Treatment Guidelines for Eating Disorders

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TREATMENT GUIDELINES FOR EATING DISORDERS

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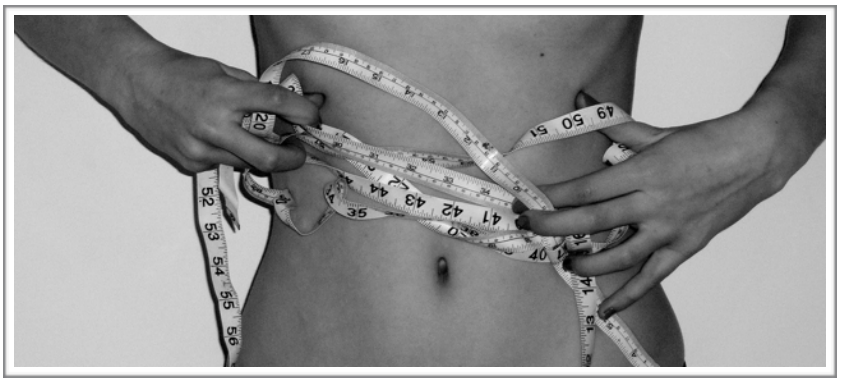

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Introduction

This resource is for anyone in the health care field, including mental health professionals, social workers, nurses, physicians, physician assistants, and anyone else that may be part of a health care establishment.

This article begins with a brief description of anorexia nervosa, bulimia nervosa, and binge-eating disorder. The main portion of this article examines the treatment guidelines for these eating disorders, including when to end treatment, what patients with eating disorders are looking for in treatment and in a therapist, and the importance, as well as the timing, of family involvement. Nutrition related treatment, weight gain guidelines, and pharmacotherapy are also discussed.

Understanding Eating Disorders (EDs)

"Eating disorders are real, treatable medical illnesses. They frequently coexist with other illnesses such as depression, substance abuse, or anxiety disorders."[1] "Eating disorders have one of the highest death rates of all psychiatric diagnoses. The number of deaths in anorexics is 11.6 times what would be expected in others of their same age and sex; for bulimics, this number is 1.3 times greater than expected. The most shocking number is the 56.9 times increased number of observed versus expected deaths in anorexics from suicide. If either of these groups abuse alcohol, the death rates [are] even higher. Depression is a major risk factor for both substance use disorder and bulimia and explains to a great degree the association between substance use disorder and eating disorders."[2]

"It has been suggested that patients with EDs tend to show alexithymia. Alexithymia is commonly described as consisting of four features: (1) difficulty identifying and describing subjective feelings; (2) difficulty distinguishing between feelings and the bodily sensations of emotional arousal; (3) lack of fantasy; and (4) an externally orientated cognitive style. Previous studies demonstrated that patients with EDs use maladaptive eating behaviors (e.g., binging, purging, or dietary restriction) as a way to avoid or cope with their emotions, with many clinical studies suggesting that eating disorder symptoms are associated with emotional dysfunction, with clear functional links expressed between emotional states and both bulimic and restrictive pathology."[3]

There are three main categories of eating disorders with the last category including two subcategories:[4]

- Anorexia Nervosa (AN)
- Bulimia Nervosa (BN)
- Eating Disorders Not Otherwise Specified (ED-NOS)
  - Binge-Eating Disorders (BED)
  - Night-Eating Syndrome (NES)

The above eating disorders are characterized by:[4]

- Aberrant or restricted eating
- Purging behaviors
- Excessive exercise
- Preoccupation with food, weight, and body image

"Factors Related to the Development of Eating Disorders:"[5]

- Family history of eating disorders
- Family emphasis on body size, shape, dieting
- Enmeshment with parents
- Maturational fears (early adolescence)
- Independence/autonomy struggles (mid adolescence)

- Identity conflict (late adolescence)
- Difficulty expressing negative emotions or resolving conflict
- Stressful life event or transition
- Sexual abuse or assault
- Perfectionism
- Eagerness to please others
- Low self-esteem
- Feelings of inadequacy or lack of control
- Body image disturbances
- Negative comments from others about body size/shape or eating habits
- Obsessive compulsive disorder
- Depression
- Oppositional disorder
- Anxiety disorders
- Chronic dieting or restrained eating
- Restricted diets (e.g., vegetarian, multiple food allergies/intolerances)
- Type 1 diabetes mellitus
- Intensive exercise/physical training
- Participation in appearance/body composition related sports/activities
- Sexual identity conflict (particularly in males)
- Media/societal pressure for thinness, fitness, and in males muscular physique

Self-Talk

"Eating disorder self-talk or the 'voice of A/b (anorexia/bulimia)' has been argued to play a crucial role in the development and maintenance of disordered eating behavior. This voice ensures that weight, shape, and eating issues are never far from one's consciousness, that self-worth remains integrally connected with thinness, and that the sufferer's original self-identity and values are subjugated, along with thoughts of a healthier/more positive nature. ED sufferers often refer to an ED voice, which, in some instances, speaks to them in the second person and which they perceive as having a different persona, despite it being essentially egosyntonic and non-psychotic in nature."[6]

There are "four different roles adopted by the ED voice: the seducer, making promises to remove pain and suffering; the coach, monitoring eating behavior and providing guidance and exhortation; the mentor or 'voice of reason' that helps the sufferer interpret the world through eyes that see thinness and self-discipline/denial as core moral virtues; and the abuser/bully, seizing every opportunity to denigrate the sufferer as unworthy."[6] Based off of "first hand reports by individuals

with anorexia nervosa, [it is suggested] that the sufferer's relationship with the voice changes markedly over the course of the ED, as the seducer role becomes less prominent and the abuser role more so."[6]

It is reasoned that "treatment efforts have to center on lessening the hold the 'voice of A/b' has on the sufferer [and] that better understanding ED sufferer's beliefs about this voice may be central to reducing its power."[6] Arguably, "the failure of some health professionals to acknowledge the hold of such pro-cognitions is an important factor in increasing treatment-resistance."[6]

"The fact that the component of self-talk that predicts overall ED severity is so characteristic of an abusive relationship suggest that too domineering an approach risks adding to the client's trauma and loss of sense of self. Rather, treatment needs to focus on empowering the ED sufferer to withstand the abuser that resides in [their] head."[6] It is advised for "therapists to persevere with efforts to 'infiltrate the relationship' between the sufferer and the eating disorder voice. In seeking to counter the impact of the ED voice, it is the 'seducer' and 'abuser' roles that would seem to merit primary attention [and] the patient be taught to recognize the 'eating disorder mindset.' Therapists might also be guided by the relationship between 'the abuser' and purging and restrictive behavior, and between ascetic attitudes and exercising and low weight, to more precisely target the type of mindset at work."[6]

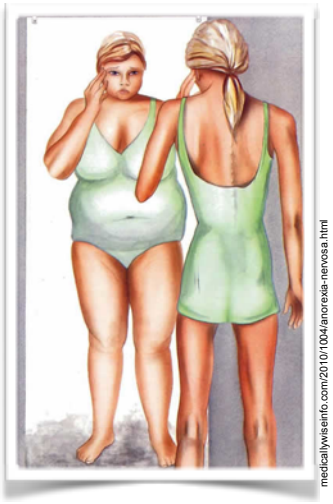
Suicidality

"Considering the consistent finding of high risk of suicidality in this population, it is important for researchers and clinicians to continue to examine the risk factors and associations with the prevalence of suicidality in individuals with EDs. Suicidal behavior in AN may be the result of [the] associated behaviors defined by the AN subtype [restricting, purging, binge-purging, and history of BN]. Repetitive experience with behaviors such as binge eating and self-induced vomiting may be a route to suicidal behavior in binging and/or purging subtypes, while the exposure to pain through starvation from restriction may lead to suicidal behavior in restricting subtypes. Individual studies have identified a range of factors that may be associated with increased risk of suicidality and/or associated behaviors among individuals with EDs. Illness severity, co-occurring psychiatric illnesses including borderline personality disorder and substance abuse, excessive exercise, and alexithymia have been mentioned as possible risk factors. Emphasis on the importance of clinical awareness to the heightened risk of suicide in the adolescent ED population, the treatment for which may present to be challenging as it requires careful coordination between clinicians, parents, and the young adult patients themselves."[7]

Anorexia Nervosa

"Anorexia nervosa is an eating disorder characterized by an irrational fear of weight gain. People with anorexia nervosa believe that they are overweight even when they are extremely thin."[8]

Specific types:[5]


medicallywiseinfo.com/2010/1004/anorexia-nervosa.html

- Restricting Type: During the current episode of anorexia nervosa, the person has not regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).
- Binge-Eating/Purging Type: During the current episode of anorexia nervosa, the person has regularly engaged in binge-eating or purging behaviors (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Diagnostic Criteria for Anorexia Nervosa:[5]

- Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of the expected; or failure to make expected weight gain during periods of growth, leading to body weight less than 85% of that expected).
- Intense fear of gaining weight or becoming fat, even though underweight.
- Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.
- In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)

Bulimia Nervosa

"Bulimia nervosa is associated with chaotic eating behaviors. Binge eating is followed by purging, fasting, and/or intensive exercise in an attempt to compensate for the excessive calories ingested. Large quantities of food, frequently high in carbohydrate or sugar, are consumed (approximately 3400 - 4800 calories per episode). Intake usually occurs rapidly and in secrecy, until extreme fullness. Although [vomiting is] commonly used in an attempt to purge all calories from the body following a binge, approximately 1200 calories are

monografias.com/trabajos92/contemplative-bulimia/contemplative-bulimia.shtml

retained after binging and vomiting, regardless of the amount eaten. Individuals with bulimia nervosa may be overweight, slightly underweight, or of normal weight, and often experience rapid weight fluctuations."[5]

Specific types:[5]

- Purging Type: During the current episode of bulimia nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.
- Non-purging Type: During the current episode of bulimia nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

Diagnostic Criteria for Bulimia Nervosa:[5]

- Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
  - eating, in a discrete period of time, (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
  - a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).
- Recurrent, inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.
- The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.
- Self-evaluation is unduly influenced by body shape and weight.

Eating Disorders Not Otherwise Specified

Eating Disorders Not Otherwise Specified "includes both BED and NES and is the most common eating disorder diagnosed in epidemiological studies."[4] This category includes "those who have not yet lost 15% of expected weight for height and age, those who purge but do not binge-eat, and those who have been amenorrheic for less than 3 months."[5]

Diagnostic Criteria for Eating Disorder Not Otherwise Specified (EDNOS):[5]

- The Eating Disorder Not Otherwise Specified category is for disorders of eating that do not meet the criteria for any specific eating disorder. Examples include:

- For females, all of the criteria for anorexia nervosa are met except the individual has regular menses.
- All of the criteria for anorexia nervosa are met except that, despite significant weight loss, the individual's current weight is in the normal range.
- All of the criteria for bulimia nervosa are met except that the binge-eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than 3 months.
- The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (e.g., self-induced vomiting after the consumption of two cookies).
- Repeatedly chewing and spitting out, but not swallowing, large amounts of food.
- Binge-eating disorder: recurrent episodes of binge-eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of bulimia nervosa.

Binge-Eating Disorders

"Research Criteria for Binge Eating Disorder:"[5]

- Binge-eating episodes are associated with 3 or more of the following:
  - Eating much more rapidly than normal
  - Eating until feeling uncomfortably full
  - Eating large amounts of food when not feeling physically hungry
  - Eating alone because of being embarrassed by the amount that one is eating
  - Feeling disgusted with oneself, depressed, or very guilty after overeating
- Marked distress regarding binge eating is present
- Binge eating occurs, on average, at least 2 days a week for 6 months
- Binge eating is not associated with regular use of inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of AN or BN

Night-Eating Syndrome

"Night-eating syndrome is characterized by morning anorexia; awakenings accompanied by nocturnal food intake; and hyperphagia, defined as consuming 25% or more of daily caloric intake after the evening meal at least two times/week for 3 months."[4]

Treatment

"People with eating disorders should be assessed and receive treatment at the earliest opportunity. Early treatment is particularly important for those with or at risk of severe emaciation and such patients should be prioritized for treatment."[9] "Because of the potentially irreversible effects of an eating disorder on physical and emotional growth and development in adolescents, because of the risk of death, and because of the evidence suggesting improved outcome with early treatment, the threshold for intervention in adolescents should be lower than in adults. Irreversible risks are growth retardation, pubertal delay or arrest, impaired acquisition of peak bone mass, and increased risk of osteoporosis."[2]

"Treatment plans often are tailored to individual needs and may include one or more of the following:"[1]

- Individual, group, or family psychotherapy
- Medical care and monitoring
- Nutritional counseling
- Medications (for example, antidepressants)

"Typical treatment goals include restoring adequate nutrition, bringing weight to a healthy level, reducing excessive exercise, and stopping binge eating and purging behaviors. Specific forms of psychotherapy, or talk therapy - including a family-based therapy called the Maudsley approach and cognitive behavioral approaches - have been shown to be useful for treating specific eating disorders. Evidence also suggests that antidepressant medications approved by the U.S. Food and Drug Administration may help for bulimia nervosa and also may be effective for treating co-occurring anxiety or depression for other eating disorders."[1]

"Studies exploring which aspects of treatment for eating disorders that are considered by former patients to be helpful have identified factors as participation and control in treatment, social support from friends and family during the treatment process, specialized treatment conducted by therapists with extensive expertise, interventions focusing on cognitive symptoms, and individual therapy in combination with family-based therapy."[10]

"Where laxative abuse is present, patients should be advised to gradually reduce laxative use and informed that laxative use does not significantly reduce calorie absorption. Treatment of both sub threshold and clinical cases of an eating disorder in people with diabetes is essential because of the greatly increased physical risk in this group. People with type 1 diabetes and an eating disorder should have intensive regular physical monitoring because they are at high risk of retinopathy and other complications. Healthcare professionals should advise people with eating disorders and osteoporosis or related bone disorders to refrain from physical activities that significantly increase the likelihood of falls. In children and adolescents with eating disorders, growth and development should be closely monitored. Where development is delayed or growth is stunted despite adequate

nutrition, pediatric advice should be sought. Healthcare professionals assessing children and adolescents with eating disorders should be alert to indicators of abuse (emotional, physical, and sexual) and should remain so throughout treatment."[9]

"If a specialized eating disorder program is necessary, a comprehensive treatment plan involving a variety of experts and approaches is recommended. Some communities have available resources such as ambulatory clinics, residential treatment facilities, partial hospitalization programs, and inpatient medical or psychiatric units. Clinics and clinicians who specialize in eating disorder (e.g., nutritionist, psychiatrist, psychotherapist) are the best resources for evaluating a person with an eating disorder. Consultation with a nutritional specialist is recommended in the restoration of body weight and in providing optimal nutritional status for patients with AN."[4]

"In the absence of evidence to guide the management of atypical eating disorders (also known as eating disorders not otherwise specified) other than binge eating disorder, it is recommended that the clinician considers following the guidance on the treatment of the eating problem that most closely resembles the individual patient's eating disorder."[9]

Steps in the Management of Eating Disorders:[4]

1. Implement management resources
    - Develop a therapeutic alliance.
    - Determine the diagnosis and types of behaviors (restricting, binge eating/purging).
    - Consult and collaborate with other professionals and clinicians.
    - Implement nutritional counseling/rehabilitation.
2. Assess for presence of factors requiring hospitalization
    - Rapid and excessive weight loss (less than 85% of body weight for height, age, and sex).
    - Serious metabolic disorders (dehydration, hypokalemia, hyponatremia, hypophosphatemia).
    - Cardia abnormalities (arrhythmias, bradycardia, hypotension, severe orthostatic changes).
    - Uncontrollable and severe binge eating and purging.
    - Acute psychiatric conditions (psychosis, depression, suicide ideation with a plan or attempt).
    - Need for intravenous fluids, nasogastric tube feedings, or several daily laboratory tests.
    - Supervision required during and after meals and in the bathroom.

- Poor motivation for outpatient treatment.
- Severe family conflicts, living alone without adequate support, unable to receive outpatient treatment.
- For AN: hospitalization may be required until 90% to 92% of ideal body weight is maintained.

3. Determine treatment goals and therapeutic end points
   - For AN: restore weight gradually through refeeding and vitamin, mineral, and electrolyte supplementation (risk of heart failure is highest during the first 2 weeks of refeeding). A target weight for AN is usually a BMI of 19 - 21 kg/m^2.
   - Treat coexisting psychiatric disorders with therapy, support, and pharmacotherapy if needed.
   - Establish a normal eating pattern without restricting or binge-eating behaviors.
   - Eliminate purging behaviors.
   - Improve social and interpersonal functioning.
   - Prevent suicidal behavior.
   - Prevent relapse.
   - Reduce morbidity and mortality.
4. Provide psychiatric assessment, treatment, and monitoring
   - Assess and monitor psychiatric symptoms, behaviors, and medical status.
   - Initiate psychosocial treatments. Psychotherapy may be needed for a long-term basis.
   - For BN, BED, BDD, and NES: consider an SSRI to reduce symptoms of anxiety, OCD, depression, and impulsivity and to reduce binge eating and vomiting. For relapse prevention, continue for at least 9 months.
   - For AN: after weight restoration, consider an SSRI for anxiety, OCD, and depression.
   - Monitory for suicidal thoughts or behaviors when starting or changing an antidepressant.

Anorexia Nervosa

Primary Treatment Goals:

- Correction of medical complications[5]
- Restoration of body weight and composition[5]
- Prevention of weight loss after intensive care[11]
- Resumption of normal growth and development[5]
- Initiation/return of normal menstrual periods (females)/testosterone levels (males)[5]
- Normalization of dysfunctional eating patterns[5]
- Reduction of associated psychopathology (e.g., preoccupation with body image), depression, OCD, and treatment of associated medical conditions (e.g., disturbances of gonadal axis, infertility, osteoporosis)[11]

In one study, "patients with 'mild' anorexia nervosa were generally seen as having significantly more control over behavior and decision-making ability than those with 'severe' anorexia nervosa [and] eating disorder experts were less likely than other psychiatrists to think that patients with 'mild' anorexia nervosa are choosing to engage in weight loss or able to control their weight loss behaviors. Eating disorder specialists may therefore be less likely [to] attribute responsibility for weight loss behaviors to patients who are not yet severely ill. This may have implications for how patients with anorexia nervosa are treated. For example, it may be possible that given their different attitudes, eating disorder experts may be more prepared to act in order to protect the health of their patients who are not yet severely ill from the disorder. This is clinically relevant as patients with relatively mild anorexia nervosa may nevertheless be at some risk to themselves and measures to restrict their freedoms and supervise their behaviors may be considered at an early stage, for example when they are rapidly losing weight."[12]

One treatment method for AN is Enhanced Cognitive Behavior Therapy (CBT-E). "The three intensity levels of CBT-E range from 1) outpatient CBT-E (CBT-E 'as usual') to 2) intensive outpatient CBT-E, which involves input from a multidisciplinary team including dietetics, a physician, and a psychiatrist to 3) inpatient CBT-E. CBT-E has been evaluated empirically in outpatient populations and has also recently been evaluated in inpatient treatment for anorexia nervosa. The results of these trials have provided evidence that CBT-E is well accepted by patients, even those who are severely underweight, and is highly effective for patients with all forms of eating disorders in a range of clinical settings."[13]

"Most people with anorexia nervosa should be managed on an outpatient basis with psychological treatment provided by a service that is competent in giving that treatment and assessing the physical risk of people with eating disorders. Outpatient psychological treatment for anorexia nervosa should normally be of at least 6 months duration. For patients with anorexia nervosa, if

during outpatient psychological treatment there is significant deterioration, or the completion of an adequate course of outpatient psychological treatment does not lead to any significant improvement, more intensive forms of treatment (for example, a move from individual therapy to combined individual and family work; or day-care or inpatient care) should be considered. People with anorexia nervosa requiring inpatient treatment should be admitted to a setting that can provide the skilled implementation of refeeding with careful physical monitoring (particularly in the first few days of refeeding) in combination with psychosocial interventions. Where inpatient management is required for people with anorexia nervosa, this should be provided within reasonable traveling distance to enable the involvement of relatives and carers in treatment, to maintain social and occupational links, and to avoid difficulty in transition between primary and secondary care services. This is particularly important in the treatment of children and adolescents, for whom there is a significant risk of suicide or severe self-harm. Inpatient treatment should be considered for people with anorexia nervosa whose disorder is associated with high or moderate physical risk."[9]

A second treatment method, based on "clinical neuropsychology is concerned with the applied science of brain-behavior relationships, and in AN, the focus has been primarily to establish the extent to which weaknesses in cognitive flexibility (i.e., the inability to shift or change mental and behavioral strategies) and central coherence (i.e., the preoccupation with details at the cost of global/contextual processing) contribute to the development of the illness, its perseverance, and the likelihood of recovery. Early neuropsychological studies and clinical observations of adults with AN laid the groundwork for the development of cognitive remediation therapy (CRT), an intervention specifically tailored to remedy weakness in these two domains (i.e., cognitive flexibility and central coherence), and designed to encourage patients to reflect on their thinking styles. In contrast to traditional interventions that center on increasing food intake and on addressing ED specific symptoms such as weight and shape concerns, CRT aims neither to address nor directly treat these. The focus is primarily to decrease rigidity (i.e., increase flexibility) and achieve a balance between local (detailed) and global (the bigger picture) information processing strategies."[14]

"Individual CRT appears to be associated with lower dropout rates than group CRT, and has the potential of creating a positive patient-therapist alliance. Further, group therapy appears to appeal to patients in increasing awareness of shared cognitive styles, but has also been reported fostering negative group dynamics, and tasks assigned during the therapy [are] not always perceived as relevant. At present, there is only one report of family CRT, and although it appears as family CRT strengthens the understanding of how cognitive styles affect family dynamics, improving communication and cooperation during treatment, one must stress that family CRT should not replace existing treatments, but rather be seen as a conjunct to ordinary treatment engagements. Overall, single case studies and case series support the feasibility of CRT across ages, illness severity, current treatment engagements, and when delivered in a number of different formats."[14]

"Patients suffering from anorexia nervosa may refuse treatment. One of the ethical issues pertinent to the management of treatment refusal is that of competence, or the ability of patients to make their own treatment decisions. It is generally agreed that patients who possess the competence to make treatment decisions should be allowed to make their own treatment choices, even if these

choices appear to be foolish or unwise. Research suggests that for anorexia nervosa in particular, patients can experience difficulties with making decisions to accept treatment because of shifts in value systems, the incorporation of the mental disorder in the patient's sense of personal identity, and battles for control with mental health professionals."[12]

"For inpatients with anorexia nervosa, a structured symptom-focused treatment regimen with the expectation of weight gain should be provided in order to achieve weight restoration. It is important to carefully monitor the patient's physical status during refeeding. Psychological treatment should be provided which has a focus both on eating behavior and attitudes to weight and shape, and on wider psychosocial issues with the expectation of weight gain. Rigid inpatient behavior modification programs should not be used in the management of anorexia nervosa."[9]

"Following inpatient weight restoration, people with anorexia nervosa should be offered outpatient psychological treatment that focuses both on eating behavior and attitudes to weight and shape, and on wider psychosocial issues, with regular monitoring of both physical and psychological risk. The length of outpatient psychological treatment and physical monitoring following inpatient weight restoration should typically be at least 12 months."[9]

"In most patients with anorexia nervosa, an average weekly weight gain of 0.5 - 1 kg in inpatient settings and 0.5 kg in outpatient settings should be an aim of treatment. This requires about 3,500 to 7,000 extra calories a week. Total parental nutrition should not be used for people with anorexia nervosa unless there is significant gastrointestinal dysfunction."[9]

"Feeding against the will of the patient should be an intervention of last resort in the care and management of anorexia nervosa. Feeding against the will of the patient is a highly specialized procedure requiring expertise in the care and management of those with severe eating disorders and the physical complications associated with it. When making the decision to feed against the will of the patient, the legal basis for any such action must be clear."[9]

Bulimia Nervosa

Primary Treatment Goals:

- Cessation of binge eating behavior[11]
- Cessation of compensatory behavior (e.g., vomiting, misuse of laxatives and diuretics)[11]
- Reduction of associated psychopathology and therapy of associated medical conditions[11]

"People with bulimia nervosa have recurrent and frequent episodes of eating unusually large amounts of food and feel a lack of control over these episodes. This binge eating is followed by behavior that compensates for the overeating such as forced vomiting, excessive use of laxatives or diuretics, fasting, excessive exercise, or a combination of these behaviors. Unlike anorexia nervosa,

people with bulimia nervosa usually maintain what is considered a healthy or normal weight, while some are slightly overweight. But like people with anorexia nervosa, they often fear gaining weight, want desperately to lose weight, and are intensely unhappy with their body size and shape. Usually, bulimic behavior is done secretly because it is often accompanied by feelings of disgust or shame. The binge eating and purging cycle can happen anywhere from several times a week to many times a day."[1]

"The great majority of patients with [BN] can be treated as outpatients. There is a very limited role for the inpatient treatment of bulimia nervosa. This is primarily concerned with the management of suicide risk or severe self-harm. For patients with bulimia nervosa who are at risk of suicide or severe self-harm, admission as an inpatient or day patient, or the provision of more intensive outpatient care, should be considered."[9]

"Healthcare professionals should be aware that patients with [BN] who have poor impulse control, notably substance misuse, may be less likely to respond to a standard program of treatment. As a consequence, treatment should be adapted to the problems presented."[9]

"As a possible first step, patients with bulimia nervosa should be encouraged to follow an evidence-based self-help program. Healthcare professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help program as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. When people with bulimia nervosa have not responded to or do not want CBT, other psychological treatments should be considered. Interpersonal psychotherapy should be considered as an alternative to CBT, but patients should be informed it takes 8 - 12 months to achieve results comparable with cognitive behavior therapy."[9]

"Cognitive behavior therapy for bulimia nervosa (CBT-BN), a specifically adapted form of CBT, should be offered to adults with [BN]. The course of treatment should be for 16 to 20 sessions over 4 to 5 months. Adolescents with bulimia nervosa may be treated with CBT-BN, adapted as needed to suit their age, circumstances, and level of development, and including the family as appropriate."[9]

"Patients with [BN] can experience physical problems as a result of a range of behaviors associated with the condition. Awareness of the risks and careful monitoring should be a concern of all healthcare professionals working with people with this disorder."[9]

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Those "with an eating disorder who are vomiting should have regular dental reviews [and] be given appropriate advise on dental hygiene, which should include: avoiding brushing after vomiting; rinsing with a non-acid mouthwash after vomiting; and reducing an acid oral environment (for example, limiting acidic foods)."[9]

Furthermore, "patients with bulimia nervosa who are vomiting

frequently or taking large quantities of laxatives (especially if they are also underweight) should have their fluid and electrolyte balance assessed. When electrolyte disturbance is detected, it is usually sufficient to focus on eliminating the behavior responsible. In the small proportion of cases where supplementation is required to restore electrolyte balance, oral rather than intravenous administration is recommended, unless there are problems with gastrointestinal absorption."[9]

Binge-Eating Disorder

Primary Treatment Goals:

- Cessation of binge eating behavior[11]
- Reduction of associated psychopathology[11]
- Treatment of obesity[11]

"People with binge-eating disorder lose control over their eating. Unlike bulimia nervosa, periods of binge eating are not followed by compensatory behaviors like purging, excessive exercise, or fasting. As a result, people with binge-eating disorder often are overweight or obese. People with binge-eating disorder who are obese are at higher risk for developing cardiovascular disease and high blood pressure. They also experience guilt, shame, and distress about their binge eating, which can lead to more binge eating."[1]


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"The characteristic feature of BED is persistent binge episodes wherein an unusually large quantity of food is eaten within a discrete period of time while experiencing a sense of loss of control over eating (i.e., objective binge eating episodes [OBEs]). Thus, an important goal of treatment for BED is to reduce the frequency of such episodes and ultimately promote abstinence from binge eating. Research has demonstrated that numerous psychological treatments may be effective in improving binge eating symptoms, including cognitive behavior therapy (CBT), interpersonal psychotherapy (IPT), and dialectical behavior therapy (DBT). However, although these treatments are effective for many individuals, a significant proportion of individuals still fail to benefit from such treatments."[15]

"As a possible first step, patients with binge-eating disorder should be encouraged to follow an evidence-based self-help program. Healthcare professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help program as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. Cognitive behavior therapy for binge eating disorder (CBT-BED), a specifically adapted form of CBT, should be offered to adults with binge eating disorder. Other psychological treatments (interpersonal psychotherapy for binge eating disorder and modified dialectical behavior therapy) may be offered to adults with persistent binge eating disorder. Patients should be informed that all psychological

treatments for binge eating disorder have a limited effect on body weight. When providing psychological treatments for patients with binge eating disorder, consideration should be given to the provision of concurrent or consecutive interventions focusing on the management of any comorbid obesity. As an alternative or additional first step to using an evidence-based self-help program, consideration should be given to offering a trial of an SSRI antidepressant drug to patients with binge eating disorder. Patients with [BED] should be informed that SSRIs can reduce binge eating, but the long-term effects are unknown. Antidepressant drug treatment may be sufficient treatment for a limited subset of patients."[9]

"Binge eating disorder is associated with specific eating disorder psychopathology, notable psychiatric co-morbidity, and considerable psychosocial and functional impairment. Furthermore, BED is associated with significant medical morbidity and physical health risks."[15]

"One psychological mechanism that has been hypothesized to be integral to the development and maintenance of binge eating is maladaptive emotion regulation. Emotion regulation is defined as 'the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals.' In essence, emotion regulation involves the ability to tolerate extreme affect and to regulate one's affect. Binge eating has been described as a maladaptive emotion regulation strategy, wherein binge eating is used to temporarily relieve an aversive emotional state."[15]

"Improving emotion regulation is an important goal of DBT as adapted for BED. DBT for BED focuses on understanding and recognizing the link between dysregulated emotions and disordered eating behaviors, and teaching alternative, more adaptive emotion regulation skills. Previous research has demonstrated that DBT is effective in the treatment of BED. However, the association of change in emotion regulation with change in binge eating remains uncertain."[15]

"A guided self-help adaptation of DBT for BED was developed and evaluated in a randomized wait-list controlled treatment trial. In guided self-help treatment, a health worker guides an individual through a self-help manual. The manual was designed to be used over thirteen weeks, and the six support calls were provided approximately every two weeks across this treatment period. Each chapter in the manual had a specific focus and included homework that was intended to be worked on by participants during the week that the chapter was read. Support sessions focused on encouraging participants' use of the manual, answering any questions that participants had about the manual, and problem-solving with participants to determine how they could find the time to use the manual and/or remember strategies discussed in the manual. The manual provided education on three skill modules to aid in regulating emotions (i.e., Mindfulness, Distress Tolerance, and Emotion Regulation), and guided the reader through activities and exercises designed to increase familiarity with these skills and encourage implementation of these skills in daily life. Many participants demonstrated a positive response to guided self-help DBT, yet a significant proportion of participants (70.0%) failed to be binge abstinent at follow-up, which is consistent with results from other treatment trials of DBT for BED. The amount of change reported in emotion regulation from pre-treatment to post-treatment was almost three times greater

among participants who were binge abstinent as compared to participants who were not binge abstinent. These findings support the theoretical notion that improving emotion regulation is associated with binge abstinence."[9]

When To End Treatment

"Research has revealed that many young people are not entirely satisfied with the treatment received and the contact experienced during treatment. Even people who experienced a positive outcome of treatment, as defined by clinically established criteria, describe that they have not been understood or that the therapists could not help them. Dissatisfaction with treatment has for instance been linked to treatment delay, to the fact that treatment interventions have not had the desired outcome, and to a premature cessation of treatment."[10] It has also been noted that "negative thoughts and feelings of depression or anxiety often remain in people who were dissatisfied with the on-going treatment, something which reduces their ability to maintain normal weight after completion of treatment and increases the risk of relapse."[10]

Some patients "mention how the therapists set up goals relating to weight as a benchmark for ending treatment, something that the young people did not feel comfortable with and which they question retrospectively. In their narratives they speak very little about weight in relation to coming to an end of treatment, but more about the importance of feeling strong and having improved their relationship with food."[10] As explained by one patient, "it felt a bit like a slap in the face that 'OK, now you have reached normal weight - so now you are well again.' The simple fact that I had put on weight meant that everything was fine, and that was all there was to it. I felt like . . . 'I'm not prepared to walk out weighing this, if you leave me, I will start losing weight again.'"[10]

"It is important in treatment to jointly clarify the expectations and what the treatment should lead to, that is, to create a shared view of the situation. Otherwise, there is a risk that the treatment is terminated although the patient believes there are problems left to work with, or that a patient leaves the treatment prematurely because the process is not progressing. Therapists who focused on weight gain as a goal for treatment and equated increase in weight with improved mental health did not correspond to the adolescents' own experience, [leaving] some of them unprepared for termination of treatment and are afterwards disappointed that the therapist was not more interested in their thoughts and feelings."[10]

Family Involvement

"Family members, including siblings, should normally be included in the treatment of children and adolescents with eating disorders. Interventions may include sharing of information, advice on behavioral management, and facilitating communication."[9]

"The importance of involving parents in treatment, primarily treatment of adolescents with Anorexia Nervosa, is emphasized in a number of studies."[10] However, it has been disputed "that family-based treatment does not have the strong empirical support as proposed. It has for instance been suggested that in family-based therapy, eating and weight are being given too much emphasis and that patients improve their eating habits during treatment in order to please family and therapists. The symptoms may be reduced in that way, but there is a risk that cognitive and affective symptoms persist."[10]

During interviews with those that completed treatment for an eating disorder, "young people's descriptions of the first encounter with the therapist touch upon strong and often ambivalent feelings such as shame, relief, frustration, and exhaustion. In most cases the parents took the initiative for treatment which meant that many adolescents felt angry and showed strong resistance to attending."[10]

"The narratives illustrate the parents' significant role in the initial stage of the treatment, but the benefit of parents' involvement in treatment later on depended on the prevailing family climate. Many of the adolescents found themselves in a difficult family situation and only a few of them experienced family-based therapy sessions as helpful. The informants speak about how either their parents or themselves withheld issues they actually wanted to talk about. The reason for involving parents in treatment is to help the therapist understand the development of the disorder and identify supporting factors, [but what must be emphasized is] the importance of parents keeping their own problems outside during family-based therapy sessions. There is a potential for conflict between the ambition to keep parents' own problems outside and the ambition to understand the problems of the adolescents in their context. It can be problematic for young people in therapy to speak about certain things with their parents, especially if they feel that the prevailing family situation is part of the problem, and the ambition to keep the parents' own problems outside may become 'the elephant in the room' that no one mentions. Since these adolescents are also in the

process of emancipation it may also be that they need to be able to talk about certain things without parental involvement. Most of the adolescents were of the opinion that the treatment should include individual therapy sessions in combination with family-based therapy sessions."[10]

"In retrospect, most adolescents think that the parents' participation had a positive effect on the result of the treatment."[10] One patient felt that by having her parents part of her therapy sessions, they could give her the help that she needed at home, when the therapist was not available. "However, the individual sessions were also of great importance,"[10] especially if the patient did not trust their parents and therefore did not speak honestly with the therapist due to their parent being present. "The adolescents who never had any individual sessions wished afterwards that they had had such sessions and they think they would have dared to bring up things they did not dare to bring up in the presence of their parents. In the narratives there are also examples showing that an active role in treatment by parents is not always favorable, for example when the parents find themselves in serious conflict."[10] Furthermore, "many of the adolescents wish that their siblings had been more involved in the treatment, and when looking back they realized that they occupied a lot of space in the family during the treatment period. Some of them have a bad conscience about the fact that together with their parents they created a world to which their siblings had no access, and they reflect on how marginalized their siblings must have felt with their concerns and worries. Many of the adolescents experience in retrospect that their siblings were disregarded or chose to withdraw, and several of them lay the blame on themselves for that. This points to the importance of addressing the situation for the whole family in therapy."[10]

"Family-Based Treatment (FBT) is an outpatient intervention for adolescents with eating disorders that emphasizes parent involvement in addressing eating disorder symptoms, while also promoting parental responsibility for facilitating treatment adherence. FBT has been empirically tested with adolescents and adults with eating disorders and consists of three phases. In the first phase, parents remain chiefly responsible for the management of the illness and for facilitating behavior changes. A fundamental principle of FBT is the externalization of the illness. Externalization, a concept first described by Michael White in the context of FBT refers to separation of the individual from the eating disorder throughout treatment in order to reduce parental blame and promote parental empowerment. Parental efforts are directed towards undermining the power of the eating disorder over the child. As the symptoms remit (weight restoration and/or amelioration of binge eating and purging), the focus shifts to gradually allocating more responsibility for eating, weight gain, and reduction in bulimic behaviors from the parents to the adolescent. Clinicians must work diligently to ensure that parents do not relinquish control over eating to an adolescent who may be struggling with significant fears of eating a variety of food and reluctant to maintain a normal weight. In the final phase, the therapist shifts discussions to normal adolescent developmental issues that may interfere with recovery."[16]

"FBT is efficacious in achieving weight restoration in adolescents with a short illness duration who are medically stable. For adolescents with anorexia nervosa, FBT is superior to individual therapy at 1 and 5-year follow-ups, and when compared to individual adolescent-focused therapy, FBT is shown to be more effective at achieving weight restoration and reducing rates of hospitalization.

However, an earlier study suggests that for those with AN, FBT may be less effective with older adolescents and/or when the illness develops a chronic course. Overall, preliminary findings on the effectiveness of FBT indicate good outcomes for adolescents suffering from AN with a short duration of illness and for adolescent patients with BN."[16]

"Manualized FBT has been developed and recommended for individuals with eating disorders up to the age of 19 years. Although parental control of eating symptoms is temporary and the model explicitly recommends returning control back to the adolescent when problematic eating behaviors have remitted, there may be unique therapeutic challenges to using this model with transition age youth. Transition age youth (TAY) encompass young people between the ages of 16 to 25 who are undergoing major life transitions including individuating from their family, transitioning from secondary to post-secondary school, and transferring out of pediatric to adult heath care systems that are likely to rely on adult versus family centered care models. The emphasis on parental involvement in re-nourishing their child to health in FBT may be challenging to implement when individual autonomy, particularly in older adolescents, is highly valued in most Western societies."[16]

"Overall, clinicians describe a collaborative approach in three distinct ways: first, clinicians recognize that while parents should intervene to acquire control over eating and physical activity when their child is ill with an ED irrespective of age, TAY must be actively engaged in negotiating with their parents *how* the behavior changes occur on a day-to-day basis; second, it [is] vital to garner the explicit consent of the TAY to allow parents to support them with ameliorating eating disorder behaviors; and third, collaboration with TAY is only possible when she/he has an increased appreciation of the consequences of the illness."[16]

"Clinicians describe increasing the individual time with the [TAY] patient for the following clinical reasons: TAY were seen as more capable and willing to share details of their meals/symptoms with clinicians and time spent individually was more necessary to build therapeutic alliance with TAY when compared to younger adolescents. Discussions with the TAY during these individual sessions focused on how the eating disorder interferes with their life while delving into challenges experienced by the TAY with reference to how family members were supporting them (or not) with behavioral changes. Clinicians also noted that TAY are more likely than younger teenagers to speak about challenging family dynamics and stressors that impede their parents to support them with behavioral changes."[16]

"In session 1, the most critical intervention is the 'urgent message,' the delivery of information to the parents about the seriousness of the eating disorder, and the urgent need that they act immediately to assist their child to gain weight and eat normally."[16]

"Significant adaptations were described for TAY and their parents only for the following interventions in session 1: externalization, and the content of the urgent message for parental involvement in treatment. Externalization refers to separation of the individual from the eating disorder throughout treatment

in order to reduce parental blame and promote parental empowerment. Of the focus groups who endorsed differences in the application of externalization, all noted the use of more insight-oriented examples as opposed to visual depictions of the eating disorder and/or metaphors for TAY. This difference in the application of externalization was endorsed due to a TAY's increased ability to articulate how the illness affects their perceptions, feelings, and interactions with others. On the other hand, four out of six focus groups noted that TAY patients were more resistant to the idea of externalization, often because the eating disorder was long-standing and thus strongly linked to their sense of identity."[16]

"Participants in the individual interviews noted that the message of urgent action was no longer directed solely towards activating the parents to engage in promoting symptom change in their child, but was developed for both the parents and the TAY. Clinicians credited the TAY's greater appreciation for the consequences of the illness as the rationale for delivering the message to them and not just to their parents."[16]

"With a TAY, topics such as peer relationships, fertility, university, and obtaining a drivers license were used to increase motivation to propel them into agreeing to involve their parents to assist them with making behavioral changes: *'We might talk more about the future as opposed to present with older kids, like when they go off to school or the impact of this on people's relationships.'*"[16]

"The language of the urgent message was described as more 'blunt' and 'scary,' such as describing in great detail the severe medical consequences associated with the illness when speaking with a TAY versus a younger adolescent. In fact, clinician participants agreed that this type of strong and urgent message should only be delivered to parents of young adolescents because the goal is to empower the parents to engage in behavior change. In contrast, with TAY the blunt and direct message about the necessity of treatment is directed simultaneously to the parents and the TAY to facilitate them working collaboratively to make changes to eating and weight."[16]

"The aim of phase two is to return control of eating back to the adolescent. TAY should be provided with more opportunities to practice regaining independence over their meals since they are likely to have autonomy in many other areas of their lives. The participants in the individual interviews described encouraging TAY to practice eating outside of their home, at work, and in school. Finally, participants all agreed that parents should relinquish the control of eating much more rapidly to TAY than adolescents in order for them to practice preparing meals and eating with greater independence."[16]

"The overarching objective of phase three is to explore issues pertaining to adolescence and to identify how normative adolescent changes may affect recovery. Clinicians in the individual interviews and the focus groups endorsed one consistent adaptation to FBT with a TAY in phase three. [Clinicians] describe incorporating relapse prevention into phase three work with a TAY, but rarely doing this with young adolescents. Overall, clinicians describe the importance of TAY planning in advance for multiple life transitions such as university/college, independent living, and career choices with special attention paid to how to prevent slips and relapses and when to seek

parental and professional support. [The clinicians] indicated that they met *individually* with the TAY in phase 3 to address body image concerns, self-esteem issues, and relapse prevention."[16]

Therapist Attributes

Another topic of importance is experience. Patients "want the therapist to have been actively engaged in treatment work for a long time, or even to have suffered from eating disorders, thus knowing what the disease is all about. According to the adolescents, it is also important that the therapist has extensive experience but at the same time is able to put aside all prior understanding and consider each patient's unique experiences and conditions."[10]

"The young people highlight the trust and confidence that emerged from a dialogue with the therapist; a trust which deepened with time and led to the young person finding the courage to open up without being afraid of rejection or raised eyebrows."[10] At the same time, "many of the young people also value that they met resistance; that the therapist dared to challenge them, not accepting evasive answers or excuses."[10]

"Persons with eating disorders, particularly Anorexia Nervosa are often ambivalent to starting treatment and experience difficulties in creating a strong alliance with their therapist. The adolescents describe that it took several sessions before they dared to open up to their therapist and could take in the situation without being obstructed by all their emotions, and that the directions for further treatment could be outlined only later on. The notion of 'emerging mutual trust' has been used to capture the fact that trust might not come about immediately in a therapeutic relationship. However, the way the therapist acted, spoke, and treated the adolescents at the first encounter was of great importance. Even if, at the time, the adolescents could not really take it, for some of them partly due to starvation, they experienced afterwards that the therapist's attitude laid the foundation for the continued relationship. It has previously been found essential that in spite of resistance, the therapist issues an invitation to cooperate, and that it is done over and over again until the young person realizes that the therapist is there to help."[10]

Not One-Size-Fits-All

"The relationships in treatment became helpful when the young people met someone they felt was just the right person for them; someone who saw the human being behind the disease."[10] As explained by an adolescent in treatment, "One identifies oneself so much with the disease and one appreciates when other people do not do the same thing."[10]

"A strong alliance between therapist and patient is of great importance for the treatment outcome. This requires trust; the therapist should weave in the patient's views on treatment and the two parties should have an agreement about common goals and the design of the treatment."[10]

"Going through treatment often means that for a certain period one has to entrust others to make important decisions and determine how to proceed, until one feels better and can control things

oneself more effectively. Several of the adolescents played a rather passive role in treatment, a role which was more or less self-selected. For some it felt good to hand over to the therapist."[10] However, others found "that decisions were made in treatment about courses of action which they did not understand. In retrospect they wish they had been given more information and that the therapists had been more open to alternative solutions."[10] One patient commented that they "didn't see the point of any of the suggestions"[10] and that the suggestions seemed as though they were simply taken from textbooks. When the "treatment was designed as far as possible according to [the patient's] wishes, [it] strengthened their sense of ownership and responsibility."[10]

Weight Gain Guidelines

"Guidelines for the nutritional management of AN have been published by a range of professional organizations including the Society of Adolescent Health and Medicine; the National Institute for Clinical Excellence; and the American Psychiatric Association. These current guidelines recommend an initial refeeding rate of between 10 and 40 kcal/kg per day or between 20-80% of total daily requirements, with slow caloric increases. Debate is ongoing as to the recommended rate of weight gain in inpatient settings with targets ranging from 500 to 1,400 g per week. In all cases, the initial caloric prescription is below daily resting energy requirements with only slow increases recommended."[17]

"Current refeeding guidelines aim to avoid the refeeding syndrome principally by restricting the intake of calories. The refeeding syndrome is the occurrence of hypophosphatemia, cardiac events, neurological concerns and/or sudden death of patients within two weeks of commencing refeeding."[17]

Of surprising concern are the "identified 23 patients who developed refeeding syndrome despite slow rates of refeeding. The average rate of refeeding in these patients was 27 kcal/kg/day, well below total daily energy requirements. Of note, all patients were less than 70% of expected body weight for age, height, and gender and all developed hypophosphatemia. Literature exploring the physiology underlying the refeeding syndrome highlight disturbances of insulin and phosphate as central to this process. The refeeding syndrome is thought to be instigated by the influx of enteral glucose during refeeding causing an insulin surge and driving glucose, fluid, and electrolytes into the intracellular space. This, combined with the breakdown of the sodium/potassium pump regulating the intracellular environment due to a lack of phosphated adenosine to provide energy to the pump, results in severe electrolyte disturbances, hypophosphatemia, cardiac failure, and death. Based on this understanding, it has been argued that restricting the percentage of daily energy provided by carbohydrate rather than total daily energy intake, in addition to the provision of supplemental phosphate, may be more effective in mitigating the risk of refeeding syndrome than reducing calories."[17] In fact, several studies have "concluded that higher initial refeeding rates lead to faster weight gain, more rapid medical stabilization, and shorter lengths of hospital stay without adverse consequences."[17]

"The proposed refeeding protocol aimed to address the risks associated with the refeeding syndrome, poor weight gain, and delayed medical recovery by limiting energy provided as carbohydrate to a maximum of 50% while providing sufficient energy to exceed total daily energy requirements. All patients were commenced on oral phosphate supplementation (500 mg Sandoz phosphate, twice daily). Additionally, the current protocol was designated to eliminate postprandial hypoglycemia through continuous nocturnal NG feeds, a practice well tolerated by patients."[17] Using this method of refeeding, an average weight gain of almost 3 kg (slightly over 6 pounds) was seen during the first week of admission and "statistically significant weight gain was seen from the end of the refeeding protocol to 12-month post-treatment follow-up where %EBW was 95.33."[17] Just as important as the weight gain, is that "no patient developed hypophosphatemia or hypoglycemia at any point during treatment. [Furthermore,] no patient had an adverse reaction to the refeeding protocol nor developed any clinical signs or symptoms of the refeeding syndrome. In particular, no patient developed signs of cardiac failure, dependent edema, or delirium. Research published has shown this protocol, in particular nasogastric refeeding, to be well tolerated in adolescents with AN [and] has not demonstrated negative psychological outcomes with more rapid weight gain associated with nasogastric refeeding, high energy supplements, and oral refeeding including weekly rates of weight gain in excess of 2 kg."[17]

Pharmacotherapy

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"Because AN is associated with other psychopathology the treatment is often long and may involve several stages and intervention types. The fact that pharmacological interventions are established forms of treatment of several disorders that overlap with AN, has led many to conclude that pharmacotherapy may be useful in symptom reduction in AN. The focus of pharmacological interventions in AN depends on the phase of illness. In the acute phase, drugs are given to increase body weight and reduce AN symptoms (such as recurring thoughts about weight, caloric intake, depression, anxiety, and obsessive/compulsive symptoms). [During] the second phase, pharmacotherapy is expected to improve underlying psychopathology and prevent relapse."[18]

"Because of the broad spectrum of psychiatric disorders which have substantial comorbidity with eating disorders and their possible effect on eating behavior, many psychopharmacological agents including antidepressants, antipsychotics, antiepileptics, antihistamines, and other pharmacological compounds have been investigated in eating disorders."[11]

Antidepressants' "main action is thought to be in the serotonergic (SSRI) and/or the noradrenergic system (SNRI). It is possible that the central serotonin function contributes to the dysregulation of appetite, mood, and impulse control. Serotonin function and other monoamine function in AN and BN is disturbed when people are ill and this persists even after their recovery."[11]

Antipsychotics' "main site of action is thought to be on the dopaminergic system with additional serotonergic involvement for the atypical antipsychotics. Altered striatal dopamine function may contribute to symptoms in AN. The cortico-mesolimbic dopamine system may also be involved in addictive eating behavior."[11]

"The neurostabilizing effect of antiepileptics may be of therapeutic benefit in eating disorders. For example, the antiepileptic drug topiramate has many sites of action (e.g., on sodium, calcium, and potassium channels; on gamma-aminobutyric acid and glutamate receptors; and carbonic anhydrase inhibition)."[11]

Anorexia Nervosa

"Medication should not be used as the sole or primary treatment for anorexia nervosa. Caution should be exercised in the use of medication for comorbid conditions such as depressive or obsessive-compulsive features as they may resolve with weight gain alone. When medication is used to treat people with anorexia nervosa, the side effects of drug treatment (in particular, cardiac side effects) should be carefully considered and discussed with the patient because of the compromised cardiovascular function of many people with anorexia nervosa. Healthcare professionals should be aware of the risk of drugs that prolong the QTc interval on the ECG; for example, antipsychotics, tricyclic antidepressants, macrolide antibiotics, and some antihistamines. In patients with anorexia nervosa at risk of cardiac complications, the prescription of drugs with side effects that may compromise cardiac function should be avoided. If the prescription of medication that may compromise cardiac functioning is essential, ECG monitoring should be undertaken. All patients with a diagnosis of anorexia nervosa should have an alert placed in their prescribing record concerning the risk of side effects."[9]

"The rationale for treating AN with antidepressants is (1) the hypothetical dysfunction in the serotonergic and noradrenergic system in the pathophysiology of anorexia nervosa and (2) the comorbidity and psychopathological overlap with anxiety disorders, obsessive compulsive disorders and depression with anorexia nervosa."[11]

"When grouping all medication together, [it was] found that pharmacotherapy is more effective than placebo. When performing meta-analyses for the three most common medicines apart, [it was] found that hormonal therapy has a significantly larger effect on weight compared to placebo in the treatment of AN. Meta regression analyses suggest that less weeks of hormonal treatment are associated with better effect (a significant negative slope). It is possible that anorexia patients benefit on short term when it comes to (hormonal) medication, but fail to have a better recovery on long term. The limited findings of antidepressant and antipsychotic trials also raise an ethical dilemma: should those medications be used to treat anorexia nervosa in the acute phase? Clinicians should consider whether it is more beneficial to treat anorexia nervosa patients with pharmacotherapy in the stabilization or prevention relapse phase, not aiming only at weight but also secondary symptoms as depression."[18]

Findings for AN:[11]

- Clomipramine nor amitryptiline no positive outcome over placebo concerning weight gain but positive outcome over placebo for depressive symptomatology
- Citalopram no efficacy over placebo concerning weight gain but depressive symptomatology improved
- Fluoxetine no efficacy over placebo concerning weight gain
- Sulpiride or pimozide no clearly significant effect over placebo concerning weight gain
- Olanzapine useful in increasing the rate of weight gain and in reducing time to achievement of weight restoration among patients with AN
- Cyproheptadine a little more effective than placebo in post-hoc analysis concerning weight gain
- Cisapride conflicting effects concerning gastric emptying but no efficacy for weight gain
- Zinc has efficacy over placebo for weight gain, depression, and anxiety
- Lithium has no efficacy over placebo but does have efficacy over placebo concerning binges or purges
- No efficacy for human growth hormone over placebo

Bulimia Nervosa

"As an alternative or additional first step to using an evidence-based self-help program, adults with bulimia nervosa may be offered a trial of an antidepressant drug. Patients should be informed that antidepressant drugs can reduce the frequency of binge eating and purging, but the long-term effects are unknown. Any beneficial effects will be rapidly apparent. Selective serotonin reuptake inhibitors (SSRIs) (specifically fluoxetine) are the drugs of first choice for the treatment of bulimia nervosa in terms of acceptability, tolerability, and reduction of symptoms. For people with bulimia nervosa, the effective dose of fluoxetine is higher than for depression (60 mg daily)."[9] As with fluoxetine, other "SSRIs have to be used in daily doses higher than those required for the antidepressant effect to obtain an antibulimic action in BN."[11] No drugs, other than antidepressants, are recommended for the treatment of bulimia nervosa."[9]

"The rationale to treat BN with antidepressants is evidence of dysfunction in the serotonergic and noradrenergic systems and the comorbidity and psychopathological overlap with anxiety disorders, obsessive compulsive spectrum disorders, and depression."[11]

Findings for BN:[11]

- Imipramine reduces bulimic behavior
- Amitryptiline superiority over placebo in depression only
- Desipramine reduces bulimic behavior
- Citalopram no evidence of superiority over placebo
- Fluoxetine efficacy over placebo
- Fluvoxamine efficacy over placebo
- Sertraline efficacy over placebo
- Moclobemide no efficacy in BN
- Phenelzine efficacy over placebo, however serious side effects and therefore cannot be recommended
- Isocarboxazide efficacy over placebo
- No general effect for brofaromine in BN, but associated with weight reduction
- Reboxetine and duloxetine efficacy in BN
- Bupropion and trazodone efficacy over placebo in reducing BN associated with psychopathology and behavior
- Mianserin no evidence for efficacy
- No efficacy for carbamazepine or oxcarbamazepine
- Topiramate efficacy in reducing BN associated psychopathology and behavior, with a moderate risk-benefit ratio
- No effect over brief psychotherapy for d-fenfluaramine
- No efficacy for lithium
- Odansetron has efficacy over placebo but the use should be cautioned because of potential serious side effects
- Inconsistent results for naltrexone
- No data concerning methylphenidate or baclofen
- Light therapy in reducing psychopathology in BN

Binge-Eating Disorders

"The rationale to treat BED with antidepressants is the evidence of dysfunctions in the serotonergic and noradrenergic system and the comorbidity and psychopathological overlap with anxiety disorders and depression."[11]

Findings for BED:[11]

- Imipramine (has a moderate risk-benefit ratio) and desipramine both show a reduction in binge frequency more than placebo in BED
- Citalopram / escitalopram show efficacy in BED over placebo
- Mixed results for fluvoxamine in BED
- Conflicting results concerning efficacy in BED for fluoxetine
- Efficacy for atomoxetine in BED
- Possible efficacy for venlafaxine
- Efficacy of sibutramine over placebo in BED but with low risk-benefit ratio
- Possible efficacy over placebo concerning reboxetine in BED
- Possible efficacy over placebo for topiramate in BED with moderate risk-benefit ratio
- Zonisamide showed efficacy in psychopathology, weight, and BED behavior over placebo
- Possible efficacy for baclofen in reducing frequency of binge eating
- Orlistat shown effective over placebo in reducing weight in BED with low to moderate risk-benefit ratio
- Efficacy over placebo for d-fenfluramin in reducing binges per week in BED
- Efficacy over placebo for naltrexone in reducing binge duration in BED

Nutrition Related Treatment

"Healthcare professionals should ensure that children and adolescents with anorexia nervosa who have reached a healthy weight have the increased energy and necessary nutrients available in their diet to support further growth and development. In the nutritional management of children and adolescents with anorexia nervosa, carers should be included in any dietary education or meal planning."[9]

"Although many may think that undernutrition or malnutrition is a side effect of eating disorders, studies have documented that it can be the cause of many of the symptoms seen in eating disorders."[2] This is realized owing to the fact that "malnutrition and blood sugar-insulin levels are

important factors in the binging behavior of bulimics. Therefore, the use of nutrition supplements can be a valuable addition to standard dietary therapy in the treatment of eating disorders."[2]

"Eating disorder patients who restrict intake of food have been found to have deficiencies in calcium, iron, riboflavin, folic acid, vitamins A and C, vitamin B_6, and essential fatty acids. It has been postulated that anorexia may be a subclinical form of pellagra, and one study showed low niacin intake in anorexics; niacin supplementation has been shown in several case reports to improve appetite and mental state. Other small studies have shown deficiencies in eating disorder patients for vitamins D, C, and E, as well as micronutrients such as copper and zinc. Nutrition supplementation for eating disorders is targeted at replacing missing nutrients and treating symptoms seen in these disorders."[2]

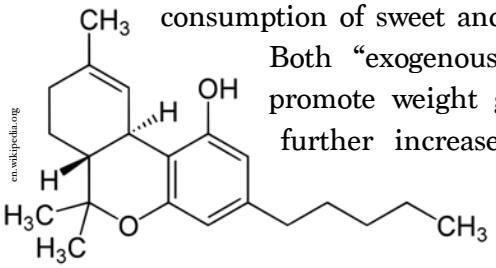
"The B vitamins are implicated in the mood disorders seen in eating disorder patients. B_{12} and folic acid have significant mood-enhancing benefits when used alone and in combination with antidepressants. Both low B_{12} and low folic acid have been noted in patients with depression. As well, in population studies, an association has been found between depression and low levels of these two vitamins. Low levels of folate have been implicated in poor response rates to standard antidepressant therapy. B vitamins [are also used to] convert glucose into energy in the brain cells and assists in the manufacture of neurotransmitters. [In addition,] B_{12} is essential for nerve cell health."[2]

"Zinc is vital in the metabolism of essential fatty acids [and] - levels of essential fatty acids [have been shown to be] decreased in anorexics. In a study of adolescent anorexics, when zinc was supplemented (50 mg elemental zinc per day), there was a decrease in depression and anxiety levels as measured on the Zung Depression Scale and the State-Trait Anxiety Inventory. Zinc supplementation (100 mg of zinc gluconate) has been shown to help with weight gain in anorexics, increasing their body mass index twice as fast as placebo. Zinc also lowers the severity and duration of diarrhea associated with malnutrition."[2]

"Consumption of omega-3 fatty acids has a beneficial effect on insulin sensitivity and glucose tolerance, a useful benefit for eating disorder patients who are obese or diagnosed with metabolic syndrome (central obesity, impaired glucose tolerance, hypertension, and dyslipidemia). Omega-3 fatty acids have been shown in research to reduce the incidence of sudden death syndrome from ventricular arrhythmias by 45% to 50% and all-cause mortality by 20%, [which is important since] anorexics are at higher risk of sudden death. Many studies have [also] shown a benefit of omega-3 fatty acids to treat depression and bipolar disorder. Omega-3 fatty acid supplements can be given along with prescription medications for depression and bipolar disorder. In a four-week, double-blind study, patients diagnosed with recurrent unipolar depression received either ethyl-EPA or placebo. Highly significant benefits were found with the addition of the ethyl-EPA versus placebo to standard antidepressant medication. The omega-3 fatty acid group stayed in remission significantly longer - with a decrease in depression versus the placebo group - but had no decrease in their mania."[2]

"Studies on probiotics that are relevant to the treatment of eating disorders have reported that (1) a probiotic mixture used to treat irritable bowel syndrome reduced abdominal pain, distension, flatulence, and borborygmi and (2) probiotics used in those suffering from chronic constipation reduced severity of constipation and stool consistency after two weeks."[2]

Nature's Medicine



"The use of cannabis has been reported to stimulate appetite and to increase the consumption of sweet and tasty food, sometimes resulting in significant weight gain."[19] Both "exogenous and endogenous cannabinoids stimulate food intake and promote weight gain in rodents and humans. Oral application of Δ^9-THC further increases food intake and entails weight restoration in cachectic patients receiving cancer chemotherapy."[20] "Endocannabinoid signaling is involved orexigenically in both the homeostatic and the hedonistic control of food intake [and] initiate appetite by stimulation of CB_1 receptors in hypothalamic areas involved in the control of food intake, such as the ventromedial hypothalamus (VMH)."[19]

> *The discovery of specific receptors mediating the actions of cannabis led to the search for endogenous ligands for cannabinoid receptors. The first endogenous cannabinoid, arachidonoyl ethanolamide, was identified in 1992 and was named anandamide, from the Sanskrit word 'ananda,' meaning internal ecstasy. Thus, both plant-derived (Δ^9-THC) and endogenous (anandamide) agonists bind to the same cannabinoid receptors. Since the discovery of anandamide, other polyunsaturated fatty acid derivatives acting as functional agonists of cannabinoid receptors have been characterized and collectively termed endocannabinoids. In contrast to classical neurotransmitters such as the catecholamines, endocannabinoids are not stored in the interior of synaptic vesicles because of the high lipophilicity of these ligands. These findings led to the conclusion that the endocannabinoid system acts 'on demand,' meaning that the endocannabinoids are synthesized and released upon physiological or pathological stimulation. Cannabinoid receptors belong to the G protein-coupled receptor superfamily and their activation modulates adenylate-cyclase, potassium and calcium channels, and transcription factors such as mitogen-activated protein kinase. The CB_1 cannabinoid receptor is widely expressed in the central nervous system as well as in the periphery, while CB_2 is mainly expressed in immune cells. In the central nervous system, CB_1 is predominantly expressed presynaptically, modulating the release of neurotransmitters, including γ-aminobutyric acid (GABA), dopamine, noradrenaline, glutamate, and serotonin.*[19]

"One of the endogenous systems that, due to its therapeutic potential in the treatment of obesity, recently reached scientific interest is the endocannabinoid system. Both exogenous (e.g., Δ^9-tetrahydrocannabinol) and endogenous cannabinoids (e.g., anandamide and 2-arachidonoylglycerol (2-AG)) stimulate food intake through activation of the cannabinoid receptor 1 (CNR1). In contrast, inhibition of CNR1 signaling through administration of the selective inverse agonist rimonabant (Acomplia®) decreases food intake in both rodents and humans. The endocannabinoid system further interacts with the leptinergic system; obese rodents with disturbed leptin signal transduction

(*ob/ob* and *db/db* mice as well as *fa/fa* rats) show elevated levels of anandamide and 2-AG in the hypothalamus. Vice versa, leptin treatment of *ob/ob* mice decreased hypothalamic levels of both, anandamide and 2-AG. Accordingly, compared to age matched normal weight controls, serum levels of anandamide are increased in patients with AN. Additionally, plasma levels in leptin are negatively correlated with anandamide in both patients with AN and normal weight healthy controls. In light of these observations, it has previously been suggested that the endocannabinoid system might be implicated in the etiology of AN, in particular through its interaction with the leptinergic system. Additionally, several lines of evidence indicate that hypoleptinemia entails development of hyperactivity in patients with AN. However, the implication of the endocannabinoid system in body weight regulation together with its interaction with the leptinergic system makes it a plausible system implicated in the pathogenesis of AN. [Furthermore,] the AAT_{14} repeat allele of *CNR1* has recently been found to be associated with the binge eating/purging type of AN whereby the AAT_{13} repeat allele tended to be preferentially transmitted to patients with the restricted type of AN."[20]

"The most prominent endocannabinoids are N-arachidonoylethanolamine (anandamide) and 2-arachidonoylglycerol (2-AG). Both are synthesized through cells on demand and undergo a rapid degradation through specific hydrolases and lipases. The most prominent endocannabinoid degrading enzymes are the fatty acid amide hydrolase (FAAH), the N-acylethanolamine-hydrolyzing acid amidase (NAAA), and the monoglyceride lipase (MGLL). FAAH is a membrane-bound 60-65 kDa protein that is widely distributed throughout the brain and the periphery. Under alkaline conditions, FAAH rapidly inhibits the orexigenic effects of anandamide by degrading it to ethanolamine and arachidonic acid. NAAA is an enzyme with similar function but has, in contrast to FAAH, its pH optimum at 4.5-5. The monoglyceride lipase (MGLL) is a serine hydrolase that hydrolyses 2-AG into glycerol and arachidonic acid. As endocannabinoids stimulate food intake through activation of CNR1 and as FAAH, NAAA, and MGLL counteract the orexigenic effects of endocannabinoids through their rapid degradation, genetic variation of *CNR1* leading to decreased receptor signaling as well as genetic variation of *FAAH*, *NAAA*, and *MGLL* leading to increased enzyme activity might be implicated in the etiology of AN."[20]

There are "two systems for the regulation of food intake, a short term regulation system (e.g., CCK, ghrelin, . . .) during each meal and a long term regulation (e.g., leptin, insulin, . . .) for the storage of energy in the form of fat. The nucleus tractus solitarius in the brain stem is the gateway for neural signals from the gastrointestinal tract via the vagal nerve to the hypothalamic feeding centers. The amygdala, the area postrema, the cortex prefrontalis, the nucleus arcuatus, and the nucleus paraventricularis are also involved in eating behavior. Neurohumoral factors inhibit (ghrelin, orexin-A, orexin-B) or stimulate (cholecystokinin, leptin, PYY, OXM, Cytokines) satiety. The endocannabinoid system may have an influence on eating behavior at different levels, in the central nervous system as well as in the periphery. Prokinetic agents with their acceleration of peristalsis in the gastrointestinal system may as well have an effect on eating behavior."[11]

Conclusion

Eating disorders are real, treatable medical illnesses that frequently coexist with other illnesses such as depression, substance abuse, or anxiety disorders. Treatment needs to focus on empowering the ED sufferer to withstand the abuser that resides in their head. Typical treatment goals include restoring adequate nutrition, bringing weight to a healthy level, reducing excessive exercise, and stopping binge eating and purging behaviors. That being said, goals relating to weight should not be a benchmark for ending treatment.

Family members, including siblings, should normally be included in the treatment of children and adolescents with eating disorders, however, the treatment should include individual therapy sessions in combination with family-based therapy sessions. A strong alliance between therapist and patient is of great importance for the treatment outcome. This requires trust; the therapist should weave in the patient's views on treatment and the two parties should have an agreement about common goals. Finally, medication should not be used as the sole or primary treatment for eating disorders, but may be very helpful with symptom reduction.

Additional Resources

- To take part in a clinical trial:

  http://www.creighton.edu/researchservices/becomingaresearchparticipant/volunteer/

  https://clinicaltrials.gov/ct2/results?term=eating+disorders&Search=Search

- For further information on eating disorders:

  http://www.nimh.nih.gov/health/topics/eating-disorders/index.shtml

  http://www.nationaleatingdisorders.org

  http://iaedp.com

  http://www.something-fishy.org

  http://www.bulimia.com

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