ABSTRACT

**Background:** Food insecurity is both a nutritional problem and a stressful life experience of adults and children in households dealing with food shortage. Potential mechanisms of the associations between food insecurity and adverse outcomes in children’s health and development are through parenting and child self-regulation.

**Objectives:** We investigated parenting and child self-regulation as potential mechanisms for the relationship of food insecurity with child dietary behaviors with two specific aims. The specific aim 1 was to understand how food insecurity and its change over years influence parenting in early childhood. The specific aim 2 was to understand the relationship of parenting in food-related and non-food-related settings with dietary intake of young children and the role of the child’s self-regulation in this relationship.

**Methods:** Data were from the Early Childhood Longitudinal Study – Birth Cohort. Parent-child dyads with non-missing outcomes were included into the analysis. Analyses were done separately for boys and girls. Regression models with full information maximum likelihood were used accounting for clusters in Stata. For the specific aim 1, the parenting outcomes were parent-child interaction, difficulty sticking with rules, harsh disciplinary practices, rules about watching television, rules about food, routines of eating evening meals as a family and at a
regular time in years 2, 4, and 5 whenever data were available. Each parenting outcome was first regressed on the earlier food insecurity and covariates, then additionally regressed on the concurrent food insecurity. For the specific aim 2, the child’s dietary outcomes were weekly frequency of intake of sugar-sweetened beverages, sweet foods and desserts, salty snack foods, fruits, and vegetables in year 5. Each child dietary outcome was regressed on food parenting variables at age 4 (i.e., rules about foods, and meal routines of eating as a family and at a regular time) and covariates. General parenting variables at age 4 (i.e., parent-child interaction, difficulty sticking with rules, harsh discipline, rules about watching television, and rules about bedtime), child difficulty in self-regulation at age 4, and their interactions were then added sequentially.

**Results:** For the specific aim 1, earlier food insecurity was associated with using harsh disciplinary practices in year 5, having rules about food in year 4, and having evening meals at a regular time in years 2 and 4 among parents of girls. Among parents of boys, earlier food insecurity was associated with having evening meals at a regular time in years 2 and 4. Concurrent food insecurity was associated with parenting in years 2 and 4 for boys and girls but not in year 5. The magnitude of the associations over years of earlier and concurrent food insecurity with harsh disciplinary practices, rules about food, and meal routines were mostly greater for girls than boys. For the specific aim 2, better food parenting practices at age 4 were associated with less frequent intake of unhealthy and more frequent intake of healthy foods and beverages in both boys and girls at age 5, with some differences by gender. General parenting practices at age 4 were associated with dietary behaviors differently for boys and girls. Difficulty in self-regulation at age 4 significantly modified the association between parenting practices and child’s dietary behaviors for boys (evening meals at a regular time and intake of sweet foods and desserts) and girls (parent-child interaction and intake of sugar-sweetened beverages; difficulty
sticking with rules and intake of sweet foods and desserts; rules about foods and intake of fruits and vegetables; and harsh discipline and intake of fruits).

**Conclusions:** In early childhood, earlier and concurrent food insecurity were linked with suboptimal parenting in structuring a general and food-related living environment for young children, particularly for girls and by the age of 5, through increased risks of using harsh discipline, lack of rules about foods, and irregular meal routines. Consistent and concurrent support to families at risk of food insecurity from infancy to kindergarten years is necessary to improve parenting in early childhood, especially for girls. Better food parenting and general parenting practices at age 4 were associated with children’s healthy dietary behaviors at age 5, and the child’s difficulty in self-regulation plays an important role in modifying this association, particularly in girls. Interventions to improve children’s dietary behaviors should target both parents and children to promote positive parenting in food and non-food settings and support children with difficulty in self-regulation.