Child Impulsivity, Inhibitory Control, and Maternal Supervision in Relation to Toddler BMI: Direct and Interactive Effects

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Introduction

- Child characteristics and maternal feeding practices have been found to contribute to elevated body mass index (BMI) in children and to childhood obesity.
- Specifically, children’s higher impulsivity and lower inhibitory control are related to their higher BMI.
- Maternal monitoring and restriction of children’s food intake have been found to limit children’s intake of unhealthy foods and model healthy eating habits.
- Previous studies have considered children’s temperament and maternal feeding practices separately; however, few have considered these variables of children’s BMI jointly or in interaction with BMI.
- The present study examines the interaction of children’s temperament and maternal feeding practices and their effect on children’s BMI.

Hypotheses

After controlling for maternal BMI, cumulative risk, child sex, and child emotional eating, we anticipated that:
1. More maternal supervision of children’s eating and higher child inhibitory control will be associated with lower child BMI.
2. Higher toddler impulsivity will be associated with higher toddler BMI.
3. Maternal supervision of children’s eating behavior will moderate the relationship between children’s impulsivity and inhibitory control and their BMI.

Method

Participants
- Participants consisted of 168 mother-child dyads.
- 66% Caucasian, 14.9% African American, 9.5% Hispanic, 16.1% other
- Mother age: M = 27.41 (SD = 6.09)
- Child age: M = 3.40, 47% male

Procedure
- Four months postpartum, mothers provided information regarding cumulative risk via demographics questionnaires and the Structured Clinical Interview for the DSM-IV-TR (SCID).
- At 24 months postpartum, mothers completed the Early Childhood Behavior Questionnaire (ECBQ) to assess child inhibitory control.
- At 30 months postpartum, mothers completed the Early Childhood Behavior Questionnaire (ECBQ) to assess child maternal supervision.
- Child’s inhibitory control was measured in lab with the Snack Delay Task at 24 months.
- Toddlers were asked to place their hands on a table while being presented with a snack until the experimenter rang a bell indicating the child was allowed to eat the snack.
- At 30 months postpartum, mothers completed the following:
  - The Child Eating Behavior Questionnaire (CEBQ) to assess children’s eating behaviors.
  - The Child Feeding Questionnaire (CFQ) to assess maternal feeding practices.
  - The restriction and monitoring scales were combined to form one maternal supervision scale (r = .38, p < .001).

Results

Child inhibitory control was not found to be associated with lower child BMI after controlling for maternal BMI, cumulative risk, child sex and child emotional overeating.

As predicted (Table 1), results showed that toddler impulsivity was positively associated with toddler BMI (β = .31, p = .003).

The relationship between maternal supervision and child BMI was not significant.

Maternal supervision and child BMI were qualified by an interaction between child impulsivity and maternal feeding supervision (Figure 1).

There was not a significant relationship between maternal supervision and toddler BMI when toddler impulsivity was low (β = .24, p = .160).

However, at high toddler impulsivity there was a negative relationship between maternal supervision and toddler BMI (β = -.48, p < .001).

Discussion

Summary of Findings
- As predicted, maternal feeding supervision seems to influence children’s eating habits and, in turn, BMI under certain child characteristics.
- The results suggest that increased maternal supervision of children’s eating may be beneficial for helping children maintain a healthy BMI when they exhibit high levels of impulsivity.
- Limitations of the study include reliance on self-report for the CFQ and parent-report for the ECBQ and CEBQ measures.
- Future studies should examine whether the effectiveness of other maternal feeding practices on children’s BMI vary by child characteristics, such as those examined in our study.
- Findings suggest that mother’s of children higher in impulsivity, including children diagnosed with ADHD, may need to be encouraged to closely monitor their children’s eating to help prevent elevations in BMI, and weight-related health disparities.

References


Presented at the Society for Research in Child Development Conferences, Austin, TX, April 2017

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Table 1. Regression Results Showing Predictors of Toddler BMI at 30 Months of Age

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