of eating disorder cases in males are in binge eating disorders. Authors suggest that eating disorders have been, historically, conceptualized as occurring in young

females and that "although we are currently in a climate of increased appreciation of eating and body image problems in males, our methods of identification, assessment, classification, and treatment are yet to catch up" (Mitchison and Mond, p. 2). Authors reported studies showing that extreme dietary restriction and purging increased at a faster rate in males between 1998 and 2008 than in females during the same period. They also noted that some authorities have suggested the classification of muscle dysmorphia, currently classified with the Obsessive Compulsive and Related Disorders section of DSM-5, as an eating disorder (seeking muscularity as opposed to seeking thinness), especially as muscle dysmorphia is associated with symptoms of eating disorder. Authors further noted that higher levels of psychopathology, psychosocial impairment, and suicide risk are associated with muscle dysmorphia than in other forms of body dysmorphic disorder. Authors concluded, "The prevalence of binge eating may be nearly as high in males as in females and the prevalence of extreme weight control behavior, such as extreme dietary restriction and purging, may be increasing more rapidly in males than females" (Mitchison and Mond, p. 7). They suggested that future epidemiological studies should include more males and male-relevant variables, and that research should focus on behaviors, rather than on diagnoses.

Recent epidemiological data/trending on eating disorders in the United States have been published since the release of the APA guideline. According to the American Academy of Pediatrics (AAP) *Clinical Report – Identification and Management of Eating Disorders in Children and Adolescent*s, "The epidemiology of eating disorders has gradually changed; there is an increasing prevalence of eating disorders in males and minority populations in the United States as well as in countries in which eating disorders had not been commonly seen. Of particular concern is the increasing prevalence of eating disorders at progressively younger ages. A recent analysis by the Agency for Healthcare Research and Quality revealed that from 1999 to 2006, hospitalizations for eating disorders increased most sharply – 119 percent for children younger than aged 12 years" (Rosen and the Committee on Adolescence, 2010, p. 1240).

Other new important information on the determinants of eating disorder symptomatology in adolescents was garnered through a very large epidemiology health survey (n=2,036) conducted in the Portugal school system (Costa et al. 2008). This study concluded that higher body mass index and higher depressive symptomatology were associated with more severe eating disorder symptomatology in both sexes. Additionally, a sex effect on the association between socioeconomic status and eating disorder symptomatology was found. Girls with higher socioeconomic status and boys with lower socioeconomic status presented with more eating disorder symptomatology. These investigators also shared in their report that, "in the previous decade, the prevalence of eating disorders has progressively increased, whereas the severity of observed cases has decreased," signaling a substantial number of subclinical and intermediate forms of dieting and eating concerns (Costa et al. 2008, p. 1126).

A later population-based study examined the prevalence and correlates of eating disorders using data from the National Comorbidity Survey Replication Adolescent Supplement (NCS-A), a large, cross-sectional sample of US adolescents (n=10,123) aged 13 to 18 years

(Swanson et al. 2011). The NCS-A sample was based on both a household sample (n=879) and a school sample (n=9,244). Researchers found lifetime prevalence rates of anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED) of 0.3 percent, 0.9 percent and 1.6 percent respectively. The twelve-month prevalence rates of AN, BN and BED were 0.2 percent, 0.6 percent and 0.9 percent respectively. BN and BED were each more prevalent in girls, but there were no sex differences in the prevalence of AN. However, this study found that subthreshold anorexia nervosa was much more prevalent in girls than boys (15:1 ratio). Investigators explained how these results are different from those previously reported, stating, "The sex ratio for most eating spectrum disorders in this study was generally smaller than that in prior treatment-seeking samples and considerably smaller than the 9:1 ratio stated in the DSM-IV. The lack of a female preponderance of eating disorders could be attributable to either the methods of the present study or a true lack of a sex difference in eating disorders in adolescence. The large female to male ratio for SAN (subthreshold anorexia nervosa) provides one indication that the difference may be genuine. Future analyses will explore possible explanations for sex differences in eating symptoms and disorders." (Swanson SA et al. 2011, page 718). The highest prevalence for BN was shown in Hispanic adolescents, while non-Hispanic white adolescents tended to have highest prevalence of AN. There was also a trend toward ethnic minorities reporting more BED. The majority of adolescents with an eating disorder also met criteria for at least one other lifetime DSM-IV disorder assessed in this study. Social impairment was reported in 88.9 percent of respondents with AN, and almost 20 percent reported severe social impairment associated with their eating or weight problems. A majority of adolescents with eating disorders sought treatment for emotional or behavioral problems, but only a small minority received treatment specifically for eating or weight problems.

In a community sample of adolescent females aged 12 to 15 (n=496) who completed annual diagnostic interviews over 8 years, researchers examined the lifetime prevalence and annual incidence of eating disorders by age 20, finding that the overall lifetime prevalence of any DSM-5 eating disorder by age 20 was 13.1% (Stice et al., 2013). This study also found that adolescents with DSM-5 eating disorders had greater functional impairment, emotional distress, suicidality, and elevated treatment-seeking behavior than participants without an eating disorder. Further, the data showed that atypical/ subthreshold AN, BN, and BED are associated with a similar degree of impairment as threshold AN, BN, and BED. Researchers suggested that the more descriptive diagnoses of atypical/subthreshold AN, BN, and BED, which replaced the DSM-IV classification of eating disorders not otherwise specified (EDNOS), may foster advances in prevention and treatment interventions for these psychiatric conditions. The researchers point out that 13% of female adolescents experiencing an eating disorder during the second decade of life necessitates effective prevention programs as well as screening to identify those needing treatment interventions (Stice et al., 2013).

A study, including two groups of college-aged and college graduate-aged women (n=96) where 57 were white and 21 were African American, and the average age of participants was 30 years, examined how ethnicity affects body image and beauty ideals and how differences in body images affect eating behaviors (Medscape, 2014). Participants

completed a survey focusing on rating images of various body sizes that included the Questionnaire on Eating and Weight Patterns-Revised, the Body Shape Questionnaire, and the Beauty Ideals and Body Image Questionnaire. To answer the question, "How would you like to look in a bikini?" participants selected the heaviest figure they considered still attractive and the thinnest figure considered still attractive. Results showed that the groups differed on rating the thinnest and still attractive and that white women were slightly more dissatisfied with their bodies than were African American women. Additionally, white women were more likely to report binging behavior than were African American women. The researcher noted the need for larger studies examining the impact of racial and cultural differences on eating disorders in order to optimize treatment.

Past studies have established associations between social media use and body dissatisfaction and eating pathology (Mabe et al., 2014). In one such study, including female college students aged 18-19 years (n=960), a small positive correlation was observed between time spent on Facebook and disordered eating for participants in fall and spring semesters. In a recent replication study, researchers randomly assigned women (n=84) to use Facebook or to use an alternate Internet site for 20 minutes to identify associations between Facebook use and disordered eating (Mabe et al., 2014). Researchers examined whether Facebook use causes temporal changes in eating disorder risk factors, e.g., weight/shape concerns and anxiety. Participants were randomized to either a group where they were instructed to log onto their Facebook and spend 20 minutes on the site or to a group where they were instructed to use the Internet for 20 minutes on Wikipedia researching the ocelot and on YouTube watching a preselected ocelot video. Before Internet use, participants completed a demographic survey including questions about age, race, and ethnicity, Visual Analog Scales (measuring level of preoccupation with weight, preoccupation with shape, and urge to exercise), and the State Trait Anxiety Inventory State scale (measuring anxiety). After Internet use, they completed another Visual Analog Scales, the State Trait Anxiety Inventory State scale, and the EAT-26 (eating attitudes test). They also answered questions regarding their Facebook use. Study results showed that greater disordered eating was associated with frequent use of Facebook compared to an alternate Internet activity. Frequent use of Facebook was also associated with the maintenance of weight/shape concerns. Researchers suggested the need for more research to understand the effects of social media in affecting risk for eating disorders (Mabe et al., 2014).

Feeding and Eating Disorders – Changes in the DSM-5

Several changes representing the symptoms and behaviors of patients with eating disorders are included in the DSM-5 released in May 2013 (American Psychiatric Association, 2013). The most substantial of these changes is the recognition of BED as its own category of eating disorder. In the DSM-IV, it was included in the category, "Eating Disorders Not Otherwise Specified" (EDNOS) that was eliminated in DSM-5. The minimum average frequency of binge eating required for diagnosis of BED has been changed in DSM-5 to at least once weekly over three months.

The most significant change for anorexia nervosa is the deletion of the DSM-IV criterion requiring amenorrhea, or the absence of at least three menstrual cycles. In addition to intense fear of gaining weight or of becoming fat, Criterion B now includes persistent behavior interfering with weight gain. DSM-5 criteria for bulimia nervosa reduce the frequency of binge eating and compensatory behaviors from twice a week to once a week for at least three months. Other changes in the feeding and eating disorders chapter of the DSM-5 include the addition of pica, rumination and avoidant/restrictive food intake disorder (ARFID), listed in the DSM-IV among Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence, a chapter that is not included in DSM-5.

The new DSM-5 category replacing EDNOS is Other Specified Feeding or Eating Disorder, which applies to presentations not meeting full criteria for the disorders included in the feeding and eating disorders diagnostic class. The specific reason why the symptoms do not meet the criteria is communicated by the clinician. Another new category, Unspecified Feeding or Eating Disorder, applies to presentations not meeting full criteria for the disorders included in the feeding and eating disorders diagnostic, where the clinician chooses not to specify the reason that the criteria is not met.

Assessment of Eating Disorders in Children and Adolescents

Assessment and diagnosis of feeding and eating disorders in children and adolescents is complex. Although the prevalence of full threshold eating disorders is only approximately 3% among youths, problematic eating behaviors and cognitions, e.g., preoccupation with weight and shape, and loss of control eating, are common in adolescents and children (Walsh et al., 2016). To prevent the onset of full threshold eating disorders, early detection and diagnosis are vital. Measures, e.g., interviews and self-reports, have been developed or adapted from adult measures for this purpose. Walsh et al. recommend assessment of children for diagnostic criteria as well as for subthreshold features. Authors noted that the Eating Disorder Assessment – 5 (EDA-5) is available for assessment of AN, BN, BED, pica, rumination disorder, and ARFID, and that there is a need for research focusing on measurement development to assess diagnostic criteria and categories of eating disorders in children and adolescents (Walsh et al., 2016).

Anorexia Nervosa

A recent study summarized the results of a scoping review of published literature (between 2010 and 2015) on functional magnetic resonance imaging (fMRI) research in anorexia nervosa that investigated brain activation in patients with the disorder (Fuglset et al., 2016). Authors noted the growing body of evidence indicating “that risk for AN is genetically linked with underlying neural networks sustaining the illness” as in other psychiatric illnesses (Fuglset et al., p. 1). This *scoping* review of 49 studies addresses broader topics than a *systematic* review, which is limited to “the best available research on a specific research question” (Fuglset et al., p. 2). These studies involved various paradigms, e.g., body-related stimuli, neuropsychological tests, food-related stimuli, reward, emotions, taste, pain stimulation, social cognition, compulsivity, and self-identify,

and collectivity found altered neural activity across the brain in regions related to the fronto-striato and the limbic circuits. Authors remarked on how the studies demonstrated that altered neural activity was present even in individuals who had recovered from AN, and that scarring effects in the brain may persist. They suggested follow-up studies including long-term recovered individuals, as well as studies investigating how viewing images of bodies that are of various sizes and weight may affect neural activity. Other future studies suggested by authors include those investigating whether neural alterations, common in AN, are also seen in other mental disorders.

A recent study analyzed data obtained from diagnostic interviews, investigator-rated interviews, health surveys, and questionnaires collecting demographic data and clinical history of participants (n=355) with anorexia nervosa who were enrolled in two academic medical center eating disorder programs (Wildes et al., 2016). The data from the assessments, completed within about two weeks of admission to inpatient or partial hospital, were analyzed to characterize population heterogeneity in the severity and chronicity of AN to develop a definition of severe and enduring anorexia nervosa (SE-AN) psychopathology. Authors noted that this is the "first effort to utilize empirical methods to characterize associations among putative indicators of severity and chronicity in eating disorders, with the goal of developing an evidence-based definition of SE-AN" (Wildes et al., p. 6). The analysis found that illness duration and number of hospitalizations vary continuously among individuals with AN, and do *not* distinguish SE-AN. Instead, they documented that *impairment in quality-of-life* differentiates severity profiles in AN. Authors reported a past study (Touyz, 2013) emphasizing quality-of-life as a primary clinical outcome of treatment for SE-AN. In summary, they concluded that a holistic approach to the assessment of severity and chronicity in eating disorders is important, highlighting the importance of quality of life (Wildes et al., 2016).

A recent study examined the impact of parental expressed emotion (EE) on adolescent treatment outcome among families, including adolescents (n=121), primarily females aged 12-18, participating in a larger treatment study for adolescent AN comparing two forms of treatment: family-based therapy (FBT) and individual adolescent-focused therapy (AFT) (Rienecke et al., 2016). In the recent study, assessment at baseline, end of treatment, and 6- and 12-month follow-ups occurred. Families completed the Standardized Clinical Family Interview (SCFI) at baseline, and the Family Assessment Device (FAD), a self-report measure of family functioning, at baseline and at end of treatment. Data analysis included an examination of the relationships between EE and self-reported family functioning. The study found that no main effects of maternal or paternal hostility, emotional over-involvement, positive remarks or warmth on improvement in expected body weight or eating disorder psychopathology, although paternal criticism predicted significantly less improvement in eating disorder psychopathology at end of treatment. For adolescents whose mothers expressed any hostility, however, AFT was associated with greater gains in expected body weight compared with FBT. At the end of treatment, family functioning was better for families whose mother expressed no hostility. Authors suggested that although parental EE did not positively affect weight gain, it may "influence eating-related cognitions

for adolescents with AN, and impact family functioning" (Rienecke et al., p. 11). They suggested future studies to explore effective modification of EE in treatment.

A recent study randomized adolescents (n=45) aged 12–18 with AN to standard family-based therapy (FBT) or to FBT with a novel three-session adaptive intervention, i.e., intensive parental coaching (IPC) (Lock et al., 2015). IPT seeks to enhance parental self-efficacy related to re-feeding skills in children who are poor early responders to FBT by providing *in vivo* coaching. It adds three additional sessions that re-invigorate the family "to make definitive behavioral changes to support weight restoration (Lock et al., p. 5). Authors noted that when adolescents with AN who are treated with FBT do not gain 2.3 kg by the fourth week of treatment, they have a 40-50% lower chance of recovery and greater risk of developing enduring AN than those who gain weight. Not powered to compare treatment effects between the randomized groups, researchers compared weight gain during treatment of early poor responders to a sample of adolescents treated within another randomized controlled trial who did have early response to FBT, but did not receive the intensive parental coaching. Results of this study showed no differences in most clinical outcomes, rates of attrition, and suitability between the randomized groups, but found that full weight restoration by end of treatment in the group of poor early responders who received IPC was similar to that of those who had responded early. Researchers suggested, "Using IPC for poor early responders significantly improves weight recovery rates to levels comparable to those who respond early" (Lock et al., p. 2).

Grave et al. provided an update on recent developments in cognitive behavioral therapy (CBT) for AN in a recent study (Grave et al., 2016). They discussed a "specific" form of CBT, CBT-Enhanced (CBT-E), adapted to focus on eating disorder psychopathology instead of on the diagnosis of eating disorders. Authors reported results of studies investigating the effect of CBT-E in both adults and adolescents with AN. Data from various studies indicated the viability of CBT-E, suggesting that in adolescents, it "seems to be a potential alternative to family-based treatment (FBT)" (Grave et al., 2016, p. 3). Authors reported that 40% and 60% of adults and adolescents, respectively, treated with CBT-E reached and maintained a normal weight range, and in 50% and 80% of adults and adolescents, respectively, the decrease was accompanied by a decrease in eating disorder psychopathology. Authors noted the need for studies comparing the efficacy of CBT-E and FBT in the treatment of adolescents with AN.

A pilot randomized controlled trial examined the use of D-cycloserine facilitated exposure therapy to increase weight gain in participants diagnosed with anorexia and experiencing anxiety during mealtimes (Levinson et al., 2015). Participants (n=36) from a community eating disorder treatment center with a mean age of 25.44 were randomized to receive exposure therapy plus D-cycloserine or plus placebo. All participants completed psychoeducation and four group exposure sessions, including mealtime exposures across two weeks, led by a cognitive behavioral therapist. They were reminded to experience any anxiety they felt (e.g., not perform anxiety-reducing behaviors such as tearing food). Participants received either 250 mg of D-cycloserine prior to the first three sessions of exposure therapy or placebo. Study results showed that participants in the D-cycloserine

group had a greater increase in body mass index (BMI) at the end of the sessions than the participants in the control group. At one-month follow-up, BMI continued to increase for those in the D-cycloserine group whereas it decreased in the placebo group. Researchers suggested that "D-cycloserine increases positive learning during exposure sessions by disruption of the connection between fear and eating, which may then generalize to similar meals complete outside of the exposure sessions" (Levinson et al., p. 7).

Researchers in a new observational study, which utilized a retrospective chart review of patients (n=87) with restrictive eating disorders hospitalized with medical complications of malnutrition, evaluated the safety of a higher calorie nutritional rehabilitation protocol (NRP) than the lower levels recommended by guidelines of the APA and the Academy of Nutrition and Dietetics (Maginot et al., 2017). The guidelines use a more conservative approach to prevent refeeding syndrome and resulting low serum electrolyte levels. Patients began oral nutritional rehabilitation upon admission based on recent dietary history, with initial caloric levels ranging from 1500 to 1800 kcal/day; it was lower (1200 kcal/day) for patients with past extreme dietary restriction. To achieve an overall goal of 1-2 kg of weight gain per week, the daily caloric intake was titrated, increased in increments of 300 kcal/day in the absence of expected body weight (EBW) gain for two days and when a patient had cardiac complications even while meeting weight restoration goals. Patients received three meals (orally) per day and up to three snacks per day in a group setting. Nutrition provided by nasogastic or nasojejunal tubes occurred if a patient had difficulty eating or drinking by mouth, and intravenous fluids provided nutrition in dehydrated patients unable to tolerate oral fluid replacements. Results found that electrolyte abnormalities in this sample were associated more with a lower % EBW on admission than the initial calorie level or rate of increase in caloric intake during treatment. Researchers reported that their data "**suggested** that with every 1% decrease in % EBW on admission, the odds of hypophosphatemia increased by 6%. However, among the subset of severely malnourished patients presenting at <75% EBW, starting at a higher calorie diet was not associated with a higher risk of hypophosphatemia, hypomagnesemia, or hypokalemia" (Maginot et al., p. 8). **Magellan continues to consider an increased caloric inpatient refeeding protocol investigational for the treatment of AN and has determined that large, randomized, controlled, multi-site trials are necessary to address questions of safety and efficacy for refeeding protocols that are more aggressive than those recommended by professional association consensus guidelines** (Magellan Health, 2012).

A recent article discussed anorexia nervosa as a biologically based severe and enduring brain disorder with little to no effective treatments for adults with the disorder (Hill et al., 2016). They described shifting the focus from family and social influences to internal influences integrating genetic and neurobiological contributions. Authors reported genetic studies indicating the role of heredity (50-80%) in the risk of developing the disorder and imaging studies revealing, "common temperament and personality traits related to neural circuit function, which are heavily implicated in the development and maintenance of the disorder" (Hill et al., p. 3). Authors proposed a new anorexia nervosa model reflecting temperament and alterations in brain circuitry to inform and help guide treatment

interventions. Heritable traits identified include harm avoidance, perfectionism, anxiety and inhibition. The treatment approach authors discussed includes both neurobiological research findings and family-based approaches for adults, e.g., CBT or CBT-Enhanced. This new five-day intervention for adults with AN "treats to the trait" by addressing the heritable traits identified above, via "experiential, neurobiologically based activities and playful clinical tools" (Hill et al., p. 8). "It is a neurobiologically informed, interactive, family-based treatment that draws upon the specific etiological traits characterizing anorexia nervosa" (Hill et al., p. 5). Preliminary results of NEW FED TR (Neurobiological research findings Enhanced With Family/Friends of those with Eating Disorders) have shown that adults with AN who received the treatment improved their understanding of the illness, "while better conceptualizing how to respond to their traits and manage their symptoms" (Hill et al., p. 1).

The APA guideline describes limited evidence for the use of medications in restoring weight, preventing relapse or treating chronic anorexia nervosa. It emphasizes that a clinician's decision to use psychotropic medications for weight restoration in a patient with anorexia nervosa (AN) must be based on the patient's individual presentation. The guideline notes that selective serotonin reuptake inhibitors (SSRIs) combined with psychotherapy are widely used in treating anorexia. The guideline also indicates that more research is needed to evaluate the efficacy of the second-generation antipsychotics (SGAs) where initial clinical impressions have suggested that they may be useful in patients with severe, unremitting resistance to gaining weight, severe obsessional thinking and denial of delusional proportions. Regarding this clinical issue, a randomized clinical trial of 34-day hospital patients with anorexia nervosa demonstrated that, compared with placebo, a flexible dose regimen of the SGA, olanzapine (2.5 mg/day to 10 mg/day), resulted in a greater rate of increase in weight, earlier achievement of target body mass index and a greater rate of decrease in obsessive symptoms. Researchers reported that they found no serious adverse side effects, e.g., extrapyramidal symptoms, excessive sleepiness, dizziness or galactorrhea, during weekly medical examinations. Additionally, blood glucose levels randomly tested each week in all patients showed no evidence of impaired glucose tolerance or *de novo* development of diabetes mellitus in any participant (Bissada et al. 2008).

Due to the limitations of the small sample sizes of individual studies showing mixed results, a later meta-analysis of antipsychotic effects in patients with anorexia nervosa was performed (Kishi et al. 2012). Included in this meta-analysis were eight randomized controlled trials including anorexia nervosa patients (n=221) who were randomized to one of five different antipsychotics, i.e., olanzapine, quetiapine, risperidone, pimozide, sulpiride, placebo or usual care. Analysis of the pooled data showed no significant differences between antipsychotics and the comparison groups regarding efficacy outcomes, e.g., body weight, body mass index and psychopathology related to anorexia. Of all the antipsychotics included in the trials, olanzapine was the most weight-gain producing medication, but this result was nonsignificant. The eight trials were all of short duration (≤ 12 weeks); longer-term efficacy and safety data are needed in future studies. The APA Guideline Watch reports that the World Federation of Societies of Biological Psychiatry concluded that

Grade B evidence, i.e., limited positive evidence from controlled studies, supports the use of olanzapine for weight gain.

In a recent study, a meta-analysis was performed on 18 randomized controlled intervention trials investigating the effectiveness of pharmacotherapy in the treatment of adults and adolescents with AN (n=869), with efficacy measured in terms of weight gain or weight restoration (de Vos et al., 2014). This study presented meta-analyses on pharmacotherapy for AN including: antidepressants (fluoxetine, amitriptyline, clomipramine), antipsychotics (olanzapine, sulpiride), and hormonal therapy (dehydroepiandrosterone, nutropin, insulin-like growth factor, recombinant human IGF-I + ovcon, recombinant human growth hormone, risedronate/testosterone, fysiologic estrogen replacement, norgestimate/ethinyl estradiol). Researchers first performed a meta-analysis comparing the three forms of pharmacotherapy with placebo, finding that when grouping all medications together, pharmacotherapy was insignificantly more effective than placebo. Meta-analyses for the three medicines apart showed that in the treatment of AN, hormonal therapy had a significantly larger effect on weight compared to placebo. Researchers pointed out that meta-regression suggested that patients with AN may benefit in the short term with hormonal medicine, but fail to have better recovery in the long term. Compared to placebo, antidepressants and antipsychotics had no significant effect on weight. Researchers suggested that clinicians consider not only weight, but also a broader definition of improvement related to treatment of patients with AN (de Vos et al., 2014).

The APA guideline indicates that for children and adolescents, evidence supports that family treatment is the most-effective intervention. The guideline also emphasizes that for some outpatients, a short-term course of family therapy may be as effective as a long-term course if patients do not have severe obsessive-compulsive features or non-intact families. The efficacy of family therapy for adolescent anorexia was analyzed in a five-year follow-up of 40 patients in the United Kingdom who received either conjoint family therapy (CFT) or separated family therapy (SFT) – i.e., where the adolescent was seen individually and the parents attending separate sessions with the same therapist. Their analysis showed that overall there was little to distinguish the two treatments at five years, with more than 75 percent of subjects having no eating disorders symptoms. Other findings showed no deaths in the cohort and only 8 percent of those who had achieved a healthy weight by the end of treatment reported any relapse. Researchers suggested that those patients who respond well to outpatient family therapy generally stay well (Eisler et al. 2007).

The APA guideline also indicates that cognitive-behavioral, interpersonal and psychodynamic approaches, or a combination of these approaches, have the most evidence and consensus for use in the treatment of adults with anorexia. In addition, the APA guideline suggests that individual psychotherapy may be required for at least one year or many more, due to the enduring nature of the illness and the need for support during recovery. A more recent clinical trial was conducted to evaluate the relative efficacy of family-based treatment (FBT) versus adolescent-focused individual therapy (AFT) for adolescents with anorexia nervosa. Therapy sessions occurred in 24 outpatient hours over 12 months (Lock et al. 2010). The FBT modality was designed to focus on several goals: 1)

helping parents not feel responsible for causing the disorder, 2) reinforcing positive aspects of parenting, 3) developing family strategies for weight restoration in the child with anorexia, 4) transitioning weight and eating control back to the child and 5) establishing a new and healthy adolescent relationship with the parents. The AFT modality was based on the theory that individuals with anorexia manifest ego deficits and confuse self-control with biological needs. This intervention was designed to help patients learn to identify/define their emotions and to tolerate them, rather than using starvation as a mechanism to numb the affective states. Both treatments led to considerable improvement and were similarly effective in producing full remission at the end of treatment. However, at both the six- and 12- month follow-up, FBT was significantly superior to AFT in facilitating full remission (Lock et al. 2010).

In a later two-site study, investigators examined moderators, mediators and predictors of remission for adolescents with anorexia nervosa (n=121) who participated in the above trial of FBT vs. AFT (Le Grange et al. 2012). Eating-related obsessionality and eating disorder-specific psychopathology were identified as moderators at end of treatment. Adolescents with higher levels of eating psychopathology and eating related obsessionality benefitted more from FBT than from AFT, and no mediators of treatment outcome were identified. Prior hospitalization, older age and duration of illness were identified as non-specific predictors of outcome. Investigators concluded that these exploratory findings may provide a rationale for examining treatment effects on outcomes for patients with different levels of eating-related psychopathology in future studies.

The Anorexia Nervosa Treatment of Outpatients (ANTOP) study, a multicenter, randomized controlled efficacy trial in adults with AN, assessed the efficacy and safety of two outpatient treatments for AN: focal psychodynamic therapy and enhanced cognitive behavior therapy (Zipfel et al., 2014). Adults with AN (n=242) were randomized to treatment over 10 months with either focal psychodynamic therapy, enhanced cognitive behavior therapy, or optimized treatment as usual including outpatient psychotherapy and structured care from a family doctor. Focal psychodynamic therapy focused on therapeutic alliance and attitudes/behavior viewed as acceptable, self-esteem, association between interpersonal relationships and eating behavior, and anticipation of treatment termination. Enhanced cognitive behavior included cognitive restructuring, mood regulation, social skills, shape concern, and self-esteem with enhancement of self-efficacy and self-monitoring as crucial elements of the treatment process. Optimized treatment as usual consisted of support in accessing therapy and included patients' family doctors who took weight measurements and did blood tests. Hospital admissions occurred when body mass index fell below 14 $kg/m^{2.}$ Body mass index (BMI) increased in all treatment groups from baseline to 12-month follow-up with no significant difference in weight gain between the groups. Focal psychodynamic therapy was most effective at 12-month follow-up with respect to global outcome measures (mean weight, BMI, and comorbidities), while enhanced cognitive behavior therapy was more effective with respect to the speed of weight gain and improvements in eating disorder psychopathology (Structured Interview for Anorexic and Bulimic Disorders [SIAB-EX total scores]). Researchers concluded that this study provides evidence supporting the use of manual-based interventions, and that optimized treatment

as usual combining psychotherapy and structured care from a family doctor be regarded as a solid baseline treatment for adult outpatients with AN (Zipfel et al., 2014).

Dahlgren and Rø discussed a relatively new remediation therapy for AN: cognitive remediation therapy (CRT). This interactive treatment, an addition to treatment as usual and specifically tailored to improve cognitive flexibility and central coherence, encourages patients to reflect on their styles of thinking to enhance the neurocognitive skills relevant to overall recovery goals (Dahlgren and Rø, 2014). Researchers systematically reviewed 21 studies exploring CRT in adults and adolescents: three single case studies, each including a single, adult female inpatient aged 21, 31 and 41; 14 case series with great variety among them, including ages from 13 to adult, resulting in difficulty in comparisons and generalizations of results; and four randomized controlled trials including adults. Some specific results from single case studies demonstrated the CRT resulted in cognitive set-shifting while the case series showed improvement in cognitive performance. Results from the randomized controlled trials found CRT effective in improving neurocognitive function and enhancing the effectiveness of concurrent treatment. Based on their review, researchers concluded that evidence suggests the intervention is effective in "reducing attrition, enhancing the efficacy of concurrent treatment, improving cognitive set-shifting and quality of life, and reducing eating disorder psychopathology" (Dahlgren and Rø, 2014, page 9). They suggested future studies focusing on the long-term effects of CRT, influence of comorbidity, effectiveness of CRT for adolescents, transdiagnostic versions of CRT in larger samples, and family CRT as treatment for young girls with AN (Dahlgren and Rø, 2014).

The APA guideline suggests that hospital-based programs for nutritional rehabilitation should be considered for children and adolescents who are markedly underweight and whose weight has deviated below their growth curve. It emphasizes that refeeding programs be implemented in nurturing emotional contexts. The guideline cautions that when severely malnourished patients undergo aggressive oral, nasogastric or parenteral refeeding, complications of nutritional rehabilitation, particularly the refeeding syndrome, can occur. This condition includes the occurrence of electrolyte abnormalities, e.g., hypophosphatemia, hypokalemia and hypomagnesemia (Kohn et al. 2011). More severe forms of refeeding syndrome can result in fluid retention and cardiovascular, pulmonary, neurologic and hematologic manifestations (Magellan Health: Technology Assessment Report 2012). Professional associations, i.e., American Dietetic Association (ADA), American Psychiatric Association, American Academy of Pediatrics (AAP), Society for Adolescent Medicine, United Kingdom National Institute for Clinical Excellence (NICE), and the Royal Australian and New Zealand College of Psychiatrists (RANZCP), have published clinical refeeding recommendations. These include conservative initial rates of refeeding with close monitoring of weight, vital signs, fluid shifts and serum electrolytes to avoid refeeding syndrome. Gradual increases in caloric prescription and oral multivitamin/ mineral supplements are also recommendations. Short-term use of nasogastric feeding is recommended in severe malnutrition cases.

The APA recommends a conservative feeding approach with caloric intake levels starting at 30-40 kcal/kg per day (approximately 1000 to 1600 kcal/day), increasing gradually during the weight gain phase. Other professional associations named above also recommend conservative refeeding approaches at the inpatient level of care where the patient's weight is more than 30 percent below the ideal body weight. The "start low, advance slow" dictum includes the following principles: 1) total energy expenditure (TEE) should never exceed twice the basal energy expenditure (BEE), 2) caloric intake should rarely exceed 70-80 kcal per kilogram of body weight, 3) a diet of 20-25 kcal per kilogram should be initiated for severely anorexic patients, 4) protein intake should not exceed 1.5-1.7 grams per kilogram of body weight, 5) carbohydrate intake should not exceed 7 mg/kg/minute when parental nutrition (TPN) or enteral feedings are used and 6) weight gain should be in the range of 2-3 pounds per week (Mehler et al. 2010).

Some researchers are now challenging the "start low, advance slow" approach, and aggressive refeeding clinical protocols are being developed and investigated. One study reported initial refeeding in 300 adolescents with anorexia nervosa using continuous nasogastric tube feedings with caloric intake levels starting at a minimum of 2000 kcal/day, graduating to intermittent daily oral feeds with phosphate supplementation (Kohn et al. 2011). No difficulties in reestablishing an oral diet were reported and weight gain in the first week was >2.1 kg.

In another study, 30 out of 33 hospitalized patients with severe anorexia nervosa and an initial body mass index (BMI) ≤ 12 kg/m^2 received nutritional support with temporary nasogastric feeding while the other three patients received oral supplementation (Gentile et al. 2010). During refeeding, vitamins, potassium and phosphate supplements were administered. The amount of calories from enteral feeding plus glucose infusion was 28.5 ± 9.5 kcal/BW/day at 0 day, 38 ± 14 kcal/BW/day at 30 days, and 32 ± 11 kcl/BW/day after 60 days of refeeding treatment. Estimated amount of calories from oral diet was 14 ± 11 kcl/BW/day at 0 day, 32 ± 12 kcl/BW/day at 30 days, and 40 ± 8 kcal/BW/day at 60 days. None of the patients developed refeeding syndrome and the mean BMI and mean body weight increased from 11.3 ± 0.7 kg/m^2 to 13.5 ± 1 kg/m^2 and from 29.1 ± 3.2 kg to 34.5 ± 3.3 kg respectively after 60 days of intensive inpatient treatments.

A one-year retrospective chart review of 46 hospitalized patients (29 adolescents) with anorexia nervosa was undertaken to determine the incidence of hypophosphatemia (HP) in 12 to 18 year-old inpatients receiving aggressive refeeding treatment (Whitelaw et al. 2010). Results showed that 61 percent of admissions commenced on 1,900 kcal (8,000 kJ) and 28 percent on 2.200 kcal (9,300 kJ). Three patients commenced on rehydration therapy and one on 1,400 kcal (6,000kJ) as they were deemed at high risk for refeeding syndrome. None of the patients developed moderate or severe HP, although 37 percent developed mild HP.

An observational study by Garber et al. (2010) evaluated the daily weight trajectory of 35 hospitalized adolescents with anorexia nervosa, based on a recommended (conservative) refeeding protocol. A wide range of diets was prescribed at baseline from 800-2,200

calories, where 94 percent of patients were started on ≤ 1,400 calories. Mean prescribed calories were 1,205 on day one, and increased to 2,688 calories. Mean weight gain during the 17-day hospital stay was 2.42 kg or .15 kg/d and more than 80 percent of patients initially lost weight. Mean BMI did not increase significantly until day eight of hospitalization. Twenty percent of patients received phosphorus supplementation but there were no other clinical or electrolyte abnormalities noted. Investigators reported that higher calories prescribed at baseline were significantly associated with faster weight gain and shorter hospital stay. Based on this observational study of a very small number of adolescents with anorexia nervosa, investigators concluded that hospitalized adolescents demonstrated weight loss and slow weight gain on recommended (conservative) refeeding protocols in contrast to those prescribed higher caloric diets upon admission. Magellan has determined that large randomized controlled, multi-site trials are necessary to address questions of safety and efficacy for refeeding protocols that are more aggressive than currently recommended by professional association consensus guidelines. Magellan considers increased caloric inpatient refeeding protocols to be investigational for the treatment of anorexia nervosa.

The issue of relapse in anorexia nervosa is discussed only briefly in the APA guideline. An observation put forth in the guideline is that many clinicians who report seeing patients with chronic anorexia do see these patients experience substantial remission after many years of struggling with their disorder. In light of this, relapse in anorexia was an area of clinical study focusing on body composition as a predictor of relapse. A follow-up analysis of 32 weight-recovered subjects with anorexia nervosa from the New York site of the Fluoxetine to Prevent Relapse in Women With Anorexia Nervosa clinical trial and the Energy Homeostasis in Anorexia Nervosa longitudinal study, examined the effect of percent body fat, body mass index (BMI), anorexia nervosa subtype, waist-to-hip ratio, and serum cortisol and leptin levels on treatment outcome. Findings revealed that percent body fat at the time of hospital discharge was the only clinical variable significantly associated with treatment outcome– i.e., lower percent body fat was associated with poorer long-term outcome. Investigators indicated that, while additional data linking percent body fat as a risk factor for relapse is necessary, their findings suggested that increased body fat may be protective against relapse (Mayer et al. 2007).

A recent study examined relapse and remission rates in a convenience sample of a subgroup from an original cohort of adolescents ages 12 to 18 with AN (n=121) who completed a randomized clinical trial comparing family-based therapy (FBT) with adolescent-focused individual therapy (AFT) (Le Grange et al., 2014). Remission was defined as "≥ 95% EBW for age, height, and gender, and a global Eating Disorder Examination (EDE) score within 1 SD of the community mean of 1.54 for adolescents" (Le Grange et al., p 1163). In this exploratory study, follow-up data at 2, 3, and 4 years post-treatment was assessed for participants (n=79) in the convenience sample. One-year follow-up data were available for 93 of the original cohort. Out of the 33 participants who had achieved full remission at 1-year post-treatment, 26 participants were assessed on average 2.68 years later and only 2 participants relapsed showing no significant main effect of treatment type. LeGrange et al. related this result to their hypothesis about the stability

of remission (i.e., once achieved, it was stable regardless of treatment type). Out of the 66 participants who had not achieved full remission at 1-year post-treatment, 44 participants were assessed on average 2.49 years after 1-year follow-up and 10 participants achieved remission for the first time. Again, these results showed no significant main effects for treatment type. Researchers note that new remissions were few during the follow-up period, suggesting the need for future research investigating ways to enhance outcomes. They also stressed the importance of early and effective interventions for adolescents with AN (Le Grange et al., 2014).

Bulimia Nervosa

Thompson-Brenner et al. have discussed an association between outcomes for patients with BN and two co-occurring problems: mood intolerance and interpersonal problems (Thompson-Brenner, et al., 2016). In a randomized study, patients (n=50) with BN and borderline personality disorder, and current or recent mood or anxiety disorders, were assigned to receive either broad or focused protocols of enhanced CBT (Thompson-Brenner, et al., 2016). Broad CBT (CBT-Eb) includes modules addressing co-occurring problems that interfere with treatment response, while focused CBT (CBT-Ef) includes interventions related to concerns with weight and shape. Analysis of data from this study found substantial improvement in both eating disorder symptoms and associated psychopathology across the entire sample. Remission from objective binge eating and purging at termination occurred at the rate of 42% of those who began treatment and 53% of those who completed treatment, with no significant differences between groups. Results were similar for remission from objective binge eating and purging at follow-up: 41.2% of all participants reported remission from binge eating and purging at follow-up, again with no significant differences between groups. However, multivariate analyses suggested that CBT-Ef was associated with better eating disorder outcomes at both termination and follow-up when compared to CBT-Eb. "Analyses indicated that severity of affective and interpersonal problems moderated treatment condition response" (Thompson-Brenner et al., p. 46). They further suggested, "higher treatment effect associated with focused treatment was especially strong in patients with lower levels of affective and interpersonal problems at baseline, while those patients with more severe affective and interpersonal problems at baseline showed relatively favorable response to broad treatment." Researchers concluded that this research supports CBT-E for patients with both BN and complex comorbidity and that CBT-Eb "appears to be more efficacious for patients with more severe BPD symptoms" (Thompson-Brenner et al., p. 36).

Cognitive-behavioral therapy continues to be regarded as a first-line treatment for BN, as it has been "proven superior to wait list, placebo, medication, and other forms of psychotherapy, with the exception in interpersonal psychotherapy, which was found to be equally effective, but slower in achieving positive effects" (Watson et al., 2016, p. 1). Nonetheless, Thompson-Brenner has reported results of first generation of studies of CBT for BN showing that 40-60% of patients receiving CBT in clinical trials did not achieve remission from BN (Thompson-Brenner et al., 2016). In a recent randomized control, researchers sought to determine whether internet-based CBT (CBT4BN) would increase

engagement and decrease dropout compared with face-to-face CBT (CBTF2F) in the treatment of BN (Watson et al., 2016). Researchers examined significant predictors and moderators in analysis of data from a multicenter randomized control trial of CBT4BN and CBTF2F including participants (n=191) 19+ years (98% female). In that trial, trained therapists conducted assessments at baseline, weekly during treatment, mid-treatment, post-treatment, and at 3-, 6-, and 12-month follow-ups. CBT4BN included communication via online chat groups including patients, therapist and group members in a chat room open for 90-minute periods without video or audio. Weekly homework worksheets and performance of daily self-monitoring via the website were required of the participants. The CBTF2F group met the therapist and group members in person and completed weekly homework worksheets and self-monitoring using hard copy. Study found that risk of failure to engage was associated with higher body mass index and a perception of less likely to succeed, while dropout was associated with novelty-seeking, previous CBT experience, less education, and assignment to a non-preferred treatment group. Unlike the expected result of the researchers, the study found that CBT4BN did not decrease failure to engage or dropout compared with CBTF2F. Researchers suggested the need for studies "evaluating clinical strategies to enhance retention" in CBT for BN and identifying people at high risk of failure to engage and drop out of treatment" (Watson et al., 2016).

Prior studies have suggested that both CBT and FBT are effective in the treatment of adolescent bulimia nervosa. In a recent randomized clinical trial, researchers compared the efficacy of cognitive behavioral therapy adapted for adolescents (CBT-A) and family based treatment (FBT-BN) (Le Grange et al., 2015). Adolescents (n=131) with BN were randomized to CBT-A, FBT-BN, or non-specific treatment (SPT), and outcomes, of which the primary outcome was abstinence from binge eating and purging for 4 weeks prior to assessment, were assessed at baseline, end of 6-month treatment, and 6- and 12-month post-treatment. To promote behavioral change, FBT-BN engaged the adolescent and parents in a more collaborative relationship; the emphasis was more on parental control and management of eating disorder behaviors without emphasis on cognitions related to shape and weight. CBT-A, primarily an individual therapy, included emphasis on therapeutic alliance, elicitation of support of treatment from parents, while focusing on changing cognitions concerned with shape and weight. SPT was non-directive in nature and was an exploratory comparison only. Results showed that abstinence rates of binge eating and purging were 39.4% and 19.7% (difference of 19.7%) for FBT-BN and CBT-A, respectively, at end of treatment. At 6-month follow-up, abstinence rates were 44.0% and 25.4% (difference of 18.5%) for FBT-BN and CBT-A, respectively. At 12-month follow-up, the abstinence rate difference between the two treatments was statistically insignificant. The Beck Depression Inventory (BDI) showed individuals receiving FBT-BN had lower BDI scores at end of treatment than the group receiving CBT-A. Lower conflict Family Environment Scale (FES) scores responded better to FBT-BN than to CBT-A, whereas in families with higher FES scores, there was no difference between the two treatments. Researchers concluded that although abstinence occurs more rapidly in FBT-BN and with fewer hospitalizations, both treatments are viable treatment options for adolescents with bulimia nervosa (Le Grange et al., 2015).

Authors considered the integration of family-based treatment and dialectical behavior therapy for adolescent bulimia nervosa in an article referencing studies of the treatment of BN (Anderson et al., 2015). Authors discussed how dialectical behavior therapy (DBT) and family-based treatment (FBT), both of which have been applied in the treatment of BN, complement one another and, in a blended treatment approach, "can address the range of symptoms and behaviors typically seen in adolescent BN" (Anderson et al., p. 325). They discussed the complexity of BN etiology, with characteristics of frequent episodes of binge eating/purging, compensatory behaviors, and comorbid complexities. Anderson et al. noted how DBT "does not fully articulate a role for the family in assisting with recovery, and similarly that FBT-BN's primary focus is on regular eating and not emotional regulation" (Anderson et al., p 327). They suggested that integration of DBT and FBT, two distinct clinical approaches, may provide significant advances in current treatments of adolescent BN and indicated the need of controlled trials of this integrated treatment model.

A large systematic review of 47 studies on the efficacy of treatments for bulimia nervosa (BN) was conducted to include studies of medication only, behavioral interventions only, and medication plus behavioral interventions for adults and adolescents. Findings of the review revealed that evidence for medication is strong in the use of fluoxetine (60 mg/day) for reducing core bulimic symptoms. While researchers noted that further studies are needed, preliminary evidence of efficacy exists for other second-generation antidepressants (trazodone and fluvoxamine), an anticonvulsant (topiramate), a tricyclic antidepressant (desipramine) and for a monoamine oxidase inhibitor (MAOI), brofaromine (prescribed with close dietary monitoring) in reducing vomiting in the treatment of bulimia. Similarly, the evidence was strong for the effectiveness of cognitive behavioral therapy (CBT) and interpersonal therapy (IPT) while the data showed promising results for dialectic behavioral therapy (DBT) and guided imagery. However, the supportive evidence for effectiveness of self-help groups was weak. In addition, the authors confirmed that the evidence for combined treatments is weak and that outcome differentiation by socio-demographic factors is nonexistent (Shapiro et al. 2007).

The current APA guideline recommends the use of SSRIs for treatment of bulimia and indicates they may be helpful for depression, anxiety, obsessions, certain impulse disorder symptoms, and for those patients with a suboptimal response to appropriate psychosocial therapy. The APA Guideline Watch cites findings from a later systematic review including 36 randomized, controlled trials of medications for the treatment of bulimia nervosa. Aigner et al. recommended antidepressants, SSRIs in particular, as an effective part of the initial treatment program for most patients (Aigner et al. 2011). The guideline also specifically cautions prescribers that tricyclic antidepressants (TCAs) should generally be avoided, and their potential lethality and toxicity in overdose should be taken into consideration. Similarly, the guideline cautions that MAOIs should be avoided with chaotic binge eating and purging, and that bupropion should be avoided in patients with bulimia because of seizure risk.

The APA guideline does not address the use of neurostimulation in the treatment of eating disorders. Repetitive Transcranial Magnetic Stimulation (rTMS) has been studied primarily

in the treatment of refractory depression. Researchers have just begun to research rTMS in the treatment of bulimia since it is believed to be often associated with depressive symptoms. It is postulated that there is a shared deficient serotonergic transmission in both syndromes and involvement of the left dorsolateral prefrontal cortex in the regulation of eating behavior (Walpoth et al. 2008). A small, randomized sample of 14 women with bulimia was submitted to sham treatment, followed by either three weeks of active or sham rTMS. Stimulation was delivered for three weeks with an intensity of 120 percent motor threshold using 20 Hz in one session per day. Ten trains of 10 seconds each, with a train interval of 60 seconds between trains, were performed per session. Patients got an amount of 2,000 stimuli per session up to a total of 30,000 stimuli in the actively treated group. Results of this study showed that the average number of binges per day declined significantly between baseline and the end of treatment in both groups. There was also no significant difference between sham and active stimulation, in terms of improvements in purging behavior, and depressive or obsessive-compulsive symptoms – indicative of a placebo effect (Walpoth et al. 2008).

A later randomized, double-blind controlled trial investigated whether rTMS of the left dorsolateral prefrontal cortex reduces food craving in patients with bulimia (n=38). Patients were randomly allocated to receive a single session of real rTMS or sham treatment. Patients in the real rTMS group reported lowered cue-induced food craving than those patients in the sham treatment group after neurostimulation. Compared with sham control, real rTMS was also associated with fewer binge-eating episodes during the 24 hours following stimulation. Investigators suggested the results provide a rationale for further research of rTMS as a treatment for bulimic eating disorders (Van den Eynde et al. 2010).

CBT is recognized in the APA guideline as the most efficacious short-term intervention in the treatment of bulimia when specifically directed at eating disorder symptoms and underlying maladaptive cognitions. The adopted guideline also suggests that psychodynamic and psychoanalytic approaches in individual or group format are useful once binging and purging symptoms have improved. The guideline indicates that family therapy should be considered whenever possible, especially for adolescents still living with parents or for older patients with ongoing conflicted interactions with parents. Additionally, the guideline indicates that support groups and 12-step groups may be helpful adjuncts to the initial treatment of bulimia and for subsequent relapse prevention, but are not recommended as the sole initial treatment approach.

In a recent, randomized controlled trial, researchers compared psychoanalytic psychotherapy and CBT in the treatment of BN (Poulsen et al., 2014). Patients with BN (n=70) received either weekly psychoanalytic psychotherapy over 2 years or 20 sessions of CBT over 5 months. This study aimed to test the efficacy of a longer-term psychoanalytic psychotherapeutic treatment by comparing it with an “enhanced” variant of CBT. An outcome measure, the Eating Disorder Examination interview, was administered at baseline, after 5 months, and after 2 years. Psychoanalytic psychotherapy focused on the therapeutic relationship, involving weekly 50-minute sessions over 2 years that invited the

patient to talk freely. "Enhanced" CBT focused on modifying the patient's eating disorder psychopathology, including twice-weekly sessions for the first 4 weeks, weekly for the next 10 weeks, and every 2 weeks for the remaining weeks. Although both treatments resulted in improvement, the improvement was greater in those receiving CBT. At end of respective periods of treatment, 42% of patients receiving CBT had stopped binge eating and purging compared with 15% of those receiving psychoanalytic psychotherapy. Additionally, the effect of CBT was faster than that of psychoanalytic psychotherapy. At the end of the 5-month assessment point, only 6% of those receiving psychoanalytic psychotherapy had stopped binge eating and purging compared with 42% of those receiving CBT. Researchers noted the most likely reason for the different effects of the two treatments may relate to the differences in approach to bulimic core symptoms, referring to CBT's symptom-focused treatment compared to psychoanalytic psychotherapy designed as a nondirective therapy - not specifically directed at the control of binge eating. They indicated a need for development and testing of a more structured, symptom-focused version of psychoanalytic psychotherapy for BN (Poulsen et al., 2014).

Another study provided evidence that CBT may work faster than other interventions in reducing eating disorder symptoms in patients with BN (Jones and Clausen, 2013). Researchers discussed the challenges of changing unhealthy eating behaviors in patients with BN who are often hesitant to enter treatment and who perceive their maladaptive eating behavior as necessary. They suggest that patients' longer amounts of time exposed to their symptoms and time spent in therapy may lead to increased ambivalence and hopelessness. This study's aim was the evaluation of a brief group CBT program in the treatment of new female patients aged 16 to 38 (n=205) diagnosed with BN. This 8-week program included groups of eight patients in one session per week. The program focused on changing pathological eating behavior while exploring its causes. Weight was evaluated before each session and patients used an eating diary. The outcome measure, the Eating Disorder Examination, was used at initial assessment and at post treatment. Results showed significant reductions in the frequency of the following: binging, self-induced vomiting, use of laxatives, physical exercise, intended restrictive eating. Researchers noted the finding that CBT seemed to reduce concerns with body shape and weight at a lesser extent than eating concerns and suggested that remission of shape and weight concerns are more challenging for the patient. Researchers encouraged future research to examine the optimal duration of psychotherapy in treating individuals with BN (Jones and Clausen, 2013).

Two studies on the effectiveness of family therapy in treating adolescents with bulimia were conducted with mixed results. One clinical trial with 85 study participants conducted in the United Kingdom compared the efficacy and cost-effectiveness of family therapy versus CBT guided self-care. While the study results showed that at six months, binging had undergone a significantly greater reduction in the CBT guided self-care group than in the family therapy group – this difference disappeared at 12 months. There were no other differences between groups in behavioral or attitudinal eating disorder symptoms, but the direct cost of treatment was lower for CBT guided self-care than for family therapy (Schmidt et al. 2007).

Another study of 80 adolescents with bulimia evaluated the relative efficacy of family-based treatment (FBT) and supportive psychotherapy (SPT). In this trial, family therapy showed superior efficacy in that significantly more of these patients were binge-and-purge abstinent at the end of the study and at six months, and showed treatment effects in favor of FBT on all measures of eating pathological features (Le Grange et al. 2007). Researchers in this trial conducted a follow-up analysis of these results, which showed that lower eating concerns, as measured by the Eating Disorder Examination (EDE), are the best predictor of remission for adolescents with bulimia. Additionally, FBT may be most effective in those cases with low levels of eating disorder psychopathology (Le Grange et al. 2008).
Two transdiagnostic CBT modalities designed for patients with eating disorders, i.e., bulimia nervosa and eating disorder not otherwise specified, were studied in order to compare a treatment (CBT–Ef) focusing solely on eating disorder psychopathology against a more complex treatment (CBT-Eb) that also addressed additional problems – mood, clinical perfectionism, low self-esteem and interpersonal difficulties (Fairburn et al. 2009). Patients in the two treatment conditions exhibited substantial and equivalent change, which was maintained during follow-up. Investigators reported that at the 60-week follow-up assessment, 51.3 percent of the sample had a level of eating disorder features less than one standard deviation above the community mean. In addition, the treatment outcome was not dependent upon the specific eating disorder diagnosis and both types appeared to be suitable for the majority of outpatients with eating disorders. Further exploratory analysis conducted by the research team indicated that patients with substantial additional psychopathology, of the type targeted in CBT-Eb, did better with this treatment than the focused form, while the opposite was true for the remaining patients (Fairburn et al. 2009).

CBT focuses on targeting the overt symptoms of bulimia nervosa, e.g., binging and compensatory behaviors. A new group-based treatment for bulimia nervosa, Emotional and Social Mind Training Program (ESM), improves treatment by focusing on broader emotional and social/interpersonal issues underlying bulimia nervosa (Lavender et al. 2012). ESM, a non-symptom based treatment, is based on evidence from several small studies suggesting that emotional and social deficits, e.g., negative self-evaluation, difficulties in understanding the minds of others, poor interpersonal skills, a tendency to focus on negative or threatening socio-emotional information and shame, are factors triggering the onset of bulimia nervosa or as maintaining factors for the disorder. Lavender et al. conducted a randomized controlled trial to evaluate the efficacy of ESM compared to Group CBT. Adults (n=74) with bulimia nervosa were randomized to either CBT or ESM treatment programs, each of which included 13 group and four individual sessions. ESM was divided into three stages: 1) learning about inter- and intra-personal emotions including the social context of emotion, understanding self-esteem difficulties; 2) developing other ways of coping – self-compassion to manage shame, learning alternative coping strategies; and 3) relapse prevention and maintenance. It is noteworthy that in this study, ESM performed as well as CBT in terms of treatment outcomes and patients improved as significantly in ESM as in CBT. ESM and CBT were equally effective at the end of treatment as well at follow-up. The APA guideline recommends CBT as the most effective treatment for patients with bulimia. Researchers suggest that ESM may be a viable

alternative to CBT for the treatment of some individuals with bulimia nervosa and conclude that further research is required to identify and preferentially allocate suitable individuals accordingly.

Another study investigated whether an appetite-focused dialectical behavior therapy (DBT-AF) is an effective alternative treatment for bulimia nervosa (Hill et al. 2011). DBT-AF combines appetite awareness training, i.e., redirecting patient's focus from monitoring the mount/type of foods consumed to internal appetite signals, with dialectical behavior therapy, i.e., acceptance-based strategies and emotion regulation skills. Participants with binge/purge episodes at least once per week (n=32) were randomly assigned to 12 weekly sessions of DBT-AF or to a six-week delayed treatment control. Therapy sessions focused on mindfulness practice, diary card/homework review and chain analyses and teaching, and practicing new skills. Results of this study showed that DBT-AF was acceptable to participants who preferred appetite monitoring to food monitoring, and DBT-AF participants showed greater improvement in focal and secondary symptoms of bulimia nervosa at six weeks than control group participants. Researchers suggested that DBT-AF may be useful for individuals who are not willing to comply with food monitoring or those needing to focus more on emotion regulation skills. Researchers suggested future studies directly comparing DBT-AF with CBT to determine if some individuals would benefit more from this alternative treatment.

Innovative modalities in the area of school-based, peer-led programs to prevent obesity and eating disorders have begun to emerge and gain credence. Two studies in this area were published with positive findings. One study evaluated peer teaching on healthy living, i.e., nutrition, physical activity and healthy body image, from older to younger children ("buddies"). Findings showed that all students improved their knowledge and that weight velocity was decreased in older students (Stock et al. 2007). Another study demonstrated the effectiveness of an interdisciplinary, school-based obesity prevention intervention where disordered weight control behaviors were reduced by two-thirds for the girls in early adolescence who participated (Austin et al. 2007). Similarly, an eating disorders prevention program using dissonance-inducing activities that reduce thin-ideal internalization showed superiority over another prevention program that promoted healthy weight management. Reductions in eating disorder risk factors, bulimic symptoms and obesity onset were seen through the 12-month and three-year follow-ups, suggesting public health potential (Stice et al. 2006, Stice et al. 2008).

Binge Eating Disorder

A recent study examined the short- and long-term significance of rapid response, during the first weeks of treatment, to cognitive-behavioral guided self-help (CBT-gsh), interpersonal psychotherapy (IPT), and behavioral weight loss (BWL) in the treatment of binge eating disorders (Hilbert et al., 2015). In this randomized clinical study, adults (n=205) with BED were assigned to one of the treatments over a 24-week period consisting of 16 individual, weekly sessions followed by four sessions at two-week intervals. In this study, rapid response was indicated by decreased binge eating (≥70 %) by the fourth week

of treatment. Results showed that rapid responders in CBTgsh had 27.3% greater rates of remission from binge eating than non-rapid responders in CBTgsh 5 to 18 months after treatment. In IPT and BWL, rates of remission did not differ significantly by rapid response, although both rapid and non-rapid responders in IPT, and rapid responders in CBTgsh, had greater remission from binge eating than non-rapid responders in CBTgsh and BWL. Remission was also greater in CBTgsh than in BWL. Authors suggested "the results may inform a model of evidence-based stepped care to be further investigated" and that "monitoring rapid response may offer the advantage of identifying CBTgsh patients early who are not likely to benefit from this treatment in order to offer an alternative treatment (Hilbert et al., p. 7).

The most strongly supported treatments for BED are CBT and IPT, although they do not produce weight loss; BWL produces modest weight loss over the short-term while achieving good outcomes for BED (Grilo, 2017). Grilo discussed the two predictors of treatment outcomes, i.e., presence of overvaluation of body shape and weight, and occurrence of rapid response to treatment. He suggested, "Clinicians should train to provide patients with evidence-supported psychological and behavioral treatments and follow these intervention protocols faithfully to increase the chances of good outcomes" (Grilo, p. 1).

A recent study, using data from a large, multicenter randomized controlled trial of outpatient group CBT (gCBT) for adults with BED, sought to identify whether group dynamics early in treatment resulted in improved BED symptomatology at end of treatment and at follow-up (Pisetsky et al., 2015). Another quest was to determine whether group dynamics were associated with treatment retention and whether "group cohesion may actually be greater in self-help groups than therapist-led groups" (Pisetsky et al., p.76). In the randomized trial, participants (n=190) were randomized to one of these conditions: wait list, self-help treatment group, therapist-assisted treatment group, or therapist-led treatment group. Treatment occurred over 20 weeks with the active treatment groups receiving identical content; only the level of therapist involvement differed. Outcome measures included Group Attitude Scale (GAS); Group Climate Questionnaire – Short Form (GCQ); and Eating Disorder Examination (EDE). Results of the study found stronger engagement at session two associated with lower EDE Global score (greater improvements in global eating disorder psychopathology) at 12 month follow-up and greater reductions in binge eating frequency at 12 month follow-up associated with more positive group attitudes. The results also suggested that adherence to self-monitoring during the entire treatment period was associated with treatment outcomes. Additionally, researchers noted, "This study found participants with BED reported high positive group attitudes and engagement in three delivery methods of gCBT including self-help, therapist-led, and therapist-assisted groups, and that the variables did not differ across delivery methods" (Pisetsky et al., p.78).

The evidence base for pharmacotherapy in the treatment of BED remains limited (Reas and Grilo, 2015). A medication, Vyvanse (lisdexamfetamine dimesylate), has won approval for treating moderate to severe BED by the FDA in the treatment of this disorder (FDA, 2015).

The FDA approved this drug in 2007 to treat ADHD in patients ages 6 and older (FDA, 2015). The FDA News Release reported results of two clinical studies including adults (n=724) with moderate-to-severe BED. The studies showed that participants taking Vyvanse had decreased number of binge eating days per week and fewer obsessive-compulsive binge eating disorders compared to participants receiving placebo. Serious risks associated with the medication are psychiatric problems and heart complications; it may also cause psychotic or manic symptoms. Vyvanse labeling also warns that CNS stimulants have high potential for both abuse and dependence. The FDA has not approved or recommended Vyvanse for weight loss (FDA, 2015).

In two multicenter, double-blind, placebo-controlled trials, lisdexamfetamine dimesylate (LDX) was evaluated in terms of both efficacy and safety (McElroy et al., 2016). Participants (n=773) ages 18 to 55 were randomized to dose-optimized LDX (50 or 70 mg/day) dose titration or placebo during the 12-week treatment period. The LDX group showed statistically significant reductions in binge eating days/week, and greater response on outcomes, i.e., global improvement in BED pathology, 4-week cessation of binge eating at endpoint, BED-related obsessive and compulsive psychopathology, relative to placebo. Additionally, a significantly greater percent weight gain was associated with LDX compared to placebo. Researchers cautioned that these studies were limited in that participants were mainly female, white, overweight, and with no current psychiatric comorbidities. These studies were of a short-term nature, precluding extrapolations to long-term efficacy. McElroy et al indicated that although LDS may be an effective pharmacotherapy for BED, further long-term studies are needed (McElroy et al., 2016).

In an overview of pharmacotherapy for BED, authors focused on 22 randomized clinical trials that tested pharmacotherapy (antidepressant medications, antiepileptic medications, anti-obesity medications, stimulant medications, and other medications) as monotherapy or combined with psychological-behavioral methods (Reas and Grilo, 2015). The primary outcome measure was binge eating with weight loss (not a core criterion of BED), the secondary outcome measure. Authors noted that although BED is "more prevalent than the two other formal eating disorders combined and is associated strongly with obesity, with heightened risk for psychiatric and medical comorbidities, and functional impairment in the U.S. and worldwide," limited number of randomized controlled trials have been performed and published for BED (REAS and Grilo, p. 1468). Results of the 22 randomized controlled trials including participants (n=2001) with BED showed that the majority of patients do not achieve abstinence from binge eating. Most of them report little weight loss over the short term. Studies do not report longer-term effects of medications for BED, and authors reported that the little available data shows that relapse occurs following discontinuation. They indicated that improved binge eating outcomes are greater for psychological interventions, e.g., CBT, and combination of medication with CBT/behavioral interventions, compared to pharmacotherapy alone. However, they also noted that the combination of medications with CBT/behavioral interventions do not significantly improve binge-eating outcomes. Specific medications, e.g., topiramate and orlistat) may be associated with modest weight loss. Authors emphasized the need for studies that consider treatment for obesity and view weight control as an ongoing treatment need. In closing,

they stated, "For example, four new anti-obesity medications (phentermine/topiramate, lorcaserin, naltrexone/bupropion, and liraglutide) have been recently approved by the FDA for the treatment of obesity but none has been tested for BED" (REAS and Grilo, p. 1468).

A summary of findings of a later overview of 11 published randomized controlled trials testing combination treatments for BED follows (Grilo et al., 2016):

- Lack of evidence suggesting an advantage for adding antidepressant medications to either CBT or BWL;
- Addition of anti-obesity medications to CBT or BWL showed little advantage; certain medications, i.e., orlistat, were associated with significantly greater weight loss than addition of placebo; orlistat may promote weight loss in BED with hypocaloric diets;
- Topiramate with 21 weeks of CBT resulted in significantly greater binge eating abstinence rates compared to placebo with CBT; topiramate added to CBT was not associated with significantly greater reductions in binge eating frequency, eating disorder pathology, or depression; and
- BWL may be effective for BED with the advantage of producing weight loss over short to intermediate term.

Authors concluded, "The empirical base regarding treatment for BED remains limited" (Grilo et al., 2016).

A published clinical review on binge eating disorder (BED) treatments reported that new epidemiological studies have shown BED to be the most common of the eating disorders, with lifetime prevalence estimates in the community of 3.5 percent among women and 2 percent among men (Yager 2008). The author noted that obesity occurs in approximately 65 percent of patients with BED where it increases progressively over time. BED was consigned to the "eating disorders not otherwise specified" (EDNOS) diagnosis in the Diagnostic and Statistical Manual (DSM)-IV, but achieved full status as a real, recognized mental disorder with an official diagnosis in the DSM-5 (American Psychiatric Association, 2013). According to the new criteria, binge eating disorder includes overeating at least once a week for three months, along with lack of control over eating and marked feelings of distress. It is also characterized by eating more than what most people would eat in a similar time-period under similar circumstances. Criteria differentiating binge eating disorder from normal periodic overeating include the following: episodes of eating much more rapidly than normal, recurring episodes of eating until feeling uncomfortably full, eating large amounts of food when not feeling physically hungry, eating alone because of feeling embarrassed by how much one is eating and/or feeling disgusted with oneself, depressed or very guilty afterward (Moran 2012). Binge eating does not occur exclusively with BN or AN, and is not associated with the recurrent use of inappropriate compensatory behavior (American Psychiatric Association, 2013). The APA notes that recurrent binge eating is much less common, much more severe and associated with more significant problems, physical and psychological, than the common phenomenon of overeating (American Psychiatric Association 2013). It often occurs in secrecy, as individuals with this

disorder are typically ashamed of their eating problems. Negative self-evaluation and dysphoria are often a consequence (delayed) of the disorder.

Since binge eating is prevalent in overweight and obese individuals with type 2 diabetes mellitus, the impact of behavioral weight loss treatments on eating disorders symptomatology has been analyzed by investigators in the Look AHEAD (Action for Health in Diabetes) clinical trial (Gorin et al. 2010). Overweight and obese individuals aged 45 to 76 years (n=5,145), with and without BED symptoms, were treated with either intensive lifestyle intervention or to enhanced usual care (a diabetes support/education control condition). Investigators reported that participants who stopped binge eating (BE) appeared to be just as successful at weight loss as non-binge eaters after one year of treatment. Gorin et al. also noted that individuals reporting more BE also reported a more depressed mood and worse physical health than their non-BE peers. Nevertheless, investigators stressed that most individuals who reported BE at baseline stopped BE by one year, and these individuals were just as successful at weight loss as those who reported no BE. Additionally, they indicated that few individuals started BE during the one-year study period. The study team concluded that BE is not exacerbated by behavioral weight loss treatment and may be improved by participating in a structured weight loss program targeting lifestyle changes (Gorin et al. 2010).

The APA guideline specifies that both group and individual formats of CBT, behavior therapy, dialectical behavior therapy and interpersonal therapy all have been associated with binge frequency reduction and abstinence rates along with evidence of maintenance of this change over a year follow-up. Since publication of the guideline, a more recent study (n=101) of Dialectical Behavior Therapy for Binge Eating Disorder (DBT-BED) by Safer et al. was compared to an active comparison group therapy (ACGT) in order to evaluate it against a credible control group ("active placebo") (Safer et al. 2010). Both interventions used specific manual-based treatment protocols and used the same therapists in both conditions in order to minimize variability. The DBT-BED approach, which was based on Linehan's DBT for borderline personality disorder and modified by Telch et al. for binge eating, consisted of three modules: mindfulness, emotional regulation and distress tolerance, concluding with relapse prevention. The ACGT approach, which was modeled after Markowitz and Sacks' supportive therapy for chronic depression, was modified to address binge eating for the current study while focusing primarily on bolstering self-esteem (Safer et al. 2010). Study results showed that both DBT-BED and ACGT reduced binge eating, but DBT-BED showed significantly fewer dropouts and greater initial efficacy at post-treatment, e.g., 64 percent abstinence rate for DBT-BED vs. 36 percent for ACGT. Investigators reported that these differences, however, did not persist over the three-, six-, and 12-month follow-up assessments, e.g., 12-month follow-up abstinence rate equal to 64 percent for DBT versus 56 percent for ACGT (Safer et al. 2010).

Using the sample from the 2010 Safer et al. study, a later study by Safer et al. (2011) investigated the role of rapid response as a predictor of outcome in the treatment of BED. Investigators analyzed and compared rapid response and non-rapid response participants across treatment conditions (DBT-BED and ACGT) as well as within the two treatment

conditions to investigate differences between rapid response and non-rapid response on continuous treatment outcomes. They found that rapid response predicts improvement in abstinence from binge eating at a 12-month follow-up and shows that rapid response is a significant predictor of outcome in group therapy. Investigators concluded that rapid response to treatment is a significant predictor of outcome in DBT-BED, a less established therapeutic treatment for BED.

A recent exploratory study conducted secondary analyses of a published trial of guided self-help dialectical behavior therapy (DBT) for BED (Masson et al., 2013). It explored whether the change in self-reported emotion regulation during treatment was associated with abstinence from binge eating at post-treatment and four-, five-, and six-month follow-up in community-based men and women (n=60) with BED (Wallace et al., 2014). In the trial of guided self-help DBT, participants, with mean age of 42.8 years, were randomized to self-help DBT or wait-list, with participants receiving DBT treatment over a period of 13 weeks. Participants randomly assigned to immediate treatment reported significantly fewer past-month binge eating episodes and significantly greater rates of abstinence from binge eating than those assigned to delayed treatment (after a 3-month waiting period). These participants also demonstrated improved emotion regulation scores at post-treatment, but the researchers in the study did not examine an association between emotion regulation and binge eating. Analyzing the full sample from the trial, Wallace et al. utilized the data from the treatment trial, finding the amount of change in emotion regulation was associated with binge abstinence at post-treatment, four-, five-, and six-month follow-up. The change in emotion regulation from pre-treatment to post-treatment was about three times greater among participants who were binge abstinent compared to those who were not binge abstinent. Researchers suggested further research considering strategies to enhance emotion regulation across a range of individuals with BED and potentially improving treatment outcomes (Wallace et al., 2014).

The adopted guideline acknowledges that CBT with the addition of exercise appears to augment both binge and weight reduction and that some guided self-help CBT programs show promise for binge remission. A more recent clinical study of obese patients with BED (n=205) compared interpersonal therapy (IPT) with behavioral weight loss treatment (BWL) and guided self-help based on cognitive behavior therapy (CBTgsh) where 20 sessions of each modality was conducted over six months. Results showed that there was no difference among the three interventions at post-treatment on binge eating, specific eating disorder psychopathology, i.e., body weight, shape and eating concern, or general psychopathology. At the two-year follow-up, both IPT and CBTgsh were significantly more effective than BWL in eliminating binge eating. Investigators suggested that guided self-help CBT should be considered a first-line treatment for most patients with BED and that IPT be use as the treatment of choice for the subset of individuals with BED with low self-esteem and high level of specific eating disorder psychopathology (Wilson et al. 2010).

Another clinical trial demonstrated that self-help approaches were a viable alternative to therapist-delivered treatment. Findings from a study of 259 adults with BED where therapist-led, therapist-assisted or self-help group treatments were compared to a wait-list

condition showed that patients in the therapist-led group had the highest rate of abstinence and fewest dropouts at the end of treatment. However, there were no significant differences between treatment groups at follow-up on any of the primary or secondary outcome measures. Investigators concluded that while the presence of a therapist may enhance short-term abstinence and reduce the likelihood of dropout, they suggested groups for individuals with BED with reduced or no therapist involvement may be used as alternative treatments (Peterson et al. 2009).

The APA Guideline Watch cites studies supporting the APA guideline's recommendation for individual and group CBT and self-help programs for binge-eating disorders. In a later study, DeBar et al. (2011) replicated and extended results of one of the studies (Striegel-Moore et al. 2010) that examined the effectiveness and cost-effectiveness of a brief guided self-help treatment for binge eating disorders in a HMO setting. Participants, female health plan members (n=160) who expressed a desire to receive treatment for binge eating concerns, were randomly assigned into usual care or CBT-GSH. CBT-GSH was based on a six-step self-help program using self-monitoring, self-control strategies and problem solving to develop a pattern of moderate eating. Results of the study showed that participants in the CBT-GSH group showed greater remission from binge eating than usual care and had greater improvements in dietary restraint, eating, shape and weight concerns.

Maseb et al. (2011) performed a randomized, controlled trial to investigate the effects of a low-energy-density dietary approach, i.e., the consumption of more water- and fiber-rich foods such as fruits and vegetables with decreased consumption of fat, in obese individuals with BED who also received CBT to address binge eating and BED related outcomes. Participants (n=50) were randomized to one of two groups: six-month individual treatment of CBT plus a low-energy-density diet or CBT plus general nutrition counseling not related to weight loss. In this study, both treatments resulted in similar and significant outcomes: reductions in waist circumference and blood pressure; and improvements in total cholesterol. More than 30 percent of the sample achieved statistically and clinically significant weight losses and rates for remission from binge eating ranged from 52 percent to 72 percent for CBT plus low-energy-density diet and from 44 percent to 75 percent for CBT plus general nutrition counseling. Researchers concluded that dietary counseling can successfully be combined with CBT for obese patients with BED and that low-energy-density dietary counseling has promise for enhancing CBT for obese individuals with BED.

The APA guideline discusses the serotonin and norepinephrine reuptake inhibitor (SNRI) and appetite-suppressant drug, sibutramine, as a promising treatment based on findings of preliminary trials. Since release of the guideline, a large clinical trial of 304 patients with BED was conducted comparing sibutramine against placebo. The participants who received sibutramine had significantly greater reductions in weekly binge frequency, binge days, BMI and associated psychopathology (Wilfley et al. 2008). On October 8, 2010, the U.S. Food and Drug Administration (FDA) asked the drug manufacturer to withdraw voluntarily sibutramine from the U.S. market because of clinical trial data indicating an increased risk of cardiovascular adverse events, including heart attack and stroke, in the studied

population. The manufacturer complied with the request and sibutramine no longer is available in the United States (FDA Med Watch, 2010).

Duloxetine is another SNRI evaluated for the treatment of binge eating disorder with comorbid current depressive disorders. It has not been associated with the adverse cardiovascular events triggering sibutramine's withdrawal from the market. In a randomized, parallel-group, placebo controlled study by Guerdjikova et al. (2012), 40 patients with BED and a comorbid depressive disorder received duloxetine or placebo to assess the efficacy and safety of duloxetine during a 12-week course of treatment. Duloxetine was superior to placebo in reducing the frequency of binge eating episodes, weight and overall severity of illness related to BED and depressive disorder. In the duloxetine group, the mean weight loss was 3.4 kg, compared with 0.3 kg in the placebo group. Researchers suggested that larger controlled trials of duloxetine and other SNRIs, in participants with BED and depressive disorders, are warranted.

The APA guideline also presented early positive findings of studies evaluating the efficacy of the anticonvulsant drug topiramate. More recently, findings of a large multi-center clinical trial with 407 patients with BED have been published. Patients receiving topiramate experienced highly significant rates of reduction in binge eating days and binge eating episode frequency, weight, BMI, overall severity and compulsive features of BED, compared with placebo. In addition, topiramate was associated with greater improvement in measures of hunger, impulsive features and disability (McElroy, Hudson et al. 2007). The novel antiepileptic drug agent zonisamide was also studied in a small single-center trial where it was associated with a significantly greater rate of reduction in binge eating episode frequency, body weight and severity of illness than placebo. However, researchers reported that zonisamide was associated with only fair tolerability and a relatively high treatment discontinuation rate (McElroy, Kotwal et al. 2006).

Treatment of BED with antidepressant medications, particularly the SSRIs, was recommended as a treatment option in the APA guideline with the cautionary note that while patients experience a short-term reduction in binge eating, there is usually no accompanying substantial weight loss. The guideline also indicates that use of SSRIs for this disorder is typically at the high end of the recommended dosage range. More recent clinical trials and meta-analyses have produced mixed results in their usage for this indication. A study comparing sertraline and fluoxetine in the treatment of obese patients with BED showed no differences between the two treatments and both demonstrated significant weight loss and improvement in binge eating core symptoms and psychopathology (Leombruni et al. 2008). Similarly, a trial of high-dose escitalopram was shown to be efficacious in reducing weight and global severity illness in obese patients with BED, but not in reducing obsessive-compulsive symptoms of BED (Guerdjikova et al. 2007). Conversely, a meta-analysis of seven antidepressant studies, i.e., fluoxetine, sertraline, citalopram, fluvoxamine and imipramine, concluded that their findings were not supportive in recommending the use of antidepressants as the only and first-choice therapy for remission of binge eating episodes and weight reduction of patients being treated for BED (Stefano et al. 2007). In another systematic review of studies, findings for

SSRI antidepressant efficacy, i.e., sertraline, citalopram, were based primarily on a series of short-term, placebo-controlled medication trials. These agents demonstrated greater rates of reduction in target eating, and psychiatric and weight symptoms in individuals with BED than placebo. Researchers noted that these conclusions should be viewed tentatively due to high dropout rates and placebo response rates (Brownley et al. 2007).

Researchers have indicated that novel drug treatments that reduce binge eating, the associated psychopathology and body weight, and are well tolerated, are needed for the treatment of BED. In addition, several drugs used to treat BED, i.e., orlistat, sibutramine, topiramate and zonisamide, have problematic side effects and relatively high discontinuation rates (McElroy, Guerdjikova et al. 2007). The highly specific norepinephrine reuptake inhibitor, atomoxetine, used in the treatment of attention-deficit hyperactivity disorder (ADHD), is associated with anorexia and weight loss. Since this drug is generally well tolerated and may have antidepressant properties, it was chosen for study in a placebo-controlled clinical trial in order to determine its possible efficacy in the treatment of BED. Study results found atomoxetine to be superior to placebo in reducing binge frequency, weight and severity of illness. Researchers suggest further studies of atomoxetine are clearly warranted (McElroy, Guerdjikova et al. 2007).

A recent randomized placebo-controlled clinical trial examined the efficacy and safety of lisdexamfetamine dimesylate, approved in the U.S. to treat ADHD, to treat moderate to severe BED (McElroy SL, et al., 2014). Adults aged 15 -55 (n=260) with a diagnosis of BED were randomized to one of four groups: one group received 30 mg of lisdexamfetamine daily; the second group started with 30 mg/d, increasing to 50 mg within three weeks; the third group received 30 mg/day and increased to 70 mg/d within three weeks; and the fourth group received an inactive placebo pill. Outcomes studied in this trial included the change in binge eating behaviors (days per week) and binge eating cessation for 4 weeks. Results showed that at week 11, the lowest dosage, binge eating was not curtailed. Lisdexamfetamine dimesylate treatment with 50 and 70 mg/d resulted in a significant decrease in weekly binge eating days per week compared with placebo. The number of binge eating episodes also decreased in the 50 and 70 mg/d groups. With all doses, a greater proportion of participants achieved 4-week cessation of binge eating episodes and global improvement of symptom severity than with placebo. Researchers suggested that these findings provide preliminary evidence of lisdexamfetamine's effectiveness in treating moderate to severe BED. The types and frequency of adverse effect in the lisdexamfetamine treatment group were consistent with those seen in studies of lisdexamfetamine in adults with ADHD. Consistent with other studies of psychostimulants, small mean increases in heart rate were noted with lisdexamfetamine treatment. Researchers cautioned that lisdexamfetamine is a schedule II controlled substance with a black box warning noting its potential for abuse and dependence. They suggested further studies assessing lisdexamfetamine as a treatment option for BED (McElroy et al., 2014).

The APA guideline indicates that although evidence is limited, combined pharmacotherapy and psychotherapy treatment for BED is frequently helpful in clinical practice. The systematic review of studies previously cited by Brownley et al. (2007) revealed that use of

cognitive behavioral therapy (CBT) combined with medications, i.e. fluoxetine, orlistat, or medication (desipramine) along with weight loss therapy, was superior to medication or weight loss therapy alone or when combined with placebo in the treatment of patients with BED (Brownley et al. 2007). Similarly, a marked reduction in binge eating, short-term weight loss and a significant decrease in psychopathology were shown in a clinical trial of topiramate (target dose 200 mg) plus CBT in obese patients with BED (Claudino et al. 2007). Another study demonstrated that the combination of cognitive-behavioral weight loss therapy (BWL) and sibutramine, leads to comparable weight loss in individuals suffering from obesity and subclinical binge eating disorder (sBED) as in obese non-bingers. However, BWL alone was an effective treatment in significantly reducing binge-eating frequency in sBED without the augmenting effect of sibutramine (Bauer et al. 2006). Modalities employing new technologies and psychosocial approaches continue to be developed and studied in the area of eating disorders treatment. One clinical trial of 105 male and female high school students examined the effects of an Internet-facilitated, weight management program on reducing binge eating and overeating, and preventing weight gain in a population of students at risk of being overweight. In comparing a 16-week online intervention compared to a wait-list control group, the study group found a strong effect for stabilization of weight gain and reduction in binge eating and overeating at the nine-month follow-up assessment. Researchers were encouraged with these findings using an easily disseminated, Internet-facilitated program (Jones et al. 2008). Adapted motivational interviewing (AMI) that was originally developed for addictive behaviors was studied in 108 women with BED. Both groups, where one was assigned to one session of AMI and use of a self-help handbook, or use of a self-help handbook only, showed improvement in binge eating and associated symptoms. After 16 weeks of intervention, the AMI group had a greater proportion of women who abstained from binge eating and no longer met the binge frequency criterion for BED DSM-IV diagnosis (Cassin et al. 2008).

A later study examined longer-term effectiveness of fluoxetine and CBT for BED (Grilo et al., 2012). Overweight patients with BED (n=81) randomized to fluoxetine only, CBT plus fluoxetine, or CBT plus placebo were assessed before, during, post-treatment, and 6 and 12 months after completing treatment. Follow-up remission rates were 3.7%, 26.9%, and 35.7% for fluoxetine-only, CBT plus fluoxetine, and CBT plus placebo respectively. On clinical outcomes, e.g., eating and weight concerns, depression, global score, CBT and CBT plus fluoxetine were superior to fluoxetine-only. These findings support the longer-time effectiveness of CBT only through 12-months after treatment completion. Significant changes in body mass index did not occur with either treatment, although patients treated with CBT plus placebo had significantly lower body mass index at 12-month follow-up than those treated with fluoxetine only or combined fluoxetine and CBT. Researchers concluded that based on these findings, CBT, but not fluoxetine, has long-term effectiveness in treating BED (Grilo et al., 2012).

Pica and Rumination Disorder

Pica and rumination disorders are distinct categories in the DSM-5 chapter on feeding and eating disorders. Inclusion in this chapter indicates that the diagnosis can be made of

individuals of any age. The overall prevalence of pica and rumination disorder is difficult to access as it is generally not reported (Mishori and McHale, 2014). Both the definition of pica and the methodology of data collection may vary among populations. Mishori and McHale reported that according to some estimates, 50% or more of children between the ages of 18 and 36 months ingest non-food items such as paper, chalk, and dirt. Although this practice usually decreases with age, authors estimated that 10% of children older than 12 years engage in this activity. Pica occurring in persons with developmental disabilities such as autism is considered a psychiatric condition, whereas researchers disagree about whether some forms of pica, such as geophagia (eating soil or clay), are abnormal behaviors. The prevalence of rumination disorder, the recurrent and effortless regurgitation of food, is also unclear partly due to non-disclosure of symptoms. Delaney et al. reported that evidence indicates that rumination disorder is more common in infants, children, and persons with developmental disabilities (Delaney et al., 2015).

In a study conducting structured interviews with adolescent and young adult females with a mean age of 18.1 years from a residential eating disorder center (n=149) and adult males and females with a mean age of 45.8 years with overweight or obesity from an outpatient weight-loss clinic (n=100), Delaney et al. found that pica and ruminating disorder were rare (Delaney et al, 2015). Researchers noted that according to DSM-5, a pica disorder diagnosis is possible in the presence of another eating disorder, as long the other eating disorder does not drive the motivation for eating the non-food item (e.g., suppression of hunger). Unlike pica, they point out that rumination disorder is not a diagnosis when another DSM-5 eating disorder is present. In this study, researchers found that frequency for both pica and rumination disorder was lower than in previous studies, possibly due to the stricter definitions of DSM-5 (e.g., addition of the "non-food" requirement). Delaney et al. highlighted the challenges of differential diagnosis with other forms of disordered eating (Delaney et al., 2015).

Avoidant/Restrictive Food Intake Disorder

Avoidant/restrictive food intake disorder (ARFID) is a category including both children as well as adults who have idiosyncratic preferences and requirements for food leading to psychological and/or nutritional problems. The DSM-IV listed this rarely used diagnosis as eating disorder of infancy or childhood, but it is included in the feeding and eating disorders chapter of the DSM-5. This disorder is characterized by DSM-5 as persistent failure to meet appropriate nutritional and/or energy needs associated with one or more of the following: significant weight loss (or failure to achieve expected weight gain or faltering growth in children), dependence on nutritional supplements or enteral feeding , significant nutritional deficiency, or marked interference with psychosocial functioning.

Summary

The above sections include brief discussion of the results of several recent studies examining the effectiveness of various treatments for eating disorders. In some cases, evidence is both limited and low quality, suggesting the need for additional large,

multicenter randomized controlled trials of commonly used treatments in adolescents and children with eating disorders.

The American Academy of Child & Adolescent Psychiatry's *Practice Parameter for the Assessment and Treatment of Children and Adolescents with Eating Disorders* provides an **evidence-based approach** to evaluating and treating eating disorders in children and adolescents (Lock et al., 2015). Although designed for child psychiatrists, the Practice Parameter also provides information useful for other medical and mental health professionals collaborate with child psychiatrists. Recommendations from the Practice Parameter related to all eating disorders follow (Lock et al., 2015):

- Mental health clinicians screen all children and adolescent patients with eating disorders;
- Follow a positive screening with a comprehensive diagnostic evaluation (including laboratory tests and imaging studies);
- Treat severe acute physical signs and medical complications;
- Consider psychiatric hospitalization, day programs, partial hospitalization programs, and residential programs only when outpatient interventions have been unsuccessful or are unavailable;
- A multidisciplinary team that is developmentally aware, sensitive, and skilled in the care of children and adolescents with eating disorders treats eating disorder in youth;
- Initial treatment of choice for children and adolescents with eating disorders is outpatient psychosocial interventions; and
- Reserve use of medications, including complementary and alternative medications, for comorbid conditions and refractory cases.

Information specifically related to treatment for child and adolescent eating disorders is included in the *Practice Parameter for the Assessment and Treatment of Children and Adolescents with Eating Disorders.* A summary follows:

Family-based treatment (FBT) – Randomized controlled trials have supported efficacy of this treatment for treating *AN* and trials support usefulness of FBT for *BN.* Parental management of eating and related behavior continues until adolescent shows improvement (Lock et al., 2015).

Adolescent-focused treatment – Randomized controlled trials have shown that adolescent-focused therapy, i.e., individual therapy that targets autonomy and self-efficacy in the context of adolescent development, performs worse than FBT for *AN* while still effective. It is useful for adolescents when FBT is not feasible (Lock et al., 2015).

Cognitive-behavioral therapy (CBT) – In a randomized controlled trial and a case series for adolescents with *BN,* this individually focused therapy targeting adolescent

management of behaviors and distorted cognitions may be appropriate treatment of adolescents with *BN* (Lock et al., 2015).

Interpersonal psychotherapy (IPT) – Randomized controlled trials in adults with *BN* and *binge eating disorders* (BED) have shown support for the use of IPT in the treatment of these disorders, and preliminary studies have suggested IPT may be useful for adolescents with *BED*. IPT may be useful as an alternative to CPT in patients with *BN* and binge eating disorder. This treatment focuses on changing problematic interpersonal relationships triggering or maintaining symptoms of eating disorders (Lock et al., 2015).

Antidepressants – Antidepressants target symptoms of depression, anxiety, and obsessionality in *AN* and *BN*; they also treat binge eating and purging in *BN*. An uncontrolled trial has suggested that antidepressants may be helpful for treating *BN*; they may also be useful for treating comorbid disorders and as a second-line treatment in adolescent *BN* (Lock et al., 2015).

Atypical Antipsychotics – Atypical antipsychotics treat distortions of body image, fears of weight gain, and anxiety related to *AN*. Randomized trials and case series have provided insufficient evidence to suggest efficacy for use in treatment of *AN*. However, they may be useful in the treatment of comorbid conditions. More studies are needed to determine efficacy in treatment of core symptoms of *AN* (Lock et al., 2015).

Obtaining Copies of the APA Guidelines

Copies of the APA *Practice Guideline for the Treatment of Patients With Eating Disorders, Third Edition* can be obtained through the APA at http://psych.org/, by calling (800) 368-5777, or by U.S. mail at:

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Magellan welcomes feedback on adopted clinical practice guidelines. We take all suggestions and recommendations into consideration in our ongoing review of the guidelines. Submit your comments to:

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