Beliefs about the Function of Eating Distinguish Individuals whose Binge Eating is tied to Negative and Positive Affect

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Binge Eating

- Prominent eating disorder symptom, associated with
  - Feeling out of control
  - Fear of weight-related consequences

- Function of binge eating
  - *Escape Theory*¹; *Emotion Dysregulation Model of AN*²
  - Evidence from diary studies³, laboratory studies⁴, and ecological momentary assessment studies⁵,⁶ support heightened negative affect as an antecedent of binge episodes.
  - Findings regarding the relationship of binge eating with positive affect are more scarce.
  - Findings regarding the affective consequences are mixed.

¹Heatherton & Baumeister (1991); ²Haynos & Fruzzetti (2011); ³Johnson et al. (1995);
⁴Agras & Telch (1998); ⁵Smyth et al. (2007); ⁶Stein et al. (2007)
Learning and the Development of Expectancies

- **Expectancies**
  - Beliefs about the consequences of behavior that are the product of one’s learning history\(^1\)
    - For Example,
      - Touching pots on the stove causes me pain.
      - Drinking alcohol loosens me up.
  - Predict under what circumstances an individual engages in (or avoids) a particular behavior.

- **Eating Expectancies**
  - The belief that eating is helps manage negative affect predicts the development of binge eating in adolescent girls.\(^2\)
  - The belief that eating is pleasurable and useful as a reward predict longer time to remission of binge eating.\(^3\)

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\(^1\)Hohlstein, Smith, & Atlas (1998); \(^2\)Smith et al. (2007); \(^3\)Bohon, Stice, & Burton (2009)
Hypotheses

- The expectancy that eating is *negatively reinforcing* (i.e., helps to manage negative affect) will moderate the relationship between binge eating and negative affect.

- The expectancy that eating is *positively reinforcing* (i.e., eating is pleasurable) will moderate the relationship between binge eating and positive affect.
Methods

Sample

- \( N=110 \) individuals with EDs
  - ANr (n=7; 6.4%)
  - ANbp (n=10; 9.1%)
  - BN (n=53; 48.2%)
  - BED (n=30; 27.3%)
  - PD (n=10; 9.1%)

- Ninety-one (82.7%) were women.
- Age: 18 to 62 years (\( M(SD) = 32.68 \) (12.23); median = 29.50).

Race/Ethnicity:

- 71.8% Caucasian
- 9.1% Asian/Pacifica Islander
- 8.2% Black/African American
- 7.3% Hispanic
- 0.9% Native American
- 1.8% other/mixed
- 0.9% not provided
Methods

Procedure

- Recruited from the community, participated via the Internet
- Eating Expectancy Inventory (EEI)\(^1\) “eating helps manage negative affect” and “eating is pleasurable and useful as a reward” subscales on three occasions (i.e., baseline, week 6, and week 12)
- Weekly reports of binge eating and other ED behaviors and Positive and Negative Affect Schedule (PANAS)\(^2\)

Analysis

- Mixed Effects Modeling conducted in SPSS (Version 19)

\(^1\)Hohlstein, Smith, & Atlas (1998); \(^2\)Watson, Clark, & Tellegen (1988)
Results

- **BMI and Binge Eating and Purging Frequencies**
  - ANr/ANbp $M(SD)$ BMI was 16.81 (0.87) kg/m$^2$.
  - $M(SD)$ binge eating and purging days/week were 2.47 (2.31) and 1.80 (2.40), respectively.
    - $M(SD)$ episodes/week were 4.44 (6.00) and 3.90 (6.87), respectively.

- **Attrition:** of the 110 participants,
  - 101 (91.8%) reported binge eating and affect for at least one week. The mean (SD) number of weeks reported was 9.69 (3.96), with 61.8% reporting for all 12 weeks and 9.1% reporting for 11 of the 12.
    - This resulted in 1062 weekly reports of binge eating frequency and affect.
  - 93 (84.5%) completed the week 6 assessment, and 88 (80.0%) completed week 12 assessment.
    - This resulted in 282 measurements of eating expectancies via the EEI.
### Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>p</th>
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<tbody>
<tr>
<td>Intercept</td>
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<td>0.17</td>
<td>14.67</td>
<td>95.01</td>
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<tr>
<td>Negative Affect</td>
<td>0.03</td>
<td>0.007</td>
<td>3.77</td>
<td>954.69</td>
<td>&lt;.001</td>
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<tr>
<td>Positive Affect</td>
<td>-0.03</td>
<td>0.007</td>
<td>-4.19</td>
<td>939.84</td>
<td>&lt;.001</td>
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<tr>
<td>EEI Negative Affect Expectancy</td>
<td>0.02</td>
<td>0.004</td>
<td>5.51</td>
<td>510.75</td>
<td>&lt;.001</td>
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<tr>
<td>EEI Positive Affect Expectancy</td>
<td>-0.003</td>
<td>0.014</td>
<td>-0.25</td>
<td>623.98</td>
<td>.806</td>
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<tr>
<td>Negative Affect x EEI Neg Expect</td>
<td>0.0007</td>
<td>0.0003</td>
<td>2.23</td>
<td>949.12</td>
<td>.026</td>
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<td>Positive Affect x EEI Neg Expect</td>
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<td>0.0003</td>
<td>-3.41</td>
<td>943.16</td>
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<td>Negative Affect x EEI Pos Expect</td>
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<td>0.0010</td>
<td>-0.39</td>
<td>951.42</td>
<td>.696</td>
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<td>Positive Affect x EEI Pos Expect</td>
<td>0.0020</td>
<td>0.0010</td>
<td>2.00</td>
<td>942.51</td>
<td>.046</td>
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<tr>
<td>Negative Affect x Positive Affect</td>
<td>0.0037</td>
<td>0.0011</td>
<td>3.44</td>
<td>971.55</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Results

![Graph showing relationship between PANAS Negative Affect and Binge Eating Days. The graph includes lines for -1SD EEI Neg Aff and +1SD EEI Neg Aff.](image)
Discussion

Beliefs about the function of eating interact with affect to account for the frequency of binge eating.

- Binge eating is positively associated with negative affect among those whose beliefs attribute a negative affect reduction function to eating.
- Binge eating is negatively associated with positive affect among those who do not attribute a rewarding function to eating.

Eating Expectancies

- may help identify the functions of ED behaviors for individuals.
- represent potential treatment targets, especially when incorrect.

Limitations

- Heterogeneous sample
- Participation via the internet
- Affect \rightarrow \text{Behavior} \text{ or } \text{Behavior} \rightarrow \text{Affect?}
Thank you!

Questions/Comments/Criticisms?

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Additional Interactions

- Negative affect X positive affect \((F(1, 971.55)=11.80, p<.001)\)
- Positive affect X eating helps manage negative affect \((F(1, 943.16)=11.61, p=.001)\)