Food security and health: making the connections

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Defining food security

Food *security*:
access by all people at all times to enough food for an active and healthy life

Food *insecurity*:
uncertain or limited access to enough food for an active and healthy life

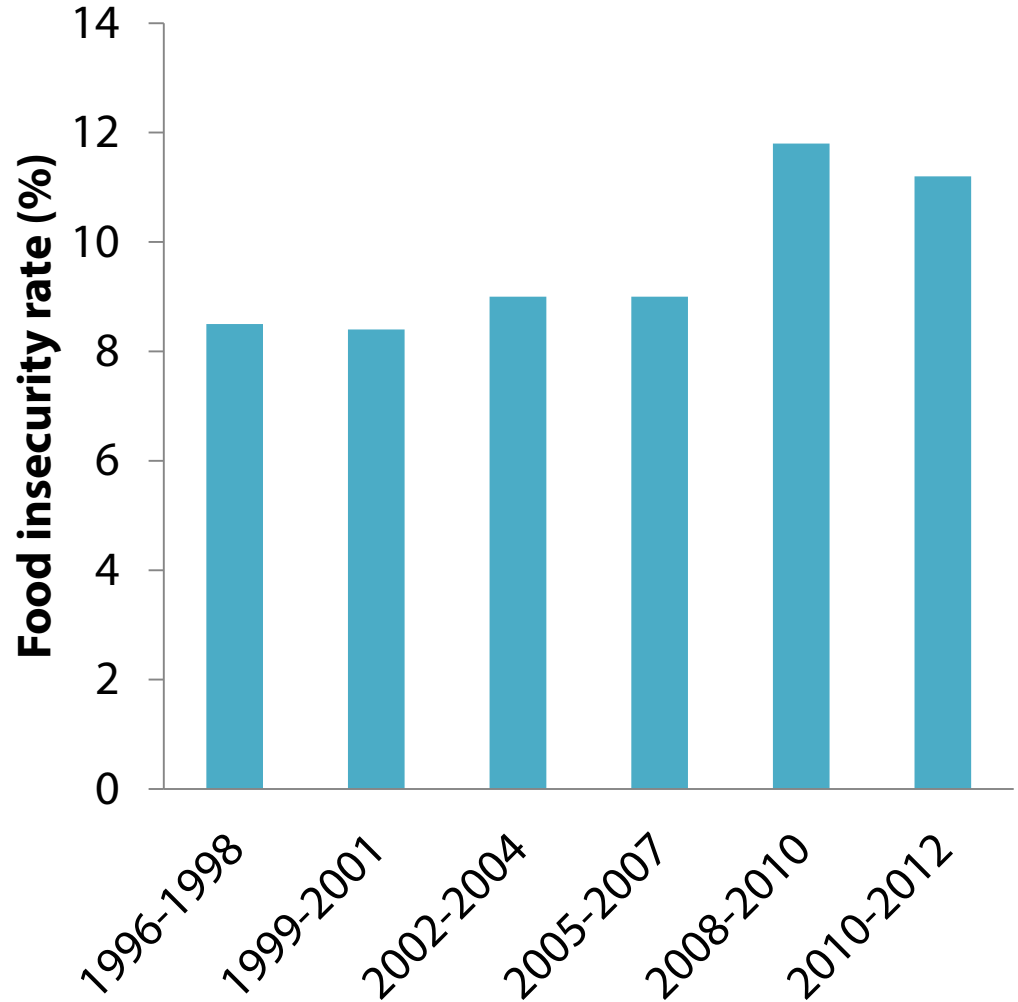Legend: Food secure · Low food security · Very low food security

Categories (top to bottom):
- Worried food would run out
- Food bought did not last
- Could not afford balanced meal
- Cut size of meal or skipped meal
- Cut or skipped meal in 3+ months
- Ate less than felt should
- Hungry but did not eat
- Lost weight
- Did not eat whole day
- Did not eat whole day, 3+ months

X-axis: Percent (0, 20, 40, 60, 80, 100)

Hunger is an individual-level physiological condition that may result from food insecurity.

Food Insecurity Trends in Wisconsin

- Food insecurity in Wisconsin increased by over 30% during Great Recession

- Trend is similar to nationwide, though Wisconsin rates are lower

- Data don't allow year-to-year trend

- Harder to learn about within-state variation

Prevalence of food insecurity, 2011

Category	Percent of households (visual bar chart)
All households	
Household composition	
With children < 18	
With children < 6	
Married-couples with children	
Single women with children	
Single men with children	
Other households with child	
No children	
More than one adult, no children	
Women living alone	
Men living alone	
Households with elderly	
Elderly living alone	
Race/ethnicity of head	
White non-Hispanic	
Black non-Hispanic	
Hispanic	
Other	
Income-to-poverty ratio	
Under 1.00	
Under 1.30	
Under 1.85	
1.85 and over	
Income unknown	
Area of residence	
Inside metropolitan area	
In principal cities	
Not in principal cities	
Outside metropolitan area	
Census region	
Northeast	
Midwest	
South	
West	

Percent of households (axis: 0, 15, 30, 45)

Who is at risk for food insecurity?

- Groups at higher-than-average risk of food insecurity nationally:
  - Households with incomes below FPL
  - Single headed households with children
 - Black households
 - Hispanic households

How Poverty Impacts Health
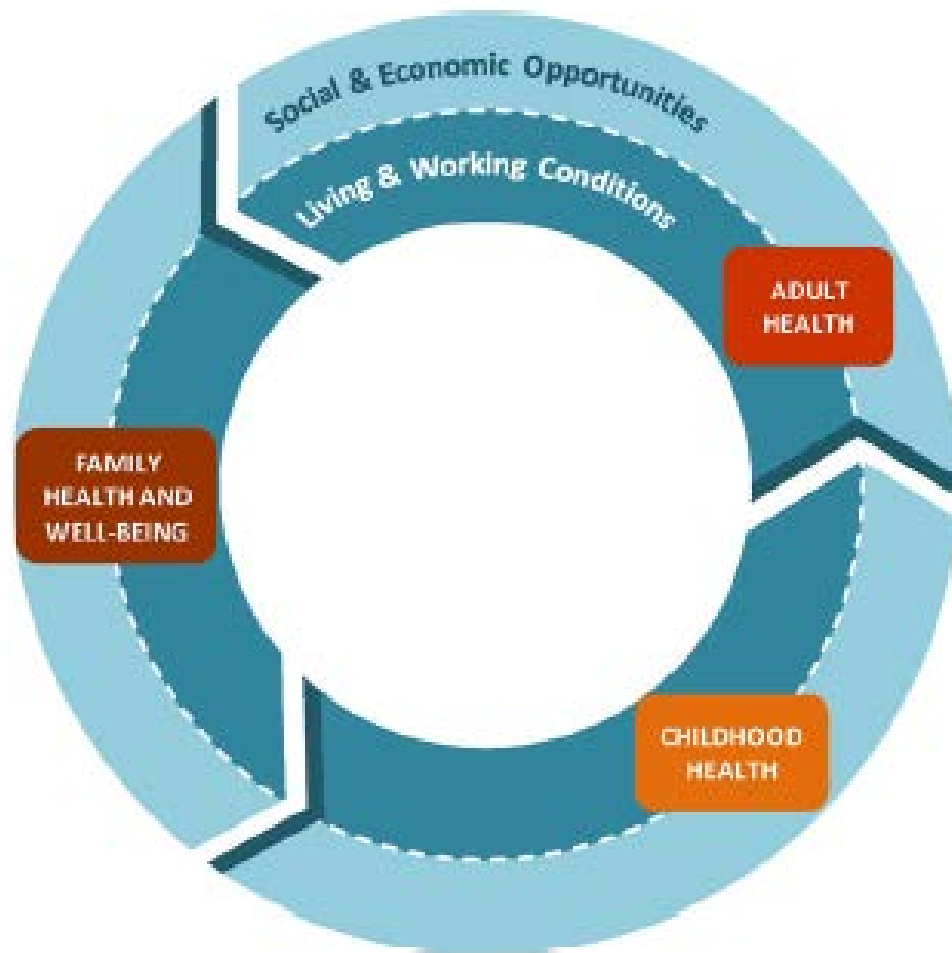
The cyclical effects of poverty

Figure 11. Health is transmitted by social factors across lifetimes and generations
Prepared for the Robert Wood Johnson Foundation Commission to Build a Healthier America by the Center on Social Disparities in Health, University of California San Francisco

Braveman et al / Am J Prev Med 2011;40(1S1):S4–S18
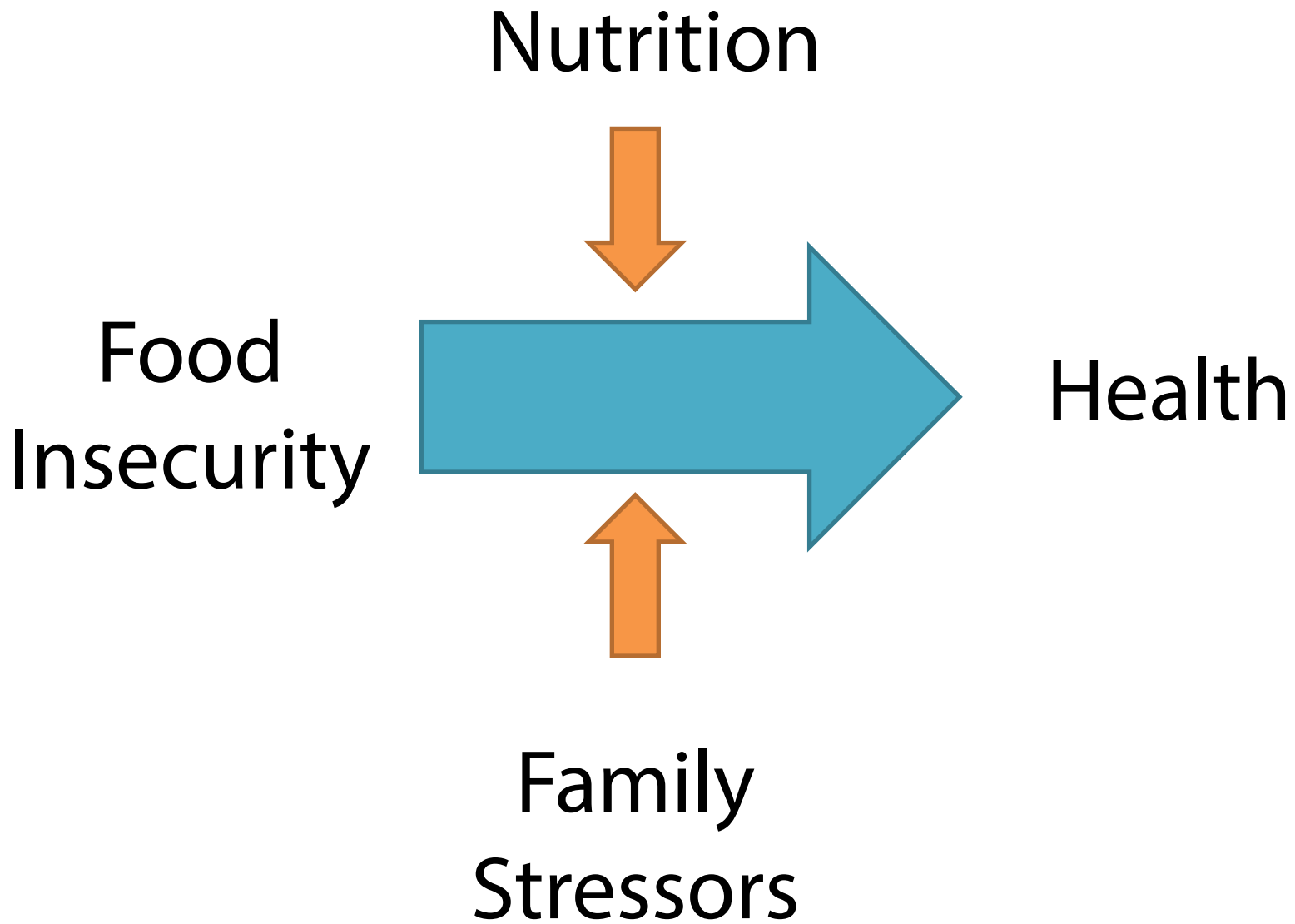
Connecting Food Insecurity to Health
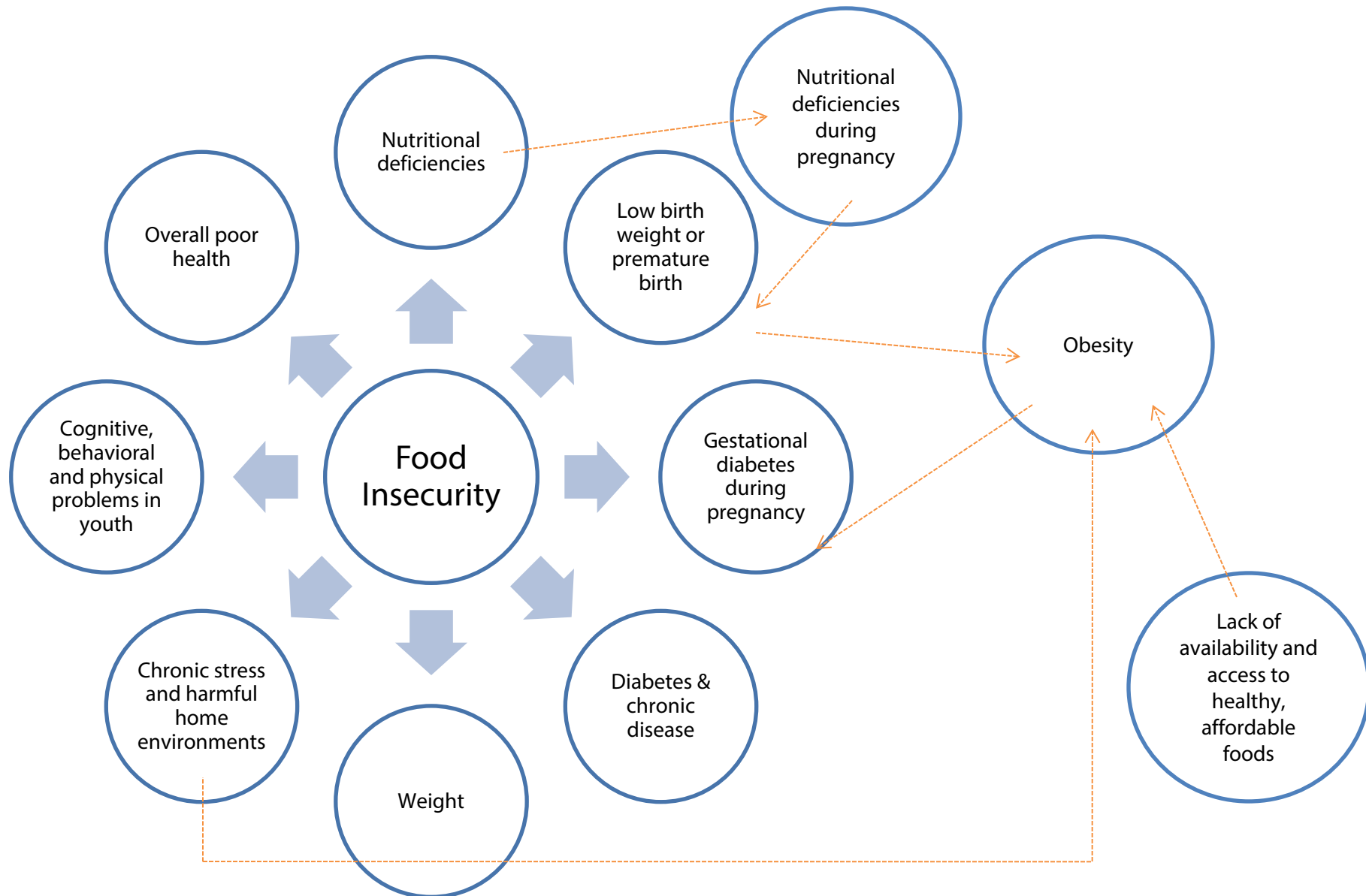
Food Insecurity, Child Health & Development

Children in food insecure households are more likely to:

- Have poor health (Cook et al., 2004; Weinreb et al.; Dunifon and Kowaleski-Jones, 2003; Alaimo et al., 2001)
- Pychosocial problems (Kleinman et al., 1998; Weinreb et al., 2002 Murphy et al., 1998; Casey et al., 2005)
- Frequent stomachaches and headaches (Alaimo et al., 2001)
- Behavior problems (Slack and Yoo, 2005; Whitaker et al., 2006)
- Worse developmental outcomes (Jyoti et al., 2005; Rose-Jacobs et al., 2008)
- More chronic illnesses (Weinreb et al., 2002)
- Impaired functioning (Murphy et al., 1998)
- Higher levels of iron deficiency with anemia (Skalicky et al., 2006; Alaimo et al., 2001)

Family Stress Model

Competing costs/expenses

Increased stressors

Impact on family dynamic
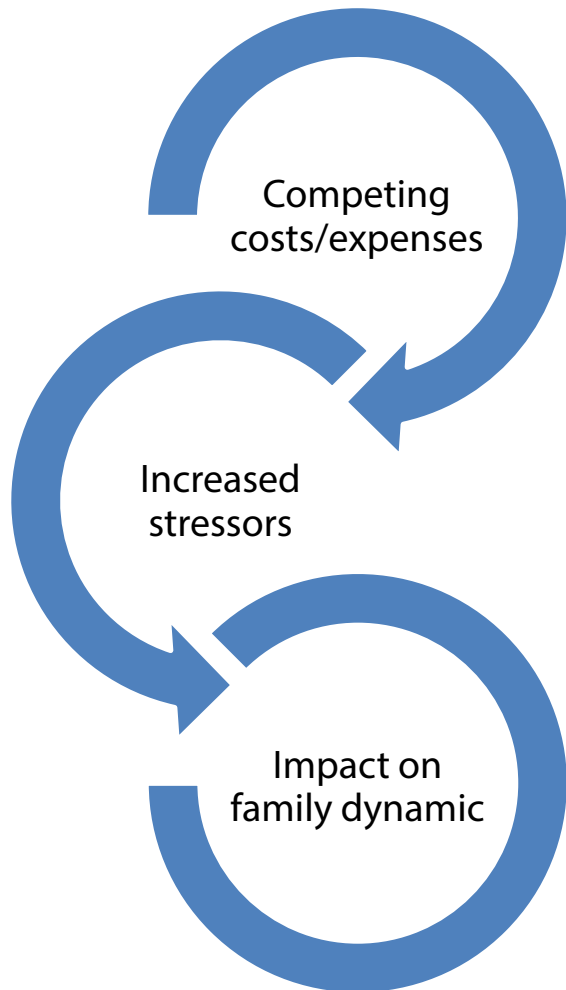
Healthy Families in Hard Times Report

Children with moderate hardship (v. those with no hardship) were:

- 11% more likely to be classified as well
- 21% more likely to be at risk for developmental delay

Children with severe hardship (v. those with no hardship) were:

- 35% less likely to be classified as well
- 120% more likely to be at risk of developmental delay

http://www.childrenshealthwatch.org/upload/resource/multiplehardships_report_jun10.pdf

Food insecure *and* obese?

- Growing body of literature primarily based on cross-sectional studies, limited availability of longitudinal studies
  - Difficult to determine causal relationship
- Most consistent findings suggest relationship of food insecurity and risk for obesity among **women**…children (mixed evidence) and adolescents (growing evidence)
  - Maternal stress/depression
  - Disruptive eating patterns (cycles of deprivation/overeating & sacrifice food supply)
  - Consumption of low-cost, poor-quality foods

Food Insecurity & Overweight/Obesity in Children

- Children in FISH greater risk for overweight BMI for 12-17 y/o, girls, white, and in households with income <FPL. NHANES 99-02 (Casey et al., 2006)

- Among 3-10 y/o, food insecurity and maternal stressors significantly linked to probability of being overweight. No association from 11-17 y/o. NHANES 99-02 (Gunderson et al., 2008)

- Food insecurity indirectly influenced 2 y/o overweight through parenting practices and infant feeding (Bronte-Tinkew et al, 2007)

- No associations found (Bhargava et al., 2008; Bhattacharya, et al., 2004; Feinberg., 2008; Gunderson et al., 2008; Gunderson et al., 2009; Kaiser et al., 2002; Martin et al., 2007; Rose et al., 2006; Whitaker et al., 2006; Winicki et al., 2003)

Critical Shared Risk Factors Among Obesity and Food Insecurity

- Social determinants of health
  - Poverty
  - Race/Ethnicity
  - Education Level
- Access to and availability of affordable, healthy food