Poverty, Food Insecurity, and Childhood Obesity

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Food Insecurity is defined by low income.

- “Access by all people at all times to enough food for an active, healthy life.”
- Whether in the previous 12 months have not had enough food to eat because of lack of money.
87 out of 100 families with children were food secure in 1997, 85 out of 100 in 1999
13-15 percent of families with children are food insecure
Fewer than 4 percent are insecure with hunger. Children are usually protected.

- 2,258 families with children over the period
- Persistence = number food insecure in both years divided by the number insecure in 1997
- Entry = number who became food insecure between 1997 and 1999 divided by the number secure in 1997
• About 90 percent were food secure in 1997. Of these about 7 percent became insecure by 1999
• More likely to become food insecure if they were low income in both years.
Low Income and Becoming Food Insecure

- Low in 1997: 6
- Low in 1999: 8
- Low in Both: 23
- Low in Neither: 4

Bar chart showing the distribution of low income and food insecurity in the years 1997 and 1999.
• About 10 percent were food insecure in 1997. Of these about half were still insecure in 1999.
• If they became poor (twice the poverty line) between 1997 and 1999 they were more likely to remain food insecure than those never poor.
• But also those poor in both years were likely to remain food insecure.

Persistence
Low Income and Remaining Food Insecure

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1999</th>
<th>Both</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low in</td>
<td>21</td>
<td>59</td>
<td>59</td>
<td>40</td>
</tr>
<tr>
<td>Low in Both</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low in Neither</td>
<td></td>
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</tbody>
</table>
• Nine of ten families are food secure
• There is a small amount of movement into food insecurity, and a large amount of movement out
• Changed economic conditions are key to exit or persistence, once food insecure
• Low income is one of the main correlates of food insecurity
  ◦ Families that are persistently poor are likely to become food insecure; if they are food insecure and become poor, they are more likely to remain food insecure.
  ◦ About half of children are in a family that ever received SNAP, but only 1/5 are in a family receiving it for 5 years (Rank & Hirschl 2009)

The persistence of low income is critical to food insecurity
Low income and overweight?

A link has been found between low income and overweight for adults and may extend to children through the following mechanisms:

- Low-income children may eat a higher proportion of low-quality, high-fat food than children from higher-income families.

- Inadequate food may lead to binge eating when food is available.
Research on Poverty, Food Programs, and Childhood Obesity

1997 Child Development Supplement (CDS) to the Panel Study of Income Dynamics (PSID)

- Data for up to 2 children per household 6-12 years of age (N=1,268)
- Overweight defined as Body Mass Index (BMI) greater than 95\textsuperscript{th} percentile for child’s age and gender

- Detailed information on the income of the family, food expenditures, and food programs.

family size & structure, employment status, education, race

$ on food at home

$ on food eaten out

$ in Food Stamps

Food Consumption

BMI

Overweight

Childhood Weight

Family Income

School Lunch, Breakfast

Food Consumed

Family Income

$ on food at home

$ on food eaten out

$ in Food Stamps

School Lunch, Breakfast

Overweight

BMI

Childhood Weight

Family Income

$ on food at home

$ on food eaten out

$ in Food Stamps

School Lunch, Breakfast

Overweight

BMI

Childhood Weight

Family Income
Taking into account all sources of food:

- Children whose families are poor have the lowest expenditures on food – about $5,000 annually. So would not expect overweight.
- Food expenditures jump dramatically for the near poor (100-130% of poverty) – to $6,000 – then rise again above 300% of poverty
Percent overweight by income and whether eats a school lunch

- Poor
- Near poor
- Working class
- Moderate income
- High income

- Eats school lunch
- No school lunch

* Not enough cases (<20) to make a reliable estimate
### Multivariate Analysis: Regression coefficients for income groups

**With observed school lunch**

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Near poor</th>
<th>Working class</th>
<th>High income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child overweight</td>
<td>-0.81*</td>
<td>-0.08</td>
<td>0.02</td>
<td>-0.46</td>
</tr>
<tr>
<td>Child’s BMI</td>
<td>-1.23+</td>
<td>0.00</td>
<td>-0.21</td>
<td>-0.44</td>
</tr>
</tbody>
</table>

**With predicted school lunch**

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Near poor</th>
<th>Working class</th>
<th>High income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child overweight</td>
<td>-0.83*</td>
<td>-0.01</td>
<td>0.05</td>
<td>-0.56+</td>
</tr>
<tr>
<td>Child’s BMI</td>
<td>-1.27+</td>
<td>0.10</td>
<td>-0.17</td>
<td>-0.55</td>
</tr>
</tbody>
</table>

*p<.05  +p<.10  omitted group=moderate income
Lessons

• No simple linear relationship between income and child overweight.
  • Low income families do not have as much money to buy food; higher income families buy higher quality food. Children just above poverty have higher rates of overweight because they spend more money for (lower quality) food – with both subsidies and greater earned income. Need to understand more about quality of low and higher income family expenditures on food; also activities.
• Can’t extrapolate from parents to children; children protected.
• Need to examine total expenditures on food, not just single sources, such as SBP, NLP, SNAP, etc.
• Incorporate dynamics of poverty and food insecurity into research – many families are poor at one point in time, but not over longer periods.
• Critical periods? We know the fetal period is important. What about critical periods in childhood?