

Is High Maternal Body Mass a Risk Factor for Child Emotion Dysregulation?

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Background

Childhood overweight and obesity are major public health concerns, with recent prevalence estimates suggesting that 17.0% of children and adolescents are obese (Ogden et al., 2016). Maternal adiposity is a risk factor for the development of childhood overweight or obesity (Reilly et al., 2005). Research also suggests an association between high maternal body mass and poorer psychosocial development in children, including lower social competence and higher externalizing and internalizing symptoms (Bergmann et al., 2016; van Lieshout, Robinson, & Boyle, 2013). However, the research surrounding the effect of maternal adiposity on emotion regulation among school-aged children is underdeveloped. Exploring the underpinnings of the association between maternal obesity and child emotion regulation can inform treatment and preventive interventions.

Primary Aim

Our primary aim was to evaluate whether maternal body mass index (BMI) predicts child emotion regulation and whether this association would be mediated by child temperament.

Method

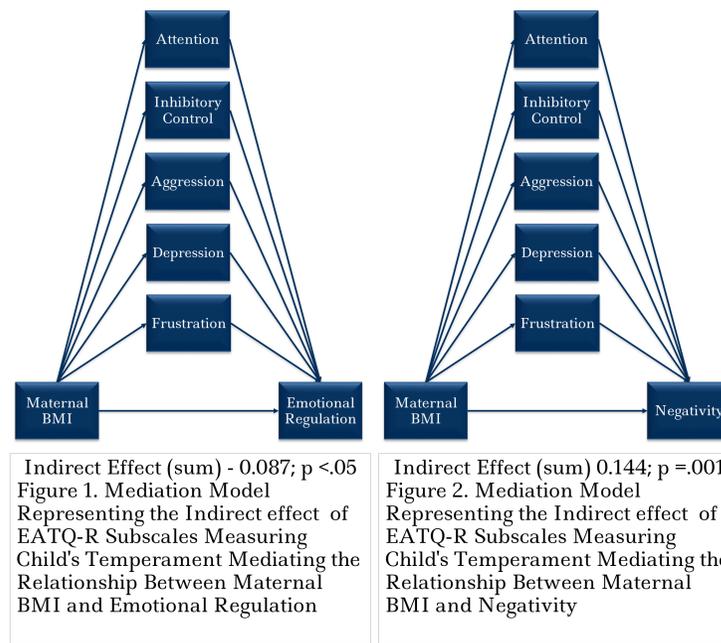
Emotion regulation was evaluated using subscales from the Early Adolescent Temperament Questionnaire-Revised (EATQ-R; Ellis & Rothbart, 2001) and the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), both parent-report measures of child emotion regulation. Maternal BMI was calculated through a standardized formula including participant's height and weight ($BMI = \frac{weight (kg)}{[height (m)]^2}$; Keys et al., 1972).

Written consent and parental permission was provided from each child's legal guardian before participation in the study. Parents completed a basic demographic assessment, the EATQ-R, and the ERC via an online survey using Qualtrics survey software.

Regression analysis was used to investigate associations between maternal BMI and child emotion regulation. A latent profile analysis with two BMI classes (normal versus high maternal BMI) was conducted to evaluate associations with child emotion regulation.

Participants

Participants were recruited through elementary afterschool programs for participation in the current study. Exclusion criteria included child's current neuropsychiatric diagnosis and/or child's use of pharmaceutical medications with the potential to influence CNS functioning. Three-hundred twenty-six children (ages 8-12 years) and their mothers completed the study.



Results

Maternal BMI had a significant direct effect on child negativity/lability ($b = 0.144$, $S.E = 0.044$, $P = 0.001$) and this association was mediated by child depression ($b = 0.033$, $S.E = 0.014$, $P = 0.021$), attention ($b = 0.032$, $S.E = 0.012$, $P = 0.011$) and inhibitory control ($b = 0.035$, $S.E = 0.014$, $P = 0.021$). Similarly, maternal BMI significantly predicted child emotion regulation ($b = -0.087$, $S.E = 0.030$, $P = 0.004$) and this association was mediated by child depression ($b = -0.052$, $S.E = 0.022$, $P = 0.019$). Latent profile analysis (entropy = 0.819) indicated that normal maternal BMI ($N = 199$, $MBMI = 24.8$) was associated with higher child emotion regulation and decreased negativity/lability relative to children with mothers with higher BMI ($N = 127$, $MBMI = 27.4$).

Discussion

Our study examined associations between maternal BMI and child emotion regulation/negativity along with potential mediators of these associations.

We found that higher maternal BMI was associated with lower child capacity to manage and modulate emotional arousal. Child depression mediated this association, suggesting that the mechanism through which maternal obesity confers risk for child emotion dysregulation is child depression. Similarly, child depression, attention, and inhibition mediated the relationship between maternal adiposity and child emotional negativity/lability. The fact that both of these associations were mediated by child emotional and cognitive factors suggests that child traits explain a significant component of the association between maternal obesity and child emotional outcomes.

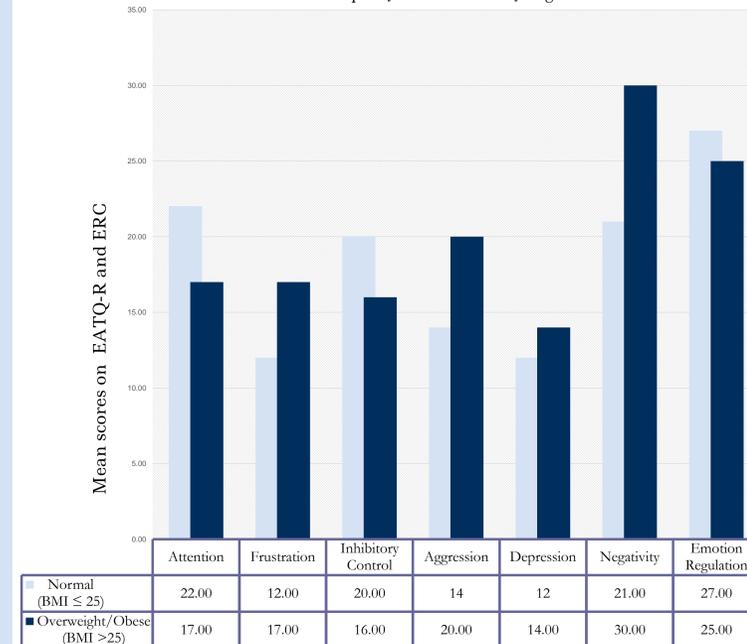
Results of our research may imply that the association between maternal and child BMI could be influenced by challenges with emotion regulation experienced by children. Emotion regulation has important implications for eating and other health behaviors. These findings may be useful in conceptualizing child emotion regulation and cognitive skills as modifiable characteristics which may be an important component of child obesity prevention and intervention programs.

In summary, we found that maternal adiposity was associated with emotion regulation in children. Specifically, higher maternal BMI was associated with lower child capacity to manage and modulate emotional arousal and increased dysregulated negative affect. More research is required to understand the nature of the links between maternal overweight and child's emotional functioning.

Implications

- Maternal adiposity not only increases children's risk for developing overweight or obesity, it is also associated with decreased emotion regulation in children.
- Emotion dysregulation in children is an overlooked correlate of maternal BMI and warrants further consideration.
- Future research into the treatment and prevention of childhood obesity should explore emotion dysregulation as a possible contributor to weight gain.

Graphical Representation of Latent Profile Analysis Illustrating Relationship Between Maternal Adiposity and Emotion Dysregulation



Limitations

- This study did not assess the underpinnings of mechanisms to increased maternal adiposity and emotion dysregulation in children.
- The measures of psychosocial outcomes in children relied on parental reports alone, causing some of the association to be related to rater bias.
- The study did not consider other potential mediating factors. For example, some argue that maternal parenting stress has been identified as a potential risk factor exacerbating child's psychosocial functioning.
- The study did not investigate whether maternal adiposity contributed to maternal psychosocial impairments.

References

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