Food Insecurity and Health Outcomes...

Does Food Access Really Make a Difference?
Food Insecurity and Health Outcomes...

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My Background

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Thank you, Mizzou!

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Objective

• To discuss food insecurity and health outcome research and identify potential solutions for improving food insecurity in the United States.
Food Access = Food Security

• An essential, universal dimension of household and personal well-being.
• All people at all times have access to enough food for an active, healthy life.
• This includes the ready availability of nutritionally-adequate, safe foods and the assured ability to acquire them in socially acceptable ways.

Source: Anderson 1990
Food insecurity is evident when...

...families or individuals:

– Lack access to food.
– Depend on food assistance programs.
– Skip meals.
– Substitute nutritious foods with less expensive alternatives.
– Seek assistance from soup kitchens and food pantries.

Source: Holben, 2010
Most recent data:

- 85.1% of American households (101.6 million) were food secure throughout calendar year 2011.
- 14.9% (17.9 million) of households were food insecure.
  - 9.2% (11.0 million) of households had low food security.
  - 5.7% (6.8 million) of households had very low food security.
  - These households were uncertain of having, or unable to acquire, enough food due to insufficient money or other resources.
2011-Household Food Security

Source: ERR-141; ers.usda.gov

U.S. households by food security status, 2011

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


U.S. households with children by food security status of adults and children, 2011

- Food-secure households: 79.4%
- Food-insecure households: 20.6%
- Food insecurity among adults only in households with children: 10.8%
- Food-insecure, children and adults: 10.0%
- Low food security among children: 9.0%
- Very low food security among children: 1.0%

Trends in prevalence rates of food insecurity and very low food security in U.S. households, 1995-2011

Prevalence rates for 1996 and 1997 were adjusted for the estimated effects of differences in data collection screening protocols used in those years.

2011-Household Food Security

Prevalence of food insecurity, average 2009-11

Source: Calculated by ERS based on Current Population Survey Food Security Supplemental data.
2011-Household Food Security

Prevalence of food insecurity, 2011


Prevalence of very low food security, 2011

Households At Risk

- Income < 185% of poverty level
- Female-headed with children
- Male-headed with children
- Black or Hispanic
- Living in central cities or rural areas
- Living in south or west

Sources: ERR-141; ers.usda.gov
Food insecure households...

- Used a variety of coping strategies.
  - Ate less varied diets.
  - Participated in Federal food assistance programs.
  - Obtained emergency food from community food pantries.

Sources: Holben, 2010; Holben, 2012
Consequences of Food Insecurity

- Physical Impairments related to insufficient food
- Psychological issues due to lack of access to food
- Sociofamilial disturbances

Source: Hamelin et al., 1999
Examples

• Physical Impairments related to insufficient food
  – Illness
  – Fatigue
Examples

• Psychological issues due to lack of access to food
  – Feelings of constraint to go against held norms and values
  – Stress at home
Examples

- Sociofamilial disturbances
  - Modification of eating patterns and related ritual
  - Disruption of household dynamics
  - Distortion of the means of food acquisition and management
Food insecurity is a barrier to positive health and nutrition outcomes.

Sources: Holben, 2010; Holben, 2012
Outcomes of Food Insecurity

Collectively, the literature shows that food insecurity has negative nutritional and non-nutritional outcomes and underscores the potential negative implications of food insecurity on US health care costs.
Food Insecurity and Chronic Disease

Lee et al., 2012

Adequate Food -> Food Shortage -> Food Shortage

Adequate Food -> Food Shortage -> Food Shortage

Dietary Compromise -> Accumulation of Fat -> Weight Gain
Overweight and Obesity

- Adult women in food insecure households are particularly at risk for overweight and obesity.
  - Binge-like eating pattern
  - Overeating when food is available
  - Consumption of empty-calorie, high-fat, and high-sugar foods

Sources: Holben, 2010; Lee et al., 2012; Olson, 2005
Adult Health and Chronic Disease

• Food insecurity is associated with:
  – risk and incidence of chronic diseases
  – poor diabetes management
  – chronic disease management
  – overall poor health status
  – depression
  – HIV Infection
Health Status

• Appalachian Ohio Pilot Study
  – To examine the relationship between household food security status and measures of functional health status.
  – Participants: 1,006 adults
    • Clinic setting (n=605)
    • Community setting (n=401)
  – Outcomes
    • Household food security (USDA measure)
    • Functional health and well-being (SF-36)

Funding: Ohio University.  

Pheley et al., 2002.
Health Status

• Appalachian Ohio Pilot Study
  – Functional health and well-being (SF-36)
  • Medical Outcome Study Short Form-36 (SF-36)
    – Survey (from Medical Outcomes Study, 1992)
    – 36 items representing an 8-scale profile (0-100 score)
      » Physical functioning
      » Role limitations because of physical health problems
      » Bodily pain
      » General health
      » Vitality
      » Social functioning
      » Role limitations because of emotional problems
      » Mental health

Pheley et al., 2002; Stewart & Ware, 1992; Ware et al., 1993.
Health Status

• Appalachian Ohio Pilot Study
  – Individuals living in food insecure households in a rural Appalachian Ohio community.
  • Poorer health status (physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, mental health, and role limitations due to physical problems) \( (p<.05) \).
  • Food insecurity was associated with poor health, even at minimal levels \( (p<.05) \).

Pheley et al., 2002.
• [Follow-up] Appalachian Ohio Study
  – To assess the relationship between household food security status and clinical measurements of several chronic health risks, including those that can contribute to obesity and diabetes.
  – Participants: 2,580 adults (community-based) (n=808, clinical health assessment)
  – Outcomes
    • Household food security (USDA measure)
    • Functional health and well-being (SF-36)
    • BMI, BP, Chol, Glu, HbA1c, Hgb

Chronic Disease Risk

• [Follow-up] Appalachian Ohio Study
  – Individuals living in food insecure households in a rural Appalachian Ohio community.
    • Clinical measures within recommended ranges and did not differ by food security status (BP, Chol, Glu, HbA1c, Hgb) ($p > .05$)
    • BMI was greater among participants from food-insecure households, especially among women ($p = .04$)

Chronic Disease Risk

• [Follow-up] Appalachian Ohio Study
  – Individuals living in food insecure households in a rural Appalachian Ohio community.
    • Those with HbA1c level > 7% (33.9%) were more likely to come from food-insecure households than respondents with HbA1c < 7% (22.5%) ($P = .053$).
    • Of the 2,504 who noted their diabetes status, 298 (11.9%) reported having diabetes.
      – People who reported having diabetes were significantly more likely to live in food-insecure households (37.9%) than in food-secure households (25.8%) ($P < .001$).

Obesity and Metabolic Syndrome

• US Children (12-18y) Study
  – To assess differences in adolescent obesity and metabolic syndrome by household food security using a nationally-representative cross-sectional survey.
  – Outcomes
    • Household food security (USDA measure)
    • BMI, Waist Circumference
    • LDL, BP, Glu, TG.

• US Children (12-18y) Study
  – No significant differences were existed in mean BMI-for-age percentiles by food security status ($p = 0.087$)
  – Adolescents from marginally food secure (MFS, 44%, Odds Ratio: 1.44 [1.12-1.87]) and low food secure (LFS, 44.0%, OR: 1.44 [1.13-1.84]) households were significantly more likely to present with a BMI >85th percentile than high food secure (HFS) households.

• US Children (12-18y) Study
  – Adolescents from HFS households had significantly lower mean central obesity than those from MFS and LFS households ($p < 0.001$).
  – MFS (52%, OR: 1.52 [1.08-2.15]), LFS (42.0%, OR: 1.42 [1.11-1.80]) and very-low food secure (VLFS, 51%, OR: 1.51 [1.10-2.08]) were significantly more likely to present with central adiposity than those from HFS households.

Obesity and Metabolic Syndrome

- **US Children (12-18y) Study**
  - Only those from HFS households had significantly higher HDL than children from LFS households ($p = 0.019$).
  - There were no significant differences in blood glucose, lipids, blood pressure or metabolic syndrome by food security category.

Potential Solutions

- Learn about food insecurity.
  - Incorporate food insecurity- and poverty-related concepts into professional and continuing education programs.
- Screen patients and clients.
  - Obtain food access and related information.
- Refer patients and clients to safety net programs.
Potential Solutions

- Collaborate with others to develop programs that improve food access and foster the skills needed to improve food security.
  - Economic self-sufficiency.
Community Resources
The ECOHIO GARDEN Project
The ECOHIO GARDEN Project – Principle?

• Underlying Principle of Program
The ECOHIO GARDEN Project—Why?

- Gardening has the potential to improve both produce intake and physical activity, two foundations of good nutritional health for sustaining the human capital of a community.

- When sustainable practices are used, gardening has the potential to positively impact the environment and enhance the local food system.
The ECOHIO GARDEN Project – Gardening Ed
The ECOHIO GARDEN Project

- Apply skills learned at the workshop
  - Community garden plot at the Athens Community Garden.
The Program

• Apply skills learned at the workshop
  – Fruit permaculture (permanently planted trees and shrubs) at hubs of activity within the community.

• Ohio Ecohouse, a university-owned residence that “demonstrates affordable green technology and sustainable living in order to inform, engage and inspire both residents and visitors”

• Athens Community Garden, Ohio University Child Development Center Children’s Garden, and other locations.

• Fruit permaculture will be maintained by the organizations where they are planted.
The Program

• Develop map of edible fruit trees and shrubs on municipal land will be conducted in partnership with an environmental studies graduate student and community food initiatives.
  – Fruit trees on municipal lands are untapped sources of nutritious food for community members.
  – Promote an increased awareness of the location and season of the fruit for picking and consumption.
Interventions/Projects

• Map
  – http://athensfruittrees.blogspot.com/
The Program

• Video of Fruit Tree Planting
  – http://www.youtube.com/watch?v=jOV5i-La13A&noredirect=1
Changing Bottom Line

Food insecurity is a barrier to positive health and nutrition outcomes...what can you do to make a difference?

Sources: Holben, 2010; Holben, 2012
Thanks!