

POSITION PAPER

Eating Disorders in Adolescents:

Position Paper of the Society For Adolescent Medicine

Eating disorders are complex illnesses that are affecting adolescents with increasing frequency [1]. They rank as the third most common chronic illness in adolescent females, with an incidence of up to 5% [1–3]. Three major subgroups are recognized: a restrictive form in which food intake is severely limited (anorexia nervosa); a bulimic form in which binge-eating episodes are followed by attempts to minimize the effects of overeating via vomiting, catharsis, exercise, or fasting (bulimia nervosa); and a third group in which all the criteria for anorexia nervosa or bulimia nervosa are not met. The latter group, often called “eating disorder not otherwise specified” or EDNOS, constitutes the majority of patients seen in referral centers treating adolescents [4]. Eating disorders are associated with serious biological, psychological, and sociological morbidity and significant mortality. Unique features of adolescents and the developmental process of adolescence are critical considerations in determining the diagnosis, treatment, and outcome of eating disorders in this age group. This position statement represents a consensus from Adolescent Medicine specialists from the United States, Canada, United Kingdom, and Australia regarding the diagnosis and management of eating disorders in adolescents. In keeping with the practice guidelines of the American Psychiatric Association [5] and the American Academy of Pediatrics [6], this statement integrates evidence-based medicine, where available.

Diagnosis

Diagnostic criteria for eating disorders such as those found in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) [7] are not entirely applicable to adolescents [8]. The wide variability in the rate, timing and magnitude of both

height and weight gain during normal puberty, the absence of menstrual periods in early puberty along with the unpredictability of menses soon after menarche, limit the application of those formal diagnostic criteria to adolescents. Many adolescents, because of their stage of cognitive development, lack the psychological capacity to express abstract concepts such as self-awareness, motivation to lose weight, or feelings of depression. In addition, clinical features such as pubertal delay, growth retardation, or the impairment of bone mineral acquisition may occur at sub-clinical levels of eating disorders [5,9–14]. Younger patients may present with significant difficulties related to eating, body image, and weight control habits without necessarily meeting formal criteria for an eating disorder [4,8,14–18]. The American Academy of Pediatrics has identified conditions along the spectrum of disordered eating that still deserve attention in children and adolescents [6]. It is essential to diagnose eating disorders in the context of the multiple and varied aspects of normal pubertal growth, adolescent development, and the eventual attainment of a healthy adulthood, rather than merely applying formalized criteria.

Medical Complications

No organ system is spared the effects of eating disorders [1,19–22]. The physical signs and symptoms occurring in adolescents with an eating disorder are primarily related to weight-control behaviors and the effects of malnutrition. Most of the medical complications in adolescents with an eating disorder improve with nutritional rehabilitation and recovery from the eating disorder, but some are potentially irreversible. Potentially irreversible medical complications in adolescents include: growth retardation if the disorder occurs before closure of the epiphyses [10,11,23–26]; loss of dental enamel with chronic

vomiting [27]; structural brain changes noted on cerebral tomography, magnetic resonance imaging and single-photon computerized tomography studies [28,29]; pubertal delay or arrest [30,31]; and impaired acquisition of peak bone mass [9,13,32–35], predisposing to osteoporosis and increased fracture risk. These features underscore the importance of immediate medical management, ongoing monitoring and aggressive treatment by physicians who understand adolescent growth and development.

Nutritional Disturbances

Nutritional disturbances are a hallmark of eating disorders and are related to the severity, duration, and timing of dysfunctional dietary habits. Significant dietary deficiencies of calcium, vitamin D, folate, vitamin B12 and other minerals are found [18,36,37]. Inadequate intake of energy (calories), protein, calcium and vitamin D are especially important to identify, since these elements are crucial to growth and attainment of peak bone mass [38]. Moreover, there is evidence that adolescents with eating disorders may be losing critical tissue components (such as muscle mass, body fat, and bone minerals [9,18,39,40]) during a phase of growth when dramatic increases in these elements should be occurring. Detailed assessment of the young person's nutritional status forms the basis of ongoing management of nutritional disturbances [41].

Psychosocial And Mental Health Disturbances

Eating disorders that occur during adolescence interfere with adjustment to pubertal development [42] and mastery of developmental tasks necessary to becoming a healthy, functioning adult. Social isolation and family conflicts arise at a time when families and peers are needed to support development [43,44]. Issues related to self-concept, self-esteem, autonomy, and capacity for intimacy should be addressed in a developmentally appropriate and sensitive way [45,46]. Given that adolescents with eating disorders usually live at home and interact with their families on a daily basis, the role of the family should be explored during both evaluation and treatment [47,48], with particular attention given to the issues of control and responsibility for the adolescent within the family context.

Studies emphasize a frequent association between eating disorders and other psychiatric conditions. Important findings include a lifetime incidence of

Table 1. Indications for Hospitalization in an Adolescent With an Eating Disorder

One or more of the following justify hospitalization:

1. Severe malnutrition (weight $\leq 75\%$ average body weight for age, sex, and height)
2. Dehydration
3. Electrolyte disturbances (hypokalemia, hyponatremia, hypophosphatemia)
4. Cardiac dysrhythmia
5. Physiological instability
 - Severe bradycardia (heart rate < 50 beats/minute daytime; < 45 beats/minute at night)
 - Hypotension ($< 80/50$ mm Hg)
 - Hypothermia (body temperature $< 96^\circ$ F)
 - Orthostatic changes in pulse (> 20 beats per minute) or blood pressure (> 10 mm Hg)
6. Arrested growth and development
7. Failure of outpatient treatment
8. Acute food refusal
9. Uncontrollable binging and purging
10. Acute medical complications of malnutrition (e.g., syncope, seizures, cardiac failure, pancreatitis, etc.)
11. Acute psychiatric emergencies (e.g., suicidal ideation, acute psychosis)
12. Comorbid diagnosis that interferes with the treatment of the eating disorder (e.g., severe depression, obsessive compulsive disorder, severe family dysfunction)

affective disorders (especially depression) of 50%–80% for both anorexia nervosa and bulimia nervosa; a 30%–65% lifetime incidence of anxiety disorders (especially obsessive-compulsive disorder and social phobia) for anorexia nervosa and bulimia nervosa; a 12%–21% rate of substance abuse for anorexia nervosa; and a 9%–55% rate for bulimia nervosa. Estimates of comorbid personality disorders among patients with eating disorders range from 20% to 80% [49,50]. All patients should therefore be carefully evaluated for comorbid psychiatric conditions.

Treatment Guidelines

Eating disorders are associated with complex biopsychosocial issues that, under ideal circumstances, are best addressed by an interdisciplinary team of medical, nutritional, mental health and nursing professionals who are experienced in the evaluation and treatment of eating disorders and who have expertise in adolescent health [1].

Various levels of care should be available to adolescents with eating disorders (outpatient, intensive outpatient, partial hospitalization, inpatient hospitalization or residential treatment centers) [5,51]. Factors that justify inpatient treatment are listed in Table 1 [1,5,6]. These criteria, initially published by

the Society for Adolescent Medicine in 1995 [1], are in agreement with the recent revision of the American Psychiatric Association practice guidelines for the treatment of patients with eating disorders [5], the recently published American Academy of Pediatrics policy statement on identifying and treating eating disorders [6], and the American Dietetic Association position on nutrition intervention in the treatment of eating disorders [52]. In children and adolescents, physiologic or physical evidence of medical compromise can be found even in the absence of significant weight loss. Not infrequently, inpatient treatment becomes necessary because of failure of outpatient treatment. In severely malnourished patients, the risk of the "refeeding syndrome" should be avoided through gradual increase of caloric intake and close monitoring of weight, vital signs, fluid shifts and serum electrolytes (including phosphorus, potassium, magnesium and glucose)[53–57]. Parenteral feeding is very rarely necessary. Short-term nasogastric feeding may be necessary in those hospitalized with severe malnutrition. There is no evidence to support the long-term role of nasogastric tube feeding.

Optimal duration of hospitalization has not been established, although there are studies that have shown a decreased risk of relapse in patients who are discharged closer to ideal body weight compared to patients discharged at very low body weight [58]. The overall goals of treatment are the same in a medical or psychiatric inpatient unit, a day program, or outpatient setting: to help the adolescent achieve and maintain both physical and psychological health.

The expertise of the treatment team who work specifically with adolescents and their families is as important as the setting in which they work. Traditional settings, such as a general psychiatric ward, may be less appropriate than an adolescent medical unit, if the latter is available [6,45,59–61]. Some evidence suggests a good outcome for patients treated on adolescent medicine units [60–62]. On a specialized psychiatric inpatient eating disorders unit for adolescents, Strober et al showed that 76% of patients met criteria for full recovery. This prospective study had a 10–15 year follow-up period and also showed that time to recovery was protracted, ranging from 57–79 months [63]. Smooth transition from inpatient to outpatient care can be facilitated by an interdisciplinary team that provides continuity of care in a comprehensive, coordinated, developmentally-oriented manner. Given the rate of relapse,

recurrence, crossover (change from anorexia nervosa to bulimia nervosa or *vice versa*) and comorbidity, treatment should be of sufficient frequency, intensity and duration to provide effective intervention.

Mental health evaluation and treatment is crucial for all adolescents with eating disorders. The treatment may need to continue for several years [63]. To date, there is a paucity of research on the treatment of adolescents with anorexia nervosa. Evidence-based research supports family-based treatment for adolescents [48,64–66] and a manual has been published describing one of the treatment methods.[67]. Cognitive behavioral therapy is used in adults with anorexia nervosa but has not been evaluated in adolescents. There is some recent evidence to suggest that although antidepressants are of no clinical value in promoting weight gain, fluoxetine may be helpful in reducing the risk of relapse of symptoms in older adolescents with anorexia nervosa whose weight has been restored [68]. The most effective treatment for older adolescents with bulimia nervosa is cognitive behavioral therapy that focuses on changing the specific eating attitudes and behaviors that maintain the eating disorder [69,70]. Antidepressants have been shown to reduce binge eating and purging by 50% to 75% [5,71,72]. In addition, interpersonal psychotherapy [73] and dialectical behavior therapy [70] have also demonstrated some beneficial effect in older adolescents with bulimia nervosa. Medications may also be helpful in older adolescents with a co-morbid depression or obsessive or compulsive symptoms.

The optimum treatment of the osteopenia associated with anorexia nervosa remains unresolved. Current treatment recommendations include weight restoration with the initiation or resumption of menses, calcium (1300 – 1500 mg/day) [74] and vitamin D (400 IU/day) supplementation and carefully monitored weight-bearing exercise [75]. While hormone replacement therapy is frequently prescribed to treat osteopenia in anorexia nervosa [76], there are no documented prospective studies that have demonstrated the efficacy of hormone replacement therapy beyond standard treatment [33,77,78]. Hormone replacement therapy can cause growth arrest in the adolescent who has not yet completed growth [79]. The monthly hormone-induced withdrawal bleeding can also be misinterpreted by the adolescent as return of normal menstrual function and adequate weight restoration, and therefore interfere with the treatment process.

Barriers to Care

Interdisciplinary treatment of established eating disorders can be time-consuming, relatively prolonged and extremely costly. Lack of care or insufficient treatment can result in chronicity with major medical complications, social or psychiatric morbidity and even death. Barriers to care include lack of insurance, coverage with inadequate scope of benefits, low reimbursement rates, and limited access to health care specialists and appropriate interdisciplinary teams with expertise in eating disorders, which may be owing either to geography or insurance limitations. In addition to these extrinsic barriers, patients and families often demonstrate ambivalence or resistance to the diagnosis or treatment, which threatens active engagement in the recovery process.

In most insurance plans the scope of benefits for treatment of eating disorders is currently insufficient. The labeling of the disorder as a purely psychiatric illness by some insurance companies usually limits the ability of health care providers to meet the medical, nutritional and psychological needs of patients in either the medical or psychiatric setting. In addition, some insurance companies limit the number of hospitalizations permitted per year, restrict the number of outpatient visits per year, establish lifetime caps on coverage, and preclude payment of some medical practitioners. Many plans limit the number of nutrition visits to one per year and the number of mental health visits to 6 or fewer per year. In addition, some treatment institutions have age limit policies that negatively affect treatment and limit access to care for older adolescents who may not satisfy the age limits at the institution able to provide the most appropriate care. The low reimbursement rates for psychosocial services that are common among insurers result in fewer qualified professionals being available who are willing to care for teenagers and young adults with eating disorders. Lack of compensation for care that is provided by hospitals, physicians and other professionals threatens the survival of existing programs. Insurance reimbursement for care provided by multiple disciplines is an essential element of appropriate treatment but is far from the norm. Comprehensive insurance coverage is important for adolescents suffering from the full spectrum of disorders, ranging from disordered eating to those with severe and chronic eating disorders. Treatment should be dictated by generally accepted guidelines [5,6] and should be based on clinical severity of the condition.

Many older adolescents who have had health insurance, no longer have it as young adults and withdraw from treatment owing to loss of coverage. Some insurers have limited or even reduced the age up to which students can continue to be covered as dependants under their parents' insurance. Some older adolescents who have lost insurance are unable to obtain new coverage because of limited eligibility based on the preexisting condition exclusions that are imposed by some insurance companies [80]. The withdrawal of treatment owing to loss of insurance often occurs at an age when unemployment or temporary employment, without benefits, is the norm; and individuals who are ages 18 through 24 years lack insurance at a higher rate than any other age group [81].

The Internet and "Pro-ana sites"

Approximately 49% of teenagers worldwide, have access to the Internet [82]. Therefore, many teenagers are able to access health information and other resources on the Internet. In addition to accessing reputable sites, adolescents also have access to websites that provide young people with harmful content. Such websites include pro-anorexia ("pro-ana") and pro-bulimia ("pro-mia") websites which are devoted to the maintenance, promotion, and support of an eating disorder. The proliferation of "pro-ana" and "pro-mia" websites is of great concern. These websites provide young people with ideas about how best to starve themselves or purge and how to avoid the detection of these behaviors by clinicians. These websites often promote anorexia nervosa and bulimia nervosa as a lifestyle choice and not as a disease. The number of such sites far exceeds that of professional or recovery sites [83]. Professionals should be aware of the existence of these sites and their content. Patients who wish to access medical information from the Internet, should be encouraged to seek out the websites of more reputable professional organizations.

Future Research

Several issues deserve further study. Examples include: (a) identification of psychosocial, psychiatric and biological risk factors that are associated with eating disorders in young people; (b) the prevention of eating disorders for adolescents who are at high risk; (c) creation and validation of brief, developmen-

tally-appropriate screening tools for use by primary care providers; (d) new therapeutic modalities for the treatment of osteopenia and osteoporosis in anorexia nervosa (type and amount of exercise, efficacy of calcium/Vitamin D supplementation, DHEA, IGF-1 and the bisphosphonates); (e) comparison of outcome of different treatment approaches, including early, interdisciplinary outpatient models; (f) improved delineation of diagnostic subgroups with respect to prognosis and treatment, and in particular, further clarification of the EDNOS subgroup; and (g) efficacy of psychopharmacologic agents. These studies will require collaboration of multiple disciplines from numerous sites in multicenter protocols. Publication of these studies in peer-reviewed medical journals and discussion at conferences are encouraged as a means of promoting and disseminating results of such studies and collaboration.

Position:

1. The diagnosis of an eating disorder should be considered when an adolescent engages in potentially unhealthy weight-control practices, demonstrates obsessive thinking about food, weight, shape or exercise, or fails to attain or maintain a healthy weight, height, body composition or stage of sexual maturation for gender and age. An eating disorder can still be present in the absence of established diagnostic criteria.
2. Because of the potentially irreversible effects of an eating disorder on physical, psychological and emotional growth and development in adolescents, the high mortality and the evidence suggesting improved outcome with early treatment, the threshold for intervention in adolescents should be lower than in adults.
3. The evaluation and ongoing management of nutritional disturbances in adolescents with eating disorders should take into account the nutritional requirements of adolescents in the context of their age, pubertal development, and physical activity level.
4. Mental health intervention for adolescents with eating disorders should address the psychopathologic characteristics of eating disorders, the specific psychosocial tasks that are central to adolescence, and possible comorbid psychiatric conditions. Family-based treatment should be considered an important part of treatment for most adolescents with eating disorders.
5. The assessment and treatment of adolescents with an eating disorder should be interdisciplinary and, under ideal circumstances, is best accomplished by a team consisting of medical, nursing, nutritional and mental health disciplines. Treatment should be provided by health care providers who have expertise in managing the complexities of adolescent eating disorders. In addition, treatment should be provided by health care providers who have expertise in managing adolescents with eating disorders and who are knowledgeable about normal adolescent physical and psychological growth and development. Hospitalization of an adolescent with an eating disorder is necessary in the presence of severe malnutrition, physiologic instability, severe mental health disturbance or failure of outpatient treatment. Ongoing treatment should be delivered with appropriate frequency, intensity and duration until complete resolution.
6. Adolescents with eating disorders should not be denied access to care because of absent or inadequate health care coverage. Coverage should provide reimbursement for inpatient, partial hospitalization and outpatient interdisciplinary treatment that is dictated by the severity of the clinical situation and takes into account the developmental needs of the patient, should encompass the comprehensive range of benefits and providers needed, and should provide reimbursement at adequate levels. Adolescent health care providers should work with insurance companies to define appropriate strategies for the management of adolescents with eating disorders.
7. The Society for Adolescent Medicine does not support the content of pro-anorexia and pro-bulimia websites and discourages the creation and dissemination of these controversial and potentially dangerous sites.
8. Further research is essential to address unanswered questions in the field of adolescent eating disorders. Research priorities include prevention and early intervention, further exploration of the pathogenesis of early onset eating disorders, improvement of the current diagnostic classification system to consider the unique spectrum of early-onset eating disorders and the development of effective treatments for adolescent eating disorders. We also call upon private and public agencies to provide necessary funding to allow for advancement of knowledge in the prevention, etiology, and treatment of eating disorders in adolescents.

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