Stress & Child obesity: Dietary pathways in the context of stress

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What is stress?

A stressor disrupts homeostasis and requires an organism to adapt and restore equilibrium.

Internal vs. External    Acute vs. Chronic

Measurement:
Subjective, Objective, Biological

Are children stressed?

8.3% of 12–17 year olds had “mentally unhealthy days” on almost half of the days in the last month

5% of 13-18 year olds had ever experienced Post-traumatic Stress Disorder

Transactional Model of Stress and Coping

Stressor → Appraisal & coping efforts → Coping outcomes: Health behaviors → Obesity risk

Could stress affect children’s weight-related behaviors?

Health behavior learned in childhood tends to track to adulthood.

Coping outcomes: Health behaviors

Stressor

Appraisal & coping efforts

Obesity risk

Eating behavior

Physical activity


Stress may change eating behavior

• Stress may lead to:
  – higher sweets consumption (older age; girls)
  – emotion-driven eating & high-calorie/low-nutrient foods

• Emotion-focused coping & unhealthy snacks

• High-reactive/high-restraint:
  – more calories (≈173 kcals)
  – eat for longer (>3 mins)

Stress may increase obesity risk

- Chronic stress has been associated with higher obesity risk
- More likely for girls
- Stress-eating & higher odds of obesity

Wilson & Sato, 2014
Could obesity also affect stress reactivity and eating behavior?
Obesity may affect stress responses and eating behavior

- Overweight/obese youth:
  - higher cortisol response to social stressors
  - more high-density salty foods following social stress


Is maternal stress related to child obesity risk?


Methods

• Maternal stress after the child’s birth
• 17 studies; 19 independent effect sizes
• Mother-child dyads
  – $M = 2,462$
• Child age at maternal stress measure
  – cross-sectional ($M = 6.36$ yrs., $SD = 3.23$)
  – longitudinal ($M = 1.68$ yrs., $SD = 1.38$)
Positive effect size between maternal stress & child obesity risk

Cross-sectional \( d = .20, p < .01 \)
Longitudinal \( d = .18, p = .05 \)

Moderators in longitudinal studies:
Child stress
Study quality
Child age
Child Age at Maternal Stress Measure

**Longitudinal**

![Graph showing longitudinal regression of child age on effect size]

**Cross-sectional**

![Graph showing cross-sectional regression of child age on effect size]
Maternal stress is associated with higher child obesity risk

Effect size $d \approx .19$

Effect may be stronger for toddlers than infants
Conclusions & Implications

• Helping families and children cope with stress may help prevent obesity
  – Education in stress-management techniques
  – Be attuned to eating habits for children in high-stress environments

• Future research:
  – Family/external stressors vs. perceived stress vs. stress reactivity (ex. cortisol)
  – Interventions
Thank you!

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