Adolescent Eating Disorders

Dr. Pam Newman
Pediatrician
Orillia Soldier's Memorial Hospital

Objectives

- Discuss the epidemiology of adolescent eating disorders
- Explore appropriate screening and diagnosis
- Outline initial investigations and monitoring
- Outpatient management
- Inpatient management
- Discuss long-term consequences

Epidemiology

Epidemiology

- Occur in up to 5% of Canadian adolescents
- Significant surge in eating disorders during the COVID pandemic
- Can occur in any gender, but females disproportionately affected
- Typically occur in the teenage years, but can occur as young as 5
- Variety of eating disorder subtypes can make diagnosis difficult
- Anorexia nervosa most common
- Morbidity and mortality rates are high (AN has the highest mortality rate of all mental health conditions)

Screening

Screening

- Should occur at all routine health visits
- Height, weight and BMI should be plotted on WHO growth curves at every visit
- Early recognition improves prognosis
- As part of history may ask:
  - Does your weight or body shape cause you stress?
  - How do you feel about your body, is there anything you would like to change?
  - Any recent changes in weight or desire to lose weight?
  - Do you exercise? How does it feel if you miss a day?
  - Has anyone else expressed concern about your eating, exercise or weight?

Screening

- SCOFF questionnaire:
  - Do you make yourself sick/vomit because you feel too full?
  - Do you worry you have lost control over how much you eat?
  - Have you lost more than 15lbs in the last 3 months?
  - Do you believe you are fat when others think you are too thin?
  - Would you say that food dominates your life?
- Yes = 1 point, no = 0 points, >=2 is high risk

Screening

- Eating disorder screen for primary care:
  - Are you satisfied with your eating patterns?
  - Do you ever eat in secret?
  - Does your weight affect the way you feel about yourself?
  - Have any members of your family suffered with an eating disorder?
  - Do you currently suffer with, or have you ever suffered with an eating disorder?

DSM – Anorexia Nervosa

- Restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health
- Intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight
- Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight
- Can be restrictive or binge/purge subtypes

DSM – Bulimia Nervosa

- Recurrent episodes of binge eating which is defined as:
  - Eating in a discrete period of time, an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances
  - A sense of lack of control over eating during the episode
- Recurrent inappropriate compensatory behaviours in order to prevent weight gain such as self-induced vomiting, misuse of laxatives/diuretics/medications, fasting, or excessive exercise
- Binge-eating and compensatory behaviours occur on average at least once per week over a three month period
- Self-evaluation is unduly influence by body weight and shape
- The disturbance does not occur exclusively during episodes of anorexia nervosa

DSM – Binge Eating Disorder

- Recurrent episodes of binge eating which is defined as:
  - Eating in a discrete period of time, an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances
  - A sense of lack of control over eating during the episode
- Binge eating episodes are accompanied by at least 3 of the following:
  - Eating much more rapidly than normal
  - Eating until feeling uncomfortably full
  - Eating large amounts of food when not physically hungry
  - Eating alone because of feeling embarrassed by how much one is eating
  - Feeling disgusted with oneself, depressed or very guilty afterward
- Marked distress binge eating is present
- Occurs on average at least once per week for a period of three months
- Not associated with compensatory behaviours or during episodes of bulimia nervosa or anorexia nervosa

DSM – Other Specified Eating and Feeding Disorders (OSFED)

- Includes:
  - Atypical anorexia nervosa (meet AN criteria but with BMI in the normal range)
  - Bulimia nervosa of low frequency/limited duration
  - Binge-eating disorder of low frequency/limited duration
  - Purging disorder
  - Night eating disorder

DSM - ARFID

- Eating or feeding disturbance as manifested by persistent failure to meet appropriate nutritional and/or energy needs associated with one or more of the following:
  - Significant weight loss or failure to achieve appropriate growth
  - Significant nutritional deficiency
  - Dependence on enteral feeding or oral nutritional supplements
  - Marked interference with psychosocial functioning
- Disturbance not better explained by lack of available food or by an appropriate culturally sanctioned practice
- Does not occur exclusively during episode of anorexia nervosa or bulimia nervosa and there is no evidence of a disturbance in the way which one's body weight and shape is experienced
- Cannot be attributed to other medical or mental health condition

Eating Disorder History

- History of prior eating concerns and timeline of weight gain/loss
- Dietary history including caloric goal if present
- Eating disorder cognitions including routines around food
- Bingeing and purging behaviours
- Exercise history
- ROS specific to medical complications and mimics of eating disorders
- Screen for mental health comorbidities (anxiety, depression, substance use, bullying)

Physical Examination

- Should include height, weight and BMI measurements plotted on appropriate growth chart
- Head to toe examination including pubertal staging
- Orthostatic vital signs (lying x5min then standing x3min)
- Exam for signs associated with differential diagnosis (hyperthyroid, IBD, malignancy, immunodeficiency, malabsorption, infection, Addison's, diabetes)

Investigations

Table 3. Initial investigations for children and adolescents with a suspected eating disorder
Serum labs
CBC with differential
Creatinine, urea, sodium, potassium, chloride, bicarbonate, calcium, phosphate, magnesium, glucose
ALT, AST, INR/PTT, bilirubin, albumin
CRP or ESR
TTG IgA (**must have gluten in the diet for appropriate interpretation*) with total IgA level
TSH
Iron studies, ferritin (**may be elevated as acute phase reactant*)
Other
Urinalysis
Urine beta hCG (when applicable)
ECG
Additional considerations
If history of amenorrhea: serum estradiol, LH, FSH
If pubertal delay: testosterone (biological males), estradiol, LH, FSH (biological females), bone age imaging
If secondary amenorrhea >6 months (biological females) or severely low BMI: Bone mineral density scan

Investigations

A Comparison of Features of Anorexia Nervosa and Bulimia Nervosa

Features	***Anorexia nervosa***	***Bulimia nervosa***
History and symptoms	Amenorrhea, constipation, headaches, fainting, dizziness, fatigue, cold intolerance	Bloating, fullness, lethargy, GERD, abdominal pain, sore throat (from vomiting)
Physical findings	Cachexia, acrocyanosis, dry skin, hair loss, bradycardia, orthostatic hypotension, hypothermia, loss of muscle mass and subcutaneous fat, lanugo	Knuckle calluses, dental enamel erosion, salivary gland enlargement, cardiomegaly (ipecac toxicity)
Laboratory abnormalities	Hypoglycemia, leukopenia, elevated liver enzymes, euthyroid sick syndrome (low TSH level, normal T_3, T_4 levels)	Hypochloremic, hypokalemic, or metabolic alkalosis (from vomiting), hypokalemia (from laxatives or diuretics), elevated salivary amylase (might also be present in binging/purging subtype of anorexia)
ECG findings	Low voltage; prolonged QT interval, bradycardia	Low voltage; prolonged QT interval, bradycardia

GERD = gastroesophageal reflux disease; TSH = thyroid-stimulating hormone; T_3 = triiodothyronine; T_4 = thyroxine; ECG = electrocardiogram.

Monitoring

- After eating disorder is identified, an appropriate referral should be made to the regional eating disorder program
- While waiting for outpatient treatment to begin, medical monitoring should be ongoing (frequency dependent on severity of illness)
- Calcium and vitamin D supplementation should be commenced, as well as iron replacement if necessary
- If possible, family should provide 3 meals and 3 snacks daily and supervise consumption

Determining Target Goal Weight (TGW)

- Different methods, no one correct way
  - Based on previous growth trajectory
  - Based on weight percentile same as height percentile
  - Based on median BMI for age
  - Based on menstrual threshold + 2kg for adolescents biologically female
- TGW should be continually reassessed

Indications for Admission

- <75-80% of treatment goal weight or "progress weight"
- Severe/rapid weight loss with malnutrition
- Bradycardia (<50bpm in daytime, <45bpm at night)
- Hypotension (SBP <90)
- Hypothermia (<35.6)
- Orthostatic vitals instability (HR change >30bpm, SBP change >20mmHg or DBP >10mmHg)
- Dehydration
- Hyponatremia, hypokalemia, hypophosphatemia, hypocalcemia
- Prolonged QTc (>450ms) or arrhythmia
- Syncope
- Seizures
- Cardiac failure
- Pancreatitis
- Psychiatric emergencies
- Acute food refusal
- Uncontrollable bingeing or purging

Inpatient Medical Stabilization

- Initial stabilization of cardiovascular instability, dehydration and electrolyte disturbances
- Cardiac monitoring
- Refeeding – mechanical eating plan, typical start approx. 1500kcal/day with daily increase of 250kcal/day until reliably gaining weight (usually 3000-3500kcal/day)
- Daily bloodwork to monitor for refeeding syndrome (hypophosphatemia, hypokalemia, hypomagnesemia)
- Blood glucose monitoring
- Strict bedrest initially with slow return to active ADLs
- Monitoring of mental health/safety
- Monitoring for compensatory behaviours
- Initiation of meal support/FBT

Outpatient Treatment Modalities

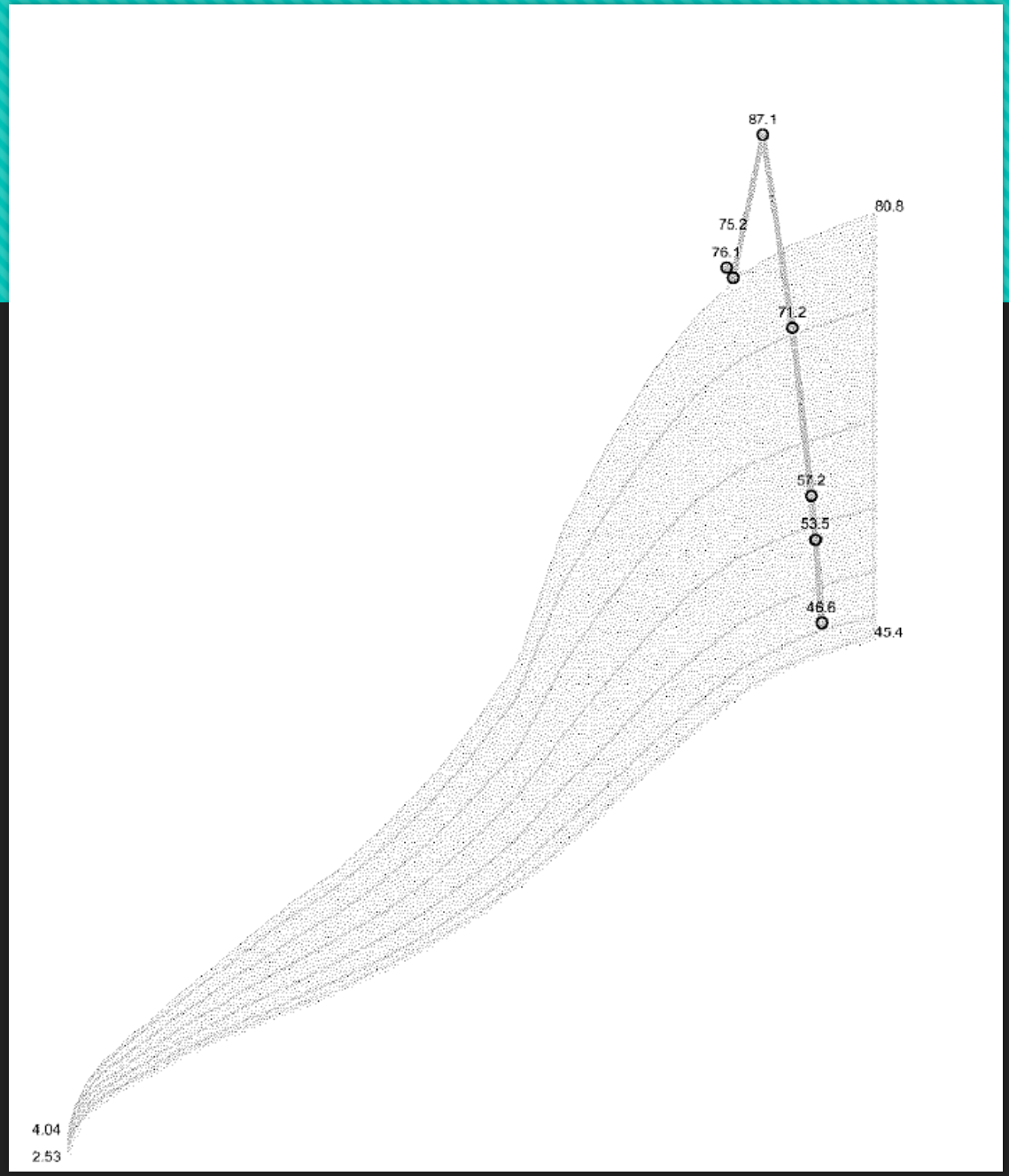
- Standard of care is an FBT (Family Based Treatment) model
  - Parents/caregivers have full control over meals until healthy weight achieved
  - Supervision of all meals and snacks, including post-meal observation (30min-1h) if history of purging behaviours
  - Separation/externalization of the ED from the person experiencing it
  - Food as medicine approach
- FBT requires family function that will support this mode of therapy
- Other approaches such as CBT or DBT have also been used
- Activity restriction until healthy weight achieved and then gradual return to activities

Case #1

- 17 year old girl with 4 month history of restrictive eating patterns triggered by a stressful family event
- Admits to limiting caloric intake daily 900-1000kcal
- Before dinner will eat 1-10 crackers or a few almonds, at dinner has yogourt and granola
- Chews gum regularly, occasional caffeinated drinks
- No binge/purge
- Significant orthostatic symptoms
- 6 month history of amenorrhea
- Had step goal to meet, but otherwise no other forms of exercise

Case #1

- Clear significant weight loss
- Complaining of chest pain, palpitations and pre-syncope/syncope
- Decision to admit due to 65.7% TGW (TGW calculated at 70kg)



Case #1

- Admitted for several weeks and renourished
- Started at 1250kcal/day and increased to 3000kcal/day slowly with no evidence of refeeding on daily labs
- SSRI and olanzapine started in hospital for anxiety and some depressive features
- Often found trying to exercise in the hospital room
- Frequent readmissions over the next several months with eventual transfer to tertiary care

Case #2

- 15y old boy with no prior medical concerns presenting with significant weight loss
- Describes concerns around abdominal discomfort, which limits how much he can eat, and fear around eating as it may result in pain or vomiting
- Stops eating before he is full to avoid the potential for vomiting or abdominal pain
- Denies body image concerns
- No particular trigger foods, but can be quite picky according to mom
- Throws away much of his food
- Sometimes states he is too involved in video games to even think about eating

Case #2

- BMI 13.45 on examination with weight 68% of TGW
- Orthostatic HR change 58bpm with no significant BP change
- Admitted for workup of medical cause of weight loss and renourishment
- Medical workup negative (no evidence of celiac disease, normal bloodwork, normal abdominal imaging)
- Placed on a mechanical eating plan and gained weight well
- Placed on olanzapine for anxiety, refused an SSRI

References

- Kelty Mental Health (https://keltyeatingdisorders.ca/)
- Canadian Pediatric Society – A guide to the community management of pediatric eating disorders (https://cps.ca/en/documents/position/eating-disorders)
- National Eating Disorder Information Centre (https://nedic.ca/)
- Change Creates Change (https://changecreateschange.com/?gad_source=1&gclid=CjwKCAiAxqC6BhBcEiwAlXp4524cFVqz0J-WbxaZSSjU4Nbqbvl9sHb7OOKOPUXocJBSeCN-c3dJiRoCgKUQAvD_BwE)