

The Relationship between Food Access, Food Insecurity and Obesity

Christine M. Olson, PhD
Professor



Cornell University
Division of Nutritional Sciences

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For a more comprehensive overview by Professor Olson on food insecurity go to the following web site:

<http://www.cornell.edu/video/?videoID=691>

<http://www.socialsciences.cornell.edu/0811/Video.html>

LSRO Definitions of Food Insecurity and Hunger

Food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain.

Hunger, in its meaning of the uneasy or painful sensation caused by a lack of food, is in this definition a potential although not necessary, consequence of food insecurity.

SOURCE: LSRO, FASEB. "Core Indicators of Nutritional State for Hard to Measure Populations," *J Nutr.* 120: 1575-76s 1990.

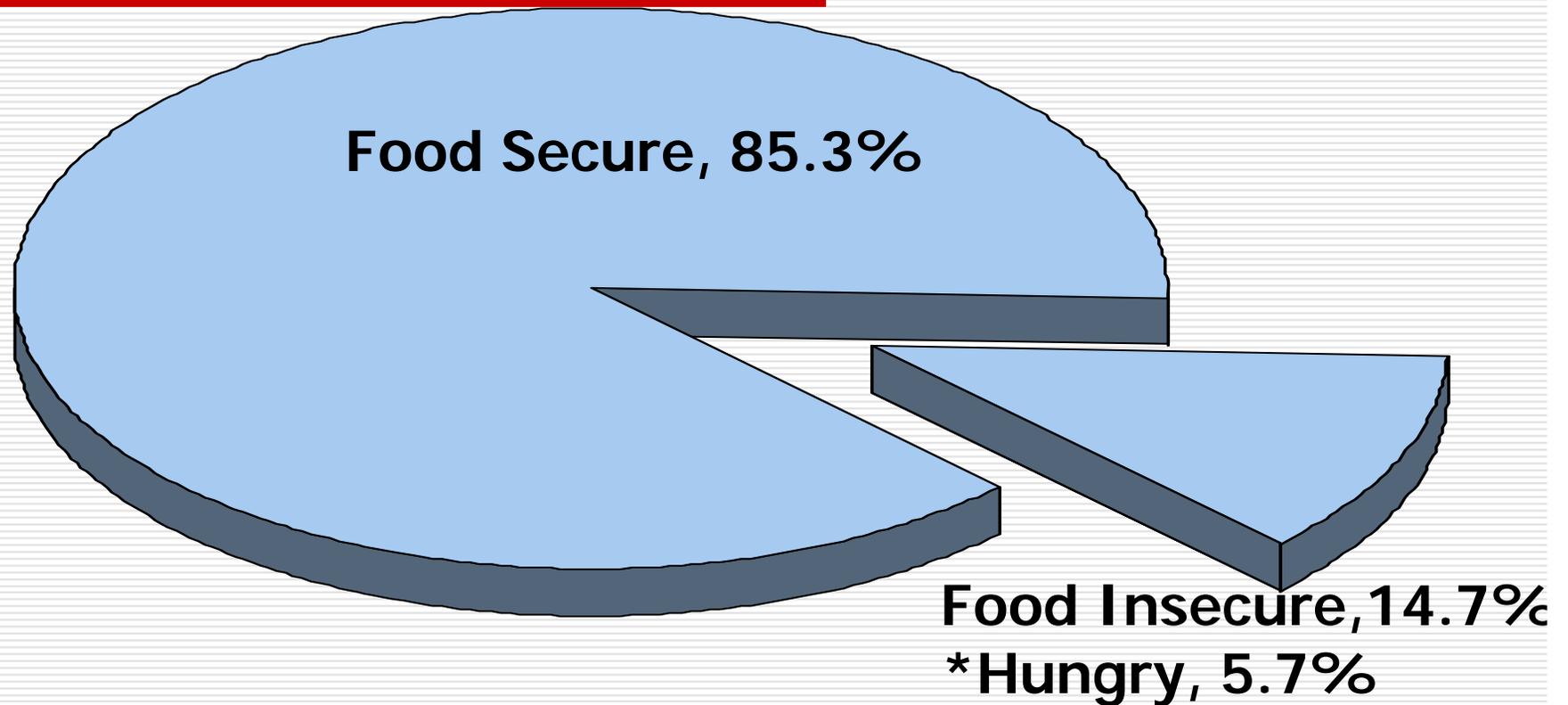
2009 PREVALENCE OF LOW AND VERY LOW FOOD SECURITY

Note change in terminology



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Prevalence of Food Security and Hunger in US, 2009



USDA, Economic Research Report, Nov. 2010

*Very Low Food Security = Hunger

RISK FACTORS (ANTECEDENTS)



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Being Poor Increases Risk of Food Insecurity

- Families with household incomes <185% poverty are 2.5 times more likely to be food insecure.
 - 43% of households <100% poverty are food insecure; 18.5% have very low food security*
- Unexpected life events that result in losses of family income or increases in expenses can result in food insecurity.

*From: Nord M et al. Household Food Security in the US, 2009. ERS Report Number 108, Nov. 2010.

Families with Children

- ❑ Families with children are more likely to be food insecure (21.3% vs. 11.4%).
- ❑ In 2009, 42.8% of households with children making <185% of the Federal poverty line were food insecure.

From: Nord M et al. Household Food Security in the US, 2009.
ERS Report Number 108, Nov. 2010.

CONSEQUENCES



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The Consequences of Food Insecurity

- Decreased food and nutrient intake and blood levels of nutrients
- Compromised health and cognitive achievement in children
 - Near and long-term implications
 - Near-term weight in children

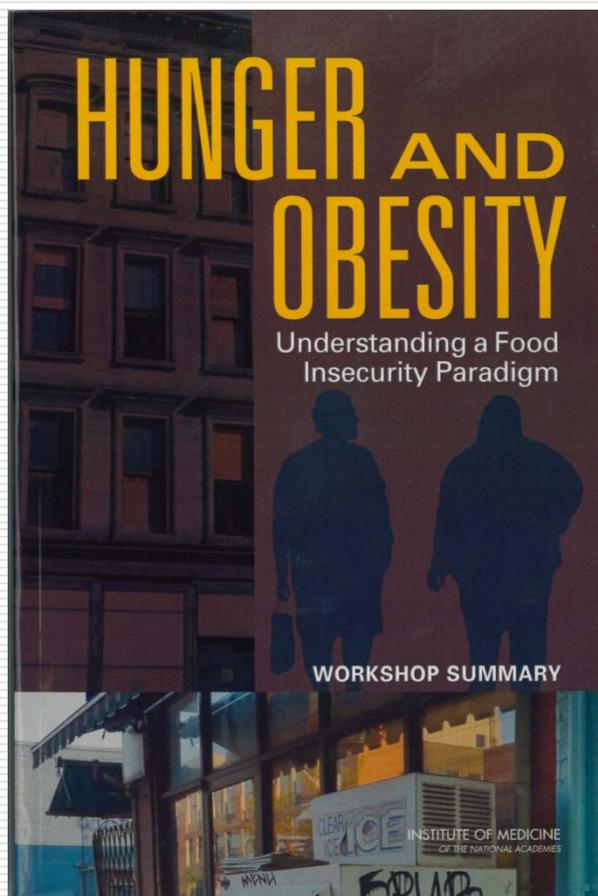
From: Pelletier D, Olson C, Frongillo E. *Present Knowledge in Nutrition*. 10th Edition. Forthcoming in 2011.

Consequences of Food Insecurity for Children – Weight (Near-Term)

- "...the majority of studies either found no evidence of a direct relationship between household food insecurity and weight status or found evidence indicating that children living in food-insecure households are less likely to be obese."

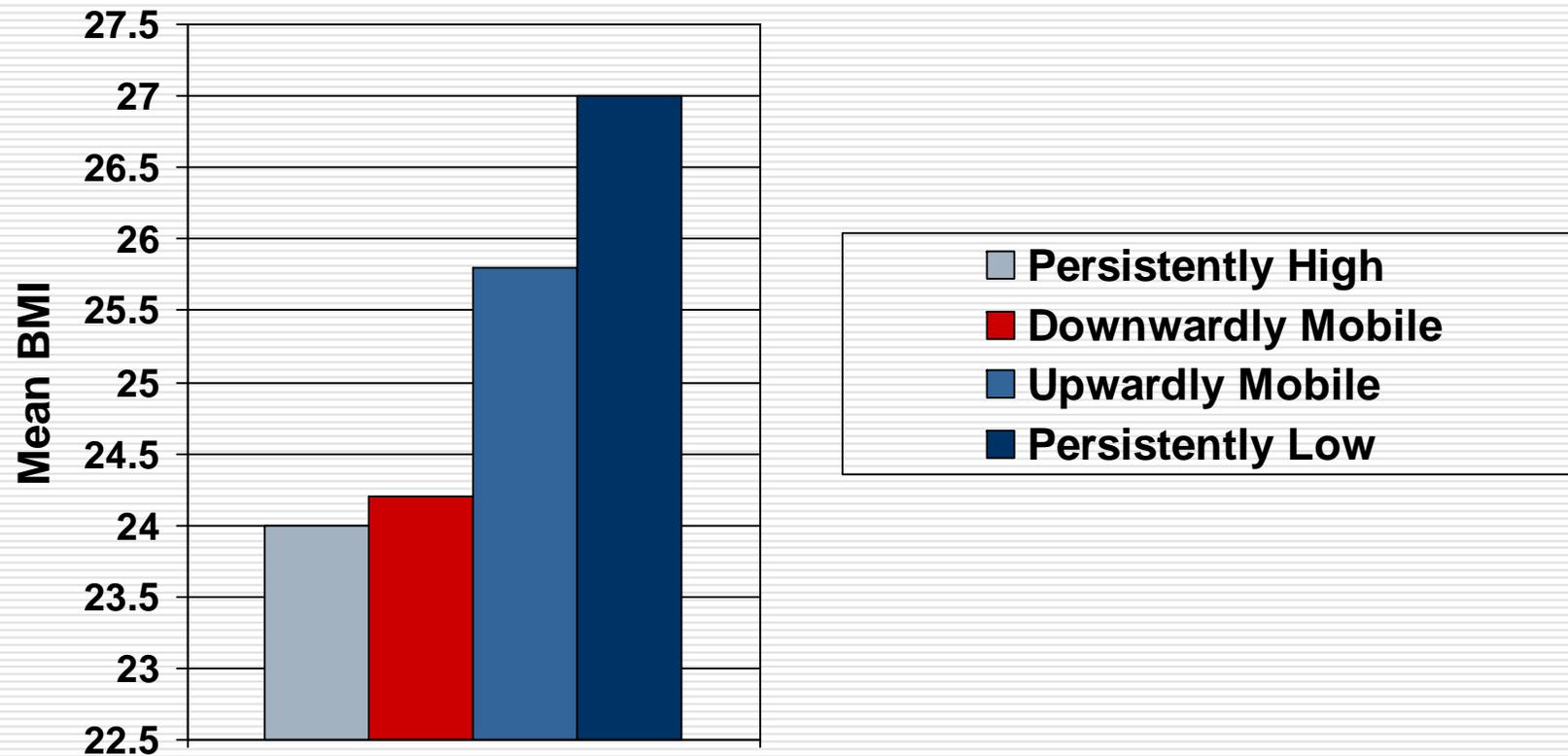
Larson NI, Story MT. Food insecurity and weight status among U.S. children and families. *Am J Prev Med* 40(2):166-173, 2011.

Consequences for Children – Weight in the Long-Term



- Life course perspective
 - Means the exposure and the outcome can be separated by time.
 - “A framework extending across the life course can help explain the long-term links among socioeconomic position, food insecurity and health.” p.71

BMI at 26 years by SES trajectories



From: Poulton et al. Lancet 360: 1640-1645, 2002.

Explanations

- ❑ Eating patterns that develop in childhood in the context of poverty and food deprivation may predispose individuals to obesity in adulthood
- ❑ Adult food insecurity and other life stresses may trigger a reversion to emotional eating patterns/overeating that lead to obesity

The Consequences of Food Insecurity (continued)

- ❑ Decreased food and nutrient intake and blood levels of nutrients
 - ❑ Compromised health and cognitive achievement in children
 - ❑ Inability to follow medically-prescribed diets in the elderly and others with chronic diseases
 - ❑ Increased risk of obesity in women, but not men or children
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Food Insecurity Leads to Obesity in Women

- 7 of 13 cross-sectional studies found food insecure women more likely to be overweight or obese
- Little evidence from longitudinal studies that food insecurity promotes weight gain over time

Larson NI and Story MT. *Am J Prev Med* 40 (2):166-173, 2011.

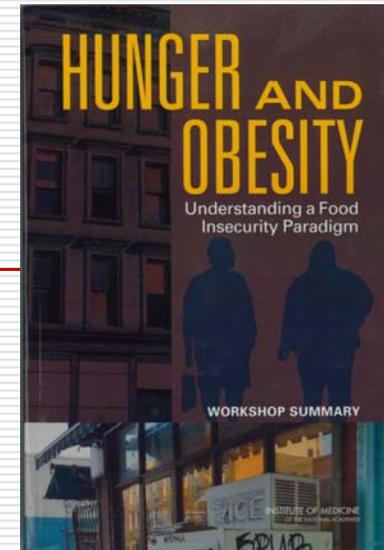
Weight of Sample by Food Insecurity Group, Means and Proportion Obese

Variables	Food Secure (N=90 (47%))	Hhold Insecure N=50 (26%)	Individ. Insecure N=33 (17%)	Child Hunger N=20 (10%)
BMI	25.6	28.2	25.5	25.9
Percent obese (BMI >29)	26	37	28	22

Olson. *Journal of Nutrition* 129: 521S-524s, 1999.

Food insecurity includes:

- Sufficiency of food
 - Nutritional quality of food
 - Availability of & access to food
 - Certainty of availability and access to food
 - Social and cultural acceptability of food
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1. Sufficiency of food

- Aspect of food insecurity that is shared with “hunger”
 - Source of the notion of the food insecurity-obesity paradox
 - Calories are the measure for sufficiency
 - Evidence for periodic low intakes at certain times of the month in women → deprivation → overeating when food available
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2. Nutritional quality of food

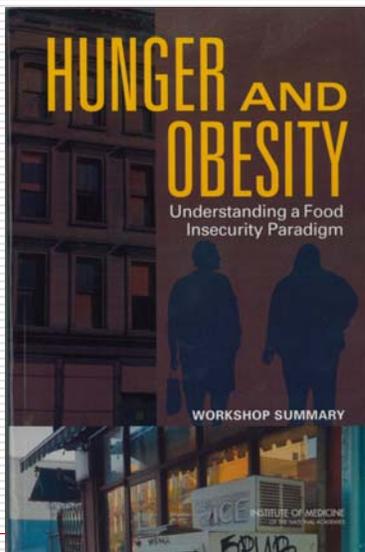
- ❑ Fruit and vegetable intake is consistently lower among women in food insecure households
 - ❑ Very few other differences
 - ❑ Little direct evidence to support notion of increased consumption of energy-dense foods at times of food insecurity
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3. Availability of and access to foods

- Availability – “4.1% of total US population live in a low income area more than a mile from a supermarket.”
- Access – “Access to all food, rather than lack of access to specific healthy foods, maybe a more important factor in explaining increases in obesity.”

4. Certainty of availability and access to food

- Volatility leads to distress/stress
 - Uncertainty related to poor outcomes across a spectrum of domains including feeding and health



See Chapter 9, Putting the Levels Together.
Comments by Pamela Morris.

Conclusions

- ❑ Food insecurity is multi-faceted concept that offers multiple avenues for links to obesity.
 - ❑ The most serious consequences of food insecurity related to weight are likely to be long-term and affect those who have the responsibility for managing household food supplies.
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Discussion

- ❑ Thank you for listening!
- ❑ Questions and comments



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