

Household Food Insecurity and Singaporean Preschool Children's Behavior Problems

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Singapore Longitudinal EARly Development Study

Objectives and Background

- **Objectives: whether household food insecurity has a causal impact on preschool children's behavior problems in Singapore? What is the mediating mechanism?**
- Singapore is ranked as the most food-secure nation in the world on the global food security index in 2019, while a recent study reveals that around 10.4% of Singapore households ever suffer from insufficient food in the 12 months (Nagpaul et al., 2020).
- Literature reveals that household food insecurity is detrimental to children's physical as well as mental health such as **behavior problems** (Kimbrow and Denney, 2015; Slack and Yoo, 2005). Food deprivation may affect **parents' depressive feelings**, which further impacts their **parenting styles** such as parental warmth, parental rejection, and harsh parenting (McLoyd, 1990; Pittman and Chase-Lansdale, 2001). Parenting style is associated with children's behavior problems (Elder et al., 1985; Yeung et al., 2002).



Singapore Longitudinal **EARly** Development Study

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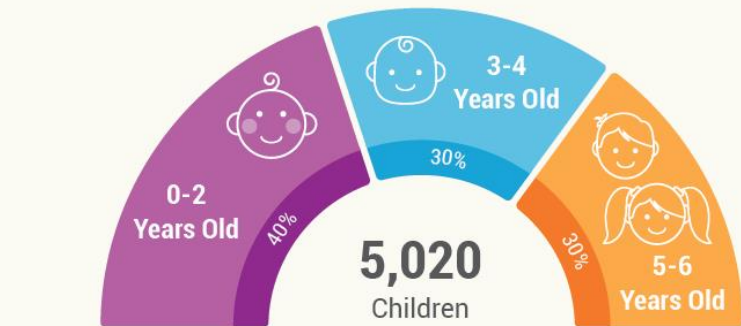
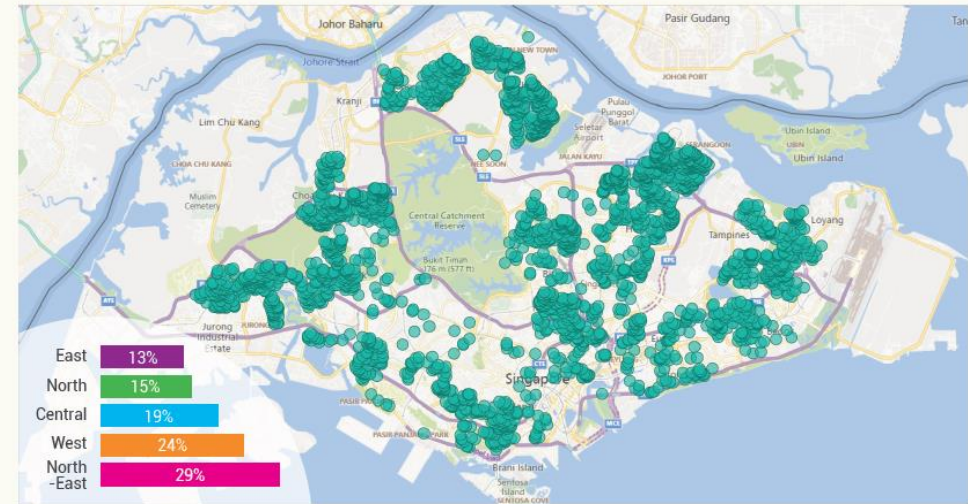
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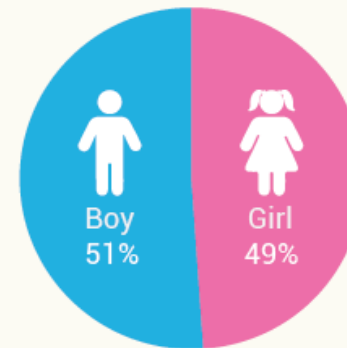
Wave I: 2018-2019

WHO ARE THE SG LEADS FAMILIES?

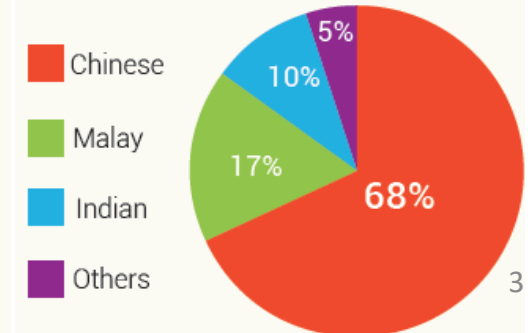
A nationally representative sample of **5,020** Singaporean children under 7 in **3,484** households across the island.



Child's Gender



Child's Race



Methodology

Variables

- **DV: Externalizing and Internalizing Behavior Problem Index (BPI)**
- **IV: Household food insecurity** was measured by three items capturing the families' worry about the current food levels, the future food levels and the capacity to afford balanced meals . (e.g., “I/We worried whether my/our food would run out before I/we got money to buy more”)
- **Mediators: The primary caregiver's depressive affect** (Kessler Psychological Distress Scale), **warm parenting and punitive parenting**
- Control variables: child's age, gender, ethnicity, children's health, primary caregiver's education, family income quartile, family economic pressure, family conflict and primary caregiver's self-control
- SG LEADS provides the **first nationally representative sample** of families with children aged 0-6 in Singapore. The survey adopted a **multi-stage stratified probability sampling** and oversampled low-income groups.
- Analytic Sample: SG LEADS wave 1 **children aged 3 to 6 (N=2,981)**.

Whether household food insecurity increase preschool children's behavior problems?

Table1. Results of OLS model and propensity score matching

Models	Estimated average treatment effect	Cohen's D
Externalizing BPI		
Model 1. OLS regression	0.172 ***	
Model 2. optimal matching (full) with Hodges-Lehmann aligned rank test	0.219***^a	0.301
Model 3. regressing difference-score of outcome on difference-scores of covariates after pair matching	0.102 ***^a	
Internalizing BPI		
Model 4. OLS regression	0.071 ***	
Model 5. optimal matching (full) with Hodges-Lehmann aligned rank test	0.065***^a	0.247
Model 6. regressing difference-score of outcome on difference-scores of covariates after pair matching	0.146 ***^a	

* p<.05, ** p<.01, *** p<.001

^a one-tailed test

Mediating mechanisms

Table 2. OLS Results of Externalizing Behavior Problems

	Model 1	Model 2	Model 3
Food insecurity	0.0722*** (0.0129)	0.0389*** (0.0128)	0.0396*** (0.0124)
Primary caregiver's depressive affect		0.135*** (0.0135)	0.0538*** (0.0133)
Punitive parenting			0.176*** (0.0128)
Warm parenting			-0.0657*** (0.0171)
Controls	Yes	Yes	Yes
Observations	2,897	2,897	2,897
R-squared	0.064	0.118	0.278

Model 1 and model 2 Controls include child's age, gender, ethnicity, children's health, primary caregiver's education, family income quartile, family economic pressure; Model 3 further controls for family conflicts and primary caregiver's self-control

Summary and Discussion

- The negative impact of household food insecurity has emerged at the **preschool period, regardless of the children's food-insecure status**.
- The household food insecurity exerts a negative impact through the **family stress process** on children's development.
- We expect that more households may **move into food-insecure status** both locally and globally amid the COVID-19 pandemic. However, due to **social embarrassment and unawareness of food support**, only a small proportion of food-insecure households have sought help (Nagpaul et al., 2020).
- Food insecurity is not simply hunger. Instead, it is a lack of choice and access to socially acceptable means of securing adequate food, which may foster a feeling of shame, frustration, hopeless and **a sense of exclusion** (Hamelin, Beaudry, & Habicht, 2002; Lorenz, 2012).
- Food insecurity is a fundamental and multidimensional obstacle to children's development. It affects children's physical health, as well as mental health. It is essential to make food assistance available to families in need.



Thanks for your
attention!

Mediating mechanisms

Table 3. OLS Results of Internalizing Behavior Problems

	Model 4	Model 5	Model 6
Food insecurity	0.0694*** (0.0136)	0.0482*** (0.0132)	0.0448*** (0.0130)
PCG's depressive feeling		0.0855*** (0.0116)	0.0341*** (0.0111)
Punitive parenting			0.0397*** (0.0113)
Warm parenting			-0.0686*** (0.0184)
Controls	Yes	Yes	Yes
Observations	2,897	2,897	2,897
R-squared	0.082	0.121	0.192

Model 4 and model 5 controls include child's age, gender, ethnicity, children's health, primary caregiver's education, family income quartile, family economic pressure; Model 6 further adjusts for family conflicts and primary caregiver's self-control