Associations Between Executive Function, Interoception, Binge Eating, and Body Mass in Young Adults

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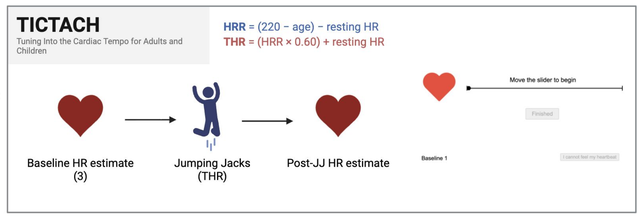
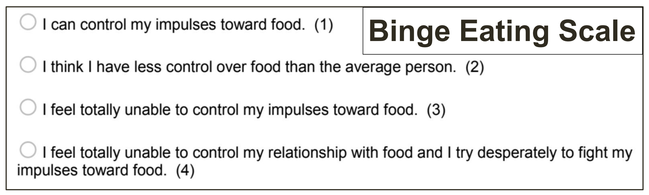
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Introduction

- 1 in 5 adolescents in the US are overweight or obese (Ng et al., 2025)
- Understanding how neuropsychological factors interact with obesity could lead to new interventions
- Lower executive function (EF), the control of cognition, emotion, and action, contributes to obesity and binge eating (Cury et al., 2020)
- Lower interoceptive accuracy (IA), the ability to perceive internal bodily sensations, is associated with obesity and binge eating (Herbert, 2020)
  - An association between binge eating and IA has not been investigated using a biological measure of IA, such as heart rate
- Whether binge eating relates to EF and IA of heart rate has not been explored (Bishop et al., 2022)
- We explored relationships between binge eating, EF, and IA to better understand the roles these functions may have in eating disorders and weight gain

Methods

Domain	Measures	Scoring
Executive Function	Behavior Rating Inventory of Executive Function for Adults (BRIEF-A): Subscales of Behavior Regulation (BRI) and Metacognition (MI) and total composite score (GE)	Each question scored 1-3 points, total scores range: BRI: 30-90; MI: 40-120; and GE: 75-225. Higher scores indicate worse executive function
Interoceptive Accuracy		% accuracy of participants' estimates to their actual heart rate, such that higher scores indicate better interoception
Binge Eating		Z-scores categorized into groups of low (≤1 SD), average (within ±1 SD), and high (≥1 SD) binge eating

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Hypotheses

1. Increased BES scores will correlate with higher Body Mass Index (BMI)
2. Increased BES scores will correlate with higher BRIEF-A scores
3. Increased BES scores will correlate with lower TICTACH-based interoceptive accuracy

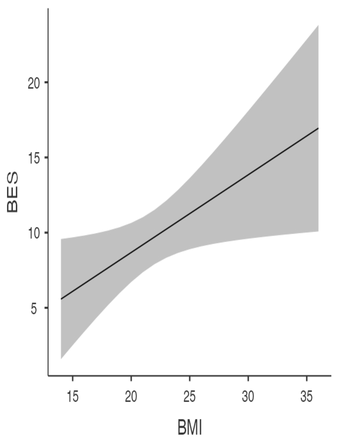
Demographics

Table 2: Binge Eating Groups

Group	Low	Average	High	Total
N	9	45	9	63
Age (yrs)	19.0	18.7	19.0	18.8
BMI	20.6	21.3	24.6	21.7

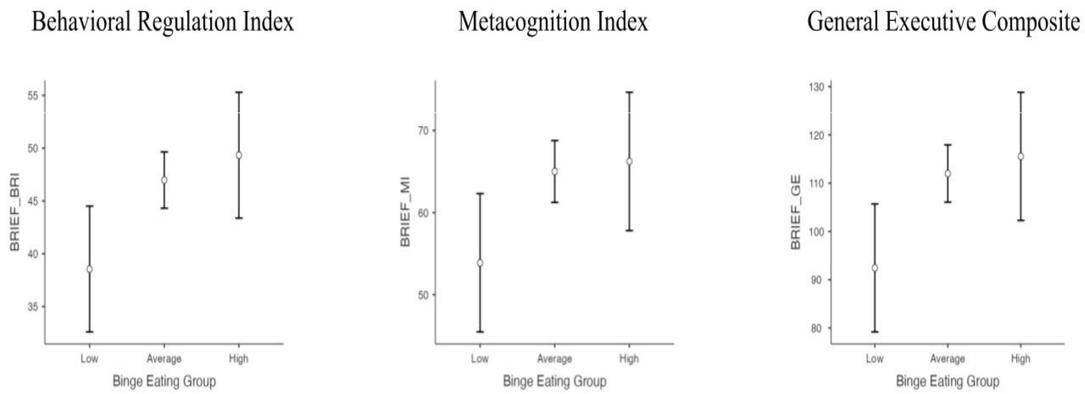
Results

Figure 1: Participants with Higher BMI Scored Higher on the Binge Eating Scale



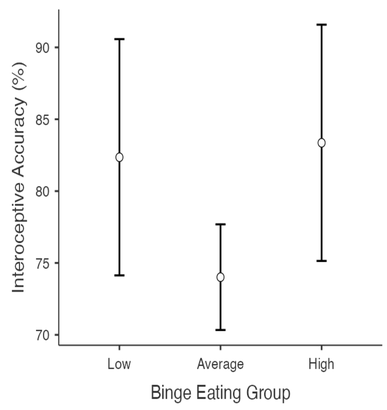
r=0.275, p=0.029

Figure 2: Low Binge Eating Group Performed Better on Executive Function



★p_{tukey}<0.05 for Low-Average

Figure 3: Average Binge Eating Group Performed Worse on Interoceptive Accuracy



p=0.043

Conclusions

- Executive function and interoceptive accuracy may play a role in binge eating
- As hypothesized, increased Binge Eating Scale scores were correlated with higher BMI and worse executive function
- Contrary to expectations, both low and high binge eating were associated with better interoception
- Results should be considered preliminary due to small and unbalanced samples among the low and high binge eating groups
- These results are useful for generating causal hypothesis for future studies

References

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