Hunger and Obesity: A Continuing Conundrum

The Rudd Center for Food Policy and Obesity
Feb 5, 2013

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About Us

Gretchen Swanson Center for Nutrition

The Center is an Omaha based independent non-profit research organization providing nutrition research, evaluation and partnership in: childhood obesity prevention, food insecurity, and local food systems

www.centerfornutrition.org
www.facebook.com/centerfornutrition
http://twitter.com/GretchenSwanson
Research Areas

Food

Local economics

Nutrient availability

Community

Regional

Deserts access food

Insecurity foods

Prices hunger

Obesity
Overview

Obesity

Food Insecurity

The Food Insecurity and Obesity Connection
• **Adults:**
  – BMI between 25 and 29.9 = overweight.
  – BMI of 30 or higher = obese.

• **Causes & Correlates**
  – Environment
  – Genes and Family History
  – An Inactive Lifestyle
  – Socioeconomic Status
  – Health Conditions and Medicines
“Can Johnny come out and eat?”

Obesity has Changed our Social Norms
Obesity in the U.S.

- Coronary heart disease
- Type 2 diabetes
- Stroke
- Cancers
- High blood pressure
- High levels of triglycerides
- Liver and Gallbladder disease
- Sleep apnea
- Respiratory disease

Impact on Children

23 million children/adolescents


- White (non-Hispanic) boys
- White (non-Hispanic) girls
- African American (non-Hispanic) boys
- African American (non-Hispanic) girls
- Mexican American boys
- Mexican American girls

Percent

- 1976-1980
- 1988-1994
- 1999-2002
- 2003-2006

23 million children/adolescents
Food Insecurity - Overview

- Definitions
- Prevalence and Health Consequences
- Trends
Household Food Security

Food secure

- **High food security**: All household members have access at all times to enough food for an active, healthy life.

- **Marginal food security**: Household members are, at times, uncertain of having enough food because they have insufficient money and other resources for food. However, these households rarely need to reduce the quality, variety or quantity of their food intake.

Food insecure

- **Low food security**: Household members are, at times, unable to acquire enough food because they have insufficient money and other resources for food. These households report reducing the quality or variety of their diet, but rarely need to reduce their food intake.

- **Very low food security**: The eating patterns of one or more household members are, at times, disrupted and their food intake reduced because they couldn’t afford enough food.
Food Insecurity Indicators

Percentage of households reporting each indicator of food insecurity, by food security status, 2011

- 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

Percent

- Food secure
- Low food security
- Very low food security


Add up affirmative responses: “yes,” “often,” “sometimes,” “almost every month,” and “some months but not every month”

Food security status is assigned as follows:
- Raw score zero—High food security among adults
- Raw score 1-2—Marginal food security among adults
- Raw score 3-5—Low food security among adults
- Raw score 6-10—Very low food security among adults

### Food Insecurity - Definitions

<table>
<thead>
<tr>
<th>General categories (old and new labels are the same)</th>
<th>Detailed categories</th>
<th>Description of conditions in the household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food security</td>
<td>Old label</td>
<td>High food security</td>
</tr>
<tr>
<td></td>
<td>New label</td>
<td>No reported indications of food-access problems or limitations</td>
</tr>
<tr>
<td>Food insecurity</td>
<td>Food security</td>
<td>Marginal food security</td>
</tr>
<tr>
<td></td>
<td>High food security</td>
<td>One or two reported indications—typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake</td>
</tr>
<tr>
<td></td>
<td>Low food security</td>
<td>Reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake</td>
</tr>
<tr>
<td></td>
<td>Very low food security</td>
<td>Reports of multiple indications of disrupted eating patterns and reduced food intake</td>
</tr>
</tbody>
</table>

[Diagram with tables and conditions]
Food Insecurity Prevalence, Correlates and Outcomes

- In 2011 51.1 Million People (14.9%) in Food Insecure Households
- 8.2 Million Children Food Insecure

Food Insecurity

- Location
- Race-Ethnicity
- Poverty
- Education
- Family Size
- Sex
- Marital Status

Impact on Children

- Under-nutrition
- Developmental issues
- Cognitive issues
- Psychosocial issues
- Physical impairments
- Poor academic performance
The Intersect of Hunger and Obesity

1 billion hungry

1 billion overweight
Coexistence of Food Insecurity and Obesity

- Poverty
- Poor Education
- Marital Status
- Other Indicators of Socioeconomic Status

- Location
- Race/Ethnicity
- Non-Hispanic Blacks
- Blacks

- Food deprivation – overconsumption
- Nutrition deficiencies – weight gain
- Episodic food shortages - increased body fat

- Limited variety of foods
- Low cost high energy foods
- Fewer fruits and vegetables

Shared risk factors
Common Population Burden
Biological Mechanisms
Behavioral Mechanisms

Food Insecurity

Obesity

Poor Dietary Quality

Malnutrition
Hunger and Obesity Movements in Parallel

Become a Leader. Help kids choose healthy foods and be more active.
Obesity and Hunger: Which is more important?

**CNN:**
Global report: Obesity bigger health crisis than hunger
Obesity is a bigger health crisis globally than hunger, and the leading cause of disabilities around the world...

**The Times:**
Obesity kills more than hunger in march of ‘progress’
Obesity has become a bigger threat to global health than child hunger, according to a major study.

**Business Week:**
The Global Obesity Bomb
It may seem strange to be worried about too much food when the United Nations suggests that, as the planet’s population continues to expand, about 1 billion people may still be undernourished. Although there are good reasons to think the 1 billion estimate might be exaggerated, it is clear that hundreds of millions do still regularly go to sleep hungry.
<table>
<thead>
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<th>Page</th>
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<th>Authors</th>
<th>Journal</th>
<th>DOI</th>
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<tr>
<td>253</td>
<td>Opportunities to Reduce Childhood Hunger and Obesity</td>
<td>David S. Ludwig, MD, PhD; Susan J. Blumenthal, MD, MPA; Walter C. Willett, MD, DrPH</td>
<td><em>JAMA.</em> 2012;308(24):2567-2568. doi:10.1001/jama.2012.45420</td>
<td></td>
</tr>
<tr>
<td>361</td>
<td>First Foods Most: After 18 Hour Fast, People Drawn to Starches First and Vegetables Last</td>
<td>Brian Wansink, PhD; Aner Tal, PhD; Mitsuru Shimizu, PhD</td>
<td><em>Arch Intern Med.</em> 2012;172(12):961-963. doi:10.1001/archinternmed.2012.1278.</td>
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Children and Adolescents

- Evidence for a relationship between food insecurity and obesity from cross-sectional and longitudinal studies is mixed
**Adults**

- As seen in children, evidence for a relationship between food insecurity and obesity from cross-sectional and longitudinal studies is mixed.
  - Strongest relationship seen with African American women

[Image: http://fromhungertohealth.files.wordpress.com/2012/06/food-insecurity-poster-7202.jpg]
Potential Reasons for Lack of Evidence

- Mainly cross-sectional studies
- Not examining all the relevant factors in same study
- Measurement issues
Could we, should we.... compare?
Geographic Distribution - Obesity

(U.S. Adults *BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System (BRFSS, 2008)
Geographic Distribution - Food Insecurity

Household food insecurity 2008*

Below U.S. average
U.S. average
Above U.S. average
Geographic Distribution – Poverty

Percent of People Below Poverty Level in the Past 12 Months

Data Classes
- Percent
- 7.6 - 10.0
- 10.4 - 12.4
- 12.6 - 14.6
- 15.5 - 21.0
- 45.3 - 45.3

Features
- Major Road
- Street
- Stream/Waterbody

Source: U.S. Census Bureau, 2006-2008 American Community Survey
Geographic Distribution of Everything Else
Current Environment

In 1912...
• Walking 40 miles for water! (every week!)
• Active lifestyle at work (physical labor)
• Active lifestyle at home (playing, cooking, etc.)
• Smaller portions
• Unprocessed foods

In 2012...
• Drive to work
• Park close to the door
• Elevator to the office
• Sit while working
• Sit while at home (TV, Internet, etc.)
• Expanding portions
• Highly processed foods

Nutrition
• Expanding portion sizes
• Change in composition of diets
• Shift to commodity crops

Physical Activity
• Unsafe neighborhoods
• Urban sprawl
• Reliance of automobiles
• Technology
• Sedentary jobs
Hunger and Obesity within the Context of our Food System
1. Americans **don’t eat enough** fruits and vegetables.

Americans eat **far fewer** fruits and vegetables and **far more** refined grains and added sugars than recommended by USDA dietary guidelines.
2. American farmers could **grow** the additional fruits and vegetables we **need**.

U.S. agriculture could meet **increased demand** for fruits and vegetables by **growing more** of these healthy foods. The needed increase would be **small** compared to total U.S. farm acreage.

**TOTAL U.S. CROPLAND**  
(*433.5 MILLION ACRES*)

<table>
<thead>
<tr>
<th>CROPADJUSTMENTS</th>
<th>CURRENT ACREAGE</th>
<th>NEEDED INCREASE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRUIT</strong></td>
<td>3.5</td>
<td>4.1</td>
<td>7.6</td>
</tr>
<tr>
<td><strong>VEGETABLES</strong></td>
<td>6.5</td>
<td>8.9</td>
<td>15.3</td>
</tr>
</tbody>
</table>
3. Increasing fruit and vegetable production could bring **important benefits** to local economies.

Increased public support for local food systems would have a **significant positive impact** on job creation in regional economies. It would also make it **more possible** for Americans to eat **enough fruits and vegetables** to meet the USDA’s dietary recommendations.

▲189,000 **NEW JOBS IN LOCAL FOOD SYSTEMS**

▲$9.5 billion **INCREASED SALES OF HEALTHY FOOD**
Issues with the current food system

• Cheap food policy
  – Large scale industrial agriculture → highly processed food bread for quality other than nutrition (e.g., pesticide resistant)

• Need for local and sustainable food systems
  – Environmental, animal and labor concerns
  – Local economies and consumer-producer relationships
  – Food security (e.g., EBT at farmer’s markets)

• Need for younger people in agriculture
  – For every one farmer and rancher under the age of 25, there are five who are 75 or older
Cheap Food Policy

• Foods eaten are shaped by surroundings
  – food parents provide for their children, distance to nearest grocery store or fast food, subsidies for farms, etc.

• Food deserts provide fewer healthful options
  – People tend to choose less healthful options due to abundance of fast food and scarcity of healthful, filling food options.

http://www.jlgo.org/food-deserts
Community Food Security

- A situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice

http://foodsystems.msu.edu/resources/overview.php
Pressing Issues

Convenience-Cost Tradeoff

Convenience

• Decrease Portion Sizes
• Packaging Solutions
• More “Grab and Go” for Healthier food Options

Cost

• Reformulation of Products
• Decrease price for Healthy and Increase for Unhealthy Foods

Taste

• Keep Taste and Good Nutrition in Mind
• Make Gradual Shifts

Taste-Nutrition Tradeoff

Nutrition Knowledge

• Provide Understandable Food Labels
• Increase Knowledge of Recommendations
• Teach People to Cook

Over-consumption of Calorie Dense Food

Short-term food deprivation

The experience of food insecurity, and periods of deprivation, may change how individuals consider these tradeoffs and their subsequent food choices.

Levers for Change - Physical

MACRO
Modify agricultural, housing, transportation, and social policies that influence food production and distribution

MICRO
Food retailers and food service outlets determine local healthy options.

http://tlc.howstuffworks.com/home/community-garden.htm
Economic

MACRO

Offer monetary incentives for healthy food options (e.g., subsidies) and disincentives for unhealthy options (e.g. taxes).

MICRO

Institutional financial support for health promotion and nutrition programs; financial support for support local food production.


http://www.scientificamerican.com/media/inline/fresh-fruit-hold-the-insulin_1.jpg
Levers for Change - Political

Promote agricultural, social, and food security and nutrition policy informed by obesity prevention science.

Institutional rules and policies influencing availability of healthy food options.

Political

MACRO

MICRO

Levers for Change – Socio-cultural

Socio-cultural

Food marketing and advertising environment in economically disadvantaged areas to promote health and prevent obesity

MACRO

Institutional climate around nutritious eating and healthy body weight maintenance.

MICRO

Call to Action

Policy Interventions
- Agricultural Policy
- Transportation Policy
- Poverty Policy
- Food Policy

Mass Marketing Campaigns
- Resource awareness campaigns
- Educational campaigns

Programs through National Organizations
- Increase participation in Food Assistance (e.g., SNAP)

Community-wide engagement
- Promote food system participatory planning (Food Policy Councils)
- Promote food democracy/social justice (EBT at Farmers Market, Double Up Food Bucks)

Groups working together (e.g., church, schools)
- Farmers Markets, community gardens, or mobile carts or trucks that sell fruits and vegetables.

Individually tailored programs
- Education/skill building
“Progress does not compel us to settle centuries-long debates about the role of government for all time – but it does require us to act in our time. For now decisions are upon us, and we cannot afford delay. We cannot mistake absolutism for principle, or substitute spectacle for politics, or treat name-calling as reasoned debate. We must act, knowing that our work will be imperfect.”
POVERTY LINKED TO OBESITY

OBESITY LINKED TO HIGHER HEALTHCARE COSTS, SYSTEM DEMANDS

POVERTY IS EXPENSIVE. I DON’T THINK WE CAN AFFORD IT.
Acknowledgements

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Questions?

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