



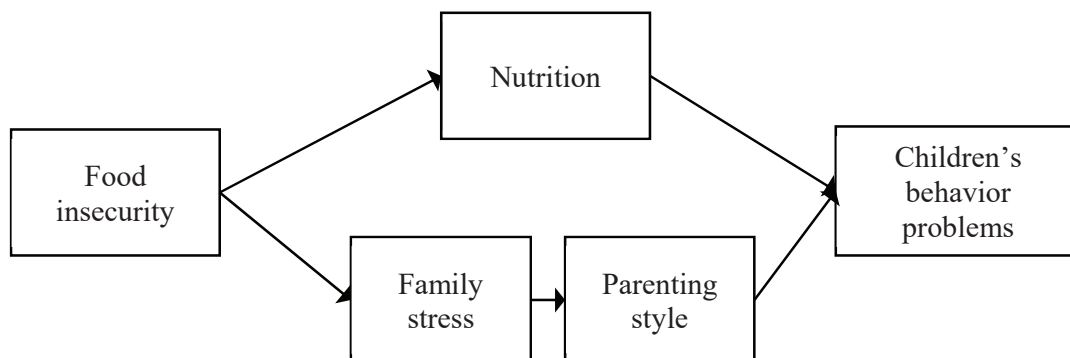
Nutrition, Family Stress and Preschool Children’s Behavior Problems

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Food insecurity refers to “limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.” Research has shown a widespread negative effect of food insecurity on children’s physical, cognitive and psychological functioning, including behavior problems. This study examines the causal impact of food deprivation on preschool children’s behavior and evaluates the mediating effect of nutrition and family stress model.

Scholars have used two theoretical perspectives to explain the impact of food insecurity on children’s behavior problems: (1) children’s nutrient intake and (2) family stress model. Food-insecure children may have diets that are high in fat, refined sugar and sodium, and low in fruit, vegetable, and fiber. High consumption of refined sugar and iron-deficiency anemia may be associated with hyperkinesia, inattention, and poor memory. In addition, food deprivation is an extreme stressor which may cause family conflicts among family members and affect parents’ feeling of hopelessness and depression. Depressed parents are more likely to show less warmth, more parental rejection, and use more harsh parenting practices which are detrimental to children’s behavior.



This study uses data from the Singapore Longitudinal Early Development Study (SG LEADS) conducted from 2018 to 2019. The survey covers 5,017 Singaporean children aged below 7 in Singapore (Yeung et al., 2019). The analytic sample includes 2,914 Singaporean children aged 3-6 at the time of the interview.

Children’s behavior problems were the main dependent variable. It consists of two dimensions: externalizing behavior problems (e.g., aggression, delinquency, and hyperactivity) and internalizing behavior problems (e.g., anxiety /depression and peer problems). Food insecurity was measured by whether the family had worried about the current food levels, the future food levels, and the capacity to afford balanced meals in the past 12 months (e.g., “I/We worried whether my/our food would run out before I/we got money to buy more”). Mediators included the children’s nutrient intake, whether the family can make ends meet at the end of the month, the level of family conflict, the primary caregiver’s depressive feelings, warm parenting, and punitive parenting.

Ten percent of the SG LEADS children experienced food insecurity at the household level. Propensity score analysis shows that exposure to food insecurity moderately increased the children’s externalizing behavior problems and internalizing behavior problems (the effect size of Hodges-Lehmann aligned rank test after full matching is 0.37 for externalizing behavior problems and 0.30 for internalizing behavior problems).

Next, we find that children’s nutrition intake and family stress indicators varied by food insecurity. Figure 1 shows that compare to food-secure children, food-insecure children showed a lower frequency of consuming these food groups every day (6-7 times) in a week: vegetable (28%), fruits(34%), meat(39%), seafood(23%) and milk(53%) (see Figure 1a). We also noted that food-insecure children consumed more processed and fast food and sugar-sweetened beverages. Around one-fourth to one-fifth of food-insecure children consumed instant noodle (21%), fast food (19%), and oily food (25%) 3 times or more a week, while the percentage was much lower for food-secure children (4%, 11% and 13% respectively, see Figure 1b). In addition, about half of the food-insecure children consumed sweetened beverages and sweetened or salted snacks three times or more a week compared to around 30% for food-secure children (see Figure 1b).

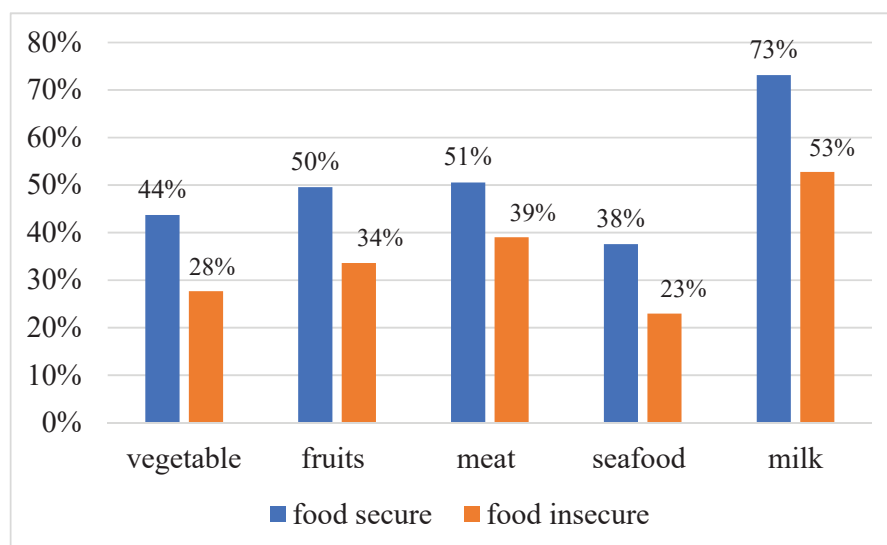


Figure 1a. Food intake (6-7 times a week) by household insecurity

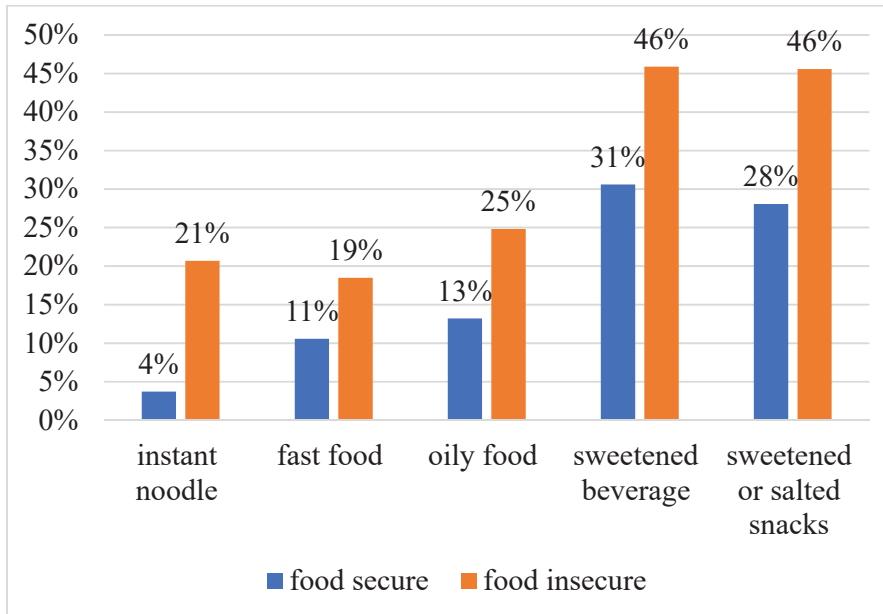


Figure 1b. Food intake (3-7 times a week) by household insecurity

We found the households that experienced food insecurity had higher family stress levels. Figure 2a shows that forty percent of children whose households were food insecure did not have enough money to make ends meet at the end of a month, while it was only 3% for the food-secure households. They also experienced a higher level of family conflict, primary caregiver’s depressive feelings, harsh parenting, and a lower level of warm parenting than their food-secure counterparts (see Figure 2b). All these differences are statistically significant.

Our multivariate regression analyses show that nutrient intake, family stress and parenting styles largely explained the association between food insecurity and children’s externalizing and internalizing behavior problems. Food-insecure children tended to have diets that are low in veggies and fruits and high in sugar-sweetened beverages, which was positively associated with children’s behavior problems. In addition, food insecurity was associated with more family conflict and a higher level of primary caregiver’s depressive feelings, which was positively linked to their harsh parenting and negatively with their warm parenting. Such family stress and parenting style were detrimental to children’s behavior.

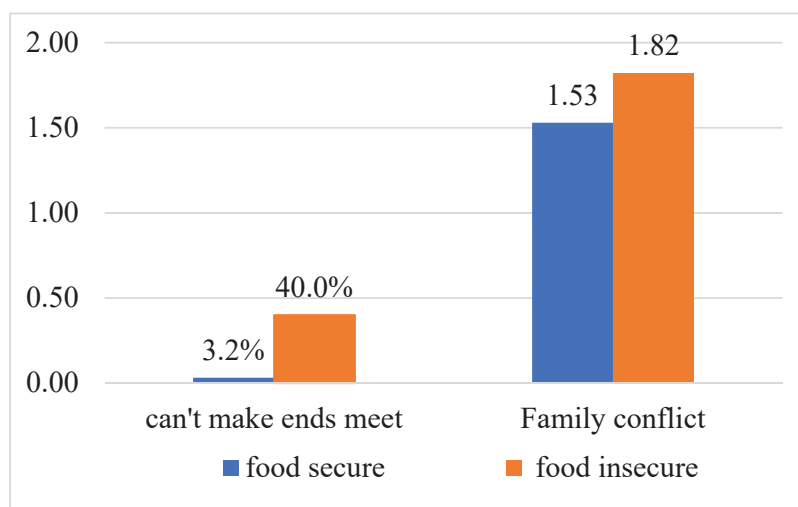


Figure 2a. Family stress by food insecurity

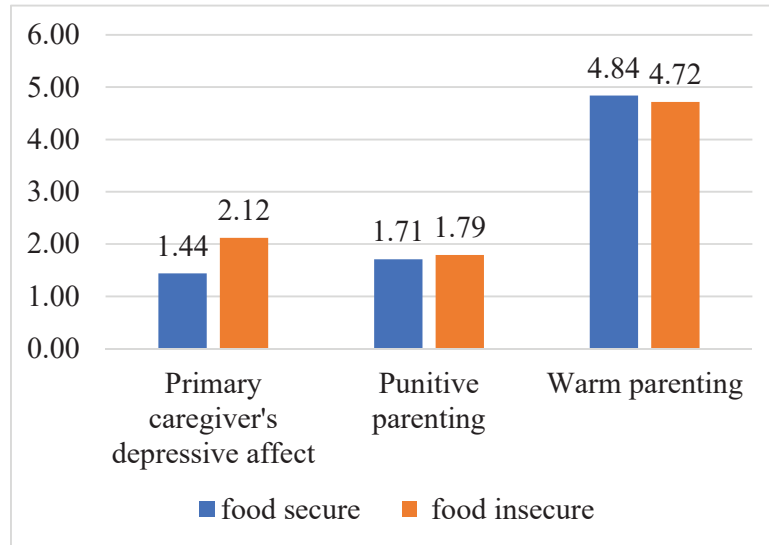


Figure 2b. Primary caregiver's depression and parenting by food insecurity

In sum, exposure to household food insecurity moderately increases young children's externalizing and internalizing behavior problems. We discover that food-insecure children tend to have diets that are high in sugar-sweetened beverages and low in vegetables and fruits, which in turn is associated with more behavior problems. Moreover, food deprivation contributes to increased family conflict and elevated primary caregivers' depressive feelings, which is associated with less parental warmth and more harsh discipline. Such parenting styles are detrimental to children's behavior.

This study sheds light on the intergenerational roots of disadvantages shown in early childhood. Net of family income and parental education, household food insecurity shows a negative impact on young children's behavior. Food insecurity has multidimensional impacts on child development, including physical health, mental health and cognitive development. Disadvantages shown in early childhood may accumulate over time and have a long-term impact on their adulthood life chances. Interventions during early childhood are needed to alleviate such intergenerational transmission of inequality.

Currently, the COVID-19 pandemic has caused the worst economic recession since the Great Depression. Parents may experience loss of job, reduced income and difficulties in paying utilities and bills, causing families to become food insecure. Therefore, we may also see a rise in children's behavior problems. It is essential to make food assistance available for families in need. More parent-based measures can also be implemented to reduce stress at home by offering job search and training, counseling services and support for parents to maintain healthy psychological well-being.

Reference

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Singapore Longitudinal Early Development Study (SG LEADS): <https://fass.nus.edu.sg/cfpr/sgleads/>