Unhealthy Weight Control Behaviors: Does High Food Reward Sensitivity Increase Risk?

Miriam Eisenberg, Ph.D.
Food Reward Sensitivity

• Individual differences in the neurological response to food cues
Rewarding Value of Food

• Reward variance between people
• Reward variance between foods
Food cues are everywhere...
Food Reward Sensitivity and Intake of Discretionary Foods

Nansel, Lipsky, Eisenberg, Haynie, Liu, Simons-Morton, Under Review
Food Reward Sensitivity is Associated with...

• Higher intake of discretionary foods (Nansel et al., Under Review)

• More loss of control eating (Lowe et al., 2016)

• More frequent and intense cravings. More distress from cravings (Foreman et al., 2007)
Putting it all together...

- Difficulty managing weight can reduce
  - Weight-management self-efficacy
  - Self-control
- Feeling overweight can exacerbate this effect*

*Reduced weight-management self-efficacy and self-control

*Bardone-Cone, Abramson, Vohs, Hetherton, Joiner Jr. 2006
Hypothesis 1

- Food Reward Sensitivity
- Unhealthy Weight-Control Behaviors
Hypothesis 2

- Food Reward Sensitivity
- Body Weight Overestimation
- Unhealthy Weight-Control Behaviors
NEXT Generation Health Study

- Longitudinal assessment of healthy and risky behaviors in a nationally representative sample of US emerging adults.
- Initiated in 2010 (10th grade)
  - Most recent data in year five (two years post-High School)
- N = 2202
Measures

• **Power of Food Scale***
  – Scores range from 1-5
    • Higher scores indicate more food reward sensitivity

• **Unhealthy weight control behaviors.**
  – Eating less than recommended
    • Fasting, skipping meals, eating very little
  – Taking a substance to aid weight loss
    • Diet pills, food substitutes, laxatives, diuretics

• **Control Variables**
  – Race, gender, parent socioeconomic status

• **Weight Overestimation**

*Lowe et al, 2009*
Categorizing Participants as under-estimators, over-estimators, or accurate estimators

<table>
<thead>
<tr>
<th>Perceived Status</th>
<th>Underweight status</th>
<th>Normal Weight status</th>
<th>Overweight status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Underweight</td>
<td>Accurate</td>
<td>Under-estimator</td>
<td>Under-estimator</td>
</tr>
<tr>
<td>Perceived normal weight</td>
<td>Over-estimator</td>
<td>Accurate</td>
<td>Under-estimator</td>
</tr>
<tr>
<td>Perceived overweight</td>
<td>Over-estimator</td>
<td>Over-estimator</td>
<td>Accurate</td>
</tr>
</tbody>
</table>
The Positive Association of Food Reward Sensitivity and Unhealthy food restriction

Taking a substance to aid weight loss

Eating less to aid weight loss

B=.02

B=.13*

*.05, **>.01, ***>.001
Interpreting the Weight-Estimation*
Food Reward Sensitivity Interaction

Number of Unhealthy Substance-Use Behaviors

Food Reward Sensitivity

- B=.249**
- B=-.009
- B=.008

*<.05, **<.01, ***<.001
Conclusions

• Hypothesis 1 – partially supported
  – Food reward sensitivity may be associated with unhealthy weight control behaviors
    • Although, main effect only for food restriction

• Hypothesis 2 – partially supported
  – Significant interaction between food reward sensitivity and taking more substances to aid weight loss
    • But only for over-estimators
Further Considerations

• Weight overestimation as a proxy for poor body image
  – Perception vs. affect

• No measure of frequency or severity of unhealthy weight control behaviors.
Strengths

- Novelty
- Variety of unhealthy weight control behaviors
- Large, nationally representative sample
- Examined the moderating role of weight-estimation
  - Weight-over-estimators may be a particularly at-risk group.
Acknowledgements

Collaborators

• Tonja Nansel, Ph.D.
• Leah Lipsky, Ph.D.
• Katherine Dempster, B.S.
• Danping Liu, Ph.D.
• Denise Haynie, Ph.D., M.P.H.

This research (contract number HHSN275201200001I) was supported in part by the Intramural Research Program of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), and the National Heart, Lung and Blood Institute (NHLBI), the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA), with supplemental support from the National Institute on Drug Abuse (NIDA).