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ORIGINAL PAPER

Evidenced-based Treatments for Children and Adolescents with Eating Disorders: Family Therapy and Family-facilitated Cognitive-Behavioral Therapy

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Abstract This article summarizes recent research on effective treatments for children and adolescents with eating disorders and illustrates two of the main evidenced based approaches through case descriptions. There are few systematic studies of treatments for children and adolescent eating disorders despite the serious medical and psychological problems attendant to them. One form of family therapy developed at the Maudsley Hospital in London has been the subject of several small to medium sized studies that support the effectiveness of the approach for adolescents with Anorexia Nervosa. The main tenets of the approach include parental empowerment to be active in re-feeding their emaciated children through decreasing parental guilt and anxiety. There are no published controlled trials of any treatment for adolescent Bulimia Nervosa (BN). There are, however, a large number of treatment studies of adults with BN suggesting that cognitive behavioral therapy (CBT) is the treatment of choice for the disorders. A case description of the use of a modified form of CBT for adolescent BN is provided.

Keywords Eating disorders · Family cognitive behavioral therapy

The eating disorders include Anorexia Nervosa (AN), Bulimia Nervosa (BN), Eating Disorder Not Otherwise Specified (EDNOS), and provisionally, Binge Eating Disorder (BED). These disorders are common in adolescents with the average age of onset for AN and BN occurring in this age group. AN has a prevalence estimated at between 0.48 and 0.70% among females aged 15–19 years (Hoek & Hoeken, 2003). BN occurs in approximately 1–2% of the adolescent population while clinically significant bulimic behaviors occur in an additional 2–3%.

AN is characterized by chronic low body weight brought about by a refusal to eat sufficiently to maintain weight. In some cases, excessive exercise and self-induced vomiting or other methods of purging food are used to maintain or assist with weight loss. This generally results in malnutrition leading to significant medical complications such as bradycardia, osteoperosis, osteopenia, peripheral edema and even death (Rome & Ammerman, 2003). AN is also associated with cognitive distortions regarding body shape and size and an over-valuing of weight and shape. Although traditionally associated with females, the disorder effects as many as .5 to 1% of males. The mortality rates associated with this severely disabling condition are higher than for any other psychiatric disorder (Sullivan, 1995). In addition to major medical complications, AN is associated with significant comorbid psychopathology including affective disorders, anxiety disorders, and avoidant personality disorders.

Bulimia Nervosa (BN) is associated with a pattern of binge eating, typically followed by inappropriate compensatory behaviors designed to assist in weight loss, such as self-induced vomiting, restricted eating, excessive exercise, laxative and diuretic use. The hallmark features of binge-eating episodes include feelings of loss of control and the consumption of a very large amount of food in a short period of time. Individuals with BN are typically at or above normal weight, the criteria that separates them from those with AN. Individuals with BN are similar to those with AN in the morbid fear of becoming fat, distortions and

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over-valuation of body shape and size. The physical complications of bulimic behaviors include hypokalemia, esophageal tears, gastric disturbances, dehydration, orthostasis, cardiac arrhythmias, and death (Rome & Ammerman, 2003). Psychiatric complications include depression, personality disorders, anxiety disorders, and substance abuse disorders.

Treatment studies for eating disorders in children and adolescents are few (Le Grange & Lock, 2005). Variants of three psychological approaches commonly recommended for the outpatient treatment of AN have been studied in controlled trials: individual psychodynamic psychotherapy, cognitive-behavioral therapy, and family therapy. Of these, only family therapy based (FBT) on parental re-feeding has been consistently examined and found to be effective in adolescents. CBT is currently the approach with the best evidence for effectiveness for adults with BN (Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000). Recent clinical case series data support to the notion that a developmentally tailored version of CBT is likely a reasonable choice for bulimic syndromes in adolescents (Lock, 2005).

Developmental factors associated with treatment implementation include age of the client currently, age of onset of the eating disorder and level of independence of clients. Current research suggests that both children and adolescents benefit from family-based models of treatment (Lock, Le Grange, Forsberg, & Hewell, 2006). Younger clients, by virtue of remaining nested in a family structure, may require family-based models or family components of treatment that recognize their continued dependence upon family members to structure and organize their activities. Alternatively, older adolescents and college-aged clients may resist family interventions or these may not be deemed appropriate as the family system may not be able to adequately assist an older adolescent in developing the necessary skills for independence and self-monitoring which are critical to maintaining weight gain. At times, therapy with older adolescents may involve utilizing peers or significant others in a supportive role rather than family members.

Components of Effective Treatment

Systematic research on treatment for eating disorders in children and adolescents is quite limited. However, two treatments, one for AN and one for BN, appear to be gathering significant data in support of their application to children and adolescents with these and related eating disorders family-based treatment (FBT) for adolescent AN, and cognitive-behavioral therapy adjusted for adolescents for BN.

Family-Based Treatment

FBT focuses on the patient's difficulties specifically in terms of the inability to maintain an optimal weight for age and height. The principle therapeutic strategies used in FBT are the same across the age range of patients; however modifications to the language used and the themes explored in the later part of therapy are developmentally tailored. Treatment takes place over three distinct phases over a 6–12 month period. Sessions in FBT last 1 hour The treatment is available in a manualized format (Lock, Le Grange, Agras, & Dare, 2001).

In the first phase, FBT helps parents to find effective strategies to restore their child's weight. In this process, a family meal is taken in the therapist's office to provide an opportunity for direct observation of the familial interaction patterns around eating and to offer direct assistance in helping the parents improve their success. Throughout Phase 1, the therapist provides positive feedback on all efforts that parents make toward re-feeding their child, which is the primary concern at this point. In this context, the therapist consistently and directly confronts the notion that the parents have caused the eating problem and instead expresses sympathy for the parents' frightening dilemma. In addition, the therapist aims to create and reinforce a strong parental alliance insofar as this is needed to effectively disrupt the behaviors that are leading to their child's self-starvation. When there are siblings present, efforts are made to utilize them to support the affected child with AN and to reduce any feelings of anger or resentment that are sometimes present. In working with parents, the therapist aims to provide expert consultation to the parents while leaving decisions about how to proceed up to them. In this way, parents are empowered to find their own specific strategies for weight restoration that work for their family while incorporating the expert advice of a therapist knowledgeable about AN.

Once the patient is gaining weight steadily and approaching normal weight while parents are in control of these processes, it is time to consider beginning Phase 2 of FBT. Although discussion of the impact of AN symptoms are central to therapy, weight gain with minimum tension is encouraged. Parents are asked to evaluate the readiness of their child to begin taking back age-appropriate control of her eating and to test the child's ability to do so, usually in a supportive and graduated fashion promoting both independence and mastery on the part of the adolescent. This usually entails titrating down the number of meals that are monitored by parents and to allowing for more independent opportunities for eating apart from the family when this is age appropriate (e.g., sleep over, dates, dances, and so forth). In addition, toward the end of this phase, other issues that the family has had to postpone can now be

brought forward for discussion; however, the focus remains on how these issues interfere with the adolescent's taking age-appropriate control of her eating related behaviors and activities.

The third phase begins when the patient is eating normally and of normal weight and is independent of parental monitoring. This is a brief phase aimed at helping the family re-integrate the adolescent to usual adolescent developmental processes that may have been disrupted as a result of AN. Depending on the age of development, Phase 3 focuses on how parents and the family can encourage age appropriate personal autonomy, changes in family boundaries and strategies during the adolescent age period, and sometimes the need for the parents focus on the needs of their own relationship which has sometimes suffered due to the energies required to help their child recover from AN.

Case Description—FBT

Yvonne, a 14-year-old, Asian-American female from a large city on the west coast was referred to the Eating Disorders clinic at a local university medical center by her pediatrician due to concerns related to low weight and cessation of growth. Yvonne's parents reported noticing a decrease in her weight 9 months prior to the referral for treatment, shortly after she began menstruating and simultaneously joined her tennis team. They denied any changes in eating behavior or food consumption at that time; however, 3 months later, Yvonne began avoiding ''sweets and junk food.'' After losing approximately fifteen pounds, her parents expressed concern. Over the following 3 months she became increasingly sensitive regarding her appearance, expressed greater interest in nutrition, began reading labels and avoiding foods with fat or high calories, even refusing to have a piece of cake on her birthday. Family arguments regarding food increased, but despite this Yvonne continued to lose weight. Her parents had her monitored by her pediatrician and consulted a community therapist, who diagnosed Yvonne with Anorexia Nervosa, and stated she was unable to provide treatment. Their pediatrician referred them to the Eating Disorder Clinic for an evaluation and treatment. Yvonne herself denied any difficulties with food or eating and stated that her parents were ''totally overreacting.'' Despite this, she was able to acknowledge that she had become upset about her weight, describing herself as ''a horrible chubby little brat'' and had enjoyed her weight loss. She described her weight control plan as avoiding ''all fat, anything with more than 300 calories'' and attempting to keep her total calorie consumption below 800 calories per day. She denied binge eating or purging behaviors, but noted that she had a goal of ''total calorie elimination'' through daily exercise, often surreptitiously performed in her bedroom. She stated that she was more fatigued recently, making exercise difficult, but felt as though she could not avoid moving her body. She reported feeling ''horrified'' that she would gain weight from eating food and even avoided smelling food. Her parents reported that she had recently broken into tears and screamed at them that they were trying to turn her into ''a fat cow'' after they demanded she drink a glass of skim milk. Following her intake appointment, Yvonne was evaluated medically. This appointment revealed that she had low body temperature, bradycardia and dehydration and she was admitted to an inpatient medical unit for medical stabilization.

Yvonne's parents had been married for 20 years and had three children, of which Yvonne was the eldest. Yvonne's younger sister, Yvette (age 12) and brother Johann (9) also lived in the home. Yvonne was in her eighth grade year at the local middle school. She had ''always been a straight A student'' according to her parents. Yvonne's parents described her as a generally quiet young woman with a limited, but solid friendship group. Her family reported that most evenings and weekends were spent with the family, and Yvonne engaged in few social activities, although she was well-liked by others. Yvonne's medical history was significant for early complications related to mecomium aspiration in utero. She was held in the NICU and evaluated, but suffered no complications or difficulties and was released after 1 week. Her general health was reported as good. Her parents denied any history of emotional or behavioral difficulties. Family history was significant for anxiety and substance abuse.

Course of Treatment and Assessment of Progress

Family-based therapy requires all family members to attend sessions. At the first session the therapist greets the family in a ''sincere but grave'' manner that signals the importance of the task at hand and introductions are made. The family is introduced to the routine of treatment, which involves an initial gathering of weight from the patient, in private. This has the benefit of allowing the patient time alone with the therapist as well as to provide feedback to the family on progress in terms of weight gain. Yvonne was vague regarding her feelings about treatment, stating that she ''didn't care'' about the type of treatment and ''didn't mind'' attending sessions with her family. She refused to look at her weight on the scale, but stated this was because her weight ''didn't bother'' her. In contrast, Yvonne's parents expressed significant guilt and anxiety regarding their daughter's illness. The therapist gathered a history by questioning each member of the family and monitoring family reactions. Yvonne's mother reported that she was

anguished by her daughter's illness and felt incapacitated by fears she had done something to cause the disorder. Yvonne's father reported anger at his daughter for not eating and expressed concern that he would be able to encourage his daughter to eat as attempts before and after her hospitalization had proved unsuccessful. Yvonne's sister expressed anger, as she felt Yvonne's behavior was aimed to ''get more attention'' and was ''unfair.'' She and her brother both noted that family time had become stressed, with a focus on food, rather than enjoyment. They also resented the family time spent attending clinic visits and appointments.

The therapist then presented the family model of treatment, stressing the importance of attendance of all family members. In addition, efforts were made to bring the parents into alignment in their goals with one central focus: taking charge of re-feeding their daughter. To accomplish this the therapist spent time outlining steps the parents had taken to assist their daughter, in efforts to overcome guilt. At the same time, the therapist strengthened their commitment and resolve in accomplishing this task by praising previous efforts and successes, including making the decision to attend treatment. The therapist also took pains to assist the family in conceptualizing the eating disorder as distinct from their daughter and encouraged them to identify areas in which they could see ''anorexia in control.'' This simultaneously provided the therapist an opportunity to provide psychoeducation on eating disorders to the family as well as to encourage them to separate the eating disorder from their daughter.

While this focus was on the parents, Yvonne became increasingly agitated, moving in her seat and crying quietly. The therapist acknowledged to Yvonne that this encouragement of the parents and the control that they were taking would be limited in time and in scope, with a focus strictly on food and eating behaviors. Yvonne became angry and yelled that her parents were going to ''stuff her like a pig'' and ''make her fat and ugly!'' The therapist addressed these goals, discussing the importance of steady weight gain and fighting against the disorder. The therapist also commended her for her spirit and her independence and encouraged her to keep these attributes. The somewhat paradoxical nature of this statement was not lost on the parents, who stated that they would be more than happy if their daughter just ''sat down and ate!'' The therapist agreed that this would be easier, but also encouraged the parents to see that this would not ultimately be in Yvonne's benefit—for therapy to be successful, the family had to fight the disorder, not encourage acquiescence, which would make independent eating much more difficult to accomplish. The therapist also encouraged Yvonne's siblings to make a commitment to providing support for her during this time.

The therapist discussed the collaborative nature of the family-based therapy model—the therapist has expertise in eating disorder, but the parents are experts in their daughter and their knowledge and understanding of their child is key to the success of re-feeding. In addition, Yvonne's siblings could provide support and encouragement to Yvonne, while her parents worked at the task of feeding their starving child. At the end of the first session the parents were charged with their first task: to provide a family meal at the next session. Although they asked for specific guidance, the therapist encouraged them to ''bring a meal that you think your daughter needs to eat.''

The Family Meal

Yvonne's family came to the session with a full picnic basket of food, which the therapist encouraged them to eat as they would at home, while the therapist observed. The family appeared anxious, with the parents making frequent eye contact and watching Yvonne. Yvonne's mother took the lead in serving the meal, her husband first, then the two younger children and herself, while her husband provided a large bottle of water to Yvonne and juice to her siblings. Yvonne waited until all family members were served, then quietly reached into the picnic basket and removed a serving of fat-free yogurt and a small bag of carrots, sitting by herself at the corner of the table. While the family began their meal, the therapist asked a variety of questions regarding the meal, inquiring about the typicality of serving (''Mom, do you usually serve the food to the family or do they usually dish it out themselves?'' ''How did you decide what you would serve today?''). Yvonne's parents reported that they had discussed the meal and made plans following the previous sessions. However, they both expressed concern regarding what they felt Yvonne would eat and ultimately they provided her with several choices, and she selected what she would eat. The therapist made several observations about the types of food the family had chosen for themselves, versus what Yvonne had chosen, and questioned the family as to whether this was sufficient in terms of calories and nutrients to re-feed their starving daughter. Yvonne began yelling at her parents at this point, stating that she was eating something and ''that should make them happy!'' She also stated that this was ''in her portion plan'' from the dietician at the hospital and therefore was ''just fine.'' Yvonne's parents stated that this was typical of their meals, where Yvonne would chose what she wanted, separate herself from the family, and arguments would ensue about type and quality of food eaten. The therapist encouraged the family not to ''argue with anorexia'' regarding small calorie amounts and provided education regarding the calorie needs that their child might need to gain weight. Yvonne's mother nodded

vigorously and stated that if she had her way, Yvonne would have sampled several things that other family members had on their plates. Yvonne's sister began crying as well and stated that ''no one talked'' at dinner anymore and she wished her sister would just ''get better already!''

At this point the therapist encouraged the parents to sit next to Yvonne, one on either side, and to provide her with what they felt she needed to eat. Yvonne's father had been quiet during much of this discussion, but with this instruction he sat next to his daughter, picked up an avocado used in the salad and placed it in front of his daughter. Yvonne's mother said, ''Oh honey, I don't think she can do that!'' When the therapist questioned her about this statement she indicated that she thought this was too much for her daughter to try because, although she had previously loved avocados, they were high in fat and calories. Yvonne's father was clearly upset with his wife for ''undermining'' him. The therapist urged the parents to be unified and Yvonne's father responded by noting that he ''knew it would be really hard, but it is the difference between life and death.'' The therapist encouraged this and the parents set about encouraging Yvonne to eat. The therapist prompted them to provide an edible slice, then to place this in front of her. Despite her tearful protestations, Yvonne picked up the piece and ate it, then dissolved in tears. Her brother reached across the table to hold her hand, which the therapist encouraged.

Throughout the feeding process, parents require much encouragement to remain aligned with one another and to avoid bickering about small quantities of food. Many parents express concern about taking charge of food, particularly given that their child has typically both been independent in this area for some time and is very outspoken about food choices. Yvonne's parents were no exception and their different parenting styles, in which Yvonne's father was quiet and forceful and Yvonne's mother more nurturing and emotionally reactive to Yvonne's overt distress, were discussed and reframed as powerful tools. The therapist encouraged them to continue to work together to plan meals that were dense in calories and nutrition. They identified major areas for change in their meals, including replacing her water with whole milk or other calorie dense alternatives, discarding her specific portion plan and serving her meals, rather than allowing her to chose quantities.

The remainder of Phase 1 focused on continuing to align the parents in re-feeding Yvonne, aligning Yvonne with her siblings and monitoring weight progress. Yvonne's family struggled for the first four sessions, with minimal weight gain, although she did not continue to lose weight. Specific difficulties brought up by the family, which are not atypical in treatment, continued to be Yvonne's resistance to high fat foods. Her mother described her as a ''terrible two-year old'' when confronted with whole fat milk, and the parents disagreed on appropriate strategies and consequences when Yvonne did not comply with her meal. The therapist provided frequent guidance on changes, ways in which parents had been successful and highlighted success meals. After session six a noticeable change in the family was apparent. The parents reported they had ''taken control and weren't going to give it back until the disorder was dead!'' They reported that following a particularly difficult argument about birthday cake, they realized that they had been ''giving in'' and ''giving control'' to the anorexia and ''forgetting about Yvonne because we were focused on anorexia.'' Yvonne's mother admitted that she had felt overwhelmed in her new responsibilities and had not sought support from others, including her husband, in a way that would help her. She began cooking with Yvonne's sister as a way to spend time together, had cut back on her work schedule and utilized Yvonne's grandmother, who had lived in the neighborhood, to provide respite and food. This strategy had allowed her to spend more time with Yvonne's siblings and provided some break from the significant stress of re-feeding. In addition, parents noted that they set firm rules regarding food, which they described as ''we make it, we serve it, you eat it.'' They agreed that one parent would eat with Yvonne and she was never left unattended. Privileges for phone and computer were revoked until she ate her full meal. On her part, Yvonne described herself as less irritable and having more energy. She used this energy to return to playing video games with her siblings, which proved to be an ideal distracter as her mother prepared meals, which had been particularly contentious in the weeks before. Yvonne's brother made up several games to play with her and Yvonne began tutoring him in his math homework after meals, with an effort to distract herself from exercising. Yvonne made significant progress toward her ideal body weight, typically gaining 2–3 pounds per week for the next 6 weeks.

As expected, several areas of difficulty arose in the family that required some attention. As she got closer to her ideal body weight, Yvonne began eating more independently and compliantly. Her father stated that this led them to ''letting their guard down'' and leaving her unattended for moments at a meal. They were horrified when they found she had used these opportunities to throw away food and hide food. However, they discussed this and re-doubled their efforts remain with her at mealtimes. They noted that, although they were initially very distressed by this behavior, they recognized it as ''anorexia, not Yvonne'' and were then able to respond with greater calm and focus. These behaviors were relatively limited and responded to parent efforts to control them. At the end of Session 11, coinciding with a decrease in difficulties and attainment of her ideal body weight, the therapist suggested

a move to phase 2, to address other family issues and encourage greater independent eating for Yvonne.

Several factors signal readiness for a move to Phase II: normalization of eating and weight gain and greater compliance with eating. Often this can be felt as a palpable change in the family atmosphere, with greater comfort with each other and the therapist, as well as greater input and interaction from the identified patient. As was the case for Yvonne's family, some families reach this milestone relatively quickly and the therapist and family may feel pressure to address other issues and tensions that have been ''on the back burner'' while the focus has been specifically on re-feeding. Despite their desire to discuss issues related to family conflict and other concerns, the therapist cautioned them that the focus of stage two would be on returning independence to Yvonne and that this would likely present several of its own challenges.

Indeed, the parents noted that the first challenge was related to their own conflict in how best to hand back control to Yvonne and their individual comfort level with this process. Although she had been reluctant to assume control initially, Yvonne's mother laughingly stated that she ''sort of liked being in control'' and she expressed fear about what would happen. Her husband pointed out that this was the source of frequent arguments at home; he felt his wife worried too much what other people thought and avoided conflict ''at any cost.'' He envisioned himself as more of a ''straight shooter'' who wanted his daughter to be independent. This openness facilitated wonderful family discussions on their values of independence, how the family perceived independence and addressing their lingering concerns about Yvonne's health. They also expressed some concern that the greater length of time between sessions (Phase 2 moves sessions to every other week) would leave more ''gap time to get in trouble.'' With therapist guidance the parents selected two goals toward greater independence that they felt would be ideal. The first coincided with Yvonne's return to full days at school, which necessitated a choice of how to handle lunch. The family ultimately decided that Yvonne would eat lunch with her friends, but would be required to check in with the guidance counselor to ensure that she had eaten her meal. Parents acknowledged that Yvonne had ''a lot of independence and wiggle room'' in this decision and made a back-up plan if they felt that Yvonne was not able to handle this level of independence, as reflected in a decrease in weight between sessions. Another area of concession was a move from whole fat milk to two percent milk, which the family had previously enjoyed. This latter change elicited a collective sigh of relief from the family, as all had ''detested'' the whole fat milk.

At the following session, the family reported some difficulty in making the first transition, largely related to issues of ''trust'' between Yvonne and her mother. Specifically, Yvonne stated that although she was eating ''everything'' given to her, her mother was often skeptical and had even asked Yvonne's friends to watch her. Yvonne's sister and brother came readily to her defense, stating that their mother often ''snooped behind their backs'' or ''didn't trust them.'' She returned that the children kept things from her, which made it difficult to trust them, and this was a particular concern with the anorexia. The children noted that their mother was ''smothering with love'' and was so emotional that they often avoided telling her about things that they felt would upset her. This surprised her, as she felt that although she was emotional and cried easily, she did not imagine that this held her children back. The therapist also noted that Yvonne had not lost any weight and perhaps this type of feedback would be enough to help decrease anxiety about Yvonne's ability to handle independent eating.

The remainder of the sessions in Phase 2 continued in this manner, with parents negotiating and experimenting with returning independence in eating to the anorexic child consistent with family norms and developmental ability. Although the focus in Phase 1 had been singularly on re-feeding, the therapist should be mindful that flexibility in addressing family needs and conflicts is often necessary in Phase 2. Indeed, family members typically find Phase 2 challenging, as it often requires a renegotiation of family roles and interactions and may challenge long held patterns and beliefs.

After approximately 8 months in treatment, Yvonne had maintained her ideal body weight for almost 6 months, despite almost complete independence in eating. She had a return of her menses and a follow-up bone scan revealed only mild deficiencies in bone density. She had successfully transitioned to high school and joined the tennis team and the art club and had recently gone on her first date with a young man from her church. These and other issues relevant to adolescent development form the core of Phase 3. Yvonne's family reported feeling confident that they could handle these and other challenges, although Yvonne and her mother continued to argue regarding independence, these battles no longer involved food, but focused instead on driver's training and curfew. The family acknowledged many gains throughout therapy. Although the most significant of these gains related to Yvonne's weight and progress, her parents noted great satisfaction and personal development from facing the challenge of her illness and ''flexing parental muscles'' that they had not realized they possessed. This was particularly important as they felt that these lessons had improved their parenting with their younger children and had generalized beyond food-related issues. They also reported greater marital satisfaction and improved communication. Yvonne noted that she

continued to struggle with thoughts related to food restriction and exercise, particularly under periods of stress, but felt that she was ''more in control than anorexia.''

Cognitive Behavioral Therapy for Adolescent Bulimia Nervosa

The cognitive-behavioral model of BN assumes that the main factors involved in the maintenance of BN are dysfunctional attitudes toward body shape and weight. These beliefs and attitudes lead to an overvaluation of thinness, to bodily dissatisfaction, followed by attempts to change or control body shape and weight by extreme dieting strategies. In the case of BN, these extreme behaviors result in both severe psychological and physiological deprivation and are also often associated with depression, irritability, and mood lability. Finally, as a result of the dietary restriction, hunger is increased and impulsive binge eating ensues. However, because binge eating raises greatly increases concerns about gaining weight, purging of these calories is undertaken to prevent this and to manage the anxiety and guilt associated with having binged (Apple & Agras, 1997; Fairburn, Marcus, & Wilson, 1993). This approach has been manualized for adolescents with AN and there have been two published case series of adolescent subjects with bulimia using this slightly modified form of CBT designed for adolescent use (CBT-A; Lock, 2005). Adaptations to the standard models for CBT specific to adolescents include: (1) increased attention to the therapeutic alliance with the adolescent early in treatment to increase motivation to participate CBT; (2) including parents through education about CBT and advising them on their contributions to a healthy milieu around eating; (3) use of less abstract language to describe CBT and the use of concrete examples to illustrate points; and, (4) exploring adolescent developmental concerns (e.g., autonomy concerns, peer relationships) in the context of BN. CBT for adolescents with BN (CBT-A) usually lasts about 20 sessions over about 6 months and follows a three stage model as follows:

This first stage consists of the following components: presentation of the model underlying the maintenance of BN and its relevance to the patient's current difficulties; discussion of the structure and goals of treatment as well as the likely outcome; education about eating disorders, nutrition and weight regulation; establishing self-monitoring of eating habits; and the application of graded behavioral techniques for establishing a pattern of regular eating and for reducing the frequency of overeating. The adolescent is oriented to the CBT model and participates by keeping food logs and discussing these with the therapist. During a collateral session, parents are educated about the dangers of the illness and asked to support the individual treatment as agreed upon by the therapist and patient. For example, parents may be asked to not purchase items known to precipitate a binge early in treatment or make other changes in the home environment to promote and help the adolescent maintain or change her behaviors. There is usually a single collateral session with parents (10% of therapy time) in the first stage. The first ten sessions in this phase are usually completed in the first 3 months.

During the second stage, treatment becomes increasingly cognitively oriented. The techniques used in Stage 1 are supplemented with procedures for eliminating dietary restraint and for coping with situations which place individuals at high risk for binge-eating. Cognitive procedures are used to identify and modify thoughts and attitudes maintaining the eating problem. These are supplemented with behavioral experiments. Particular emphasis is placed on the modification of the patients' extreme concerns about shape and weight. The adolescent patient generally employs problem solving techniques (rather than formal cognitive re-structuring) to assist with problematic thoughts and beliefs. Collateral sessions with parents involve educating them about progress and identifying ways they can help with the adolescent's efforts to address problems of feared foods and avoided foods and supporting behavioral experiments. This stage consists of six sessions usually over a 2-month period.

The third stage is primarily concerned with the maintenance of change following treatment. Progress is reviewed and realistic expectations established. Relapse prevention strategies are used to prepare for future setbacks. The patient and therapist work together to identify adolescent developmental processes likely to be stressors that may lead to relapse (e.g., peer competition, dating, intimacy anxieties) and together develop strategies to help anticipate and diminish the impact of these types of stressors. Collateral sessions with parents are used to educate parents about these preventive efforts and identify ways they can help prevent relapse. This stage usually consists of four sessions over a 1-month period.

Therapists are given some leeway, as prescribed in the treatment manual, to provide appropriate treatment and management of crises or other issues for the patient and parents (Lock, 2005). Overall, it is expected that out of 20 sessions, 4–5 are parental collateral meetings.

Case Description—CBT Adjusted for Adolescents

Hannah, a 15-year-old, Caucasian female from suburb of a major metropolitan city on the West Coast, was referred to the Eating Disorders clinic at a local university medical center by her pediatrician. Hannah's eating disorder symptomatology began a year and 2 months prior to her

referral and onset of treatment. Hannah reported her symptoms first began following a significant illness. She contract pneumonia, which required several weeks of recovery. Following her recovery her friends and family commented on her weight loss. She described herself as ''a little too round'' prior to her illness and she enjoyed compliments on her new physique. She initially planned to follow the limited diet she had followed while ill, but found it increasingly difficult. This led to several binge eating episodes, which quickly increased in frequency to daily binges. Her weight increased rapidly, which led her to further restrict her intake. She followed a pattern of food abstinence during the day, allowing herself to eat only after school, which often became a binge episode. After 1 month of this pattern, she began to induce vomiting. She denied use of laxatives or diuretics, although she endorsed periods of excessive exercise. At the time of the referral, she described a pattern of daily food restriction, overeating or binge eating once per day, always followed by self-induced vomiting. She also purged after some ''normal size'' meals. She reported being dissatisfied with and distressed by her appearance, with significant preoccupation with food and fear of weight gain. Based upon interviews conducted separately with Hannah and her parents it was determined that she met criteria for Bulimia Nervosa (BN).

Hannah's parents were divorced and shared custody. Hannah's older brother attended college several hours from her city of residence. Hannah had just started her sophomore year at a small, local parochial school. She had done well academically in the previous year, but had struggled at the outset of the current year. Much of her social activity occurred around drama and musical productions. Hannah's medical history was not contributory. Family history was significant for anxiety and depression. Hannah herself had a history of difficulty separating from her parents at a young age, which decreased at school entry. Hannah's parents described her as ''sensitive'' and ''easily stressed'' although they denied symptoms of specific anxiety disorders.

Hannah and her family were provided with several options for treatment and selected CBT, based on the empirical evidence as well as the family's belief that this model best matched their daughter's specific difficulties.

Course of Treatment and Assessment of Progress

CBT for BN is broken down into three stages. Stage One (Sessions 1 to 8) has a primary aim of establishing normalized eating patterns, while Stage Two (Sessions 9 to 16) focuses on triggers for maladaptive eating behaviors, with a focus on modifying cognitions that serve as risk factors for binge/purge behaviors. In the final stage (Stage Three; sessions 17–20) the focus is on relapse prevention. The normalization of continued struggles with eating and maladaptive cognitions is achieved through identification of useful skills and exercises, as well as establishing a plan for managing a resurgence in symptoms.

The initial session of Stage One provided education on the CBT model, emphasizing the interplay between thoughts, feeling and behaviors, with a specific emphasis on the ways in which these relate to symptoms of BN. In particular, the therapist highlighted the cyclical interaction of dietary restriction and binge eating, in which food restriction leads to an increase in biological and psychological hunger cues, often triggering over-eating or binge eating episodes. Following an episode of binge-eating, feelings of guilt and shame, along with fears regarding weight gain increase. Purging behaviors may resolve initial feelings of guilt regarding a binge-eating episode, but ultimately serve as potentiating factors for distress, food restriction and initiation of another binge eating sequence. Hannah strongly identified with this model of her eating disorder.

Hannah was readily able to identify thoughts, feelings and behaviors at each stage of her binge-purge cycle. Her initial thoughts leading to food restriction were related to being ''a better singer and actress, if thinner.'' She was able to identify this pressure came from herself, and was related to feelings of competition with other girls, even those with whom she felt very close. Upon closer inspection, Hannah also identified feelings of inferiority and self-criticism that prompted food restriction. Specific thoughts included telling herself that she was ''lazy'' for not eating better or exercising, and feeling that ''only stupid people are this undisciplined.''

Although Hannah initially stated that she managed her eating well, she was able to acknowledge that a combination of hunger and low mood, which she related to negative self-statements, were strong incitements to binge eating. Violation of her dietary restraint, which she identified as eating ''almost any food, but especially something sweet'' would lead to feelings of helplessness, increased self-criticism and ultimately binge-eating.

Although binge eating episodes were initially experienced as a relief and a decrease in concerns related to weight gain, Hannah also noted thinking that ''this is not how normal people do things'' and feeling that she was ''completely out of control'' because she could not manage food and weight related concerns. These feelings of being out of control strengthened resolve to decrease portions, leading to further food restriction.

Hannah readily identified with the cyclical interplay of thoughts, feelings and behaviors in triggering and maintaining her binge eating and purging behaviors. She expressed concern related to significant weight gain when the therapist presented the importance of normalized eating

behaviors, with an emphasis on regular meals and snacks across her day. Although Hannah recognized that this would likely decrease afternoon binges by averting excessive hunger, she expressed concern that she would not be able to identify ''normal size'' meals and snacks and would overeat at each meal. To assist with food regulation and understand her eating patterns, Hannah was introduced to daily food records. These were characterized as an essential component of CBT for BN and as a key link between Hannah's behavior outside of session and skills learned within sessions. The therapist emphasized that recording quantities and types of food eaten, where she was, whom she was with, and thoughts or feelings accompanying eating experiences would help identify patterns of maladaptive eating behaviors and assist in the development of strategies to prevent them.

Hannah struggled with keeping records almost immediately. However, she was able to identify several key cognitions that prevented good record keeping behaviors. In particular, she reported being ashamed of her eating, and felt that writing down her ''sins'' would provide a record of ''all the mistakes'' she made in the week. She also expressed concern that others would find these records or inquire about them if they were to be completed at school, where she had one meal and two snacks. Hannah and her therapist worked together to identify more appropriate cognitions and strategies to assist her in remembering to complete these records. Hannah began using her cell phone alarm system to trigger reminders to snack and she and would text message herself with ''food outlines'' to help prompt completion of her food record at home. Hannah and her therapist also discussed pros and cons related to involving her mother in treatment. Hannah requested that her mother work with her in completing her food diaries and an adjunct family session allowed the therapist to observe as Hannah described BN and the CBT model to her mother, as well as requesting help with food monitoring and daily eating schedule.

Following this session, Hannah experienced greater success and generally had a 75–80% completion rate for food records during the remainder of sessions. Both Hannah's therapist and her mother reinforced her completion of these records through the use of praise. She later reported that, despite her initial resistance in completing records, they were vital in assisting her in normalizing her eating and identifying mood and social triggers to maladaptive eating patterns.

Following introduction of the daily food records, the therapist and Hannah discussed limiting the frequency of weight monitoring, as Hannah was weighing herself several times per day. This strategy was utilized to reduce some of Hannah's fears regarding weight gain, particularly with the initial change in eating patterns. Weekly weigh-ins were initiated as part of Hannah's outpatient therapy and used as a lens with which to interpret eating behaviors from the previous week. Surprisingly, Hannah reported that she felt great relief in not weighing herself daily, which she reported decreased negative cognitions and anxiety regarding normal fluctuations in her weight.

The remainder of the first stage of treatment involved continued review of food records as well as psycho education for Hannah related to eating habits, purging behaviors and discussion related to normalized eating behaviors. As with many adolescents with BN, Hannah was unaware of the physiological consequences of purging behaviors and believed this to be an effective means of weight control. Physiological consequences of purging such as the erosion of dental enamel, potassium depletion, and electrolyte imbalances were explained to Hannah. As she continued to keep food records she was able to note that her return to regular eating, even with her occasional binge at the outset of treatment, did not create any noticeable change in her weight. This served to both increase trust in the therapist as well as to decrease motivation to purge, as she realized this behavior was not associated with decreased weight or even weight maintenance.

Hannah also identified several triggers to binge eating episodes, which were distinct from food restriction. In particular, she noted that eating alone and feeling ''overly stressed'' were associated with a greater desire or propensity to binge-eat. She and her therapist were able to identify strategies to decrease the likelihood of binge-eating, including scheduling meals with peers or family members. This provided an opportunity to discuss pleasurable and distracting strategies that Hannah could engage in following meals to reduce the likelihood of engaging in eating disordered behavior. Hannah and her mother also attended another adjunct session, in which Hannah educated her mother about the consequences of eating disordered behavior and outlined vulnerable situations as well as distracting behaviors. The two of them agreed that Hannah's mother would serve as a resource by continuing her praise of Hannah's progress and cueing Hannah to engage in appropriate behavior strategies when necessary. By the end of Stage One, Hannah had been abstinent from binge eating episodes for 2 weeks and had not purged for 5 weeks.

At the outset of Stage Two, Hannah developed a list of ''feared foods,'' or those foods that have often triggered a binge in the past. Foods were listed and categorized from ''most feared'' to ''least feared.'' In addition to listing and categorizing foods, treatment also focused on rules and thoughts related to these foods, with an emphasis on the difficulties associated with avoiding particular foods. Hannah was able to note, and used her food diaries to

support, her feeling that continued abstinence from favorite but ''feared'' foods often led to overeating when presented with these food choices. A graduated exposure model was presented to Hannah, who reported concern about her ability to remain binge-abstinent in the face of these foods. Hannah agreed to select two items from her ''least feared'' category and to work on eating these in the first few weeks. She also selected appropriate rewards and what she and her mother came to call ''rate limiting factors'' that decreased the risk of binge eating. For example, Hannah chose to eat popcorn for her first exposure exercise. She arranged to have her mother and a friend watch a movie with her and ate the popcorn with them present, as she rarely binged in front of others. On her second exposure exercise she ate the popcorn alone, but purchased a small bag to prevent eating more than she anticipated.

Cognitive restructuring formed the core element of Stage 2 work. This involved identifying maladaptive thoughts, assessing evidence for and against the thoughts, and developing a rational and more adaptive conclusion based on the evidence. Hannah and the therapist worked to address each of the negative thoughts that contributed to her BN cycle. For example, regarding her thought that she was ''lazy'' Hannah was able to point to her active social commitments, strong academic performance and the way she handled a variety of responsibilities. She was also able to reframe behaviors she had perceived as ''lazy'' in terms of self-care. An essential part of cognitive restructuring focused on concerns specific to shape and weight. Cultural pressures surrounding the pursuit of a thin body and idealize images of thinness were discussed. Hannah was able to describe other qualities that she liked about herself, which were not related to shape and weight and was able to assess that she did not judge others by the standards that she used to evaluate herself.

A third specific aim of Stage 2 involved teaching specific problem-solving behaviors to assist Hannah in finding alternative means to addressing difficult situations and emotions. She was taught to first identify a problem, list alternatives, evaluate each alternative, select an option and follow through on the behavior. After completing the problem-solving steps, she was asked to evaluate the outcome. Initially problem-solving steps were applied within the treatment setting, then generalized outside of treatment and reviewed in session.

In the final component of Stage 2, interpersonal triggers and transient negative moods were explored in greater detail. Hannah herself had introduced this discussion earlier in treatment and her recognition of her mood variability and ways of managing her negative moods were quite salient in sessions. She worked with her therapist to identify situations that triggered negative mood states and develop adaptive means of coping with these feelings. She also identified areas of conflict with her parents, particularly her father, and adapted her problem-solving skills to address these difficulties.

In the final three sessions of treatment during Stage 3, Hannah and her therapist worked to develop a relapse prevention plan. The first step involved highlighting current and future situations that may be stressful for Hannah. Hannah was encouraged to reflect on the skills that had helped her cope with similar situations during the course of treatment through the application of specific components of the CBT protocol to these situations. She not only utilized specific CBT tools, but also noted the use of her expanded support network as a key relapse prevention tool.

Conclusion

Unfortunately the literature addressing appropriate treatment interventions for adolescents with eating disorders is limited. These disorders are complex, associated with comorbid psychopathology and present unique medical complications that can complicate treatment. Areas for future applied clinical research may include identification of specific components of treatment, dose effects of treatment, appropriateness of the treatment modalities for different ages (e.g., children versus adolescents) and efforts toward developing large-scale randomized clinical trials evaluating the efficacy of various treatment modalities.

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