

TDMHSAS BEST PRACTICE GUIDELINES

Eating Disorders in Children and Adolescents

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1.) Introduction

Eating disorders are problematic to diagnose and effectively treat due to the complex and early presentations of symptoms, the need for interdisciplinary care and the morbidity rate of these disorders. Collaboration and coordination is vital between medical and behavioral health professionals in the treatment of Eating Disorders. Eating disorders (ED) are potentially life threatening, leading to premature death if untreated. The significantly high mortality rate is 12 times higher than any other cause of death in females aged 15 to 24 years old. Eating disorders represent the third most common chronic illness (after asthma and obesity) in adolescent females. Failure to detect an eating disorder at an early stage can result in an increase in severity, further weight loss and/or increases in behaviors.

Increases in the incidence and prevalence of eating disorders in children and adolescents, (a steady increase since 1950) especially in the last decade, have made it important that pediatricians, other providers and caregivers be familiar with the signs of eating disorders to detect its presence early and to manage the disorders appropriately. The prevalence of obesity has significantly increased with an unhealthy emphasis on dieting and weight loss (especially in suburban areas), concern with weight related issues in children of progressively younger ages, more incidences found in males and in countries not associated with these disorders in the past. There are also a large number of affected persons who experience the consequences of eating disorders without meeting the DSM-IV criteria for eating disorders. More than 50 percent of cases do not meet the DCM-IV criteria. The most common form of eating disorder is Eating Disorder Not Otherwise Specified (EDNOS). Several psychiatric issues are more prevalent in patients with eating disorders. Suicide attempts and completion are relatively common, especially with bingeing and/or purging behaviors. Eating disorders are becoming more common among elderly women in part due to maintenance of their illness into old age. A new study states that eating disorders are common in women over 50 years of age (four percent report binge eating, eight percent report purging, more than 70 percent diet to lose weight and 62 percent report their weight adversely affects their life). Attitudes that lay the groundwork for developing

eating disorders occur as early as 4th or 5th grade, making prevention difficult (70 percent of 6th grade girls reported they first became concerned about their weight between age 9 and 11). Males continue to be less likely diagnosed with what is often considered a female disorder. Males are more likely to have muscle dysmorphia, a type of disorder that is characterized by an extreme concern with becoming more muscular. Some see themselves as smaller than they really are and want to gain weight or bulk up. These are more likely to use steroids or other drugs to increase muscle mass.

Those persons close to the individual with an eating disorder have opportunities to note behaviors and symptoms of the disorder. Parents, family, caregivers, school staff, and providers all have opportunities to detect the signs of an eating disorder. Some parents may deny the existence of a problem, if the child denies an eating disorder. Overpowering shame on the part of the parent or the child can lead to an even deeper cycle of denial and control. Many of these symptoms can seem to be normal adolescent behavior or easily explained by other causes. People struggling with eating disorders are very skilled at hiding or explaining their behaviors. People with an eating disorder may also appear to be a normal weight, making it harder to detect the symptoms. It is important to remain vigilant to signs and symptoms of disordered eating even if such is denied by the patient or caregiver. Three basic principles to use to prevent children from developing eating disorders:

- 1) accurate information
- 2) vigilance
- 3) immediate, aggressive, effective intervention

Knowledge of diagnostic criterion, medical complications, causes, warning signals, and risk factors is important for persons to know when dealing with this age group. Pediatricians and other providers are in the best situation to help detect and treat these disorders during routine care. Training initiatives for providers, including dentists, could help improve early identification and intervention for people with eating disorders. Routine screening for eating disorders by providers should be performed during all health visits and sports physicals.

2.) DSM-IV Definitions

307.1 Anorexia Nervosa

- A. 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 percent of that expected; of failure to make expected weight gain during period of growth, leading to body weight less than 85 percent of that expected).
- B. Intense fear of gaining weight or becoming fat, even though underweight.
- C. 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.

- D. 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.)

Specify type:

Restricting Type: during the current episode of Anorexia Nervosa, the person that 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 behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas)

307.51 Bulimia Nervosa

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
- (1) 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.
 - (2) 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)
- B. 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.
- C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.
- D. Self-evaluation of unduly influenced by body shape and weight.
- E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Specify type:

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.

Nonpurging 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.

307.50 Eating Disorder Not Otherwise Specified

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:

1. For females, all of the criteria for Anorexia Nervosa are met except that the individual has regular menses.
2. 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.
3. 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.
4. 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).
5. Repeatedly chewing and spitting out, but now swallowing, large amounts of food.
6. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa (see Appendix B in DSM-IV-TR for suggested research criteria).

3.) Impact on Learning

Impact of Eating Disorders on Learning

Eating disorders impact brain function, as discovered in brain research. Findings show that bulimic women had a weakened response in brain regions that are part of the reward circuitry. This response was related to the frequency of binge/purge episodes, setting off a vicious cycle of altered brain function. The more often an individual had binge/purge episodes, the less responsive the brain.

These findings directly implicate the brain reward system and related dopamine. Brain dopamine related reward circuitry, the pathways that modulate our desire to eat, may have a role in Bulimia Nervosa (BN). Bulimic behavior appears to directly affect brain reward function. It is uncertain whether such alterations return to normal with recovery or not. Brain dopamine could be a treatment target in BN using specific medication that targets those abnormalities.

Teens with eating disorders often struggle with many stressors which may negatively impact their education. The often obsessive nature of the disorder should not be overlooked. Many memory impairments exist as a result from eating disorders. Individuals with eating disorders appear to have memory impairments in executive functions, visual-spatial ability, divided and sustained attention, verbal functioning, learning, and memory.

Some impairments are due to nutritional deficiencies and various cognitive biases affecting cognitive ability and spatial memory when there is no steady supply of nutrients, such as glucose, fatty acids and vitamins, particularly B1 or Thiamine. The impact of under-nutrition can have detrimental effects on cognitive development in children, student behavior and performance. Students with under-nutrition may:

- Feel irritable
- Have less ability to concentrate and focus
- Less ability to listen and process information
- Feel nausea
- Have a headache
- Feel fatigue
- Have a lack of energy

These students are unable to perform as well as their nourished peers. Deficiencies in specific nutrients, such as iron, affect memory, the ability to concentrate, cause them to become less active, more apathetic, withdrawn and engage in fewer social interactions. Immune systems may be impaired, making students more vulnerable to illnesses and increased absenteeism.

Neurobiological differences have been found in individuals with eating disorders, such as verbal and visual memory, and information and emotional processing. Imbalances in certain serotonin receptor activity may cause impairment in working memory, attention, motivation and concentration. Specific memory biases include:

- directed-forgetting
- schema-related
- selective memory bias
- explicit memory including autobiographical memory deficits
- Implicit

Impaired social cognition found in people with eating disorders also include an inability to recognize, label, and respond to different emotional states, and are impaired in visual recognition tasks. (Bardick, et.al., 2004; Orfano, 2010; NEDA, 1999)

4.) Differential diagnosis

The differential diagnosis of diminished appetite or weight loss is broad and includes endocrinological, gastrointestinal, neurological, oncological, and psychological disorders. In addition, mood and anxiety disorders often affect eating behaviors. History and physical examination are usually sufficient to evaluate for many of these potentially confounding conditions. The clinician should also consider that an eating disorder may co-occur with other chronic conditions.

5.) Screening, assessment and/or evaluation

Central symptom domains (Anderson, Lundgren, Shapiro, & Palosky, 2004) which require assessment include:

- Body weight
- Binge eating and compensatory behavior
- Over concern with shape and weight
- Dietary restraint
- Body image disturbance
- Affective disturbance

Screening/Assessment Tools

1. **Eating Attitudes Test (EAT)** Garner & Garfinkel, 1979; later modified to EAT-26 by Garner, Olmstead, Bohr & Garfinkel, 1982
2. **Bulimia Test-Revised (BULIT-R)** Thelen, Farmer, Wonderlich, & Smith, 1991
3. **Eating Disorder Examination (EDE)** Z. Cooper & Fairburn, 1987
4. **The Interview for the Diagnosis of Eating Disorders – IV (IDED-IV)** Kutlesic, Williamson, Gleaves, Barbin, & Murphy-Eberenz, 1998
5. **Multifactorial Assessment of Eating Disorder Symptoms (MAEDS)** Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999
6. **Eating Disorders Inventory-2 (EDI-2)** Garner, 1991
7. **Body Shape Questionnaire (BSQ)** P.J. Cooper, Taylor, Cooper, & Fairburn, 1987
8. **The Restraint Scale (RS)** Herman & Polivy, 1980
9. **Three Factor Eating Questionnaire Cognitive Restraint Scale, (TFEQ-R)** Stunkard & Messick, 1985
10. **Beck Depression Inventory-II (BDI-II)** Beck, Steer, & Brown, 1996
11. **Clinical Impairment Assessment (CIA)** Bohn, Doll, Cooper, O'Connor, Palmer, & Fairburn, *Behavioral Residential Therapy*, 2008 October, 46(10): 1105-1110.

The **SCOFF Questionnaire** has been found to be useful in primary care settings to screen for eating disorder. The questions are:

Do you make yourself sick because you feel uncomfortably full?

- Do you have to worry that you have lost control over how much you eat?
- Have you recently lost more than one stone (14 pounds of 6.3 kg) in a 3-month period?
- Do you believe yourself to be fat when others say you are too thin?
- Would you say that food dominates your life?

Two positive answers are highly predictive of either anorexia nervosa or bulimia nervosa. (Morgan, et.al., 1999) This study was validated with individuals 18 and older. For adolescents, failure to meet expected weight gains is also an early indicator of possible eating disorder.

6.) Prevention

Dieting behaviors and body image concerns are common in adolescence. In the context of increasing rates of obesity there has been increased focus on weight reduction, dieting and physical activity in the general community. Effective prevention of Eating Disorders may include more emphasis on nutrition and good health in general, less emphasis on thinness and body image.

Several factors may contribute to the onset of an eating disorder. Dieting is a primary trigger of the downward spiral into an eating disorder. Pathogenesis of eating disorders is multifactorial, with individual, family, cultural, and genetic/biochemical conditions all playing a role. Young people who diet moderately are 6 times more likely to develop an eating disorder; those who are severe dieters have an 18 fold risk. Behaviors related to food, health and body can become distorted, destructive and potentially fatal. Clinical depression is associated with development of eating disorders (stress hormones such as cortisol are elevated in people with eating disorders, and the neurotransmitter serotonin may not function correctly). Some factors that may contribute to the development of an eating disorder include:

- Family histories of eating disorders, major depression and anxiety or mood disorders, OCD
- Biochemical or genetic/biological reasons (genetic effects may be “activated” by puberty)
- Troubled family and personal relationships, history of physical or sexual abuse
- Difficulty expressing emotions or feeling
- History of being teased about size or weight
- Cultural norms or pressures that glorify thinness or the perfect body or value people by their appearance, Strict families with strong emphasis on appearance
- Excessive talk of diet and weight
- Involvement in professions or activities that emphasize thinness
- Media influences
- Clinical depression, anxiety, anger or loneliness
- Low self esteem
- Feelings of lack of control
- Strong need to please others

Individuals with eating disorders may present as:

- highly organized
- fully functional
- enthusiastic
- perfectionistic

- intelligent
- involved in a wide range of activities
- dieting

Children who are predisposed to eating disorders are usually:

- compliant, rule bound
- anxious, fearful of becoming fat
- obsessive
- perfectionistic, driven
- eager to please
- developing eating behaviors as a way to handle stress

7.) Early Identification / Intervention

Presenting complaints of poor appetite, failure to thrive, finicky eating, poor weight gain, excessive appetite, excessive weight gain, excess nutritional intake, and obesity are described as irregular feeding behaviors in the Diagnostic and Statistical Manual for Primary Care. Presenting complaints of dieting, losing weight, restricting food intake, disturbance in perception of body shape or size, and fear of getting fat are indicators of body image problems. Fasting, binge eating, uncontrolled eating, voluntary vomiting, laxative use, diuretic use, and compulsive exercising are also presentations that may be indicative of a developing eating disorder. These presentations may not fully meet the DSM-IV criteria and are likely to be included in a new category in DSM-5 (**Avoidant/Restrictive Food Intake Disorder**).

A single general practitioner (GP) consultation for eating behavior or shape and weight concerns has been identified as a significant predictor for the subsequent emergence of an eating disorder (Yeo & Hughes, 2011).

The prognosis of eating disorders may be improved with early detection. There is evidence that short duration of illness, weight restoration, and long term follow up may contribute to better outcomes in younger adolescent patients (Steinhausen, 2009).

Because so many children do not fit all of the requirements for anorexia nervosa, bulimia nervosa and eating disorder not otherwise specified, some practical diagnostic criteria for childhood onset anorexia are:

- 1.) determined food avoidance
- 2.) failure to maintain the steady weight gain expected for age, or actual weight loss
- 3.) over concern with weight and shape

Other common features include self-induced vomiting, laxative abuse, excessive exercising, distorted body image, and morbid preoccupation with energy intake.

Physical findings include dehydration, electrolyte imbalance, hypothermia, poor peripheral circulation, cardiac arrhythmias, hepatic steatosis, and ovarian and uterine regression.

8. Treatment

Team Approach

Treatment for eating disorders requires a team approach including psychotherapy, family intervention, nutritional intervention, and medical care which may include medications. This team approach involves three main phases: (1) restoring weight lost due to severe dieting and purging; (2) treating psychological disturbances such as distortion of body image, low self-esteem, family and interpersonal conflicts; (3) achieving long-term remission and rehabilitation, or full recovery. These phases are not intended to be sequential but occur simultaneously.

Treatment Steps

Restoring weight when there has been weight loss

- Weight loss may be severe enough for feeding to occur in inpatient setting.
- Restore weight with diet changes in outpatient setting
- Help caretakers/parents assist or support weight gain and maintenance
- Alteration of exercise patterns if needed
- For bulimia, establish a pattern of regular, non-binge meals
- Include nutritionist care to assist with weight maintenance
- Consider medications (SSRI's) after weight is restored to assist with weight maintenance
- Use of prescribed diet or behavioral contract

Nutritional therapy

- address weight distortions
- increase nutritional knowledge
- overcome control issues

Treating psychological disturbances

- Cognitive-behavioral therapy (CBT) to assist with distorted thoughts and behavioral patterns
- Family systems therapy to address maladaptive interactions/patterns which contribute to the eating disorder, tailored to family dynamics and developmental level of the adolescent CBT guided self-care (Treasure and Schmidt, 1997)
- CBT guided self-care (Treasure and Schmidt, 1997)
- Assess co-morbidity and need for treatment of any co-occurring disorder

Much of the literature regarding psychotherapy approaches have examined the efficacy of cognitive behavioral therapies and family therapy with mixed results. Published studies of the Maudsley model of family therapy have demonstrated good outcomes with Anorexia Nervosa (Lock, et al). Individual therapies are only recommended for patients with AN after weight restoration has been achieved, as formal psychotherapy is likely to be ineffective due the obsessiveness and cognitive impairments associated with malnourishment. The treatment with the strongest evidence base for Bulimia is CBT which initially aims to normalize eating patterns and reduce binge/purge episodes.

Pharmacotherapy

- a. No medications have been given approval by the US Food and Drug Administration (FDA) for the treatment of anorexia nervosa or eating disorder not otherwise specified.
- b. Anxiety and mood disorders often co-occur with eating disorders and pharmacotherapy for co-morbid diagnoses may be warranted.
- c. Fluoxetine has FDA approval for the treatment of bulimia nervosa and has been shown to be effective in reducing binge eating and purging behaviors. Though they do not have FDA indications, other medications including selective serotonin reuptake inhibitors (SSRI's) and serotonin/norepinephrine reuptake inhibitors have been shown to decrease binge eating and purging behaviors.
- d. Starvation and semi-starvation may lead to anxious and depressed mood. In addition, the efficacy of pharmacotherapy may be limited and side effects more pronounced in malnourished individuals. Therefore, nutritional rehabilitation should be a primary focus of treatment.
- e. Hormonal supplementation has not been shown to be effective in increasing bone mineral density in adolescents/young adults with secondary amenorrhea. (Rosen, 2010)

Indications for inpatient care:

- a) Physical signs and symptoms
 - i) Precipitous weight loss, low body weight (< 75 percent of expected body weight), or weight loss despite outpatient treatment.
 - ii) Vital sign instability (hypothermia, bradycardia, arrhythmia, low blood pressure)
 - iii) Syncope or orthostatic intolerance
 - iv) Serum electrolyte disturbance
 - v) Uninterruptible vomiting
 - vi) Hematemesis

- b) Other
 - i) Suicidal thoughts or behaviors
 - ii) Food refusal
 - iii) Inadequate response to outpatient treatment

Medical stabilization and nutritional rehabilitation are the most crucial determinants of short term and immediate term outcome. Long term follow up can help reduce progression and sequelae of the disease. Long term prognosis is more crucially determined by individual and family therapy, especially with younger children and adolescents. Family based treatment has been found to be more effective in supporting longer term remission. Pediatricians perform medical and nutritional management and coordination with mental health personnel, usually in an outpatient setting.

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