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What Is Binge Eating Disorder (BED)?

- The DSM-5 defines BED as recurrent episodes of binge eating:
  - Eating, in a discrete period of time, an amount of food larger than most people would eat in a similar amount of time under similar circumstances
  - A sense of lack of control over eating during the episode
  - Occurring at least once per week for 3 months
  - Associated with marked distress

Binge episodes are also associated with ≥3 of the following:

1. Eating rapidly
2. Eating until feeling uncomfortably full
3. Eating large amounts of food when not feeling physically hungry
4. Eating alone because of feeling embarrassed by how much one is eating
5. Feeling disgusted with oneself, depressed, or guilty afterwards

Not unusual for all 5 features to be present
BED Diagnostic Caveats

- Although overvaluation of shape or weight is often seen (40%)…
  - it is not part of the DSM-5 criteria for BED
- BED versus bulimia nervosa?
  - BED is not associated with regular compensatory behaviors, such as purging or excessive exercise, or with dietary restriction, although frequent dieting may be reported
- Because BED is often a secretive behavior and associated with embarrassment or shame…
  - It is not ordinarily revealed unless the clinician makes a direct inquiry regarding eating patterns

Context Is Important

- An excessive amount of food for a typical meal might be considered normal during a celebration or holiday meal.
- A single episode of binge eating ≠ one setting.
  - For example – from office to car to home.
- The food consumption **must** be accompanied by a sense of lack of control.
  - Not unusual for an individual to continue binge eating if the phone rings.
- Types of foods consumed can also be “healthy.”
  - For example – fruits, yogurt.

Etiology of Binge Eating Disorder

- Multiple neurobiological explanations, including:
  - Dysregulation in reward center and impulse control circuitry
  - Potentially related disturbances in dopamine signalling (“wanting food”) and endogenous mu-opioid signalling (“liking food”)
- In addition, there is interplay between genetic influences and environmental stressors
  - Functional polymorphisms of the dopamine D2 receptor gene and of the mu-opioid gene may influence proneness to BED
  - Antecedents to binge eating include negative affect; interpersonal stressors; dietary restraint; negative feelings related to body weight, body shape, and food; and boredom

BED Is the Most Common Eating Disorder

- Estimated lifetime prevalence of 2.6% among US adults
  - BED > bulimia nervosa + anorexia nervosa
- Lifetime prevalence for BED
  - 2% for men; 3.5% for women
- Important caveat:
  - Although many people with BED are obese (BMI ≥30 kg/m²), more than half have a BMI <30 kg/m², including 19% whose weight is normal (BMI between 18.5 and 24.9 kg/m²)

BED – The “Invisible Disorder”

- BED is often a *secret* disorder – spouse and children often unaware
- BED is often *shameful* – reluctance to bring it up
- BED is an *unknown* disorder to patients – many have not heard of it
- BED is an *underrecognized* disorder to clinicians
  - Among the 22,397 respondents to an Internet survey:
    - 344 participants (1.5%) met the DSM-5 criteria for BED in the past 12 months
    - Of these 344 respondents with BED, only 11 (3.2%) had ever been diagnosed with BED by a health care provider

*Every clinician has patients with unrecognized BED:
They come for treatment of other disorders!*

Comorbidities

• Comorbidities bring the patient in for treatment associated BED often goes unrecognized

• Typical physical comorbidities (even with normal BMI include a heightened risk for metabolic syndrome):
  – Sleep disturbances
  – Pain (musculoskeletal, headaches)
  – Gastrointestinal conditions
  – Menstrual irregularities
  – Shortness of breath
  – Diabetes
  – Low health-related quality of life

Comorbidities (cont’d)

- Psychiatric comorbidities are ubiquitous…
  - Mood disorders
  - Anxiety disorders
  - Substance use
  - Attention deficit disorder

- Suicide attempt risk is elevated in individuals with BED, even after accounting for the presence of major depressive disorder

- Psychiatric comorbidity is linked to the severity of binge eating and not to the degree of obesity

80% of patients with BED will meet criteria for other psychiatric disorders

Psychological Treatments for BED

- Cognitive behavioral therapy (CBT) and interpersonal psychotherapy (IPT) can reduce binge-eating behavior
  - Access to such treatments may be limited because of local availability and/or cost
- 33% to 50% of patients with BED do not appear to benefit completely or sufficiently from psychological and behavioral treatment
- Generally not resulting in weight loss, although successfully eliminating binge eating can protect against future weight gain

EFFECTS OF THERAPIST-LED COGNITIVE BEHAVIORAL THERAPY ON ABSTINENCE FROM BINGE EATING

<table>
<thead>
<tr>
<th>Study, Year (Reference)</th>
<th>RR (95% CI)</th>
<th>Events, n/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dingemans et al, 2007 (45)</td>
<td>3.48 (1.39–8.81)</td>
<td>19/30, 4/22</td>
</tr>
<tr>
<td>Peterson et al, 1998 (47)</td>
<td>7.56 (1.13–50.45)</td>
<td>11/16, 1/11</td>
</tr>
<tr>
<td>Peterson et al, 2009 (48)</td>
<td>5.09 (2.42–10.71)</td>
<td>31/60, 7/69</td>
</tr>
<tr>
<td>Tasca et al, 2006 (44)</td>
<td>6.17 (2.37–16.06)</td>
<td>29/47, 4/40</td>
</tr>
<tr>
<td>Overall</td>
<td>4.95 (3.06–8.00)</td>
<td>90/153, 16/142</td>
</tr>
</tbody>
</table>

Favors placebo  Favors treatment

Pharmacological Treatments for BED

- Antidepressants (SSRIs, SNRIs, NDRIs)
  - Can reduce binge eating frequency
  - Not effective for weight loss
  - May increase appetite

- Anticonvulsants (topiramate)
  - Efficacious in reducing binge eating and weight
  - Negative impact on cognitive function

- Antiobesity/anorectic agents that target appetite and weight (sibutramine)

- Medications for addictive disorders (naltrexone)

- ADHD medications (lisdexamfetamine)
  
None indicated for BED
Falls short in terms of robustness of effect, tolerability, or both

Sole agent approved for BED at the present time

### EFFECTS OF LISDEXAMFETAMINE, 50 OR 70 MG/D (TOP), AND SECOND-GENERATION ANTIDEPRESSANTS (BOTTOM) ON ABSTINENCE FROM BINGE EATING

#### Study, Year (Reference)

**McElroy et al, 2015 (49)**

**SPDB489-343, 2015 (50, 52)**

**SPDB489-344, 2015 (51, 52)**

**Overall**

#### Events, n/N

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11 (1.28–3.48)</td>
<td>60/130</td>
</tr>
<tr>
<td>2.84 (1.92–4.19)</td>
<td>77/192</td>
</tr>
<tr>
<td>2.73 (1.83–4.09)</td>
<td>71/195</td>
</tr>
<tr>
<td>2.61 (2.04–3.33)</td>
<td>208/517</td>
</tr>
</tbody>
</table>

#### Study, Year (Reference)

**Arnold et al, 2002 (53)**

**Guerdjikova et al, 2008 (58)**

**Guerdjikova et al, 2012 (57)**

**Grillo et al, 2005 (54)**

**Hudson et al, 1998 (59)**

**McElroy et al, 2000 (60)**

**McElroy et al, 2003 (56)**

**White and Grillo, 2013 (55)**

**Overall**

#### Events, n/N

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.60 (1.06–6.39)</td>
<td>13/30</td>
</tr>
<tr>
<td>1.83 (0.80–4.15)</td>
<td>10/21</td>
</tr>
<tr>
<td>1.67 (0.75–3.71)</td>
<td>10/20</td>
</tr>
<tr>
<td>0.86 (0.33–2.22)</td>
<td>6/27</td>
</tr>
<tr>
<td>1.40 (0.73–2.68)</td>
<td>15/42</td>
</tr>
<tr>
<td>3.11 (0.75–12.87)</td>
<td>7/18</td>
</tr>
<tr>
<td>3.25 (0.84–6.06)</td>
<td>9/19</td>
</tr>
<tr>
<td>1.57 (0.76–3.24)</td>
<td>13/31</td>
</tr>
<tr>
<td>1.67 (1.24–2.26)</td>
<td>83/208</td>
</tr>
</tbody>
</table>

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Approved by the FDA: Lisdexamfetamine

- Lisdexamfetamine is indicated for the treatment of moderate to severe BED and is not indicated for weight loss.
- Cardiac disease and risk of abuse must be assessed when prescribing.
- Recommended starting dose is 30 mg/day.
- Titrated in increments of 20 mg at approximately 1-week intervals to achieve the recommended target dose of 50 to 70 mg/day.
- Lisdexamfetamine is taken once daily in the morning, with or without food.
  - Afternoon doses are to be avoided because of the potential for insomnia.

In Phase III of Development: Dasotraline

- Dasotraline is a novel compound with DNRI pharmacology, slow absorption, and a long half-life, resulting in stable plasma concentrations over 24 hours with once-daily dosing and low potential for abuse.
- Being studied in ADHD and BED.
- Although many neurotransmitter systems are likely to be involved in BED pathophysiology, disturbances in dopamine and norepinephrine circuitry play a key role in the pathogenesis of BED.
- In a randomized, double-blind, placebo-controlled, 12-week trial in adults with moderate to severe BED, flexibly dosed dasotraline 4 to 8 mg/d demonstrated statistically significant and clinically meaningful improvement in BED symptoms compared with placebo and was generally well-tolerated. Most common AEs were insomnia, dry mouth, and decreased appetite.

Combination Therapy

• Adding pharmacotherapy to CBT failed to enhance binge eating outcomes in 6 of 7 published studies testing a variety of medications

• One study with statistical advantage for a combined approach: topiramate + CBT:
  – Produced better outcomes than placebo + CBT

• CBT plus lisdexamfetamine has not been tested