Longitudinal Association of ADHD Symptoms and Trait Conscientiousness with Obesity in a Nationally Representative Sample of Irish Youth

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What? Why?

• What?
  • Obesity
  • ADHD
  • Conscientiousness

• Why Obesity?
  • 62% of Irish people are classified as overweight or obese (CSO, 2017).
  • Obesity is costly:
    • Results in numerous chronic diseases from type 2 diabetes to heart disease
    • Associated with numerous mental illnesses and lower psychological wellbeing
    • Costs the Irish state approximately €1.13 billion per annum (Safefood, 2012)

• Why ADHD & Conscientiousness?
  • Each consistently shown to be associated with obesity internationally
  • Little longitudinal research on these factors in adolescents internationally – none in Ireland
  • Existing research does not control for sufficient variety of confounding variables
• **Data**

  - Analysis includes only children who took part in **all** 3 waves
  - \( n = 6,039 \)

• **Analysis**

  - Combination of binary logistic/multiple regressions.
  - **3 Models:** Effects of variables at 9 years on:
    1. BMI category at 9 years.
    2. BMI category at 13 years.
    3. BMI category at 17 years.
Measurements

• **DV**
  – Obesity (BMI)
    - Healthy weight / Overweight

• **IV**
  – ADHD (SDQ-HI, 0-20)
  – Trait Conscientiousness (TIPI, 0-35)
• Previous research paved the way for a careful analysis:

  – Removal of underweight participants

  – Splitting by gender due to gender differences in BMI, Conscientiousness, ADHD symptomology

  – Controlling for confounding parental and socioeconomic variables:
    • Household income
    • Parental smoking
    • Parental drinking
    • Birthweight
% Classified as Overweight/Obese at each Wave by Gender

Wave 1
- Male: 25.60%
- Female: 33.50%

Wave 2
- Male: 25.00%
- Female: 30.50%

Wave 3
- Male: 27.50%
- Female: 29.90%
Findings
Gender matters!

Males
1. At age 9 – no significant association between BMI category and either conscientiousness or ADHD, before/after controlling for psychosocial variables.
2. At age 13 – significant positive association between BMI category and ADHD before psychosocial factors controlled for, not after.
3. At age 17 – significant positive association between BMI category and conscientiousness/ADHD before psychosocial factors controlled for. After control, only positive association between BMI and ADHD remained significant.

Across all age groups, no significant association with conscientiousness was observed.

Females
1. At age 9 – significant association between BMI category and both conscientiousness and ADHD, before controlling for psychosocial variables, not after.
2. At age 13 – significant positive association between BMI category and conscientiousness/ADHD before psychosocial factors controlled for. After control, only positive association between BMI and ADHD remained significant.
3. At age 17 – significant association between BMI category and both conscientiousness and ADHD before and after controlling for psychosocial factors.
ADHD

• **Positive** association between ADHD and risk for overweight/obesity for all groups except 9-year old males.

• **However**, after adjusting for significant parental and psychosocial variables, ADHD remained a significant predictor of weight category only for females aged 13/17 years old and males aged 17 years old.

Conscientiousness

• **Negative** association between Trait Conscientiousness and the risk for overweight/obesity for females (all age groups) but not for males of any age group.

• After adjusting for confounding variables, this association remained significant only for females aged 17 years old.
• Relationship **emerges** over time – implications? Early intervention
• Gender difference

**Strengths**
  – Large, nationally-representative longitudinal sample
  – Control for confounders (parental/psychosocial)

**Weaknesses**
  – Little insight into exact mechanisms
  – Effect size is small – Odds ratios generally less than 1.08 after controlling for confounders
Conclusion

• The ADHD-BMI link emerges in both genders in adolescence.
• Stronger for girls; and emerges earlier (13yrs vs 17yrs for boys).
• Conscientiousness not a relevant factor after controlling for confounders, except in girls aged 17.

• “Award deficiency syndrome” (Cortese & Vincenzi, 2012)
• Low inhibitory control (Albayrak et al., 2015)
• Inattentiveness – leads to poor dietary planning, excess food intake (Cortese et al., 2015)

• Controlling for gender & age, possible mediation by:
  – Exercise
  – Diet