eating disorders, drugs, and alcohol

OH MY
OBJECTIVES

• Review criteria for diagnosis of several eating disorders
• Discuss co-morbidity of substance abuse in patients with eating disorders
• Discuss the similarity of various aspects of patients with an eating disorder and patients with substance abuse disorder
CASE

• 19 yo male with anorexia nervosa and alcohol use disorder
  • Alcohol use – daily, greater than 7 drinks per day
    • + CAGE
    • Going to classes drunk
  • Eating Disorder
    • Intake 500 – 800 calories per day
    • Increased exercise
    • Something he could control
CASE

• Mandatory withdrawal from college, moved home
• Lost 40 lbs over about 4 month period
• Increased use of marijuana after parents took alcohol out of the house – one bowl per day
• No recognition that alcohol use was a problem
• No interest in working on improved intake
DSM 5*

• **Anorexia Nervosa**
  
  • A. 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. Significantly low weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected.
  
  • B. Intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight.
ANOREXIA NERVOSA

• C. Disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.
ANOREXIA NERVOSA

• **(F50.01) Restricting Type**: During the last 3 months, the individual has not engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight loss is accomplished primarily through dieting, fasting and/or excessive exercise.

• **ICD-10 code depends on subtype**
**ANOREXIA NERVOSA**

- **(F50.02)Binge-eating/purging type:** During the last 3 months, the individual has engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induce vomiting or the misuse of laxatives, diuretics, or enemas).
ANOREXIA NERVOSA

• Specify current severity:
  • Mild: BMI ≥ 17 kg/m^2
  • Moderate: BMI 16 – 16.99 kg/m^2
  • Severe: BMI 15 – 15.99 kg/m^2
  • Extreme: BMI < 15 kg/m^2

• Ranges derived from WHO categories for thinness in adults; for children and adolescents, corresponding BMI percentiles should be used.
DSM 5
BULIMIA NERVOSA

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1. Eating, in a discrete period of time (e.g. within any 2 hour period), an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.

DSM 5
BN CRITERIA

2. A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating.)
DSM 5
BN CRITERIA

• B. Recurrent inappropriate compensatory behaviors in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise.
BN CRITERIA

• C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least once a week for 3 months.

• D. Self-evaluation is unduly influenced by body shape and weight.

• E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.
DSM 5
BN

• Specify if:
  • In **partial remission**: After full criteria for bulimia nervosa were previously met, some, but not all, of the criteria have been met for a sustained period of time.
  • In **full remission**: After full criteria for bulimia nervosa were previously met, none of the criteria have been met for a sustained period of time.
• Specify current severity:
  • The minimum severity is based on the frequency of inappropriate compensatory behaviors (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability
DSM 5
BN

- Specify current severity
  - **Mild**: An average of 1 – 3 episodes of inappropriate compensatory behaviors per week.
  - **Moderate**: An average of 4 – 7 episodes of inappropriate compensatory behaviors per week.
  - **Severe**: An average of 8 – 13 episodes of inappropriate compensatory behaviors per week.
  - **Extreme**: An average of 14 or more episodes of inappropriate compensatory behaviors per week.
EATING DISORDER STATISTICS

• The highest mortality rate of any mental illness
  • Estimated 4%

• Anorexia nervosa
  • Prevalence:
    • 1.0 – 4.2% of women
    • 0.3% of men
  • 33 – 50% of patients have comorbid mood disorder – more common in binge/purge subtype

https://eatingdisorderhope.com/information/statistics-studies
www.anad.org/get-information/about-eating-disorders/eating-disorders-statistics
STATISTICS

• **Bulimia Nervosa**
  
  • **Prevalence**
    • 1.5% - 4% of females
    • 0.5% of men
  
  • Almost 10% of patients with bulimia have a comorbid substance abuse disorder
    • Frequently alcohol abuse
SUBSTANCE USE DISORDERS

• Change in Diagnostic and Statistical Manual of Mental Disorders (DSM 5) from previous editions
  • No longer using terms of substance abuse and substance dependence
  • Level of severity based on the number of diagnostic criteria met
    • Mild, moderate, severe

• https://www.samhsa.gov/disorders/substance-use
SUBSTANCE USE DISORDERS

• Common Substance Use Disorders
  • Alcohol Use Disorder
  • Tobacco Use Disorder
  • Cannabis Use Disorder
  • Stimulant Use Disorder
  • Hallucinogen Use Disorder
  • Opioid Use Disorder
EATING DISORDERS AND SUBSTANCE ABUSE

• About 50% of individuals with an eating disorder abuse drugs and/or alcohol
  • About 5 times greater than general population

• About 35% of individuals who abuse drugs or alcohol have had eating disorders
  • Eating disorders account for about 3% of general population

• Food for Thought: Substance Abuse and Eating Disorders, The National Center on Addiction and Substance Abuse at Columbia University
• Substance abuse is seen far more frequently in individuals with bulimia or those who engage in binge/purge behaviors than individuals with anorexia nervosa or eating disorder unspecified.

• People who abuse substances and those with bulimia have several common personality traits.
  • Depression, anxiety, impulsivity, anger, rebelliousness and social withdrawal.
SIMILAR RISK FACTORS

• History of:
  • Mood disorders
  • Genetics
  • Family modeling
  • Exposure to trauma
  • Cultural influences

<table>
<thead>
<tr>
<th>Eating Disorder Risk Factors</th>
<th>Substance Abuse Risk Factors</th>
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</thead>
<tbody>
<tr>
<td>Low self-esteem</td>
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<tr>
<td>Feeling inadequate or out of control</td>
<td>Volatile family life</td>
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<tr>
<td>Co-occurring conditions such as depression and/or anxiety</td>
<td>Having another mental health disorder such as ADHD, PTSD, depression</td>
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<tr>
<td>Isolation/loneliness</td>
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<tr>
<td>Lack of interpersonal relationships</td>
<td>Lack of bonding to society/Problem with relationships</td>
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<td>Difficulty with emotions</td>
<td>Hypersensitivity/emotional problems</td>
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<td>History of being teased about size or weight</td>
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<tr>
<td>History of physical or sexual abuse</td>
<td>Parental abuse or neglect of the child</td>
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</tbody>
</table>
SHARED CHARACTERISTICS OF EATING DISORDERS AND SUBSTANCE ABUSE

• Obsessive preoccupation with a substance
• Mood altering effects – numbness, feelings of calm
• Method of coping
• Continued engagement in the disordered behavior despite negative consequences.
• Resistance to treatment, denial, and high risk of relapse.
SUBSTANCES ABUSED

• Caffeine
  • Young women who report drinking caffeinated coffee are more likely to be trying to lose weight
  • Suppress hunger
  • Boost energy
  • Regular use may lead to tolerance and withdrawal symptoms
    • These effects may be stronger in low-weight women
SUBSTANCES ABUSED

• Tobacco
  • Dieting and weight loss are motivational factors for smoking
    • Perceived appetite suppressant
  • More common among bulimics with vomiting as purge behavior
  • Teenage girls who smoke report greater body image concerns than nonsmokers
SUBSTANCES ABUSED

• Alcohol
  • Much greater prevalence of alcohol abuse in females with eating disorders
    • Females with alcohol abuse disorders more frequently report eating disordered behaviors
  • Seen more in individuals with bulimia nervosa
    • See higher rates of suicide attempt in individuals with dual diagnosis as well as occurrence of anxiety disorders, personality disorders, conduct disorder and other substance dependence
SUBSTANCES ABUSED

• Alcohol
  • Girls with concerns about their weight are more than twice as likely to begin getting drunk as girls who are not concerned about their weight
  • Girls who drink more alcohol are more likely to see themselves as overweight and engage in unhealthy dieting behaviors
  • The more severe a young women diets, the more likely she is to use alcohol
SUBSTANCES ABUSED

• Stimulant laxatives
  • Common among individuals with bulimia nervosa
  • Used to lose weight and reduce bloating
  • Can develop tolerance and experience withdrawal
SUBSTANCES ABUSED

- Illicit Drugs
  - Seen more in individuals with bulimia nervosa
    - More likely to abuse a wider variety of drugs
  - Cocaine may be used as an appetite suppressant
PATTERNS OF COMORBIDITY OF EATING DISORDERS AND SUBSTANCE USE IN SWEDISH FEMALES

- Study included 13,297 females from the Swedish Twin Registry
- Substance Use was examined in four groups
  - Anorexia nervosa (AN)
    - Restricting (RAN)
    - Binge and/or purge (ANBP)
  - Bulimia nervosa (BN)
  - Anorexia nervosa and bulimia nervosa
  - Binge eating disorder (BED)
  - Reference group – no eating disorder

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2788663
SWEDISH STUDY

• Results
  • Eating disorders were associated with greater substance use in general
  • AN group
    • Significantly increased odds for all illicit drugs
      • ANBP group with greater alcohol abuse/dependence, diet pills, stimulants and polysubstance use.
  • BN and ANBN groups more likely to report alcohol abuse/dependence than AN group
SWEDISH STUDY

• Results
  • ANBN group was more likely to report diet pill use compared to AN, BN and BED groups.
  • BN group was more likely to report use compared to no ED, AN and BED groups.
**EFFECTS ON THE BRAIN WITH EATING DISORDER**

- Bingeing activates dopamine neuro-transmitters $\rightarrow$ pleasure
  - Over time, to achieve the same pleasure, larger binges are needed
EFFECTS ON THE BRAIN WITH EATING DISORDER

- Starvation
  - Stimulates the 5-HT4 receptors in the nucleus accumbens (a reward centre in the brain) causing appetite suppression
  - Elevated levels of CART peptide → appetite suppression
    - Observed in women with anorexia nervosa

Proceedings of the National Academy of Science (DOI:10.1073pnas.0701471104)
EXERCISE

• Frequently utilized as a purge in individuals with bulimia nervosa and anorexia nervosa, binge/purge subtype
CASE

• 27 yo with 15 year history of bulimia nervosa
  • Appropriate weight for height

• Binge/vomit multiple times per day

• Restricts intake in between binge/purge episodes

• Runner
  • Constantly in training for a marathon or half-marathon
  • Not able/willing to recognize that running was a purge – would not allow to be discussed during visits – became very agitated and sometimes would leave
CASE

• Entire family ran – were supportive of patient running

• Frequent over-use injuries
FEMALE ATHLETE TRIAD

• Recognized as issue of energy availability and energy drain
FEMALE ATHLETE TRIAD

- Disordered Eating
- Amenorrhea
- Osteoporosis
FEMALE ATHLETE TRIAD
2007 ACSM UPDATED DEFINITION

- Disordered Eating → Energy Availability
  - Dietary energy intake minus exercise energy expenditure
    - Captures athletes with eating and weight concerns but who do not fulfill criteria for anorexia nervosa or bulimia nervosa.
FEMALE ATHLETE TRIAD

- Amenorrhea → Menstrual Dysfunction
  - Athletes may still menstruate but have low estrogen levels
    - Luteal suppression
    - Anovulation
    - Oligomenorrhea - > 35 days between cycles
    - Primary and secondary amenorrhea
FEMALE ATHLETE TRIAD

- Osteoporosis → **Bone Health**
  - Need to look at Z-scores
    - Z-score that is ≥ 2 SDs below the mean – osteoporosis with secondary clinical risk factors for fracture
    - Z-score between -1.0 to -2.0 – low bone mineral density along with h/o nutritional deficiencies, hypoestrogenism, stress fractures.

FEMALE ATHLETE TRIAD
CAUSE

• Energy Drain/Caloric Deficit
  • Energy expenditure $>$ caloric intake
    • Disrupts the HPO axis $\rightarrow$ decreased GnRH pulsatility and low LH and FSH $\rightarrow$ decreased estrogen production $\rightarrow$ menstrual dysfunction
COMPULSIVE EXERCISE

- Used to work off the number of calories consumed
- Controls negative emotions – anxiety/depression
- Intense feeling of guilt or anxiety if unable to exercise
- Overtraining
COMPULSIVE EXERCISE

• Exercise that interferes with important activities
  • Missing work/school or spending time with friends

• https://www.nationaleatingdisorders.org/compulsive-exercise
EXERCISE ADDICTION

- Not classified as a mental health disorder
- Has similar negative effects on emotional and social health as do recognized addictions
- Prevalence is difficult to determine
  - Some studies report 0.3 – 0.5% of general population
  - Up to 1.9 – 3.2% of regular exercisers

http://www.bmj.com/content/357/bmj.j1745
EXERCISE ADDICTION

• Risk Factors:
  • Low self esteem
  • Individuals who have issues with anxiety, impulsiveness and are extroverted
  • Runners and triathletes

• Experience withdrawal effects when unable to exercise – irritability, restlessness, anxiety, sadness, difficulty sleeping and concentrating
EXERCISE ADDICTION

- Primary exercise addiction distinguished by the excessive exercise seen with individuals suffering from an eating disorder (secondary exercise addiction) – used for weight control
EXERCISE ADDICTION INVENTORY

• Questions

1. Exercise is the most important thing in my life. (salience)
2. Conflicts have arisen between me and my family and/or my partner about the amount of exercise I do. (conflict)
3. I use exercise as a way of changing my mood (mood modification)
4. Over time I have increased the amount of exercise I do in a day (tolerance)
5. If I have to miss an exercise session I feel moody and irritable (withdrawal symptoms)
6. If I cut down the amount of exercise I do, and then start again, I always end up exercising as often as I did before (relapse)

http://www.bmj.com/content/357/bmj.j1745
EXERCISE ADDICTION INVENTORY

• Screening tool

• Scoring
  • 1 = strongly disagree
  • 2 = disagree
  • 3 = neither agree or disagree
  • 4 = agree
  • 5 = strongly agree
EXERCISE ADDICTION INVENTORY

- **Scoring**
  - Total score $\geq 24$ (out of 30) – person at risk for exercise addiction
  - Score 13 – 23 – potentially symptomatic person
  - Score 0 – 12 – asymptomatic individual
QUESTIONS

• Thank you