The Association Between Obesity and Depression in Children Ages 10-17: Is There a Sex Difference?

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BACKGROUND

- Nearly 32% of children ages 2-19 were classified as overweight or obese in 2012.[1]
- Approximately 6 to 8 percent of teens have serious depression[2], and suicide was the second leading cause of death among adolescents ages 12-17 in 2010.[3]
- Weight-based bullying can have a significant impact on mental health in children and adolescents.[4]
- Prevalence of mood disorders and self harm are higher in female adolescents than in males[5], but there are no significant sex differences in childhood obesity prevalence.[1]

OBJECTIVE

- The purpose of this study was to examine differences by sex in the association between obesity and depression among children ages 10-17.

METHODS

- Data for 45,255 children ages 10-17 were analyzed using the 2011-2012 National Survey of Children's Health (NSCH).
- Obesity was measured using body mass index (BMI) derived from parent-reported height and weight in the survey.
- Depression was measured using parent reporting of the selected child currently having a diagnosis of depression.
- STATA version 14.2 was used for statistical analysis, which accounted for complex survey design and weighting.
- Variables were tested for collinearity.
- Bivariate analysis and logistic regression were used to investigate whether the association between obesity and depression differed by sex, controlling for confounders.

FIGURE 1. Depression prevalence in children ages 10-17 by weight status NSCH 2011-2012 (n=43,780)

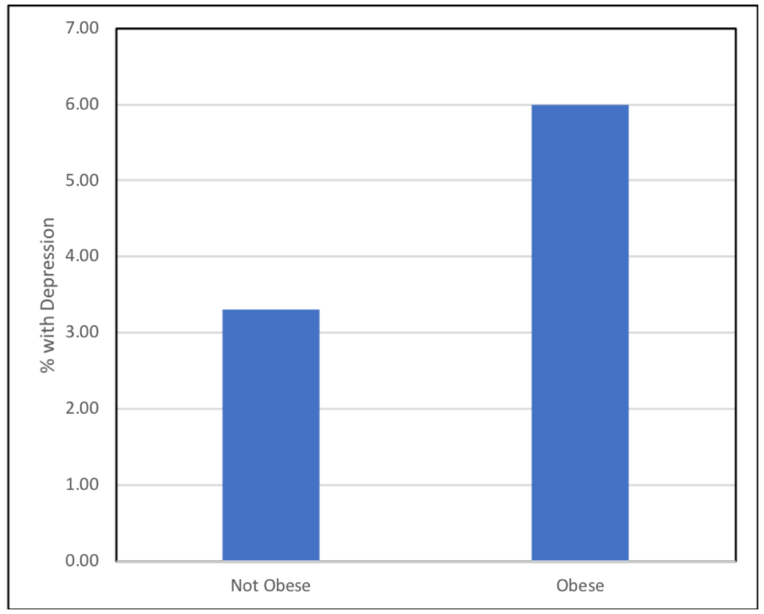
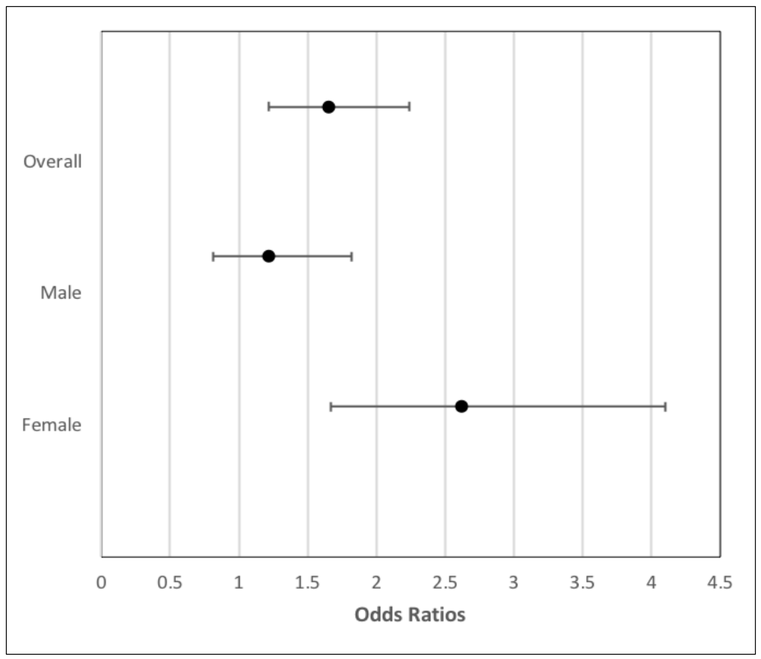


FIGURE 2: Adjusted odds ratios of depression in the overall sample and stratified by sex



*Final model adjusted for age, maternal mental health status, and income
**Odds ratios presented with 95% confidence intervals

RESULTS

- Among children ages 10-17 (n=43,780), 84.3% are not obese and 15.7% are obese.
- Bivariate analysis indicates that among those who are not obese, 3.30% have depression, compared to 6.00% of those who are obese.
- The unadjusted odds of having depression for children who are obese are 1.87 (1.43, 2.46) times the odds of having depression for children who are not obese.
- Adjusting for covariates, obese children have 1.65 (1.22, 2.24) times the odds of having depression compared to children who are not obese.
- Among females, those who are obese have 2.62 (1.67, 4.10) times the odds of having depression compared to those who are not obese.
- Among males, there is no significant association between obesity and depression.

DISCUSSION

- Subgroup analysis showed that the association between obesity and depression is significant among females but not among males.
- Based on these results, future public health interventions targeting obesity and/or mental health in children and adolescents could be sex-specific, with an increased focus on girls.
- Limitations of this study include the bidirectional association between obesity and depression and the cross-sectional study design of NSCH.
- Future research could include longitudinal studies to disentangle the bidirectional relationship between obesity and depression.

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