Eating disorders in children and adolescents

Nina K. Anderson, and Olivier F. Nicolay

The incidence of eating disorders (ED) is increasing, not only in Westernized societies, but developing countries as well. Individuals having EDs may develop significant functional impairments across organ systems with serious life-threatening consequences, leading to the highest rates of mortality and morbidity among mental disorders. (Semin Orthod 2016; 22:234–237.) © *2016 Published by Elsevier Inc.*

The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) recognizes six primary feeding and eating disorders including anorexia nervosa (AN), bulimia nervosa (BN) and binge-eating disorder, pica, rumination disorder, and avoidant/restrictive food intake disorder (ARFID). The residual category "eating disorder not otherwise specified" has been renamed "other specified feeding or eating disorder" and includes five disorders atypical anorexia, binge eating with low frequency and/or limited duration, purging disorder, and night eating syndrome.

At-risk children frequently present with subclinical, heterogeneous eating symptoms, tend to present premorbid psychopathologies (depression, obsessive-compulsive disorder, or other anxiety disorders) and are less likely to have binge/purge behaviors associated with their ED than adults. Childhood and adolescence are critical periods of neural development and physical growth. The malnutrition and related medical complications resulting from ED such as AN, BN, and eating disorder not otherwise specified may have more severe and potentially more protracted consequences during youth than during other age periods.

Given the frequency with which oral health practitioners, particularly pediatric dentists and orthodontists, see their patients, they might be in a position to be the first healthcare provider to detect and recognize the signs and symptoms of an ED, and contribute to the early referral for intervention/treatment. It therefore behooves them to become cognizant and knowledgeable about the manifestations of ED.

The incidence of eating disorders (ED) is increasing, not only in Westernized societies, but developing countries as well. Up to 30 million people suffer from an ED in the United States, with worldwide estimates at 70 million[1] affected by these disorders. Patients having EDs may develop significant functional impairments across organ systems with potentially serious life-threatening consequences. The mortality and morbidity rates associated with EDs are among the highest of any mental disorders. The mortality rate associated with anorexia nervosa (AN) is 12 times higher than the death rate associated with any other causes of death for females age 15–24.[1] Pediatric EDs are more common than type 2 diabetes mellitus.[6] Between 1999 and 2006, hospitalizations for ED rose by 119% for children under the age of 12.[1,2] Female athletes (e.g., cheerleaders, gymnasts, dancers, and skaters), males competing in weight class sports (e.g., wrestling and combat), or homosexual males are the highest risk groups for developing ED.

Given the frequency with which general practitioners, pediatric dentists, and orthodontists see their patients, they are in a position to be the first healthcare providers to recognize the signs and symptoms of an ED, and contribute to the early referral for intervention/treatment.[3,4] Thus, it is important that dental professionals are knowledgeable about the types of ED and their manifestations.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-V)[5] recognizes six primary feeding and eating disorders including

Department of Developmental Biology, Harvard School of Dental Medicine, Boston, MA; Department of Orthodontics, New York University School of Dentistry, New York, NY.

Address correspondence to: Nina K. Anderson, PhD, Department of Developmental Biology, Harvard School of Dental Medicine, 188 Longwood Ave, Boston, MA 02115

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anorexia nervosa (AN), bulimia nervosa (BN) and binge-eating disorder, pica, rumination disorder, and avoidant/restrictive food intake disorder (ARFID). The residual category "eating disorder not otherwise specified" has been renamed "other specified feeding or eating disorder" and includes five disorders: atypical anorexia, binge eating with low frequency and/or limited duration, purging disorder and night eating syndrome.

Many resources cover eating disorders in adolescent and adult populations, but the research and data on pediatric patients and ED is scant. Children at risk present frequently with sub-clinical, heterogeneous eating symptoms, tend to have premorbid psychopathologies (depression, obsessive-compulsive disorder, or other anxiety disorders) but are less likely to have binge/purge behaviors associated with their ED than adults.[6] Childhood and adolescence are critical periods of neural development and physical growth. The malnutrition and related medical complications resulting from ED such as AN, BN, and eating disorder not otherwise specified may have more severe and potentially more protracted consequences during youth than during other age periods. The Workgroup for Classification of Eating Disorders in Children and Adolescents (2010) and The Society for Adolescent Medicine recommend that the diagnoses and treatment thresholds for pediatric ED should be lower than for adults due to the potentially irreversible effects of ED including pubertal delay, growth retardation, short stature, structural brain changes, low bone mineral density.[6,7] In addition, it has been reported that in young women suffering from BN, unstimulated saliva flow rate was decreased, with frequent complaints of dry mouth.[8] Moreover, signs and symptoms of temporomandibular joint disorders appear to be more prevalent in patient populations with eating disorders.[9,10]

Avoidant/restrictive food intake disorder (ARFID), previously known as "feeding disorder of infancy or early childhood," refers to pediatric feeding patterns that are restrictive such aversion to or avoidance of certain foods which may relate to appearance, smell, texture, taste, and/or temperature of food, lack of appetite, using

Table. DSM-V disorder, observable characteristics, questions.

DSM-V disorder	*Physical characteristics*	*Questions*
Anorexia nervosa If purging type see bulimia*	Low body weight Fatigue Carotenemia/dry skin	Hypothermia Participates-organized sports
Nervosa purging type	Baggy clothing Atypical tattoos/piercings	Excessive exercise Perfectionist Vegetarian History of dieting Ritualistic eating behaviors Self-injurious behavior Amenorrhea Teased/bullied Depressed/moody
Bulimia nervosa purging type	Swollen parotid glands Petechial hemorrhages Perimolysis Chipped/notched maxillary incisors V-shaped lesions on labial aspects Angular cheilitis Halitosis Esophageal tear Downy facial hair (lanugo) Callouses on back of hands (Russell's sign)	Eats large meals Drinks acidic fluids Vegetarian Tooth sensitivity Frequent tooth brushing Athletic Participates-organized sports Tooth sensitivity Body dissatisfaction Depressed/moody Obsessive/compulsive
Avoidant/restrictive food intake disorder	Delayed development Low body weight Speech problems Lethargy Trouble maintaining focus	Picky eater Avoids new foods Mealtime struggles Trouble pronouncing words