Episode 95 – Eating Disorders: Part 1 October 27, 2023

Introduction

Eating disorders are serious mental health conditions that affect physical, psychological, and social function. They are a range of conditions characterized by severe and persistent disturbance in eating behaviours, accompanied by distressing thoughts and emotions. They are among the most life-threatening mental health conditions. They are associated with significant morbidity and mortality, including a 10-to-20-year shorter life expectancy and a 5-fold increased risk of suicide attempts. [1] [2] [3] [4]

Eating disorders are often associated with preoccupations with food, weight, appearance, and/or with anxiety about eating or eating certain foods. Behaviours associated with eating disorders include restrictive eating; avoidance of certain foods; binge eating; purging by vomiting or misuse of laxatives, diuretics, enemas, or other medications that clear the intestines; or compulsive exercise. [1] [5]

In Canada, eating disorders are diagnosed by physicians (e.g., psychiatrists), nurse practitioners, or psychologists. To be diagnosed with an eating disorder, an individual must have both disordered eating and psychological disturbance. [2] [6]

Eating disorders affect individuals irrespective of their age, sex, identity, ability, ethnic background, or socioeconomic status. Several million individuals are affected at any given time, most often females between the ages of 12 and 35 years. [1] [7]

Many factors influence the development of an eating disorder. These factors can be:

- Biological (genetic and biochemical),
- Psychological (personality and mental health), and
- Social (including cultural norms about food and appearance).

Most often eating disorders develop in adolescence and young adulthood. Individuals who are struggling with their identity and self-image, or who have experienced trauma can be at risk. [1] [2] [8]

Research has shown a connection between child sexual abuse and subsequent development of eating disorders. Intimate partner and sexual violence can also lead to

eating disorders and other mental health conditions (e.g., depression, post-traumatic stress, anxiety disorders).[1] [2] [9] [10]

Eating disorders often occur alongside other mental health conditions, such as anxiety, depression, obsessive-compulsive disorder, post-traumatic stress disorder, and alcohol and substance use disorders. [1] [8]

Eating disorders may go undiagnosed and untreated since eating disorders and mental health conditions are still stigmatized. Thus, some individuals with disordered eating[2] may be secretive or ashamed and go to great lengths to hide their disorder. [3] [8]

Treatment for eating disorders should address psychological, behavioural, nutritional, and other health complications. Ambivalence towards treatment, denial of a problem with eating and weight, or anxiety about changing eating patterns is not uncommon in individuals with eating disorders. [1]

While eating disorders are serious and can have life-threatening complications, they are treatable conditions. With proper medical care those with eating disorders can resume healthy eating habits, and recover their emotional and psychological health. [1] [8]

Prevalence of eating disorders

- In 2019, 14 million individuals experienced eating disorders, including almost three million children and adolescents. [11]
- A 2023 systematic review and meta-analysis from 32 studies in 16 countries found 22% of children and adolescents showed disordered eating. The proportion of disordered eating was significantly higher among females, and positively associated with increasing age and body mass index (BMI). [3]
- A global analysis indicated the lifetime prevalence of eating disorders was 8.4% for females and 2.2% for males. [12]
- Findings from the last Canadian Community Health Survey indicated in 2012 found over 113,000 individuals age ≥15 were living with a diagnosed eating disorder. [13]
- At any given time, an estimated 840,000 to 1,750,000 individuals in Canada have symptoms sufficient for an eating disorder diagnosis. [14]
- Up to 90% of eating disorders occur in females, though males are being diagnosed more often. [2]

[1] **Note:** ODHA has partnered with the Woman Abuse Council of Toronto (WomanACT) to develop the online course 'Detecting and Responding to Gender-Based Violence for the Oral Health Professional.' This self-guided course provides dental hygienists with the knowledge to identify behavioural and physical signs of gender-based violence and respond effectively. All proceeds from the purchase of this course are directed to the charitable organization WomanACT. https://womanact.thinkific.com/courses/DRGBV

[2] The term disordered eating is often used to describe and identify some of the different eating behaviours that do not necessarily meet the diagnostic criteria for an eating disorder and therefore cannot be classified as an eating disorder. Nonetheless, although its impact on health is often minimized, disordered eating should be closely evaluated because it can evolve into an eating disorder. [3]

Males may underreport disordered eating as it is often thought to be exclusive to females. Further, eating disorders and disordered eating behaviours in males may present differently than in females. The current diagnostic criteria for eating disorders fail to detect disordered eating behaviours more commonly observed in males, such as intensely engaging in muscle mass and weight gain (i.e., muscularity-oriented disordered eating) with the goal to improve body image satisfaction. [3] [15]

COVID-19 pandemic

The COVID-19 pandemic has had a profound effect on the mental health of young individuals worldwide, leading to a significant increase in individuals seeking care for an eating disorder. In the United States, hospital admissions and longer hospital stays for adolescents with eating disorders requiring medical stabilization increased significantly during the pandemic. [16]

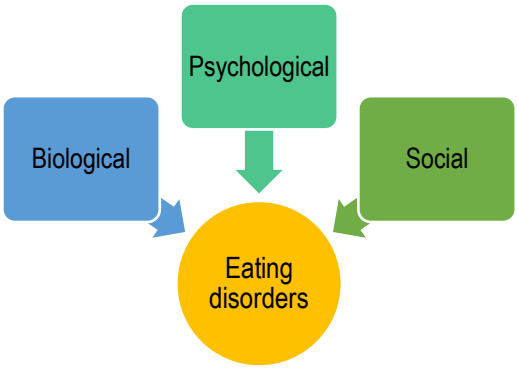
In Ontario, Toulany et al. (2023) found an increase in emergency department visits for eating disorders among adolescents (10-17 years), young adults, and older adults during the pandemic, but hospital admissions increased only for adolescents and decreased for all adult groups.

A combination of risk factors, such as isolation, increased time on social media, extended time spent with family, decreased access to care, and fear of infection, may have contributed to the development or exacerbation of eating disorders. Additional factors that potentially contributed to the increase in eating disorders include decreased opportunities to exercise, fear of weight gain, increased media focus on at-home workouts, increased household stress, and lack of social interactions to permit disordered eating without fear of others noticing.

Lower hospital admissions among adults may reflect a decrease in non-COVID-19-related bed availability and capacity, redeployment of hospital resources and personnel, and overall treatment delays. [17]

Risk factors

Risk factors for eating disorders involve a complex network of biological, psychological, and social components. The following risk factors may be applicable for anorexia nervosa, bulimia nervosa, binge eating disorder, and other specified feeding and eating disorder (OSFED). Refer to avoidant/restrictive food intake disorder (ARFID) and pica below, for risk factors associated with those disorders.



Biological

Biological risk factors may include:

- Having a close relative (e.g., parent, sibling) with an eating disorder.
- Having a close relative with a mental health condition.
- History of dieting, especially with weight that is constantly fluctuating when getting on and off new diets. There is strong evidence many eating disorder symptoms are symptoms of starvation. Starvation affects the brain and can lead to mood changes, anxiety, rigid thinking, and reduced appetite.
- Type 1 diabetes due to the intense focus on food, numbers (e.g., weight, blood glucose, A1C), and control, plus the many disruptions that occur to the metabolic system.[3] [18] [19] [20]

Propper-Lewinsohn et al. (2023) reported disordered eating behaviours were common among adolescents with type 1 diabetes and were associated with female sex, high BMI, elevated A1C levels, and multiple daily insulin injections. Disordered eating included binge eating, purging, insulin restriction or omission, which can have detrimental consequences on glycemic control and mortality. The findings highlight that efforts to prevent disordered eating behaviours in at-risk adolescents should begin at diabetes diagnosis. [21]

Psychological

Psychological risk factors may include:

- Perfectionism (one of the strongest risk factors), especially a type called self-oriented perfectionism, which entails setting unrealistically high expectations for oneself.
- Body image dissatisfaction, which is persistent negative thoughts and feelings about one's body.
- Personal history of anxiety, depression, obsessive-compulsive disorder, or other mental health conditions.
- Behavioural inflexibility. Many individuals with anorexia report, as children, they always followed the rules and felt there was one "right way" to do things. [18] [19]

Social

Social risk factors may include:

- Weight stigma, as discrimination or stereotyping based on weight can increase body dissatisfaction.
- Teasing or bullying, especially about weight (e.g., by peers, coaches, healthcare professionals, teachers, family members).
- Appearance ideal internalization, which is buying into the message of the socially-defined "ideal body" increases the likelihood of dieting and food restriction.
- Acculturation (assimilation to a different culture). Individuals from ethnic minority groups, especially those undergoing rapid Westernization, may be at increased risk due to complex interactions between stress, acculturation, and body image.

[3] Refer to Episodes 91, 93, and 94 for additional information on diabetes.

- Limited social networks can lead to loneliness and isolation, which are some of the hallmarks of anorexia. Many with anorexia report having fewer friends and social activities, and less social support.
- Trauma, including intergenerational trauma, neglect, sexual assault, sexual harassment, physical abuse and assault, emotional abuse, emotional and physical neglect (including food deprivation), child sexual abuse, and intimate partner violence. [18] [22]

Nagata et al. (2023) analyzed data from 10,197 adolescents (10-14 years) and found lesbian, gay, and bisexual adolescents in the US were more than twice as likely to report binge eating than their heterosexual peers. Bullying, discrimination, and stigma because of sexual orientation are stressors that can lead to poor self-esteem and disordered eating. Given the higher risk of eating disorders in LGBTQ+ youth, it is important healthcare providers foster a welcoming environment to youth of all sexual orientations and genders.

The study also found adolescent males had 28% higher odds of binge eating than females. Adolescent males may have a drive for muscularity and larger size as opposed to thinness, which can lead to consumption of larger volumes of food. In the context of muscularity-oriented goals, males are more likely to engage in 'cheat meals' which have been linked with binge eating episodes. This highlights the need to move away from the stereotype of eating disorders as a female disorder. A narrow, female-specific lens on disordered eating behaviours will continue to make male adolescents, with unique eating disorder presentations and behaviours, underrecognized and undertreated. [23]

Social media

Social media use may be risk factor for eating disorders in young individuals. A scoping review by Dane and Bhatia (2023) of 50 studies in 17 countries found a disturbingly high prevalence of body image dissatisfaction, disordered eating, and poor mental health among young social media users.

Specific time and frequency exposures to social media trends, pro-eating disorder content, appearance-focused platforms, and investment in appearance-related activities were found to strengthen the relationship with eating disorders. High BMI, female sex, and pre-existing body image concerns also increased this relationship, suggesting a self-perpetuating cycle of risk (e.g., they ‘fix’ their poor body image to obtain more likes). Conversely, high social media literacy and body appreciation were protective factors.

Given the sheer scale of social media reach (approximately 60% of the world’s young population), a large proportion of young individuals could be exposed to the self-perpetuating cycle of risk, making this issue worthy of attention as an emerging global public health issue. [24]

A systematic review by Holland and Tiggemann (2016) of 20 studies demonstrated a significant relationship between social media use and body image concerns and eating disorders, with social comparison as a potential contributing factor. Social comparison

driven by social media was associated with body dissatisfaction, disordered eating, and depressive symptoms. [25]

Gurtala and Fardouly (2023) found short-form social media videos and images that set unattainable appearance standards (known as appearance-ideal content) may harm perception of body image in young females. Appearance dissatisfaction is associated with adverse mental health outcomes, including depression, and is a risk factor for some eating disorders. Examples of social media platforms with short-form videos include TikTok and Instagram. [26]

In contrast, findings by Seekis and Lawrence (2023) demonstrated exposure to body neutrality content on TikTok positively impacted young females' functionality appreciation, body satisfaction, and mood. Body neutrality fosters a sense of nonjudgmental respect and care for one's physical self and shifts the focus from one's appearance toward what one's body does for them. Body neutrality may be potentially useful for individuals who are in eating disorder recovery, by encouraging them to view their bodies as their home which requires respect and support. [27]

Cyberbullying

Cheng et al (2023) investigated the association between cyberbullying and eating disorder symptoms in a US national sample of 10,258 adolescents aged 10-14 years. Participants answered questions about whether they had experienced cyberbullying victimization and perpetration, as well as eating disorder symptoms. Results showed both victims and perpetrators of cyberbullying were more likely than other youth to experience eating disorder symptoms.

Cyberbullying victimization was associated with worrying about weight gain, tying self-worth to weight, inappropriate compensatory behaviours to prevent weight gain, binge eating, and distress with binge eating. Cyberbullying perpetration was associated with worrying about weight gain, tying self-worth to weight, and distress with binge eating.

The authors concluded adolescents who have experienced cyberbullying could benefit from eating disorder prevention programs to minimize the risk of eating disorder development. In addition, digital literacy curricula could provide guidance about cyberbullying and disordered eating among early adolescents. Healthcare providers should consider screening for cyberbullying and eating disorder symptoms among early adolescents and provide guidance as needed. [28]

Food insecurity

Research has documented a strong association between food insecurity and diagnosed eating disorders and disordered eating behaviours. For example, there is a strong association between food insecurity and binge eating and bulimia-spectrum disorders. Food insecurity may increase risk for binge eating through a "feast-or-famine" cycle, where fluctuations in food availability correspond to alternating periods of food restriction and opportunities for binge eating. [29] [30] [31]

Common symptoms of eating disorders

Signs and symptoms vary among individuals and across eating disorders. Recovery increases the earlier an eating disorder is detected. Therefore, it is important to be aware of the signs of an eating disorder.

Emotional and behavioural

- Behaviours and attitudes that indicate weight loss, dieting, and control of food are becoming primary concerns.
- Preoccupation with weight, food, calories, carbohydrates, fat grams, and dieting.
- Skipping meals or taking small portions at regular meals.
- Frequent dieting.
- Appears uncomfortable eating around others.
- Food rituals (e.g., eats only a particular food or food categories [e.g., condiments], excessive chewing, does not allow foods to touch).
- Refusal to eat certain foods, progressing to restrictions against whole food categories (e.g., no carbohydrates, etc.).
- Any new practices with food or fad diets, including cutting out entire food categories (no sugar, no carbs, no dairy, vegetarianism/veganism).
- Withdrawal from usual friends and activities.
- Extreme concern with body size and shape.
- Frequent checking in the mirror for perceived flaws in appearance.
- Extreme mood swings. [32]

Physical

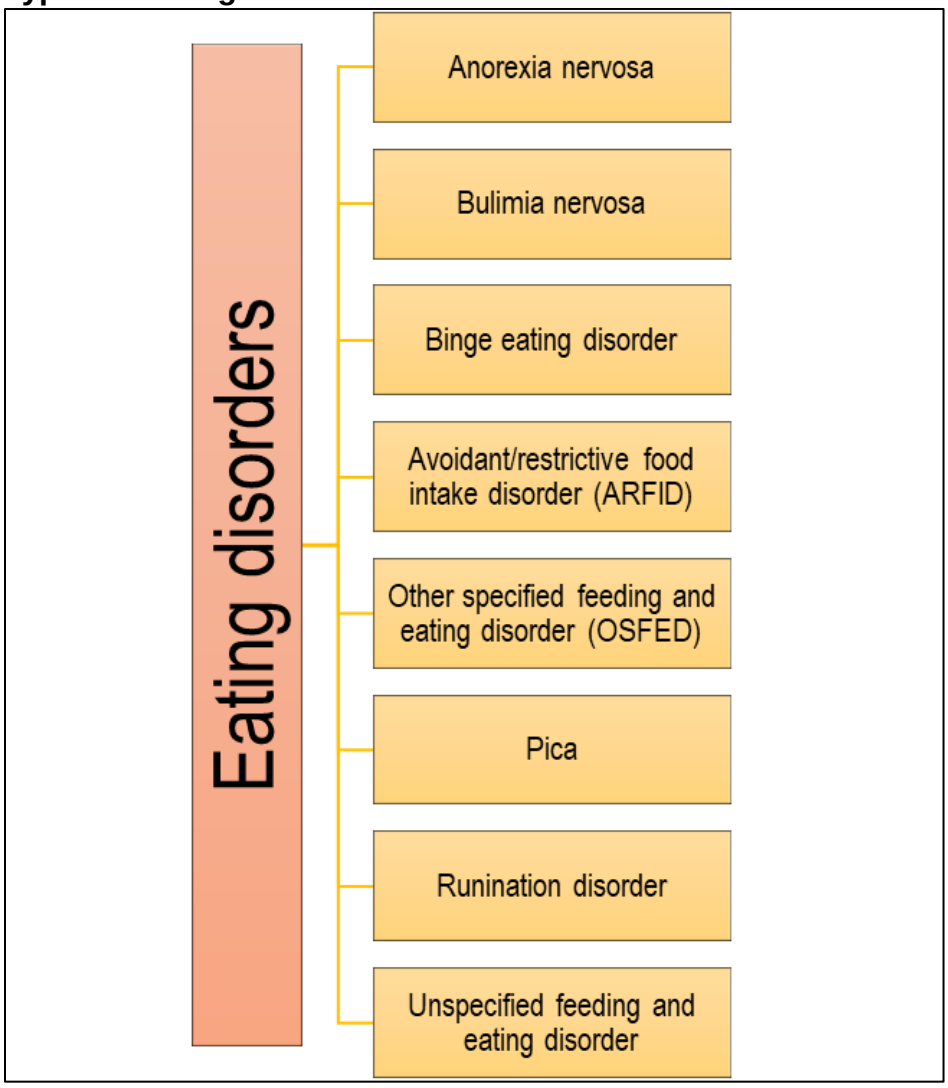
- Noticeable fluctuations in weight (both up and down).
- Stomach cramps, other nonspecific gastrointestinal complaints (constipation, acid reflux, etc.).
- Menstrual irregularities (e.g., missing periods or only having a period while on hormonal contraceptives).
- Difficulties concentrating.
- Abnormal laboratory findings (e.g., anemia, low thyroid and hormone levels, low potassium, low white and red blood cell counts).
- Dizziness, especially upon standing.
- Syncope.
- Feeling cold all the time.
- Sleep problems.
- Cuts and calluses across the top of finger joints (a result of inducing vomiting).
- Dry skin and hair, and brittle nails.
- Lanugo (fine hair on body).
- Muscle weakness.
- Yellow pigmentation of the skin.
- Cold, mottled hands and feet or swelling of feet.
- Poor wound healing.
- Impaired immune functioning.

- Oral health problems (e.g., dental erosion, dental caries, tooth sensitivity, swollen saliva glands, xerostomia).[4] [32]

Types of eating disorders

There are several types of eating disorders, including anorexia nervosa, bulimia nervosa, binge eating disorder, avoidant/restrictive food intake disorder, other specified feeding and eating disorder, pica, rumination disorder, and unspecified feeding or eating disorder. Diagnosis of an eating disorder is based on criteria from the *Diagnostic and Statistical Manual of Mental Disorders,* 5th edition (DSM-5) published by the American Psychiatric Association. [1]

Types of eating disorders



Anorexia nervosa

Anorexia nervosa is characterized by self-starvation and weight loss resulting in low weight for height and age. BMI is typically under 18.5 in an adult with anorexia. It is

[4] Refer to Episode 96 for discussion on oral complication of eating disorders.

driven by an intense fear of gaining weight or becoming fat and has the highest mortality of any mental health diagnosis other than opioid use disorder. Individuals with anorexia are at risk of dying from medical complications associated with starvation. Suicide is the second leading cause of death for individuals diagnosed with anorexia. [1] [33]

There are two subtypes of anorexia nervosa:

- Restricting type in which individuals lose weight primarily by dieting, fasting, or excessively exercising.
- Binge eating/purging type in which individuals also engage in intermittent binge eating and/or purging behaviours (e.g., vomiting, or misuse of laxatives, diuretics, enemas, etc.). [1]

Signs and symptoms

Signs and symptoms related to starvation or purging behaviours may include:

- Weight loss (or a lack of appropriate weight gain in children)
- Intense preoccupation with food which can be directly related to insufficient nutrition
- Amenorrhea
- Dizziness or fainting from dehydration
- Brittle hair and nails
- Cold intolerance (feeling cold all the time)
- Dresses in layers or clothing that disguises body shape even when not appropriate for the weather
- Denies feeling hungry, or makes excuses to avoid meals
- Anemia
- Social withdrawal
- Muscle weakness and wasting
- Heartburn and reflux (in those who vomit)
- Abdominal pain
- Severe constipation, bloating, and fullness after meals
- Stress fractures from compulsive exercise and bone loss resulting in osteopenia or osteoporosis
- Depression, irritability, anxiety, poor concentration, insomnia, and fatigue [1] [34]

Complications

Complications may include:

- Serious life-threatening complications, such as heart rhythm abnormalities (especially in those who vomit or use laxatives), kidney problems, or seizures.
- May be associated with self-harm and suicidality. [1] [34]

Treatment

Treatment may include:

- Helping normalize eating and weight control behaviours and restore weight.
- Treatment of any co-occurring mental health or medical conditions.
- Addressing body dissatisfaction, which often takes longer to correct than weight and eating behaviour.

- For adolescents, the most effective treatments involve helping parents and caregivers to support and monitor the child's meals.
- Admission to an inpatient or residential behavioural specialty program may be indicated when outpatient treatment is not effective in severe anorexia. Most specialty programs are effective in restoring weight and normalizing eating behaviour. However, the risk of relapse in the first year following program discharge remains significant. [1]

Bulimia nervosa

Individuals with bulimia nervosa typically alternate dieting, or eating only low calorie "safe foods" with binge eating on "forbidden" high calorie foods. Binge eating is defined as eating a large amount of food in a short period of time associated with a loss of control over what, or how much is eaten. Food is consumed beyond fullness to the point of nausea and discomfort. Binge behaviour is usually secretive and associated with feelings of shame or embarrassment.

Binges occur at least weekly and are typically followed by compensatory behaviours to prevent weight gain, such as fasting, vomiting, misuse of laxatives or diuretics, or compulsive exercise. Individuals with this disorder may take thyroid hormone in an attempt to avoid weight gain. Common side effects of thyroid medication misuse include nervousness, insomnia, and anxiety; severe side effects include osteoporosis, hypertension, cardiac arrhythmias, and heart failure.

As in anorexia, individuals with bulimia are excessively preoccupied with thoughts of food, weight, or shape which negatively affect, and disproportionately impact, their self-worth. Individuals with bulimia can be slightly underweight, normal weight, overweight, or obese. However, if they are significantly underweight, they are considered to have anorexia nervosa binge eating/purging type and not bulimia nervosa. Family members and friends may be unaware the individual has bulimia because they do not appear underweight and because their behaviours are hidden and may go unnoticed by those close to them. [1] [35]

<u>Signs and symptoms</u>

Signs and symptoms of bulimia may include:

- Weight change, including weight loss or gain
- Calluses or cuts on hands and knuckles from purging
- Frequent trips to the bathroom right after meals
- Restricting food intake
- Large amounts of food disappearing or unexplained empty wrappers and food containers
- Heartburn and gastroesophageal reflux
- Misuse of laxatives, diet pills, diuretics
- Recurrent unexplained diarrhea
- Dehydration (from vomiting, misuse of laxatives, diuretics, excessive exercise)
- Dizziness or fainting from dehydration
- Concern with body weight or shape

- Guilt and anxiety surrounding food or eating [1] [36]

Complications

Complications may include:

- Rare but potentially fatal complications include esophageal tears, gastric rupture, and dangerous cardiac arrhythmias.
- Purging behaviours can cause imbalances in electrolytes leading to cardiac arrest and/or stroke.
- Bulimia may be linked with self-harm and suicidality. [1] [36]

Treatment

Treatment may include:

- Outpatient cognitive behavioural therapy is the treatment with the strongest evidence. It helps normalize eating behaviour and manage thoughts and feelings that perpetuate the disorder.
- Antidepressants (e.g., fluoxetine) may help decrease urges to binge and vomit.
- Eating disorder focused family-based treatment involves providing parents and caregivers with information on how to assist an adolescent or young adult to normalize their eating pattern. [1]

Binge eating disorder

Binge eating disorder is characterized by recurring episodes of binge eating (consuming large quantities of food in a brief period), experiencing a sense of loss of control over the eating, and feeling distressed by the binge behaviour. Unlike bulimia, individuals with binge eating disorder do not regularly use compensatory behaviours to “get rid of” the food by vomiting, fasting, exercising, or laxative misuse. [1] [37]

Diagnosis requires frequent binges (at least once a week for three months), associated with a sense of lack of control, and with three or more of the following features:

- Eating more rapidly than normal.
- Eating until uncomfortably full.
- Eating large amounts of food when not feeling hungry.
- Eating alone because of feeling embarrassed by amount eaten.
- Feeling disgusted with oneself, depressed, or very guilty after a binge. [1]

Signs and symptoms

Signs and symptoms may include:

- Changes in body weight
- Large amounts of food disappearing or unexplained empty wrappers and food containers; hoarding food in secret
- Dressing in layers or clothing that disguises body shape even when not appropriate for the weather
- Guilt and anxiety surrounding eating or food

Complications

Complications may include:

- Serious health complications, such as obesity, diabetes, hypertension, and cardiovascular diseases.[5] [1]

Treatment

Treatment may include:

- Individual or group-based cognitive behavioural psychotherapy, which is shown to be the most effective treatment.
- Interpersonal therapy, which has been shown to be effective.
- Certain antidepressant medications and lisdexamfetamine (a central nervous system stimulant), which have been shown to be effective. [1]

Other specified feeding and eating disorder[6]

Other specified feeding and eating disorder (OSFED) refers to atypical presentations of anorexia, bulimia, and binge eating disorder, among other eating disorders. These eating disorders do not fit into other eating disorder categories for reasons such as the behaviour frequency (e.g., binges) or weight criteria (e.g., for anorexia) does not meet diagnostic threshold. However, these disorders are equally serious and as potentially life-threatening as the more typical presentations. [1] [6]

Examples of OSFED include:

- Atypical anorexia nervosa
- Binge eating disorder (of low frequency and/or limited duration)
- Bulimia nervosa (of low frequency and/or limited duration)
- Purging disorder
- Night eating syndrome
- Purging disorder

Atypical anorexia nervosa has all the same characteristics as anorexia nervosa, including significant weight loss. However, weight appears to be normal because significant weight loss started at a higher than average weight. Those who lose significant weight rapidly through extreme weight control behaviours are at high risk of medical complications, despite having normal or above average weight.

Binge eating disorder (of low frequency and/or limited duration) has all the same characteristics as binge eating disorder, except the binge eating occurs less than once per week and/or for fewer than three months.

[5] Refer to Episodes 79, 80, and 81 for additional information on cardiovascular diseases.

[6] **Note:** if you have concerns about dysfunctional eating behaviours, the National Eating Disorder Information Centre has created a self-screening tool to help identify whether these behaviours indicate the possible presence of an eating disorder. However, this is not a diagnostic tool and is not a substitute for a professional evaluation. [38]
Self-screening tool: https://nedic.ca/media/uploaded/Screen_for_Disordered_Eating_-_fillable.pdf

Bulimia nervosa (of low frequency and/or limited duration) has all the same characteristics as bulimia nervosa, except the binge and purge cycle occurs less frequently than once per week and/or for fewer than three months.

Night eating syndrome is the excessive consumption of food following an evening meal or after waking from sleep in the night, which causes extreme psychological distress and interferes with daily functioning. There is an awareness and recall of the eating.

Purging disorder is recurrent purging behaviour (e.g., self-induced vomiting, misuse of laxatives, diuretics, or other medications) to influence weight or shape in absence of binge eating. [1] [38] [39]

Signs and symptoms
Signs and symptoms depend on the disordered eating behaviours being used. [39]

Complications
Complications depend in part on the eating disordered behaviours being used. [39]

Avoidant/restrictive food intake disorder[7]
Avoidant/restrictive food intake disorder (ARFID) involves a disturbance in eating resulting in persistent failure to meet nutritional needs and extreme picky eating. Many children with ARFID also have a co-occurring anxiety disorder, and are at high risk for other mental health conditions. [1] [40]

Food avoidance or a limited food repertoire can be due to one or more of the following:
- Low appetite and lack of interest in eating or food.
- Extreme food avoidance based on sensory characteristics of foods (e.g., texture, appearance, colour, smell).
- Anxiety or concern about consequences of eating (e.g., fear of choking, nausea, vomiting, constipation, allergic reaction, etc.). The disorder may develop in response to a traumatic event (e.g., an episode of choking or food poisoning) resulting in a fear of eating. [1]

Risk factors
Risk factors may include:
- Autism spectrum conditions, ADHD, and intellectual disabilities, which increase likelihood of developing ARFID. While individuals with autism spectrum disorder often have rigid eating behaviours and sensory sensitivities, these do not necessarily lead to the level of impairment required for a diagnosis of ARFID. [1]
- Children who do not outgrow normal picky eating, or in whom picky eating is severe, may be more likely to develop ARFID. [40]

[7] **Note:** If you have concerns about avoidant or restrictive eating patterns, either your own or your child's or loved one's, the National Eating Disorder Information Centre has developed screening tools to help identify whether these patterns indicate the possible presence of ARFID. However, these are not diagnostic tools and not substitutes for a professional evaluation. [41]
ARFID self-screen tool: https://nedic.ca/media/uploaded/Short_ARFID_Screen_-_Self_fillable.pdf
ARFID screen tool - parent: https://nedic.ca/media/uploaded/Short_ARFID_Screen_-_Parent_fillable.pdf

Diagnosis

Diagnosis requires difficulties with eating associated with one or more of the following:

- Significant weight loss (or failure to achieve expected weight gain in children).
- Significant nutritional deficiency.
- Reliance on a feeding tube or oral nutritional supplements to maintain sufficient nutrition intake.
- Interference with social functioning (e.g., inability to eat with others). [1] [40]

ARFID does not include food restriction related to lack of available food; normal dieting; cultural practices (e.g., religious fasting); or developmentally normal behaviours (e.g., toddlers who are picky eaters). [1]

Food avoidance or restriction can start at any age; however, it commonly develops in infancy or early childhood and may continue in adulthood. Regardless of the age of the individual affected, this disorder can impact families, causing stress at mealtimes, and in other social eating situations. If left untreated, it can develop into anorexia or bulimia later in adolescence or adulthood. [1] [41]

Signs and symptoms

The impact on physical and psychological health and degree of malnutrition can be similar to that seen in anorexia. However, individuals with ARFID do not have excessive concerns about their body weight, size, or shape. [1]

Signs and symptoms are similar to anorexia due to malnutrition (e.g., weight loss, anemia). Other signs include:

- Will only eat certain textures of food
- Fear of choking or vomiting
- Lack of appetite or interest in food
- Limited range of preferred foods that becomes narrower over time (i.e., picky eating that progressively worsens).
- Anxiety about eating specific types of food or unfamiliar foods
- Food rituals
- Refusal to eat certain foods or groups of food
- No fear of weight gain or body image disturbance [40] [41]

Complications

The body is forced to slow down its processes to conserve energy because essential nutrients for normal function are denied, resulting in serious medical consequences. The body is generally resilient at coping with the stress of eating disordered behaviours, and laboratory tests may appear normal even as someone is at high risk of death (e.g., electrolyte imbalances leading to cardiac arrest). [40]

Treatment

Treatment involves an individualized plan and may include several specialists (e.g., mental health professional, registered dietitian, etc.). [1]

Pica

Pica involves repeatedly eating nonfood items with no nutritional value. The behaviour persists over at least one month and is severe enough to warrant medical attention. Individuals with pica do not typically have an aversion to food.

Typical substances ingested vary with age and availability and may include paper, paint chips, soap, cloth, hair, string, wool, chalk, metal, pebbles, soil, charcoal, coal, ash, clay, starch, chalk, talcum powder, gum, or ice.

Pica may first occur in childhood, adolescence, or adulthood, although childhood onset is most common. It is not diagnosed in children under age two since putting small objects into their mouth is a normal part of development for this age. Pica often occurs along with autism spectrum disorder and intellectual disability, but can occur in otherwise typically developing children. [1] [32] [42]

Risk factors

Risk factors may include:

- Iron-deficiency anemia and malnutrition are two of the most common causes of pica, followed by pregnancy. In these individuals, pica is a sign that the body is trying to correct a significant nutrient deficiency. Treating this deficiency with medication or vitamins often resolves the problems.
- Pica often occurs with other mental health conditions associated with impaired functioning (e.g., intellectual disability, autism spectrum disorder, schizophrenia).
- Pica can be associated with trichotillomania (hair pulling disorder), and excoriation (skin picking) disorder. [43]

Diagnosis

- There are no laboratory tests for pica. Diagnosis is made from the clinical history.
- Those who are pregnant and craving nonfood items should only be diagnosed with pica when their cravings lead to ingesting nonfood items and those items pose a potential medical risk, either due to the quantity or type of item ingested.
- Tests for anemia, potential intestinal blockages, and toxic side effects of substances consumed (e.g., lead in paint, bacteria or parasites in dirt) should accompany pica diagnosis. [43]

Signs and symptoms

Signs and symptoms may include:

- Persistent eating, over a period of at least one month, of substances that are not food and do not provide nutritional value.
- Behaviour is inappropriate to the developmental level of the individual and is not part of a culturally or socially normative practice (e.g., some cultures promote eating clay as part of a medicinal practice).
- Eating these nonfood substances is developmentally inappropriate. [43]

Complications

Pica increases risk for intestinal blockages or toxic effects of substances consumed (e.g., lead in paint chips). [1]

Treatment

Treatment for pica involves testing for nutritional deficiencies and addressing them as required. In many cases, concerning eating behaviours disappear as deficiencies are corrected. If the behaviours are not caused by malnutrition or do not stop after nutritional treatment, a variety of behavioural interventions are available. Behavioural interventions may include redirecting the individual from the nonfood items and rewarding them for setting aside or avoiding nonfood items. [1] [43]

Rumination disorder

Rumination disorder involves repeated voluntary regurgitation of swallowed food, which is then re-chewed, re-swallowed, or spat out. Rumination disorder can occur in infancy, childhood, adolescence, or adulthood. Previously swallowed food is brought up into the oral cavity effortlessly, with no sign of gagging, nausea, stress, upset, or disgust. Similar behaviours can be observed in infants; however, they should outgrow it quickly. If not, parents should seek help. Rumination can also be a symptom of anorexia or bulimia nervosa. [1] [42] [44]

To meet the diagnosis the behaviour must:

- Occurs repeatedly for at least a month.
- Not be due to a gastrointestinal or medical problem.
- Not occur as part of one of the other eating disorders listed above.
- Be severe enough to warrant separate medical attention if co-occurring with another neurodevelopmental disorder (e.g., intellectual developmental disorder). [1] [44]

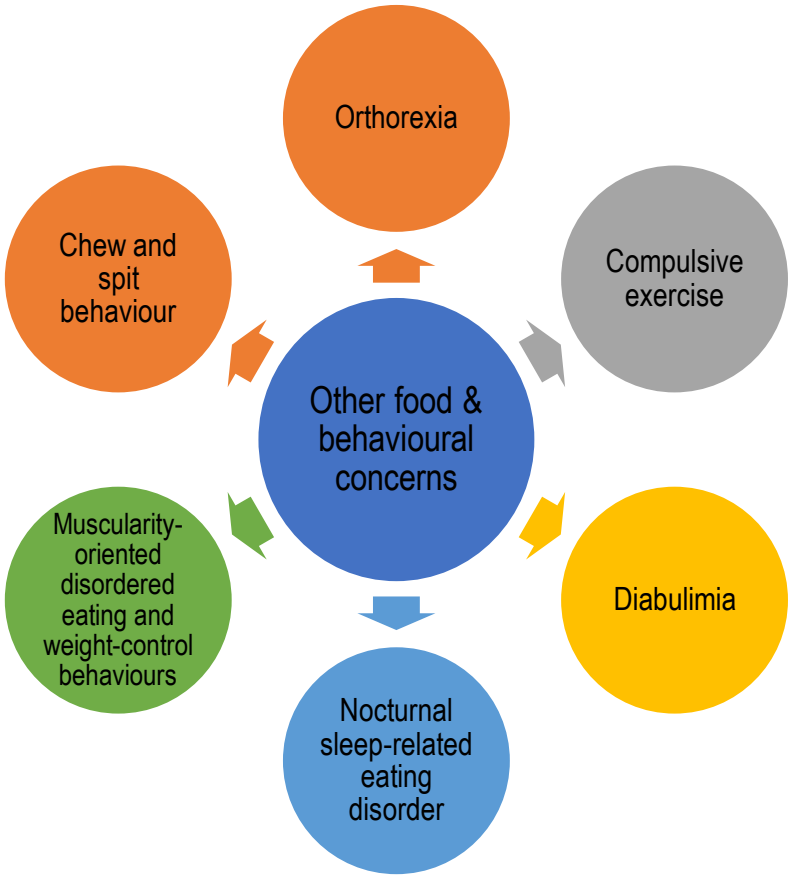
Treatment

If a physical cause for rumination disorder is ruled out, the most common way rumination disorder is treated is a combination of breathing exercises and habit reversal. A child with rumination disorder is taught to recognize the signs and situations when rumination is likely, and then they learn diaphragmatic breathing techniques to use after eating to prevent them from regurgitating their food. They eventually learn to prevent rumination by replacing it with deep breathing techniques. [44]

Unspecified feeding or eating disorder

This category is used to describe symptoms of a feeding or eating disorder which causes distress and impaired functioning but does not meet the criteria for anorexia nervosa, bulimia nervosa, binge eating disorder, OSFED, or ARFID. [42]

Other food and behavioural concerns
There are several disordered eating conditions and behavioural concerns that are not formally recognized in the DSM-5 but are still serious, such as orthorexia, compulsive exercise, diabulimia, muscularity-oriented disordered eating and weight-control behaviours**,** chew and spit behaviour**,** among others.



Orthorexia
The term ‘orthorexia’ was coined in 1998 and means an obsession with proper or ‘healthful’ eating. Individuals with orthorexia become so fixated on “healthy eating”, they can damage their own well-being. Their behaviours and beliefs can lead to social isolation and poor health.

<u>Signs and symptoms</u>
Orthorexia is a cluster of food- and weight-related symptoms, including:

- Eating only a narrow group of foods regarded as healthy or pure.
- Compulsive checking of ingredient lists and nutritional labels.
- Increased concern in the health of ingredients.
- Finding more pleasure in eating "correctly" rather than enjoying the tastes and textures of a variety of foods.
- Experience emotional satisfaction when they stick to their goals, intense despair when they fail to do so.
- Relying only on ‘natural’ products to treat an illness.

- Cutting out an increasing number of food categories (e.g., all sugar, all carbs, all dairy, all meat, all animal products).
- Unusual interest in the health of the food others.
- Spending hours per day thinking about what food might be served at upcoming events.
- Showing high levels of distress when 'safe' or 'healthy' foods are not available.
- Obsessive following food and 'healthy lifestyle' blogs on Twitter and Instagram.
- Body image concerns may or may not be present. However, weight is commonly used as a measure of success. If weight loss compromises health, and body dissatisfaction plays a part, orthorexia may become anorexia nervosa. [6] [32] [45]

Complications

Like anorexia, orthorexia involves restriction of the amount and variety of foods eaten, making malnutrition likely. Therefore, the two disorders share many of the same health consequences. [45]

Treatment

Currently, there are no clinical treatments developed specifically for orthorexia, but many eating disorder experts treat orthorexia as a variety of anorexia and/or obsessive-compulsive disorder. Treatment usually involves psychotherapy to increase the variety of foods eaten and exposure to anxiety-provoking or feared foods, and weight restoration as needed. [45]

Compulsive exercise

Compulsive exercise (sometimes called anorexia athletica) is not a recognized clinical diagnosis in the DSM-5 but many individuals struggle with symptoms associated with this condition. The disorder can have serious health consequences. In this condition individuals over-exercise to the point that fulfilling their exercise goals is more important than almost anything else. Exercise is used to control body shape and weight and to provide a sense of power, control, and self-respect. [6]

Signs and symptoms

Signs and symptoms may include:

- Exercise that significantly interferes with important activities, occurs at inappropriate times, or in inappropriate settings
- Maintains excessive, rigid exercise regimen despite weather, fatigue, injury, illness, or other medical complications; unwilling to miss a single workout; overtraining
- Taking time off work, school, and/or relationships to exercise
- Intense anxiety, depression, irritability, feelings of guilt, and/or distress if unable to exercise; rarely satisfied with their physical achievements
- Discomfort with rest or inactivity
- Exercise used to manage emotions
- Exercise as a means of purging (i.e., "get rid of" or "burn off" calories) or permission to eat
- Exercise that is secretive or hidden

- Feeling not good enough, fast enough, or not pushing hard enough during a period of exercise; self-worth depends on physical performance
- Withdrawal from friends and family [6] [32] [46]

Complications

Complications may include:

- Osteopenia or osteoporosis
- Amenorrhea
- Relative energy deficiency in sport (RED-S),[8] which describes the syndrome of poor health and declining athletic performance due to energy deficiency from not enough food intake to the balance energy expenditure required for health and activities of daily living, growth and sporting activities.
- Chronic muscle, bone, and joint pain
- Increased incidence of injury (overuse injuries, stress fractures, etc.)
- Persistent fatigue and sluggishness
- Altered resting heart rate
- Increased frequency of illness and upper respiratory infections [46] [47]

Diabulimia

Diabulimia is a media-coined term referring to disordered eating in an individual with diabetes (typically type I), wherein the individual purposefully restricts insulin to lose weight. Some medical professionals use the term eating disorder-diabetes mellitus type 1 (ED-DMT1) to refer to any type of eating disorder comorbid with type 1 diabetes. [20]

An individual may develop diabulimia at any age and at any point after their diabetes diagnosis. Diabulimia does not have a separate diagnostic code in the DSM-5 so diagnosis depends on the eating disorder behaviours. For example, it may be diagnosed as:

- Bulimia nervosa if the individual is binging then restricting insulin since DSM-5 classifies insulin omission as a purging behaviour;
- Purging disorder if the individual is eating normally and restricting insulin;
- Anorexia nervosa if the individual is severely restricting both food and insulin; or
- Other specified feeding and eating disorder (OSFED). [20]

Signs and symptoms

Signs and symptoms may include:

- Increasing neglect of diabetes management; infrequently fills prescriptions and/or avoids diabetes related appointments
- Secrecy about diabetes management; discomfort testing/injecting in front of others
- Fear that insulin will make them fat
- Restricting certain food or food categories to lower insulin dosages
- A1C of 9.0 or higher on a continuous basis

[8] The term RED-S, previously know as 'Female Athlete Triad', reflects the complexity of the syndrome and the fact male athletes are also affected. The syndrome refers to impaired physiological function including, but not limited to, metabolic rate, menstrual function, bone health, immunity, protein synthesis, cardiovascular health caused by relative energy deficiency. [47]

- Unexplained weight loss
- Constant bouts of nausea and/or vomiting
- Persistent thirst and frequent urination
- Multiple diabetic ketoacidosis (DKA) or near DKA episodes (DKA develops when not enough insulin is available to allow blood glucose into cells for use as energy).
- Low sodium and/or potassium
- Frequent bladder and/or yeast infections
- Amenorrhea or irregular menstruation
- Deteriorating or blurry vision
- Fatigue or lethargy
- Dry hair and skin
- Oral complications from chronic hyperglycemia include periodontal disease, xerostomia, dental caries, burning mouth sensation, etc.[9] [32] [48] [49] [50]

Complications

Major consequences of diabulimia are usually related to chronic hyperglycemia. These complications can be severe and irreversible, so early detection and treatment are vital.

Short term complications may include:
- Slow wound healing
- Frequent bacterial and fungal infections
- Muscle atrophy (body breaks down muscle for fuel)
- Menstrual disruption
- Severe dehydration
- Electrolyte imbalance
- Diabetic ketoacidosis

Long term complications may include:
- Retinopathy
- Neuropathy
- Gastroparesis (slowed stomach emptying from damage to the vagus nerve [which controls how food moves through the digestive track]. This prevents proper digestion and causes stomach pain, nausea, vomiting, etc.).
- Kidney damage
- Vascular disease (e.g., angina, heart failure, myocardial infarction, stroke)
- Coma
- Death[10]

Treatment

- Diabulimia is a serious mental health condition that cannot be treated by simply reinforcing diabetes education or stressing the dangers of diabetes complications. Treatment must address both the diabetes and eating disorder aspects.

[9] Refer to Episode 94 for discussion on diabetes and oral health.
[10] Refer to Episode 91 for additional complications related to hyperglycemia.

- Multidisciplinary team is necessary to address these conditions, such as an endocrinologist, a registered dietician with knowledge of both diabetes and eating disorders, a mental health professional who specializes in eating disorders, and oral health professionals to treat the oral health aspect.
- Both healthcare professionals and individuals with these conditions need to remember that “good enough” diabetes management is the goal, not “perfect” control. The quest for perfection can increase the eating disorder.
- If the treatment team recommends a higher level of care, choosing a treatment centre that has a specialty in diabulimia is important. [20]

Nocturnal sleep-related eating disorder

Nocturnal sleep-related eating disorder is not a recognized clinical diagnosis in the DSM-5 but the behaviour pattern can have a serious impact. Individuals with this condition may binge eat, or consume strange combinations of food, raw foods, and even nonfood items in the period between sleep and wakefulness. Upon waking, the individual has little or no memory of this behaviour. This disorder is found across ages. Considering the individual is unconscious (as in sleep-walking), it may be considered a sleep disorder rather than an eating disorder. [6]

Muscularity-oriented disordered eating and weight-control behaviours

Muscularity-oriented disordered eating and weight-control behaviours are characterized by attempts to increase lean muscle mass and reduce body fat. Behaviours may include excessive exercising and weight lifting, high protein intake, “bulk” and “cut” cycles, intermittent fasting, appearance- and performance-enhancing drug and substance use, and “cheat meals”. [51]

Bulk and cut cycles are described as alternating between periods of caloric surplus (bulking phase) and caloric restriction (cutting phase). In the bulking phase, there is intense focus on specific rules (e.g., eating a particular amount of protein per body weight and timing food intake) to either increase muscle density or muscle leanness. To compensate for body fat gained during this phase, the subsequent cutting phase restricts food and caloric intake to reduce body fat and enhance muscle definition. Importantly, the cutting phase may slow muscle development due to calorie restriction. Thus, individuals are typically motivated to return to the bulking phase, potentially perpetuating a maladaptive cycle. [30]

Ganson et al. (2022) investigated bulk and cut cycles among Canadian adolescents and young adults. Data were from the 2021 Canadian Study of Adolescent Health Behaviours, a national study of Canadian adolescents and young adults aged 16-30 years (N=2,762, 53% females, 38% males, 8% transgender/gender non-conforming [TGNC] individuals). Nearly half (49%) of the males and one in five females (21%), and 22% TGNC individuals reported bulk and cut cycles in the past 12 months. TGNC individuals and females reported a greater mean number of bulk and cut cycles completed compared to males. Engagement in bulk and cut cycles was associated with stronger drive for muscularity, and more severe eating disorder and muscle dysmorphia psychopathology among males and females. [51]

Muscle dysmorphia is characterized as the pathological pursuit of muscularity. Individuals with muscle dysmorphia often experience significant body dissatisfaction in relation to their muscularity. They also engage in a variety of disordered eating behaviours; muscularity-oriented disordered eating behaviours; and use of appearance-enhancing and performance-enhancing drugs and substances (e.g., anabolic-androgenic steroids). Muscle dysmorphia is currently classified as a specifier of body dysmorphic disorder in the DSM-5 and not an eating disorder. However, the psychological and behavioural overlap between muscle dysmorphia symptoms and eating disorder symptoms has caused debate on whether muscle dysmorphia should be reclassified as an eating disorder. [52]

Chew and spit behaviour

The disordered behaviour of chew and spit (CHSP) is chewing food and spitting it out before swallowing. It is often used as a weight management technique. For example, individuals undergoing bariatric surgery, those with diabetes, and athletes adhering to strict dietary guidelines may use CHSP to 'taste' food while adhering to their prescribed meal plans or eating requirements. The behaviour, which is not recognized as a separate disorder, can be associated with different types of eating disorders, including bulimia and anorexia nervosa. While the prevalence is thought to be low among adults, it appears to be more common in younger individuals with eating disorders. Up to 12% of teenagers report episodes of CHSP. It is important for clinicians to be aware and screen for this behaviour. [53] [54] [55]

Take home messages

- Eating disorders and disordered eating can impact anyone regardless of age, sex, identity, ability, socioeconomic status, or ethnic background.
- It is crucial to be cognizant that anyone can have an eating disorder, including family, friends, colleagues, clients, dental hygiene and dental students.
- The etiology of eating disorders is very complex and arise from many risk factors.
- The chance for recovery increases the earlier an eating disorder is identified. Therefore, it is important to be aware of the risk factors and signs and symptoms of an eating disorder for early detection and referral for diagnosis to an appropriate medical practitioner.

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Client resources

National Eating Disorder Information Centre (NEDIC)

NEDIC provides information, resources, referrals and support to anyone in Canada affected by an eating disorder. https://nedic.ca/

NEDIC Helpline: Phone toll-free at 1-866-633-4220 (1-866-NEDIC-20) or 416-340-4156 in GTA or email helpline at nedic@uhn.ca.
Live chat services are available (in EST):

- 9am – 9pm Monday – Thursday
- 9am – 5pm on Friday
- 12 – 5pm on Saturday and Sunday

Find a Provider for Professional Help
https://nedic.ca/find-a-provider/

Eating Disorders: Where to go when you're looking for help
https://www.camh.ca/-/media/files/education-2021/community-resource-sheets/eating-disorders-pdf.pdf

Eating Disorder Community Groups
https://nedic.ca/community-groups/

Related Programs and Services
- Treatment at CAMH: Access CAMH
- Help for families from CAMH
- ConnexOntario
- Kids Help Phone at 1 800 668-6868

Additional Resources

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