



Hiding in Plain Sight: Recognition and Medical Evaluation of Individuals with Eating Disorders in the Outpatient Setting

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Disclosure Information

I have no financial relationships to disclose.

I will not be discussing the off-label and/or investigational use of any medications.

Overview and Objectives

- **Clinical case presentation**
- **General definitions**
- **Incidence, prevalence, and societal cost of eating disorders**
- **Initial medical evaluation of an eating disorder**
- **Medical complications of eating disorders**
- **Referring to specialized care**

Case Example

- **36-year-old male with chief complaint of sore throat**
- **Also reports recent increase in life stressors**
- **Review of symptoms: snoring, witnessed apneas, daytime fatigue**
- **Physical exam remarkable for 20 lb (9.1 kg) weight gain in 3 months**
- **Oropharynx clear, dentition normal**

Case – History

- **Past Medical History:**
 - Recurrent calcium oxalate nephrolithiasis, treated with lithotripsy
 - Retained stones bilaterally on imaging
- **Medications:**
 - Potassium citrate 1080 mg by mouth four times daily
- **Social History:**
 - Non-adherence to low-purine, low-oxalate, low-sodium diet
 - Admits to eating diet of high protein, high fat, mostly take-out foods
 - No alcohol or substance abuse

Case – Intervention

- **Referred for mental health evaluation**
 - Longstanding history of poor eating behaviors, worse under stress
 - Intermittent bingeing and purging since childhood (taught by mother)
 - Turbulent upbringing – learned to eat for comfort and to avoid conflict
 - Diagnosed with eating disorder not otherwise specified (EDNOS)
- **Cognitive behavioral therapy (CBT) initiated**
 - Received 11 sessions of CBT at community mental health clinic
 - Resolution of bingeing and purging behaviors
 - Not seen by a provider trained in ED-specific treatment

Case – Medical Cofactors

- **Sore throat**
 - Diagnosed with gastroesophageal reflux disease (GERD)
 - Resolved with cessation of bingeing and purging
- **Nephrolithiasis**
 - Recommended low animal protein, low oxalate, low sodium diet
 - Patient unable to adhere to medical recommendations due to ED
- **Suspected obstructive sleep apnea**

Case – Follow-up

- Maintained remission from bingeing/purging for 22 months
- Unable to describe or demonstrate replacement coping skills
- Recurrent weight gain after initial weight loss and stabilization worrisome for return of disordered eating behaviors
- Continued to report high levels of anxiety and stress
- Finally, referred to a dietician and a therapist experienced in the treatment of eating disorders
- *If patient received comprehensive, multidisciplinary care from providers knowledgeable about ED from outset, outcome might have been different*

Diagnostic and Statistical Manual of Mental Disorders (DSM), 5th Ed.

- Published by the American Psychiatric Association
- Establishes the formal diagnostic criteria for each eating disorder
- Released in 2014
- First update by the APA to its diagnostic criteria in 14 years
- An improvement on DSM-IV, but still does not fully capture patients' lived experience

Eating Disorders – General

- Brain-based biological disorders
- NOT a choice or a lifestyle
- Occur in people of all ages, genders, sexual orientations, races, ethnicities, socioeconomic backgrounds, shapes, and weights
- There is no eating disorder “look”
- Carry the highest mortality of any psychiatric condition
- Are common – you are already treating these patients!
- Best treated by experienced professionals – refer early!

DSM 5 Diagnostic Categories

- **Anorexia Nervosa (AN)**
 - Binge-purge subtype (AN-BP)
 - Restricting subtype (AN-R)
- **Bulimia Nervosa (BN)**
- **Binge Eating Disorder (BED)**
- **Avoidant/Restrictive Food Intake Disorder (ARFID)**
- **Other Specified Feeding and Eating Disorder (OSFED)**
- **Unspecified Feeding or Eating Disorder (UFED)**

Anorexia Nervosa

- Restriction of caloric intake due to intense fear of weight gain and distorted body image, leading to significant weight loss
- In children and adolescents, may present as failure to appropriately gain weight or dropping off growth curve
- Characterized by ambivalence toward seriousness of situation
- Characterized by body shame and over-valuation of the thin-ideal

What Anorexia Nervosa is *NOT*

- A disease of solely young, white, wealthy, cis-gender women
- Individuals do NOT need to appear emaciated
- Amenorrhea is NOT required

Which One Has Anorexia?



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Bulimia Nervosa

- **Binge eating with purging or compensatory behaviors**
 - e.g., self-induced vomiting, use of laxatives, diuretics, over-exercise, or diet pills
- **At least once a week**
- **At least three months**
- **Characterized by body shame and over-valuation of the thin-ideal**

What Bulimia Nervosa is *NOT*

- **An effective dieting technique**
- **Harmless**
- **A phase**

Binge Eating Disorder

- Eating a large quantity of food in a short time span, until extremely full, without compensatory purging
- Unrelated to physical hunger
- Associated with loss of control, shame, or guilt
- At least once a week
- At least three months
- Individuals may be normal weight

What Binge Eating Disorder is *NOT*

- Over-eating at a holiday dinner or a party
- Lack of willpower or effort
- Moral weakness or personal failing

Avoidant/Restrictive Food Intake Disorder

- Extreme limitations in food intake
- May be due to sensory aversion (e.g., texture, smell)
- Or may be due to anxiety (e.g., fear of choking, being sick)
- Leads to weight loss, nutritional deficiencies
- Markedly interferes with psychosocial functioning
- Fear of gaining weight is absent

What ARFID is *NOT*

- Just being picky
- Harmless
- A phase

Other Specified Feeding and Eating Disorder (OSFED)

- The eating disorder formerly known as EDNOS (Eating Disorder, Not Otherwise Specified)
- Do not meet full formal criteria for another DSM diagnosis

OSFED - Examples

- **“Atypical” Anorexia Nervosa (AN)**
 - Meets all criteria for AN, other than weight loss/underweight
 - More common than “typical” AN
 - All of the same medical complications of starvation and malnutrition
- **Night Eating Syndrome**
- **BED or BN of lower frequency/duration**
- **Purging Disorder**

Unspecified Feeding or Eating Disorder

- Typically used when there is insufficient information to classify the eating disorder
- E.g., when the diagnostic evaluation is ongoing, or in an emergency department setting

Disordered Eating

- Disordered eating behaviors, body dissatisfaction are on a continuum
- Disordered eating, fat-shaming, and dysfunctional relationships with food are ubiquitous in US culture (and, unfortunately, in medicine)
- Maladaptive eating behaviors that are below diagnostic threshold may still be associated with serious psychological distress and medical complications

Prevalence in the United States

- Lifetime prevalence 9% (28.8 million Americans)
- Age range 5 – 80 years
- After OSFED, BED is the most common ED
 - Estimated to affect 25% of individuals with obese BMI
 - Past-year prevalence of BED 1.2% among U.S. adults (2001-03)
 - Lifetime prevalence of BED 2.8% among U.S. adults
 - 62.6% of people with BED experience impairment due to ED
 - For 18.5%, the impairment is severe

Morbidity and Mortality – Why Care?

- Eating disorders convey the highest risk of death of all mental illnesses
 - Anorexia nervosa (AN) is associated with a 5.2x higher risk of premature death from any cause compared to age- and gender-matched controls
 - Mortality rates across all ED (including bulimia nervosa (BN) and EDNOS) estimated around 4-5%
 - Meta-analysis found **62% of ED deaths are attributable to medical complications**
 - Suicide 15.5%
 - Substance abuse 12%
- **No threshold to predict who is at most serious risk**

Morbidity and Mortality – Why Care?

- **Specific medical complications depend on underlying behaviors**
 - Effects of starvation and malnourishment
 - Direct effects of method of purging
 - Electrolyte and acid-base abnormalities
 - Effects of binge-eating

Morbidity and Mortality – Why Care?

- **Most medical complications resolve completely with both...**
 - Cessation of behaviors (e.g., restriction, bingeing, purging, etc.)
 - Nutritional rehabilitation
- **Some complications are permanent**
- **Early diagnosis and treatment of the ED is essential**

Clinical Presentations

- **Common presenting symptoms are often non-specific**
 - Fatigue
 - Malaise
 - Weakness
 - Weight loss or gain
 - Cold intolerance
 - Skin thinning
 - Hair loss
 - Fine hair growth on face

Clinical Presentations

- **Effects of malnourishment occur in all ED, even at normal BMI**
 - Even individuals who binge may be under-nourished
 - Pre-disposes to injury, illness, medical co-morbidity
- **ED may be underlying another condition**
 - Overuse musculoskeletal injury
 - Gastroesophageal reflux disease
 - Hoarseness
 - Chronic constipation or diarrhea

Clinical Presentations

- **Gastrointestinal (GI) complaints are common**

Abdominal pain

Early satiety

Bloating

Dysphagia / odynophagia

Diarrhea / constipation

Reflux symptoms

Hematemesis

Hoarseness

Clinical Presentations

- **Cardiovascular findings are also common**

Lightheadedness, dizziness

Presyncope, syncope

Palpitations

Paroxysmal tachycardia

Peripheral edema

Bradycardia

Orthostatic hypotension

Clinical Presentations

- **Endocrinologic complications**

Hypogonadism

Amenorrhea or oligomenorrhea

Osteoporosis

Euthyroid sick syndrome

- **Incidental abnormal laboratory findings**

Electrolyte abnormalities

Abnormal thyroid studies

Acid-base disturbances

Cytopenias

Transaminase elevations

Diagnostic Approach

- **Diagnosis is suggested by history**
- **An ED is NOT a diagnosis of exclusion**
 - Unnecessary testing delays definitive care
 - Unnecessary testing causes iatrogenic complications

Physical Examination

- **Vital signs**
 - Hypotension
 - Orthostasis
 - Inappropriate tachycardia
 - Bradycardia
 - Hypothermia
- **Weight trend (blind weight) / growth trend**
- **Weight suppression**
 - Difference between highest adult weight and current weight

Physical Examination

- **Skin and hands**
 - Russell's sign
 - Lanugo hair
 - Hair loss
 - Hypercarotemia
 - Xerosis

Diagnostic Approach

- **Head, Ears, Eyes, Nose, Throat (HEENT)**
 - Subconjunctival hemorrhages (forceful vomiting)
 - Dental erosions (acid damage)
 - Angular cheilitis (acid damage)
 - Parotid swelling (chronic vomiting OR recent cessation of vomiting)
- **Cardiac**
 - Mid-systolic click (mitral valve prolapse)

Baseline Evaluation

- **Electrocardiogram**
- **Orthostatic blood pressure**
- **Comprehensive metabolic panel**
 - Phosphorus
 - Glucose
- **Complete blood count**
- **Thyroid function studies**
 - Normal/high TSH, normal/low free T4, low T3

Baseline Evaluation

- Amylase is neither sensitive nor specific for vomiting
- Albumin is NOT a reliable marker of nutritional status
- Consider pre-albumin
 - May indicate protein-calorie malnutrition
 - Only reflects the preceding 72 hours

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An Early Cardiovascular Sign of an ED

- Bradycardia
 - May be the presenting feature
 - Often the first indication of food restriction or malnourishment
 - Distinct from athletic heart
 - Telemetry indicated for heart rate < 40 bpm

Severe Cardiovascular Complications

- **Left Ventricular Atrophy (Anorexia Nervosa)**
 - Loss of left ventricular (LV) mass occurring in starvation state
 - Weight restoration results in restoration of myocardial mass
 - Myocardial scar detected on cardiac MRI in 25% of weight-restored patients
 - Possible long-term risk of malignant arrhythmias

Sudden Cardiac Death

- **Exact mechanisms remain unclear**
 - Malignant arrhythmias from starvation-related structural heart changes
 - Long QT (usually due to medication, electrolytes, other correctible factor)
 - Autopsy results show no link to atherosclerotic heart disease
 - Hypothesis: possibly due to hypoglycemia

Other Cardiovascular Complications

- **Mitral Valve Prolapse (Anorexia Nervosa)**
 - Valve redundancy due to loss of LV mass relative to preserved valve annulus
 - May be associated with regurgitation
- **Peripheral Vascular Dysregulation (Anorexia Nervosa)**
 - Peripheral vasoconstriction and impaired blood flow
- **Pericardial Effusion (Anorexia Nervosa)**
 - Present in 22-37% of patients
 - Correlates with low BMI and low T3

Common GI Presentations

- **Gastroesophageal Reflux Disease (GERD)**
 - May be associated with hoarseness, dysphagia, or odynophagia
- **Gastroparesis**
- **Constipation**
- **Diarrhea**
- **Functional GI symptoms**
- **Hepatitis / elevated transaminase levels**

Severe GI Presentations

- **Superior Mesenteric Artery (SMA) Syndrome (Anorexia Nervosa)**
 - Symptoms include pain with eating, vomiting after eating, early satiety, bloating
 - Obtain imaging to rule out acute gastric dilatation (CT or upper GI series)
- **Acute Gastric Dilatation (Anorexia Nervosa)**
 - Emergent nasogastric tube decompression and surgical consultation
- **“Cathartic Colon Syndrome” (stimulant laxative abuse)**
 - Controversial diagnosis
 - Discontinue all stimulant laxatives without taper
 - Use osmotic laxatives and hydration to alleviate constipation
 - Provide reassurance and re-education about “normal” stool pattern

Metabolic Effects of Purging

- **Acid-base / electrolyte abnormalities are leading cause of death**
 - Assess for low potassium and phosphorus
 - Hospitalize for severe electrolyte disturbances
- **Hypokalemia without other cause strongly suggests purging**
 - Specific but NOT sensitive
- **Avoid rapid infusions or boluses of fluids**

Pseudo-Bartter Syndrome

- **Chronic hypovolemia causes upregulation of aldosterone**
 - Drives Na^+ , HCO_3^- , and water retention in kidneys
 - K^+ and H^+ lost in urine
- **Aggressive fluid resuscitation can cause sudden and severe edema**
 - Fluid retention can precipitate heart failure or pulmonary edema
- **Slow rate of infusion reduces risk (e.g., 50 cc/hr)**
- **Aldosterone levels normalize several weeks after cessation of purging and fluid resuscitation**
- **Spirolactone 25-100 mg daily for prevention and treatment**

Osteoporosis

- **Hormonal dysregulation and abnormal physiologic stress response**
- **Almost universal finding in AN with bone loss as early as 3-6 months**
 - Bone loss may be more severe in men
- **Treatment:**
 - **Avoid oral estrogen or contraceptives for purposes of restoring menses**
 - Replace testosterone in men
 - Consider pros and cons of bisphosphonate therapy
 - **Primary treatment is weight restoration**
- **Diminished bone density may be permanent!**

Other Medical Complications

- **Pancytopenia**
 - Occurs due to gelatinous marrow transformation in malnourishment
- **Hypoglycemia**
 - Occurs in starvation state and is poor prognostic indicator
 - Depletion of hepatic glycogen stores
 - Absence of substrates for gluconeogenesis
 - Often overtly asymptomatic despite glucose of 40-60 mg/dL (2.22 – 3.33 mmol/L)
- **Brain Atrophy**
 - Both gray and white matter are lost due to malnutrition
 - Some neurocognitive deficits may be permanent despite weight restoration

Case Example

- 21-year-old male college student
- Studying engineering, plays intramural soccer 3 days a week
- Exhibited unusual eating habits and significant weight loss during 2nd semester of junior year
- Findings in student health clinic:
 - 15 lb (6.8 kg) weight loss over 6 months
 - Admits to being “picky eater” (i.e., restrictive eating)
 - No concerns regarding academic performance or social impairment
 - Popular and well-liked student, many friends, Dean’s list every semester

Case – History

- **Past medical history:**
 - Weight range: 152 – 184 lb (68.9 – 83.5 kg)
 - Body mass index (BMI): 19.0 – 23.0 kg/m² (normal range 18.5 – 24.9 kg/m²)
 - Height: 75 inches (190.5 cm)
- **No other medical problems**
- **No medications**

Case – Intervention

- **Referred for mental health evaluation**
 - Longstanding fear of gaining weight and “being fat”
 - History of bingeing with compensatory purging, over-exercise
 - Diagnosed with anorexia nervosa, restricting type
 - Found to have anxiety symptoms and mild obsessive compulsive traits
- **Received care at specialized ED center**
 - Intensive outpatient treatment, 8 weeks
 - Individual outpatient therapy, 8 weeks
- **Re-evaluated at conclusion of treatment**
 - Eating disorder, not otherwise specified (EDNOS), in remission

Case – Medical Cofactors

- **Chronic, non-specific abdominal complaints**
 - Colonoscopy and biopsies normal
 - Ongoing complaints of food intolerance, abdominal pain, diarrhea
 - Abdominal MRI – normal
 - Upper gastrointestinal series and small bowel follow-through – normal
- **Subclinical hypothyroidism**
 - Elevated thyroid stimulating hormone, normal free thyroxine
 - Elevated thyroid peroxidase antibody
 - Patient blamed weight loss on untreated hypothyroidism
 - Started on levothyroxine by endocrinology

Case – Follow-up

- **Re-evaluation 1 year later**
 - Weight maintained, with BMI of 20.1 kg/m²
 - Mild restrictive/avoidant eating behaviors continued
 - Member able to describe improved coping skills
- **Continuing to excel academically and socially**
- **Continuing to work with outpatient treatment team**

When to Refer

Immediately

When to Refer

- **As soon as an eating disorder is *suspected***
- **Multi-disciplinary treatment is standard of care**
 - Therapist
 - Dietician
 - Psychiatrist
 - Medical physician
- **Early intervention facilitates recovery**
- **Experience with eating disorders is essential**

Signs of Medical Instability

- **Severe malnourishment**
 - $\leq 75\%$ median BMI for age, sex, and height
 - Significant weight loss, even if not underweight
 - Rapid weight loss
- **Hypoglycemia**
- **Abnormal electrolytes (hypokalemia, acid/base disorder)**
- **Hemodynamic instability**
 - Bradycardia
 - Orthostatic hypotension
 - Hypothermia

Indications for Hospitalization

- **Acute medical complications of malnutrition**
 - E.g., syncope, seizures, heart failure, pancreatitis, etc.
- **ECG abnormalities**
 - E.g., QTc longer than 450 ms, heart rate below 40 bpm, arrhythmia
- **Abnormal electrolytes (hypokalemia, acid/base disorder)**
- **Complete food refusal**
- **Psychiatric instability**
 - E.g., suicidal thoughts or behaviors, aggressive or unsafe behaviors

It Doesn't Stop Here...

- Weight restoration is just the beginning...
- Eating disorders are complex – medical, neurological, psychological, and behavioral components



Source: CDC.gov

Online Resources

Academy for Eating Disorders

- Professional references and information on the diagnosis and treatment of eating disorders
- www.aedweb.org
- <https://www.aedweb.org/publications>

National Eating Disorders Association

- Information, advocacy, and patient support
- <https://www.nationaleatingdisorders.org/>

Further Reading

Eating disorders: A guide to medical care. Academy for Eating Disorders Report 2021. 4th ed. Accessed 17 Jan 2022. Available at <https://www.aedweb.org/publications/medical-care-standards>.

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