Take Home Points

1. Eating disorders are serious mental illnesses, with mental and physical consequences.
2. Eating disorders are mediated by genetic and environmental factors.
3. Adolescents, young adults, adults (and their families) wait too long to receive adequate care – this is a serious risk for lethality.

The Scope of the Disease

30 million
At least 30 million persons in the United States meet clinical criteria for an eating disorder diagnosis at some point in their lifetime.

10-15% males
Males comprise 10-15% of those who meet the clinical criteria.

85-90% females
Females comprise 85-90% of those persons.

Eating Disorders: The Physician’s Perspective

Stuart Kaplan, MD, Associate Medical Director-Pediatrics

Eating Disorders

Eating disorders are the most lethal psychiatric illnesses.

- The mortality rate for persons with eating disorders is over 6 times that of their peers.
- The suicide rate is over 31 times that of their peers.
- The average age of death due to an eating disorder is 34 years old.

- 20% of eating disordered persons will die prematurely as a result of their illness.
- The average age of death due to an eating disorder is 34 years old.
- Eating disorders are complex mental illnesses existing at the intersection of genetic predisposition, temperament, and environmental factors – understanding epigenetics.

The Scope of the Disease

Complex Mental & Physical Illnesses
Eating Disorders

Categories of Eating Disorders

- Disordered Eating Behaviors
  - Any food, eating, exercise, or related behaviors which negatively impact quality of life
- Sub-Clinical Eating Disorders
  - Doesn’t quite meet diagnostic criteria
  - ‘The Murky Middle’
- Diagnosable Eating Disorders
  - per the current DSM-5

“The New Adolescent Age Range

The U.S. Department of Health and Human Services

Adolescents – Ages 10 to 24

“... adolescence is one of the most dynamic stages of human growth and development...”

Temperament in Anorexia Nervosa

- Harm-avoidant
- Neurotic
- Obsessional
- Anxious
- Reward dependent
- Perfectionistic
- Low novelty seeking
- Abyssal self-esteem

“But My Child is a Straight-A Kid!”

- Truly a ‘delusional illness’
  - Delusion defined:
    - A fundamental loss of perspective
  - Eating disorders are ‘circumscribed delusions’
Temperament in Bulimia Nervosa

- Novelty Seeking
- Quick-tempered
- Excitable
- Exploratory
- Not risk-averse
- Impulsive
- Easily bored
- Easily form emotional attachment

Evaluation of Eating Disorders

History of Present Illness
- Course of illness, triggers
- Restricting behaviors:
  - counting calories, dieting, skipping meals, fear foods/safe foods, hiding/throwing food away
- Purging Behaviors:
  -Self induced vomiting, diuretics, laxatives, ipecac, diet pills, stimulants, excessive exercise, insulin
- Bingeing Behaviors
  - Body Image:
    - weighing, body/mirror checking, measuring, fear of gaining weight, distorted thoughts about body

Psychiatric Review of Symptoms
- Mood
- Anxiety (social, panic, OCD)
- Psychosis
- Attention/Concentration
- Trauma
- Suicide/self harm/aggression

Family History
- Eating disorders, psych conditions, completed suicides

BMI Calculation

- The BMI isn’t a ‘perfect’ system; it’s a general gauge.
- Factors which must be accounted for include:
  - Age
  - Developmental factors associated with puberty
  - Gender
  - Growth charts
  - Family history
  - Genetic variables

Body Weight Measurement

- The Body Mass Index (BMI) is generally the standard of care for calculating Expected Body Weight (EBW) in adults
- For children and adolescents, EBW is extrapolated from growth curves.
**Physical Effects of Eating Disorders:**

**Brain**
- Loss of gray matter mass
- Neurotransmitter signaling is impaired
  - Pleasure/pain/reward
  - Hunger and satiety
  - Mood, depression, anxiety
- Cortisol levels increase as weight or body mass decrease
  - Physiologic stress response contributing to increased anxiety and central nervous system impairment

**Endocrine/Metabolic/Heme**
- Amenorrhea/Osteoporosis
- Thyroid
- Growth Hormone
- Cortisol
- Hypokalemia/Hypophosphatemia
- Hypoglycemia/Magnesemia
- Hyponatremia
- Pancytopenia

**HEENT**
- Lagophthalmos (inability to close eyes)
- Perimyliolysis (Caries/Teeth erosions)
- Pharyngeal soreness
- Cheilosis (inflammation of corners of mouth)
- Sailadenosis (parotid gland inflammation)

**Cardiac**
- Cardiac muscle atrophy
- Bradycardia – lack of conditioning
- Hypotension
- Orthostasis – walk test
- Electrolyte imbalance → arrhythmia
- QT dispersion
- 2/3 of deaths due to cardiac complications or suicide

**Pulmonary**
- Aspiration Pneumonia
- Pneumothorax
- Pneumomediastinum
  - Secondary to Boerhaave Syndrome?
- Dysphagia
- Boerhaave syndrome
- Barrett’s esophagus
- Mallory weiss tears
- GERD
- Gastroparesis/Gastric Dilation
- Cathartic colon
- Constipation
- SMA
- Hepatitis
- Acute renal failure/dehydration
- Renal stones

**GI/Renal**
- Pancytopenia
- Hyponatremia
- Pneumothorax
- Pneumomediastinum
- Hypokalemia/Hypophosphatemia
- Hypoglycemia/Magnesemia
- Hyponatremia
- Pancytopenia
Physical Effects of Eating Disorders: Dermatologic

- Dry skin
- Alopecia
- Lanugo
- Onychorrhexis (brittle nails)
- Starvation associated pruritis (multifactorial, likely not hepatic)
- Stress related urticaria
- Russell’s sign

Medical Management

- GI Discomfort
  - Antacids/anti-foaming
  - Stool softeners/osmotic (non stimulant) laxatives
  - Proton Pump Inhibitors
- +/- NG Feeds
- Sialadenosis
  - Tart Candies/Warm Compresses
- Edema/Pseudobarter Syndrome
  - Spironolactone
  - Promotility agents

Nourishment Process

Intentional, individualized nutrition progression is key.

- 800-1200 kcals to start (25 kc/kg)
- Monitor electrolytes, phosphorous
- Increase 200-300 calories every 2-3 days*
  - 2-3 pounds per week goal
  - Recent literature suggests that if the patient is in a closely monitored environment, caloric increases could occur more frequently without as much risk for cardio-thoracic concerns

Refeeding Syndrome

Clinicians must be Advanced Generalists in Co-Morbid diagnoses

Eating Disorders are co-morbid with other psychiatric diagnoses at remarkably high rates:

- Anxiety/Depression: 65-70%
- Obsessive Compulsive Disorder: 40%
- Chemical Dependency: 25%+
- PTSD: 40-60%
- ADHD: 20%+

Psychiatric Management

- Fluoxetine - approved by the FDA for treatment of BN
- Vyvanse - approved by FDA for treatment of BED
- Zyprexa (Atypical Antipsychotics)
  - Some evidence showing efficacy even when malnourished
- SSRIs
  - Once weight restored
- Antisocials
  - Buque, Benzodiazepines
- Future Directions
“Because of the potentially irreversible effects of an eating disorder on physical and emotional growth and development in adolescents, the high mortality and the evidence suggesting improved outcome with early treatment, the threshold for intervention in adolescents should be lower than in adults.”

Threshold for Intervention

- Eating disordered patients in the young adult population often present as adolescents, both physically and mentally, due in part to malnutrition or emaciating effects of symptom-use.

- Early intervention at an adequate level of care with eating disordered persons is imperative—potentially saving lives while mitigating the cost-burden of inpatient admission.

Threshold for Intervention

Clinicians must Treat Past Phobic Thresholds

- Treat past phobic threshold
- Phobic threshold will hover around 100% of expected BMI
- Probability of relapse greatly increases if we do not fully weight restore because the illness works like other phobias
- Established methods for treating phobias are useful

Treating to Outcome

- Risk of relapse increases if AN patient is discharged less than 90% IBW

- Risk of relapse decreases as weight restoration approaches/exceeds 100% IBW

Doing the Math

<table>
<thead>
<tr>
<th>Admit Wt.</th>
<th>Weight gain needed</th>
<th>Length of Stay</th>
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<tbody>
<tr>
<td>75 lbs</td>
<td>90% = 15 lbs 2 lbs per week</td>
<td>53 days</td>
</tr>
<tr>
<td>75 lbs</td>
<td>100% = 25 lbs 2 lbs per week</td>
<td>89 days</td>
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Cost Effectiveness of Adequate Care

- The “Revolving Door” is expensive, and not just monetarily!

- At least 50% of patients discharged from inpatient care before weight restoring readmit for further inpatient treatment.

- “Strong economic advantage” of adequate inpatient care—key to avoiding immediate relapse and readmission

- “Patients discharged while still underweight may have a worse clinical course than those hospitalized until healthy weight has been restored.”

Multi-disciplinary Approach

Multi-disciplinary interventions
- Psychiatry
- Internal Medicine/Pediatrics
- Psychotherapy
- Dietetics/Nutrition
- Specialized Psychiatric/Med Nursing
- Patient and Family

Evidence-based Treatments

- Dialectical Behavior Therapy
- Mindfulness/Mentalization/Mind-stretching
- Family Based Therapy for adolescents without severe medical complications – particularly efficacious in adolescents 18 or younger
- Limited treatment effectiveness research – largely “marketing” driven

References & Sources for Efficacy of Evidence-Based Therapies in the Treatment of Eating Disorders


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