How is Food Insecurity related to Obesity?

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Sept 23, 2012
Today’s topics

- How and why is food insecurity monitored in the US?
- What are the relationships between food insecurity, diet quality, and health risks?
Food security: Food security for a household means access by all members at all times to enough food for an active, healthy life. Includes at a minimum:

- The ready availability of nutritionally adequate and safe foods.
- Assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).
History

- 1984—President’s Task Force report: “evidence of hunger in U.S. but unable to estimate extent of the problem”
- 1987—UC Berkeley conference: lack of problem definition a major impediment
- 1990—Am Institute of Nutr. publishes definitions of food security/food insecurity/hunger
- 1991–1992—Several groups publish research on food security instruments (Radimer et. al.; Wehler et. al.; Briefel)
- 1995—18-item Food Security Supplement administered in US
- 2006—National Research Council recommends that new methods for measuring hunger be developed
Food Insecurity as a “Managed Process”  
(Radimer et. al, J. Nutr. 120: 1544, 1990)

Food Secure

Household Food Insecure

Low Food Security = Adult Hunger (Moderate)

Very Low Food Security = Child Hunger (Severe)
Sample items:

- **Marginal level**: We were worried whether our food would run out before we got money to buy more: often true, sometimes true, or never true

- **Low food security**: Did you ever eat less than you felt you should because there wasn’t enough money for food?: yes, no

- **Very low food security**: Did any of your children not eat for a whole day because there wasn’t enough money for food?: yes, no
Important caveat: Only poverty-linked food insecurity and hunger are meant to be captured by food security instruments.
High food security = 0 positive responses: Means no problems
Marginal food security = 1–2 positive responses: Means anxiety but diet quality, quantity or variety not substantially affected
Low food security = 3–7 positive: Means low quality & variety of diet but little evidence of reduced intake
Very low food security 8–18 positive responses: Means multiple indications of disrupted food patterns and reduced intake
Partner Activity: Using the 18-item Food Security Instrument

U.S. households by food security status, 2011

- Food-insecure households: 14.9%
- Households with low food security: 9.2%
- Households with very low food security: 5.7%
- Food-secure households: 85.1%


http://www.ers.usda.gov
Why monitor food insecurity?

- Poverty and income measures do not account for local differences in housing and food costs
- Recent changes in the household (divorce, illness, etc) that affect food insecurity but are not reflected in yearly income
Food insecurity increased during the recession 2007–08


Prevalence of food insecurity, 2011

A Global Nutrition Index among 192 countries:

- Top 5 countries with both high nutrient deficiencies & obesity:
  - #1 Mauritania
  - #2 South Africa
  - #3 Samoa
  - #4 Lesotho
  - #5 Fiji

Access to food assistance can improve food security in the poor
Food Security of SNAP Recipients Improved Following the 2009 Stimulus Package

- Stimulus package of 2009 increased SNAP benefits & expanded eligibility
- SNAP participation & food spending increased
- Food insecurity dropped 2.2% in low-income hh

How is food insecurity related to nutrition/health outcomes?

- Food Insecurity
- HH Food Supplies
- Dietary Intake
- Health and Weight Status
Food insecurity lowers quality of the diet in immigrant populations

- Food insecurity in CA
  - Lower household supplies of fruit and vegetables—associated with lower intakes of these foods in children
  - Higher intake of fat, saturated fat, sweets, fried snacks among immigrant children

Kaiser et al JNEB 2003
How is food insecurity related to nutrition/health outcomes?

Food Insecurity  ↔  HH Food Supplies

Other Poverty-Related Factors (Unsafe neighborhoods, working conditions, education etc)

Dietary Intake  →  Health and Weight Status
Other pathways connecting food security and health outcomes

Food Insecurity → Parenting → Infant feeding (BF, solids) → Weight for length

Early Childhood Longitudinal Birth Cohort, n=8693
Food insecurity in the U.S. is associated with:

- Lower nutrient intakes/dietary quality—especially in adult women
- Psychosocial problems in children and youth
- Disordered eating patterns in women
- Self-reported “poor or fair” health
- Poor mental health/ depressive symptoms
- Obesity in adults, mainly women
- Overweight and obesity in children
Food insecurity: increases risk of chronic disease

- 21% more hypertension
- 64% more diabetes*

*after accounting for race, age, gender, income, education and body weight

Periods without enough food cause overeating when food is available.

Fluctuations in eating habits result in greater efficiency in use of energy.

Food insecure eat cheaper energy–dense foods.
Price of sweetened beverages ($/energy content in MJ)

- Tampico: $0.25
- Safeway Cola: $0.32
- Coke Classic: $0.44
- Welch’s Juice: $0.82
- Minute Maid OJ: $0.94
- Tropicana OJ: $1.08
- V8 Fusion: $1.49

Drewnowski and Bellisle, Am J Clin Nutr 2007:85: 651-661
Dependency on Imported Foods in the Territories
Why is it harder to find a link between food insecurity and childhood obesity?

- Children are relatively protected
- May be a problem with the way we measure food insecurity
- May take a long time for obesity due to food insecurity to emerge
About 40% experienced some degree of hunger during childhood
At least half expressed the desire to give their children more food, better quality food, foods they lacked in Mexico
People may eat less or reject foods they had to eat all the time
Some eat compulsively or go out to eat all the time

Kuyper, Espinosa-Hall et al, JNEB Dec 2006
“When people didn’t have enough to eat in their childhood, practically on looking at food, one automatically goes back to the time he didn’t. He feels the anxiety, the hunger, and says, ‘I didn’t have enough to eat, I am going to serve this child a huge plate’”

Kuyper, Espinosa, Hall et al, JNEB Dec 2006
Summary

- Food insecurity is associated with obesity in US adults—but hard to say if there is a "causal relationship"
- May be more important to research ways to improve food security and local access to a healthy diet