Food Insecurity and Early Childhood Development

Feeding a Healthy Future: Food Security and Human Capital Development

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Disclosure

- I have no actual or potential conflict of interest in relation to this program/presentation.
Overview

- About Children’s HealthWatch
- About Food Insecurity & Hunger
- How Food Insecurity Affects Child Health & Development
- Why We Have Food Insecurity
- What We Can Do About It
- Policy Solutions
About Children’s HealthWatch

• Non-partisan network of pediatric & public health researchers → research & policy center

• MISSION: Improve health & development of young children → public policies → alleviate family economic hardships
  • Hunger (Food Insecurity)
  • Unstable Housing (Housing Insecurity)
  • Trouble Keeping Heat or Lights on (Energy Insecurity)

• Provide policy makers and others with evidence to develop policies that protect young children’s health and development
Where our data come from:

Frontline health care settings:

- Boston, Baltimore, Philadelphia, Little Rock and Minneapolis

- Household survey
- Interviews - caregivers with children 0 to 4 years old
  - “invisible” group
  - critical window of time
“Food security—access by all people at all times to enough food for an active, healthy life—is one of several conditions necessary for a population to be healthy and well nourished.”

Questions Used To Assess the Food Security of Households in the CPS Food Security Survey

1. “We worried whether our food would run out before we got money to buy more.” Was that often, sometimes, or never true for you in the last 12 months?

2. “The food that we bought just didn’t last and we didn’t have money to get more.” Was that often, sometimes, or never true for you in the last 12 months?

3. “We couldn’t afford to eat balanced meals.” Was that often, sometimes, or never true for you in the last 12 months?

4. In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn’t enough money for food? (Yes/No)

5. (If yes to question 4) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

6. In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money for food? (Yes/No)

7. In the last 12 months, were you ever hungry, but didn’t eat, because there wasn’t enough money for food? (Yes/No)

8. In the last 12 months, did you lose weight because there wasn’t enough money for food? (Yes/No)

9. In the last 12 months did you or other adults in your household ever not eat for a whole day because there wasn’t enough money for food? (Yes/No)

10. (If yes to question 9) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

(questions 11-18 were asked only if the household included children age 0-17)

11. “We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food.” Was that often, sometimes, or never true for you in the last 12 months?

12. “We couldn’t feed our children a balanced meal, because we couldn’t afford that.” Was that often, sometimes, or never true for you in the last 12 months?

13. “The children were not eating enough because we just couldn’t afford enough food.” Was that often, sometimes, or never true for you in the last 12 months?

14. In the last 12 months, did you ever cut the size of any of the children’s meals because there wasn’t enough money for food? (Yes/No)

15. In the last 12 months, were the children ever hungry but you just couldn’t afford more food? (Yes/No)

16. In the last 12 months, did any of the children ever skip a meal because there wasn’t enough money for food? (Yes/No)

17. (If yes to question 16) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

18. In the last 12 months did any of the children ever not eat for a whole day because there wasn’t enough money for food? (Yes/No)
Pathways Through Which Food Insecurity Influences Child Health & Development

**Nutritional Pathways**
- Perinatal nutrition of mother and child, including internatal period
- Brain and cognitive development in the child (sensitive and vulnerable periods)
- Growth impacts (stunting, wasting, structural and system anomalies, endocrine system, obesity, oral health issues)
- Compromise of immune system functions (risks for infection-malnutrition cycle)
- Energy deficits
  - Compromised body temperature regulation
  - Reduced environmental exploration & learning

**Non-nutritional Pathways**
- Adverse impacts on the child’s and mother’s mental health (depression) and adult-child interactions (impaired responsiveness, serve and return)
- Impoverished home environment and lack of appropriate stimulation and nurturing support
- “Toxic stress” (repetitive, persistent or inescapable acute or chronic stress; e.g., child abuse, domestic violence, recurrent or persistent hunger, poverty & food insecurity(?))
- Delays in and/or deterrence of needed medical care
- Non-compliance with treatment, including Rx
A large body of evidence has linked food insecurity (FI) to a variety of bad health and development outcomes:

- FI is positively associated with hospitalization since birth, and a positive dose-response relationship found with fair/poor health status (Cook, et al., 2004)
- FI is positively associated with psychosocial indicators of perceived stress, trait anxiety, and depressive symptoms in pregnant women; indication of dose–response relationship with greater effects at more severe levels of FI (Laraia et al., 2006)
- FI is positively associated with low-birthweight births (Borders, et al., 2007)
Food insecurity is associated with adverse health outcomes in children & mothers (Cont’d)

✓ FI is negatively associated with initiation of breastfeeding and with duration if initiated (Zubieta, et al., 2006)

✓ FI is positively associated with Maternal PDS, fair/poor child health status, and child hospitalization. PDS also positively associated with reductions or loss of welfare and FSP benefits (Casey, et al., 2004)

✓ Child FI is positively associated with IDA in children aged 6–36 months (Skalicky, et al., 2006)

✓ FI is positively related to behavioral problems (aggressive, anxious/depressed, inattention/hyperactivity) in pre-school-age children (Whitacker, et al., 2006)

✓ FI positively associated with parental reports of developmental issues on the PEDS (Rose-Jacobs, et al., 2007)
Why We Focus on Children Ages <4 Years:

Neural Connections for Different Functions Develop Sequentially

Sensory Pathways (Hearing, Vision)

Language

Higher Cognitive Functions

Adult neural connections

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 30 40 50 60 70

Conception

Birth

Late Infancy/Toddler

Years

Puberty

Decades

Fetus

Source: Thompson & Nelson, 2000
Brain Architecture is “laid down” during the first three years of life. It consists of systems, subsystems, and neural pathways.

There are about 100 billion cells in the brain!
Toxic stress damages the brain architecture!

Stress - natural response to changes and challenges in our environment

- Stress can be mild, lead to important learning – we can learn from stress
- Moderate stress – can go either way, can learn from it, or can be harmful
- Toxic stress – chronic mild-to-moderate stress, or acute short term stress

➢ Toxic stress can damage the architecture of a child’s developing brain
The hypothalamic-pituitary-adrenal (HPA) axis is activated in response to stress - increases level of stress hormones (e.g., cortisol, adrenaline, ACTH) → help the body mobilize resources to respond to stress.

HPA axis activation – for example, by stress – also inhibits immune responses and increases susceptibility to infectious disease.

Toxic stress also affects development and calibration of the neuroendocrine-immune (NEI) network in the prenatal and early childhood periods.

Allostasis/allostatic load; cumulative wear & tear on body systems resulting from toxic stress; accumulation of stress hormone residue.
Animal research indicates that brain architecture is harmed by “toxic” stress, in part through dendritic resorption or loss of connecting dendrites.
Brain architecture is physical structure, interconnections, & neural networks

“Blooming and Pruning”

First 3 years, child’s brain will have twice as many synapses as it will in adulthood

Years 0-3 largely set trajectories:
- cognitive/socio-emotional development
- school readiness
- academic achievement
- educational attainment

Corel, 1975
# Why Child Health and Development Matters

## Earnings and unemployment rates by educational attainment

<table>
<thead>
<tr>
<th>Unemployment rate in 2014 (%)</th>
<th>Median weekly earnings in 2014 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>All workers: $839</td>
</tr>
<tr>
<td>6.0</td>
<td>All workers: $839</td>
</tr>
<tr>
<td>6.0</td>
<td>Less than a high school diploma</td>
</tr>
<tr>
<td>6.0</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>4.5</td>
<td>Associate's degree</td>
</tr>
<tr>
<td>3.5</td>
<td>Some college, no degree</td>
</tr>
<tr>
<td>2.8</td>
<td>Master's degree</td>
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<tr>
<td>2.1</td>
<td>Professional degree</td>
</tr>
<tr>
<td>1.9</td>
<td>Doctoral degree</td>
</tr>
<tr>
<td>All workers: 9.0</td>
<td></td>
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Evidence on Food Insecurity and Child Health; Recommended Research Review Articles


Reviews from ASN EB Symposium 2012 (Food Security and Health Across the Lifespan)


- In addition, all Children’s HealthWatch publications can be found at http://www.childrenshealthwatch.org/page/Publications
A very important recent study:


✓ By merging Ontario (Canada) food security data with administrative health care utilization and cost data, the intractable obstacle of adverse selection bias was virtually eliminated in this study, since health insurance is universally available in Ontario.

✓ The researchers come closer than any yet to demonstrating that food insecurity causes bad health outcomes, higher utilization of health care services, and higher health care costs.
Food insecurity and hunger are results of systemic failures, not individuals’ failures.
Campaign finance reform!

Keep the federal food assistance programs (SNAP, WIC, School Meals, CACFP, SFSP, etc.) strong and adequately funded
- Base maximum SNAP allotments on the Low-Cost Food Plan instead of the Thrifty Food Plan
- Increase the upper age limit for WIC from 5 years to 6 years
- Enable families to use EBT cards for the Summer Food Service Program

Resist the current Congress’ efforts to block grant SNAP, or any other food assistance program; block grant = program destruction.

Raise the minimum wage to the level of a living wage
Use the EITC & CTC to help make jobs pay living wages
Jobs programs that create jobs that pay living wages
➢ Improve access to child care for working families, either through the Child and Dependent Care Tax Credit (CDCTC) or other means.

➢ **Health care providers can screen all patients for food insecurity using the “Hunger Vital Sign” two-item screener, and record results in the patients’ EHR.**

➢ Strengthen the private food assistance system (the food bank networks, and the programs and agencies they serve) and encourage partnerships between these networks and health care providers (e.g., non-profit hospitals, community health centers).

➢ Strengthen health care providers’ partnerships with community service organizations and expand providers ability to connect patients/families to community services.
Engage, connect, participate, in building a strong, healthy public!

Think about your own children, and remember,

✓ Food is medicine, and we all need healthful food to fulfill our potential,
✓ We are all in this together, and each of us is dependent on all others,
✓ There is no us and them, there is only us,
✓ We either swim together, helping each other, or we all sink.
Thank You!

The mission of Children’s HealthWatch is to improve the health and development of young children by informing policies that address and alleviate economic hardships.

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