

“Study Designs and Analytic Strategies for Environmental and Policy Research on Obesity, Physical Activity, and Diet”

April 8, 2008, Washington, DC

Research status and gaps related to environment, policy, and nutrition

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A. A Review of Reviews

1. What the reviews focus on

1988-2008

Mostly US, Australia, Canada, UK

Narrative to semi-quantitative

2. What the reviews tell us about

Many definitions of food and nutrition (FN) environments/policy

Various endpoints, measures

3. Research designs and data sources

Studies without people

Spatial analyses

Census data

Observations/analyses of environments (e.g., price, availability)

Archival/records data

Policy analysis

Combinations and linked data

Studies with people

Surveys, Interviews

Anthropometric assessments (few)

Observations (few)

Studies linking non-human-subjects data

Experiments

B. What we know from available research

1. Robust findings

- ❖ Low SES and minorities have poorer FNE's
- ❖ Rural FNE's are limited
- ❖ Restaurant point-of-choice information works (short-term)

2. Emerging findings

- ❖ Environment-diet quality associations
- ❖ Environment-BMI associations
- ❖ Limited healthful eating-out FNE's
- ❖ Policy implementation varies

3. Uncertainties/Insufficient evidence

- ❖ Time trajectory for diet & health improvement
- ❖ Environments vs individual factor effects?
- ❖ Interventions to improve energy balance

C. Research in progress (NIH, USDA, RWJF/HER):

- More multi-level studies
- Multi-method studies in disadvantaged populations
- Policy analyses: implementation, acceptability, impact

D. Recommendations for Future Research

1. Things we have enough of (when not combined with other methods):

- Research to tell us that food is ubiquitous
- Observational, cross-sectional studies → except as formative research
- Studies documenting socioeconomic and racial disparities

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2. Things we need more of:

Studies designs that...

- Contrast key determinants, covariates, outcomes
- Test alternative explanations
- Are multi-level studies
- Help sort out individual vs environment determinants

Studies that focus on...

- Portion size
- Food + activity elements of energy balance

Advances in measurement and analysis:

- Better reporting and standards for measures and analysis
- Well defined, reliable, valid measures of environments
- Metrics to determine required sample sizes
- How much environmental change is needed to improve health?
- How long do environmental changes take to improve health?

3. Issues and research gaps:

Sugary sodas and Fast-food restaurants

- ❖ Is soda the culprit? Or all sugar-sweetened beverages?
- ❖ Are FFR's to blame? Or too much eating out?

Environmentally friendly food environments

- ❖ Locally grown, sustainable packaging, gardening
- ❖ Good for the environment? Good for health?

4. Natural experiments: considerations

- ❖ Plausibility of hypotheses/effects (e.g., will one supermarket reduce obesity?)
- ❖ Time and geographic links
- ❖ Does the intervention 'happen'?
- ❖ Industry, government, organizational partnerships and access to data
- ❖ Contingencies

Review articles on Food and Nutrition Environments and Policies

RESEARCH ON ENVIRONMENTAL CORRELATES AND DETERMINANTS

Black JL, Macinko J. Neighborhoods and obesity. *Nutrition Reviews* 2007; 66: 2-20.

French SA, Story M, Jeffery RW. Environmental influences on eating and physical activity. *Annual Review of Public Health*, 2001; 22: 309-335.

Giskes K, Kamphuis C, van Lenthe FJ, Kremers S, Droomers M, Brug J. A systematic review of associations between environmental factors, energy and fat intake among adults: is there evidence for environments that encourage obesogenic dietary intakes? *Public Health Nutrition* 2007; 10: 1005-1017.

Glanz K, Sallis JF, Saelens BE, Frank LD. Healthy nutrition environments: concepts and measures. *Am J Health Promot* 2005;19:330-4.

Jones A, Bentham G, Foster C, Hillsdon M, Panter J. Obesogenic Environments Evidence Review. *Foresight Tackling Obesity: Future Choices project*. United Kingdom, 2007.

Kamphuis C, Giskes K, Wemde;-Bos W, de Bruijn GJ, Brug J, van Lenthe F. Environmental determinants of fruit and vegetable consumption – a systematic review. *British Journal of Nutrition* 2006; 96: 620-635.

Papas M, Alberg AJ, Ewing R, Helzsouer KJ, Gary TL, Klassen AC. The built environment and obesity. *Epidemiol Rev* 2007;29:129-43.

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Richter KP, Harris KJ, Paine-Andrews A, et al. Measuring the health environment for physical activity and nutrition among youth: A review of the literature and applications for community initiatives. *Prev Med* 2000;31:S98-S111.

Sallis JF, Glanz K. The role of built environments in physical activity, eating, and obesity in childhood. *Future of Children* 2006; 16:89-108.

INTERVENTION RESEARCH AND POLICY EVALUATION

Glanz K, Hoelscher D. Increasing fruit and vegetable intake by changing environments, policy and pricing: restaurant-based research, strategies, and recommendations. *Prev Med*. 2004; 39 Suppl 2:S88-S93.

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Glanz K, Mullis RM. Environmental interventions to promote healthy eating: a review of models, programs, and evidence. *Health Educ Q*. 1988 15:395-415.

Glanz K, Yaroch AL. Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. *Prev Med*. 2004; 39 Suppl 2:S75-S80.

Mayer JA, Dubbert PM, Elder JP. Promoting nutrition at the point of choice: A review. *Health Education Quarterly* 1989; 16: 31-43.

Ralston K. How government policies and regulations can affect dietary choices. In: *America's Eating Habits: Changes and Consequences*. Agriculture Information Bull 750, ed. E. Frazao, pp. V, 331-370. Washington, DC: USDA/ERS/Food Rural Econ Div, 1999.

Seymour JD, Yaroch AL, Serdula M, Blanck HM, Khan LK. Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review. *Prev Med*. 2004; 39 Suppl 2:S108-S136.

Story M, Kaphingst KM, French S. The role of schools in obesity prevention. *Future of Children* 2006; 16: 109-142.

Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: Policy and environmental approaches. *Ann Rev Public Health* 2008; 29: 253-272.