

EATING DISORDERS IN ADOLESCENTS – PHYSICAL AND PSYCHIATRIC PERSPECTIVES

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ABSTRACT

Eating disorder (ED) referrals of school-going children and adolescents by their parents and schoolteachers have become more common. Such youth are now presenting at an earlier age with physical, medical, and psychological symptoms to primary care and school systems. Nevertheless, there is an average of six months to two years between the onset of symptoms to formal assessment and treatment by a specialist team. There are also more cases presenting to ED specialist clinic services, especially pre-pubertal children, with early onset and presentation before 14 years old. Mid- and late-adolescent presentations (after 14 years old) continue to make up more than two-thirds of cases. More than 60 percent of cases seen in specialist clinics are of the restrictive type, anorexia nervosa, and are often associated with persistent and excessive exercise. While thirty percent of cases are bulimia nervosa, which tend to be episodic.

The majority of single-episode bulimia cases do not present themselves early to medical services but take on an open-source self-directed management. For patients with bulimia who comply with the treatment programme and recover after 6-12 months of therapy, they may experience high relapse rate as they often discontinue their follow-up.

Avoidant-restrictive food intake disorder is more closely related to pre-pubertal onset eating disorder with arrested sexual maturity and growth failure, if left untreated. Psychiatric co-morbidities such as anxiety, avoidance behaviour, obsessive rumination, depression, and suicidal ideation and attempt may arise from body image disturbance, high achievement needs, prior exposure to adverse childhood experiences (ACE), dysfunctional families, or peer relationships. Death can arise from acute presentation and chronic state of ED, when associated with medical complications from refeeding syndrome, severe malnourishment, accidents, and suicide. Early identification, assessment and referral to ED specialist services by family physicians would significantly improve the prognosis and mitigate long-term complications from these disorders.

Key words: eating disorder, anorexia, bulimia, ARFID, BMI, weight, body image, BMI, refeeding, food anxiety, obsessional rumination, depression, suicide

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INTRODUCTION

Eating disorders (EDs) are primarily psychiatric illnesses with significant, life-threatening medical complications. The risk of premature death is 6-12 times higher in females with anorexia nervosa (AN) as compared to the general population.¹ AN has the highest mortality rate of any psychiatric disorders. Medical complications account for more than half of all deaths in patients with AN and the rest is due to suicide.²

Early diagnosis and intervention can improve the recovery and outcomes in eating disorders.³ Hence, general practitioners and family physicians who are well informed in the early detection, presentation, and management of eating disorders can help to improve the prognosis and clinical outcome of the patient.

The standard of care for AN is an evidence-based, multidisciplinary care. Members of the multidisciplinary team generally consist of psychiatrists, physicians, psychologists, and dietitians. Family based therapy (FBT) and cognitive behavioural therapy (CBT) are considered to be the most effective method of treatment for AN in children and young adults. Family physicians trained in managing EDs can also provide early assessment, monitoring, and supportive care of adolescent ED patients and their families, and mitigate against the risk of recurrence when in remission.

EATING DISORDERS

The common eating disorders include anorexia nervosa, bulimia nervosa, avoidance/restrictive food intake disorder (ARFID), and binge-eating disorder.

1. **Anorexia Nervosa (AN):** Patients with AN see themselves as overweight, even when they are dangerously underweight. Due to their intense fear of gaining weight, they severely restrict their food intake, often exercise excessively, and/or may force themselves to vomit or use laxatives to lose weight. AN has the highest mortality rate of any mental disorder. Death could be due to medical complications associated with malnutrition or refeeding, and some may die of suicide.
2. **Bulimia Nervosa (BN):** Patients with BN have recurrent and frequent episodes of eating unusually large amounts of food and feeling a lack of control over these episodes. This binge-eating is followed by

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compensatory behaviours such as forced vomiting, excessive use of laxatives or diuretics, fasting, excessive exercise, or a combination of these behaviours.

3. **Avoidant/Restrictive Food Intake Disorder (ARFID):** These patients experience disturbed eating either due to a lack of interest in eating or a distaste for certain smells, tastes, colours, textures, or temperatures. They may develop weight loss and nutritional deficiency but without weight or shape concerns.
4. **Binge-Eating Disorder (BED):** Binge-eating without compensatory behaviour is the feature of this condition. Patients with BED often are overweight or obese. BED is probably the most common eating disorder in the community but it is not commonly seen in hospitals.

PRESENTING SIGNS AND SYMPTOMS

Patients with EDs, specifically AN, may often come to the hospital with medical complications from the disease. In addition to the cognitive and behavioural problems that characterise EDs, nutritional deficiencies, binge-eating, and inappropriate compensatory behaviours, such as purging, can also occur in patients with an ED as a consequence of restricting food or fluid intake. It is important to recognise that a number of these patients may not have any symptoms or signs.

They may present to any general physician with non-specific symptoms like weight loss, cold intolerance, weakness/fatigue or lethargy, dizziness, fainting. They may see an endocrinologist or O&G doctor for amenorrhea or oligomenorrhea and infertility. They may go to a psychiatrist for depressive, anxiety, obsessive-compulsive symptoms and behaviours, memory loss, attention issues, insomnia, or self-harm behaviours. They may visit a gastroenterologist for abdominal bloating, epigastric pain, GE reflux symptoms, constipation, etc. Dermatologists may see them for lanugo hair (fine hair growth on the body and face), hair loss, carotenemia (yellowish discolouration of skin), Russell's sign (calluses or scars on the back of the hand from self-induced vomiting), and dry brittle hair and nails. Some of them might get referred to cardiologists for chest pain, palpitations, bradycardia, and hypotension.

ED is associated with several medical complications.⁴ Almost all major organ systems are affected. Some organs might be more severely affected or affected earlier. The primary risk factors for developing medical complications in AN are the degree of weight loss and the chronicity of the illness. Surprisingly, patients with AN do not seem to be predisposed to frequent infectious diseases, notwithstanding their malnourished states. They tend to recover faster from infections as well.

Table 1. Medical complications of anorexia nervosa

Cardiovascular	Endocrine and Metabolic
Bradycardia and hypotension	Amenorrhea
Mitral valve prolapse	Infertility
Arrhythmia	Osteoporosis
Pericardial effusion	Sick euthyroid
Dermatologic	Hypoglycaemia
Dry skin	Haematologic
Alopecia	Pancytopenia
Lanugo hair	Neurologic
Gastrointestinal	Cerebral atrophy
Constipation	Attention deficit
Hepatitis	Pulmonary
Dysphagia	Aspiration pneumonia
Superior Mesenteric Artery (SMA) syndrome	Spontaneous pneumothorax

INITIAL ASSESSMENT

The initial assessment of individuals with eating disorders is the first step in establishing a diagnosis and treatment plan, and involves a thorough review of the patient's history (including psychosocial – HEADSSS: (Home, Education, Activities/employment, Drugs/Diet, Sleep, Suicidality, and Sex), current symptoms, physical condition, weight control measures, and co-morbid psychiatric issues or disorders such as depression, anxiety, substance abuse, or personality issues.

Complete History

The family physician should determine the rate and amount of weight loss over the past few months as well as current eating patterns, exercise patterns, and possible purging behaviours. The dietitian should be involved to obtain a detailed nutritional assessment. Including dietary intake (quantity and variety of foods consumed) and restriction of specific foods or food groups (such as fats or carbohydrates). A detailed history of any compensatory behaviours (fasting or dieting, induced vomiting, laxative, diuretic abuse, use of diet pills, alternative medications, and other over-the-counter slimming medicines) and their frequency should also be taken. Menstrual history – age of menarche, last menstrual period and regularity – should be documented. The individual's family history including any symptoms or diagnosis of EDs, obesity, mood and anxiety disorders, and substance abuse should be included. A psychiatrist and psychologist should also be involved in getting a detailed psychological assessment.

Assessment Tools

Screening of high-risk individuals in primary care can be useful with an instrument like SCOFF,⁸ followed by a clinical consultation (refer to Table 2).

Table 2. SCOFF Screening questions

- Do you make yourself **Sick** because you feel uncomfortably full?
- Do you worry you have lost **Control** over how much you eat?
- Have you recently lost more than **One** stone (6.35 kg) in a 3-month period?
- Do you believe yourself to be **Fat** when others say you are too thin?
- Would you say that **Food** dominates your life?
- One point for every “Yes”. A score of >2 indicates a likely case of anorexia or bulimia

Other assessment tools include standardised self-report questionnaires such as the Eating Attitude Test-26 items⁹ (EAT-26) which provide an objective measure of symptoms and concerns of eating disorder, and are highly reliable and valid. EAT-26 has also been used as a screening tool in schools and colleges among at-risk youths. The Eating Disorder Examination Questionnaires (EDE-Q)¹⁰ is another assessment tool that provides a self-report measurement of symptom response to treatment progression.

PHYSICAL EXAMINATION

Measurement of height, weight, and body mass index (BMI) should be plotted on growth charts for children and adolescents. Vital signs should be monitored to identify for any bradycardia, hypotension, and orthostatic changes. The individual's skin, teeth, nails and hair should be checked for any changes such as lanugo hair, dental caries, oral ulcers, Russell's sign, and evidence of self-harm.

INITIAL DIAGNOSTIC EVALUATION

Anorexia nervosa is the most common ED presenting to the hospital with medical instability. Laboratory and other diagnostic studies are needed to screen for potential abnormalities seen in patients with AN. It is important to note that initial laboratory studies may be normal even with significant malnutrition. The body's compensatory mechanisms are remarkable and laboratory abnormalities may not be observed until advanced illness.²

Initial lab tests include FBC, ESR, Renal Panel-2, Mg, Liver Function Test, Thyroid Screen, FSH, LH and oestradiol. An ECG and BMD (whole body) should also be obtained.

Besides EAT-26, psychological rating scales could include Beck Youth Inventories™ Second Edition (BYI-2) for ages

seven to 18 to profile domains in depression, anxiety, anger, disruptive behaviour, and self-concept.

Psychiatric Co-morbidities

Individuals with AN, in addition to obsessional ruminations about eating habits and keeping a low weight, may also present with obsessions and compulsive behaviours, and a strong drive for perfection in personal goals and achievements. Rigid personality traits often make treatment compliance challenging. Depression is a common early presentation and is associated with low self-esteem and a failure to achieve self-determined goals. Anxiety especially in relation to food and social settings are common problems seen in these patients.

BN tends to run a more chronic course, and may transit from AN. It is associated with Obsessive-Compulsive Disorder (OCD), depression, body dysmorphic disorder.

ARFID tends to be associated with anxiety symptoms; less so with depression compared to AN and BN. Some may be associated with autistic spectrum disorder, cognitive impairment, and intellectual disability.

Guilt and shame, self-harm, suicidal ideation, substance abuse, and impulsive risk-taking behaviour in the background of mood lability and dysregulations are common.¹¹

Treatment

Outpatient care is effective for mild cases of AN in the early phase of presentation, if the individual is medically stable and the psychiatric risk is managed. Medically unstable individuals would need inpatient stabilisation. ED services provide comprehensive treatment programmes covering outpatient and residential meal supervision and intensive psychological treatment treating underlying psychiatric conditions.

INDICATIONS FOR REFERRAL AND HOSPITALISATION FOR ACUTE MEDICAL STABILISATION

The presence of one or more of the following is an indication for referral and hospitalisation:

- Heart rate of less than 50 beats per minute (<45 bpm during sleep)
- Systolic blood pressure below 90 mm Hg
- A postural blood pressure drop of greater than 10 mm Hg or an increase in HR >20bpm
- The presence of cardiac arrhythmias
- A temperature below 35.5°C (hypothermia)
- Electrolyte abnormalities (hypo/hyponatremia, hypophosphatemia, hypokalaemia)
- Suicidal ideation

- Refusal to eat or ongoing weight loss despite intensive outpatient treatment
- Body weight less than 75 percent of ideal body weight

REFEEDING SYNDROME

Refeeding syndrome describes the clinical and metabolic derangements that can occur during refeeding of a malnourished patient. The clinical features of refeeding syndrome include edema, cardiac and/or respiratory failure, gastrointestinal problems, profound muscle weakness, delirium, and – in extreme cases – death. The most important biochemical change is hypophosphatemia. Other expected problems are hypoglycaemia, hypokalaemia, hypomagnesemia and hyponatremia. Refeeding syndrome is a potentially fatal condition that requires specialised care in an inpatient unit.⁵ The risk of developing refeeding syndrome is higher if the degree of malnutrition at presentation is severe, in chronic malnutrition or in rapid or profound weight loss.

With regards to the management of refeeding syndrome, the patient should be hospitalised and closely monitored. Serum electrolytes (sodium, potassium, phosphorous, and magnesium) and glucose should be checked prior to initiating supervised feeding. They may be normal prior to refeeding.

Phosphorus will reach its lowest point three to seven days after initiation of nutritional rehabilitation. Serum electrolytes and glucose should be monitored frequently (daily if significantly abnormal) during early refeeding until stabilised. All electrolyte deficiencies should be aggressively repleted. Oral repletion is safer. It is not necessary to correct fluid and electrolyte imbalance before initiating feeding. Daily multivitamin and thiamine supplementation is usually started in severely malnourished patients.

Vital signs should be closely monitored during refeeding period. The amount of calorie intake can be adjusted with the help of the dietitian. The previously practised “Start low and go slow” methods of refeeding have recently been changed to a more rapid refeeding with close medical monitoring. This is now preferred during inpatient treatment as it is found to be safe and reduces the duration of hospital stay.⁶ The objective is to achieve a weight gain of 1-1.5 kg every week during the weight restoration phase in the hospital.

Patients may be discharged once medical stabilisation is achieved. Outpatient therapy will mostly focus on psychological issues and further weight gain will help in the recovery of organ functions. Full resolution of symptoms may require an extended period of treatment. Family Based Therapy (FBT) has emerged as the first line treatment for AN and has shown promising results in a recent Singapore study.¹³ Full remission from AN is achieved when weight restoration has been successfully completed and there is an absence of distorted body image and other abnormal eating behaviours, psychological comorbidities, and any social or functional impairments.

PSYCHIATRIC TREATMENT

Many early cases of adolescents with ED are now embarking on open-source web resources on self-help management. There is promising evidence on the effectiveness of self-help intervention when properly adhered to. However, cases with complex psychological comorbidities and failure to adhere to treatment often requires detailed assessment and a supervised structured treatment plan by the multi-disciplinary team.

Cognitive behavioural therapy (CBT) is an evidence-based first-line treatment for both BN and BED. CBT is also effective for treatment of AN, while family-based therapy (FBT) with parent coaching are evidence-based in the treatment of younger adolescents with AN, where parental support and supervision are critical in engaging these teenagers.

Medication can be a useful adjunct to nutritional and psychological treatments for ED, targeting at treating underlying co-morbid psychiatric disorders of depression, anxiety, obsessional rumination, and improving weight gain. Recent evidence supports modest weight restoration benefits from atypical antipsychotic medications like Olanzapine. SSRI antidepressants like Fluoxetine at a higher dose (up to 40-60 mg when tolerated), may be useful in reducing bingeing episodes in BN and overall BN severity.¹²

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LEARNING POINTS

Key learning points about eating disorders are:

- **They are common and under-diagnosed, and access to care is often delayed.**
 - **It can progress to become life-threatening.**
 - **Early treatment is often associated with improved outcomes.**
 - **They are associated with physical health complications affecting numerous organs and systems.**
 - **Physical assessments and psychological interviews conducted in a sensitive and engaging way is critical.**
 - **Management of anorexia nervosa is largely psychological, coupled with management of medical complications and potential risks like refeeding syndrome during weight restoration.**
 - **Management of bulimia nervosa is centred on cognitive behavioural therapy.**
 - **Trained family physicians play a key role in early detection and assessment. They can initiate early treatment with the help of a dietitian and psychologist. FPs may also refer to and share care with ED services, as well as being involved in the follow-up management of recovered cases to prevent relapses.**
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