



CARDI·OH

Ohio Cardiovascular and Diabetes Health Collaborative



CASE WESTERN RESERVE
UNIVERSITY
School of Medicine

In partnership with:



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COLLEGE OF MEDICINE



COLLEGE OF MEDICINE
AND LIFE SCIENCES
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Ohio
Department of
Medicaid



Cardi-OH ECHO

Health Equity and Cardiovascular Risk

April 4, 2024

About Cardi-OH

Founded in 2017, the mission of Cardi-OH is to improve cardiovascular and diabetes health outcomes and eliminate disparities in Ohio's Medicaid population.

WHO WE ARE: An initiative of health care professionals across Ohio's seven medical schools.

WHAT WE DO: Identify, produce, and disseminate evidence-based cardiovascular and diabetes best practices to primary care teams.

HOW WE DO IT: Best practices resources are available via an online library at Cardi-OH.org, including monthly newsletters, podcasts, webinars, and virtual clinics using the Project ECHO® virtual training model.

[Learn more at Cardi-OH.org](http://Cardi-OH.org)



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Cardi-OH ECHO Team

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Disclosure Statements



- The following speakers and subject matter experts have a relevant financial interest or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of their presentation*:
 - Danette Conklin, PhD; Kathleen Dungan, MD, MPH; Adam T. Perzynski, PhD; Christopher A. Taylor, PhD, RDN, LD, FAND; Jackson Wright, MD, PhD
- The remaining speakers and subject matter experts have no financial relationships with any commercial interest related to the content of this activity:
 - Karen Bailey, MS, RDN, LD, CDCES; Kristen Berg, PhD; Elizabeth Beverly, PhD; Merilee Clemons, PharmD; Revital Gordodeski Baskin, MD; Allyson Hughes, PhD; George Matar, MD; Kelsey Ufholz, PhD; Goutham Rao, MD; James Werner, PhD, MSSA
- The following members of the planning committee DO NOT have any disclosures/financial relationships from any ineligible companies:
 - Shari Bolen, MD; Anderson Christopher; Richard Cornachione; Carolyn Henceroth; Gillian Irwin; Michael Konstan, MD; Elizabeth Littman; Devin O'Neill; Steven Ostrolencki; Ann Nevar; Claire Rollins; Catherine Sullivan

* These financial relationships are outside the presented work.

** For more information about exemptions or details, see www.accme.org/standards



Contextual Factors for Lifestyle Factors Related to Disease Management

Chris Taylor, PhD, RD, LD

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School of Health and Rehabilitation Sciences
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Learning Objectives

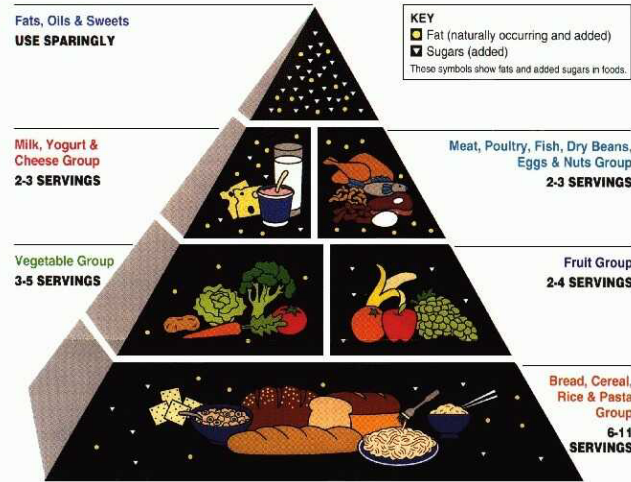


- 1) Describe methods for assessing lifestyle behaviors related to cardiovascular disease and diabetes.
- 2) Identify contextual factors that influence dietary choices and physical activity.
- 3) Apply lifestyle behavior metrics to chronic disease management decisions.

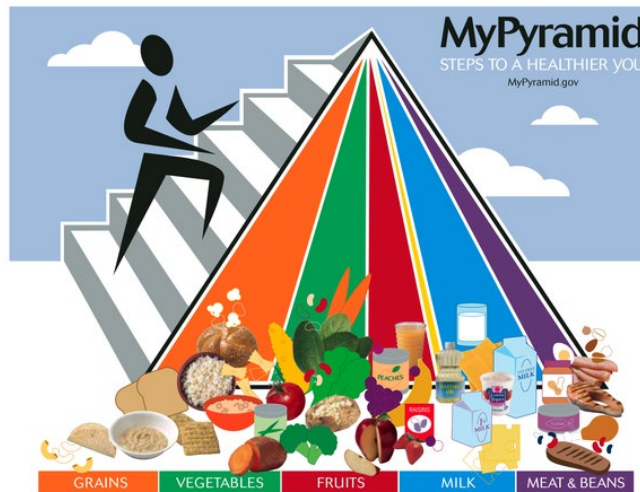
Creating a Foundation for Nutrition Guidance



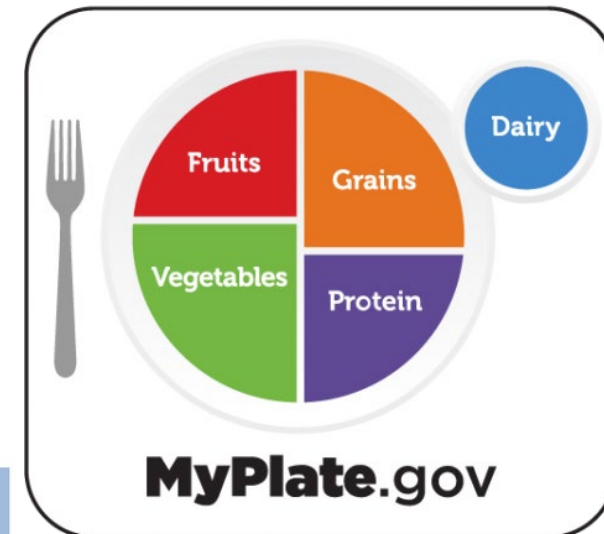
Basic 7
1943



Food Guide
Pyramid
1992

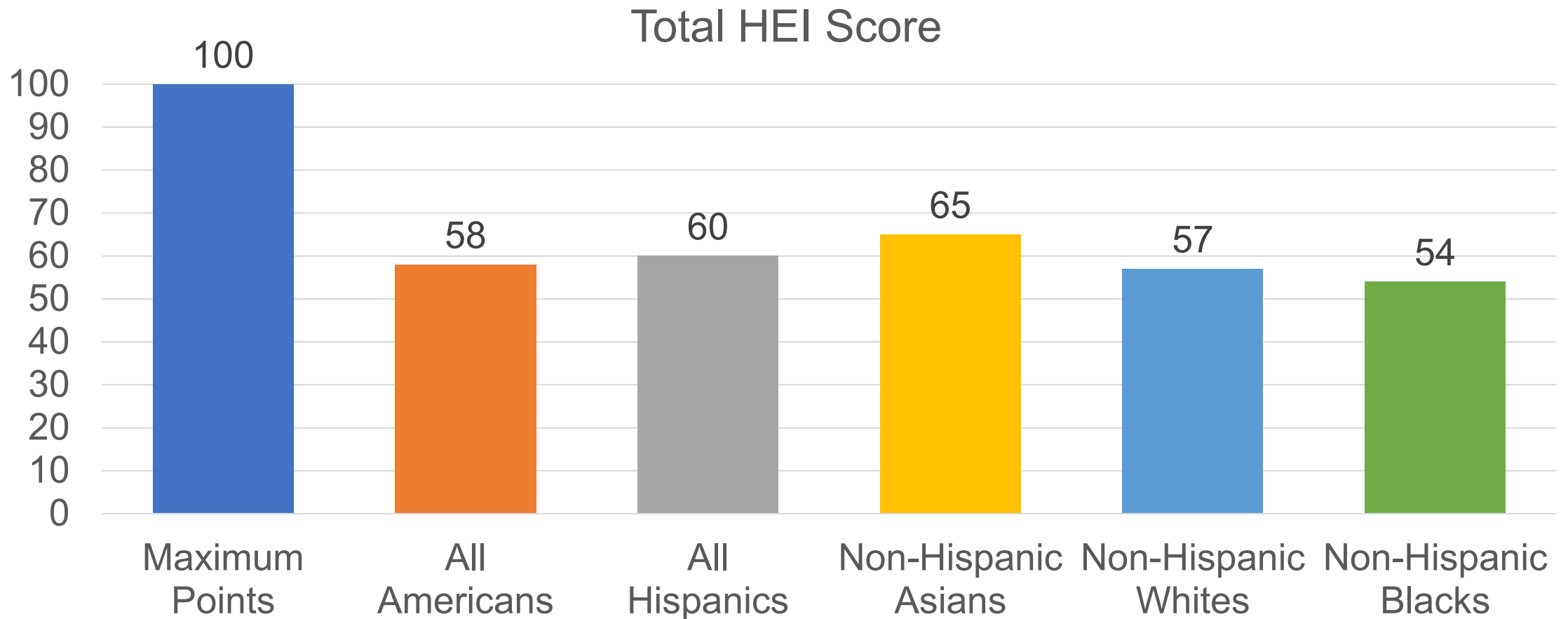


MyPyramid
2005

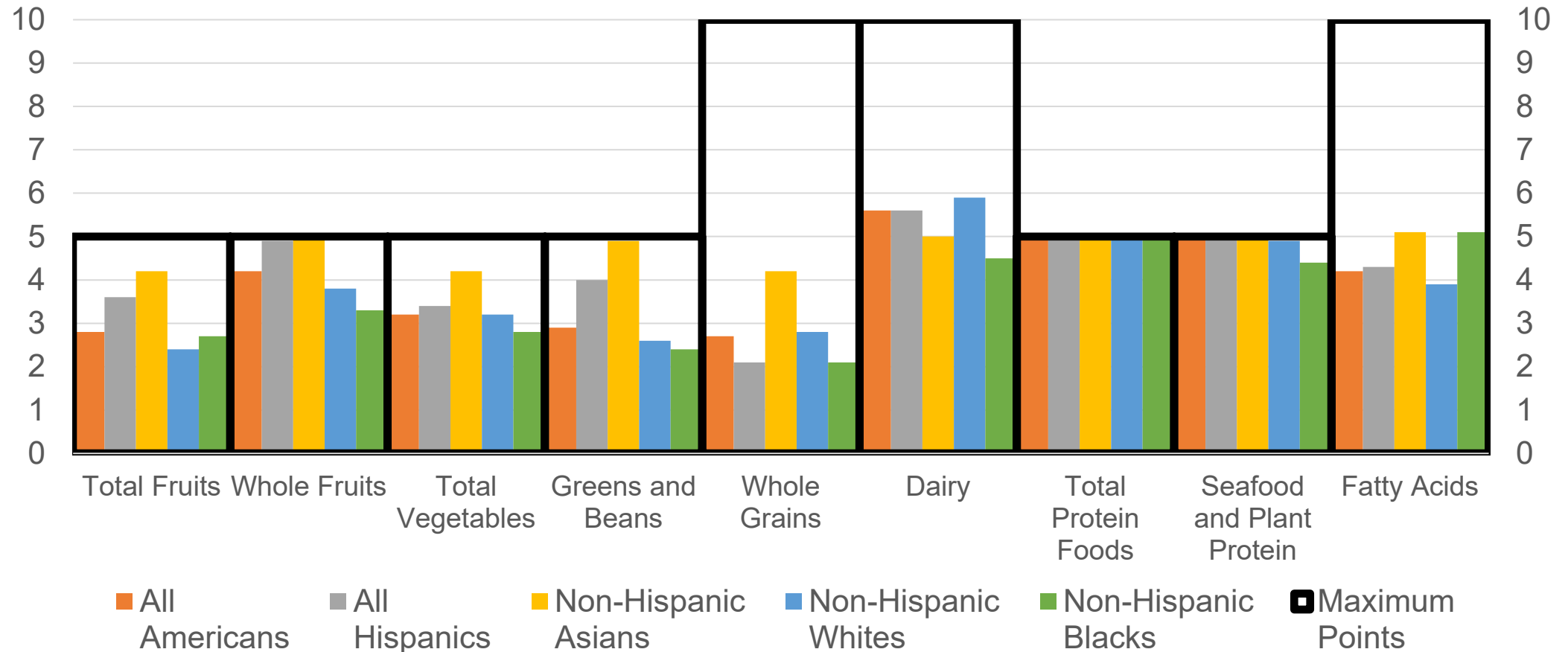


MyPlate
2011

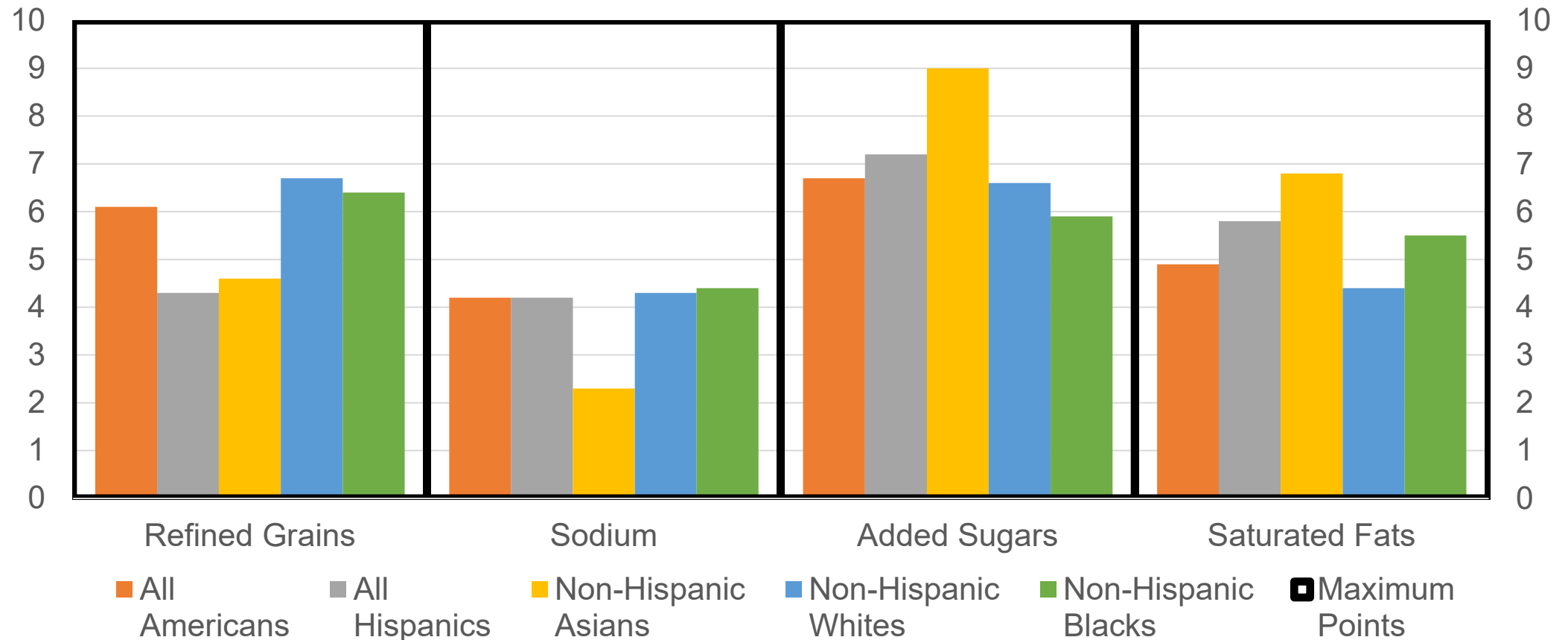
Differences in Diet Quality by Race and Ethnicity – Overall Quality



Differences in Diet Quality by Race and Ethnicity - Adequacy



Differences in Diet Quality by Race and Ethnicity - Moderation



<https://www.fns.usda.gov/cnpp/hei-scores-americans>

Adaptations to Various Cultures



- International food guidance represents a variation on a theme
- Cultural foodways often reflect specific food and beverage selections within food groups
 - Staple carbohydrates
 - Vegetables
 - Fruits
 - Protein sources
 - Nuts, seed, legumes, beans, peas, and lentils
 - [Muslim Dietary Considerations/Halal](#)

Role of Ecological Momentary Assessment



- Knowledge + Context = Behavior
- Total dietary intakes are greater than the sum of their parts
 - Trends throughout the day offer insights into total intakes of concerns
 - Role of snacks, times of eating, meals vs eating occasions
- Other related lifestyle factors
 - Times of activity, times of inactivity
 - Travel, care of others
- Connect health related data to disease management assessments

Additional Resources



- USDA has created numerous resources to support culturally-tailored dietary guidance
 - <https://www.nutrition.gov/topics/shopping-cooking-and-meal-planning/culture-and-food>
- Cultural Awareness of Eating Patterns in the Health Care Setting
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7727853/>
- US Dietary Guidelines
 - <https://www.dietaryguidelines.gov/>
- MyPlate online resources
 - <https://www.myplate.gov/>

Community Structures are Critically Important for Health and Food Choice



Neighborhood socioeconomic conditions influence:

- 1) Cardiovascular disease outcomes
- 2) Diabetes onset and management
- 3) Food retail environments

The Retail Food Environment Index (RFEI)

The Retail Food Environment Index is constructed by dividing the total number of fast-food restaurants and convenience stores by the total number of grocery stores (including supermarkets) and produce vendors (produce stores and farmers' markets) within a radius around an individual CHIS respondent's home (0.5 mile in urban areas, 1 mile in smaller cities and suburban areas, and 5 miles in rural areas).

$$\text{RFEI} = \frac{\# \text{ Fast-Food Restaurants} + \# \text{ Convenience Stores}}{\# \text{ Grocery Stores} + \# \text{ Produce Vendors}}$$



Babey SH, Diamant AL, Hastert TA, Harvey S. 2008. Designed for disease: the link between local food environments and obesity and diabetes.

The Retail Food Environment Index (RFEI)

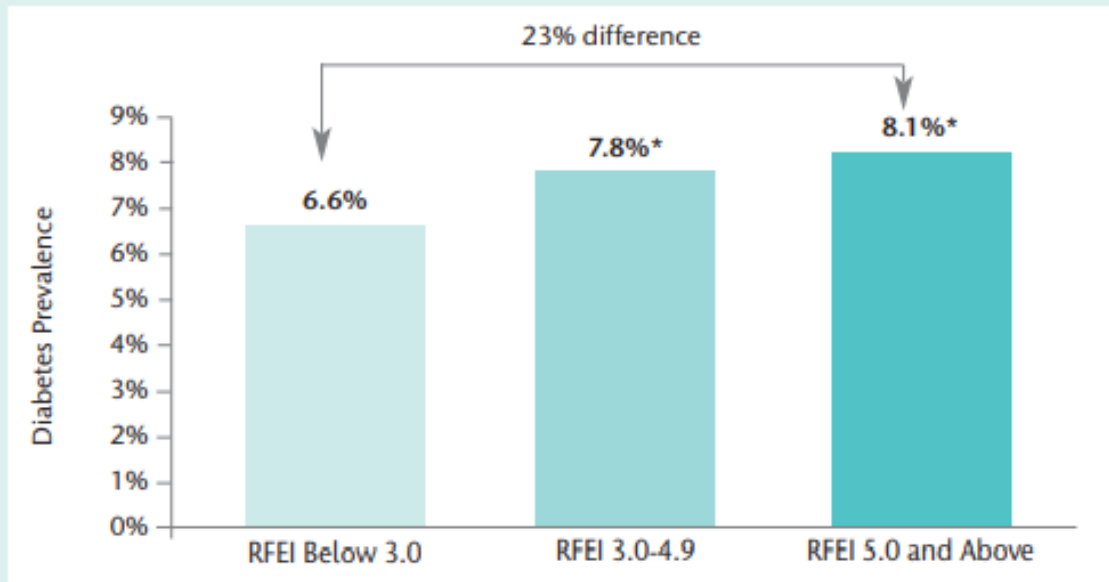
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$$\text{RFEI} = \frac{\# \text{ Fast-Food Restaurants} + \# \text{ Convenience Stores}}{\# \text{ Grocery Stores} + \# \text{ Produce Vendors}}$$



FIGURE 2

Diabetes Prevalence by Retail Food Environment Index, Adults Age 18 and Over, California, 2005



*Significantly different from "RFEI Below 3.0"; $p < 0.05$. RFEI was calculated using buffers of 0.5 mile for respondents in urban areas, 1 mile for respondents in smaller cities and suburban areas and 5 miles for respondents in rural areas.

Source: 2005 California Health Interview Survey and 2005 InfoUSA Business File

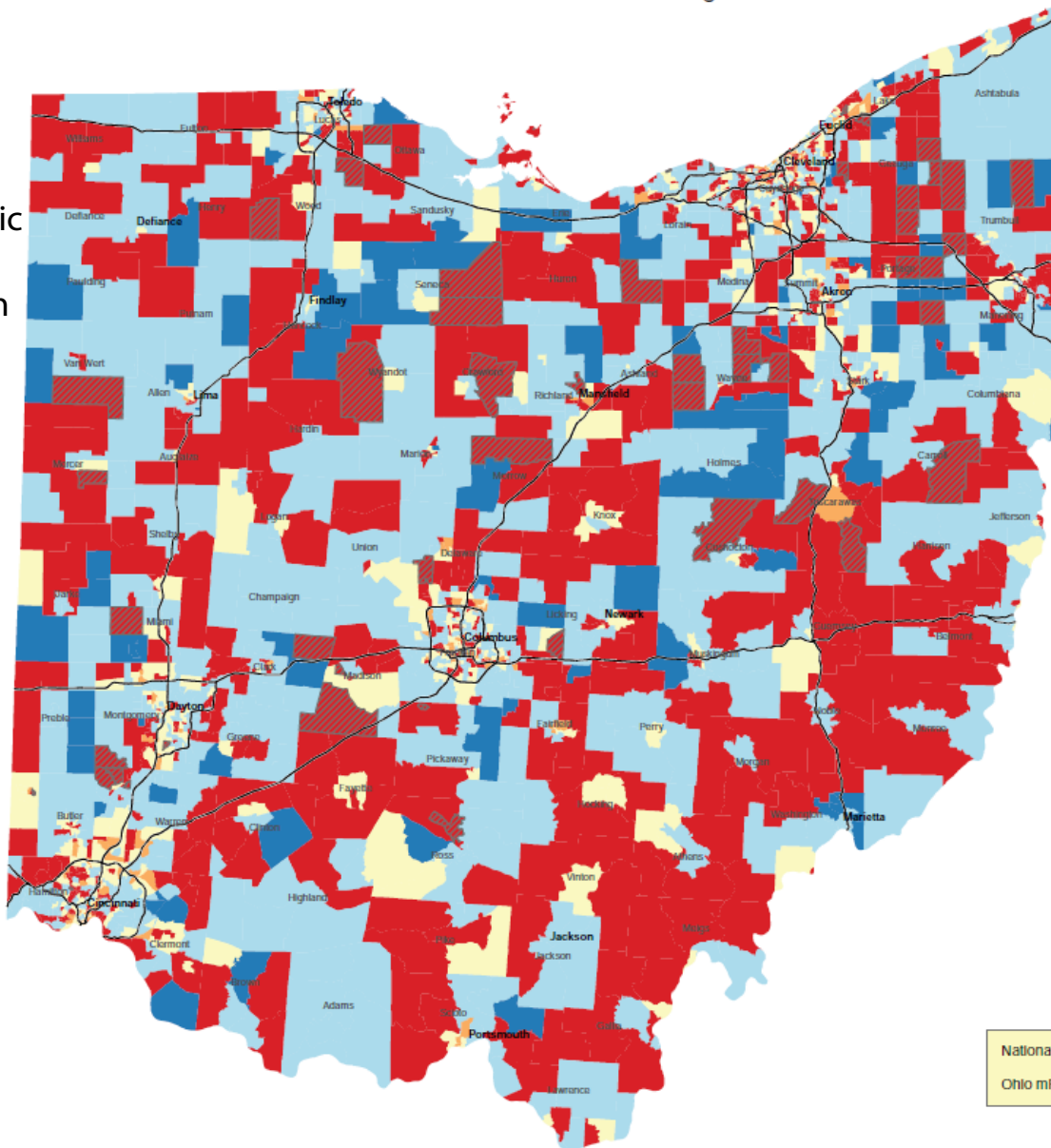
Babey SH, Diamant AL, Hastert TA, Harvey S. 2008. Designed for disease: the link between local food environments and obesity and diabetes.

Modified Retail Food Environment Index (By U.S. Census Tract)



Lower scores indicate that census tracts contain many convenience stores and fast food restaurants compared to the number of healthy food retailers.
 A zero score indicates no healthy food retailers (supermarkets, larger grocery stores, produce stores, or supercenters) within the census tract.
DATA SOURCES:
 Supermarkets, Small and Large Groceries, Produce Stores, Supercenters - InfoUSA 2009
 Convenience stores - Homeland Security Infrastructure Program Database 2008
 Fast food restaurants - NAVTEQ 2009
 Date of map: August, 2011

Ohio
 Modified Retail Food Environment Index According to Census Tract



CDC 2011
 National Center for Chronic Disease Prevention and Health Promotion Division of Nutrition, Physical Activity, and Obesity

The modified Retail Food Environment Index (mRFEI) measures the number of healthy and less-healthy food retailers within a census tract using this formula:

$$\frac{\# \text{ Healthy Food Retailers}}{\# \text{ Healthy Food Retailers} + \# \text{ Less Healthy Food Retailers}} \times 100$$

 For this indicator, healthy food retailers include supermarkets, larger grocery stores, supercenters, and produce stores.† Less healthy food retailers include convenience stores, fast food restaurants, and small grocery stores with 3 or fewer employees.†
 † Data sources are listed in the legend.

National mRFEI Score = 10
 Ohio mRFEI Score = 9



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Differences Can Be Hyper-Local: Cleveland

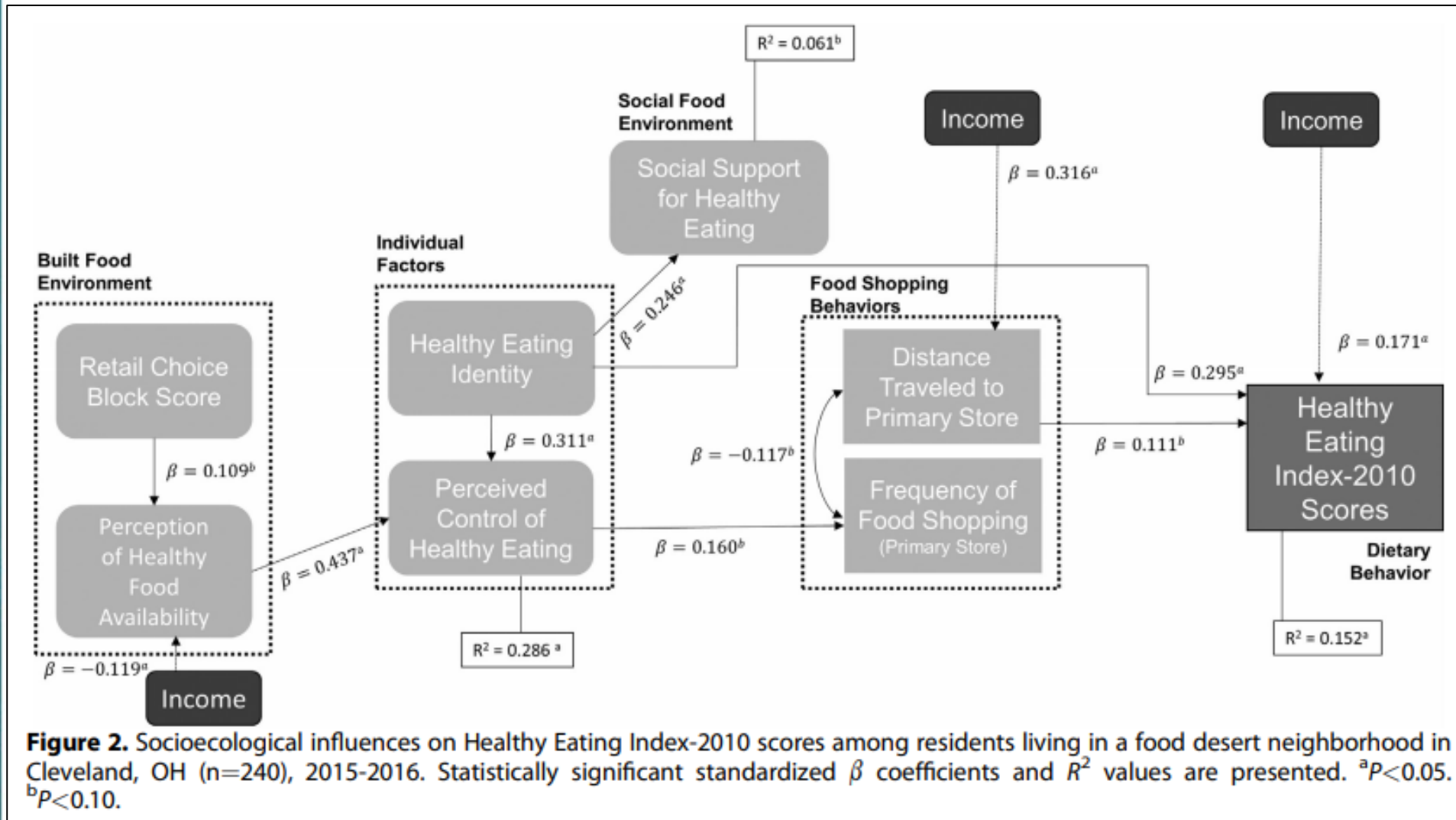
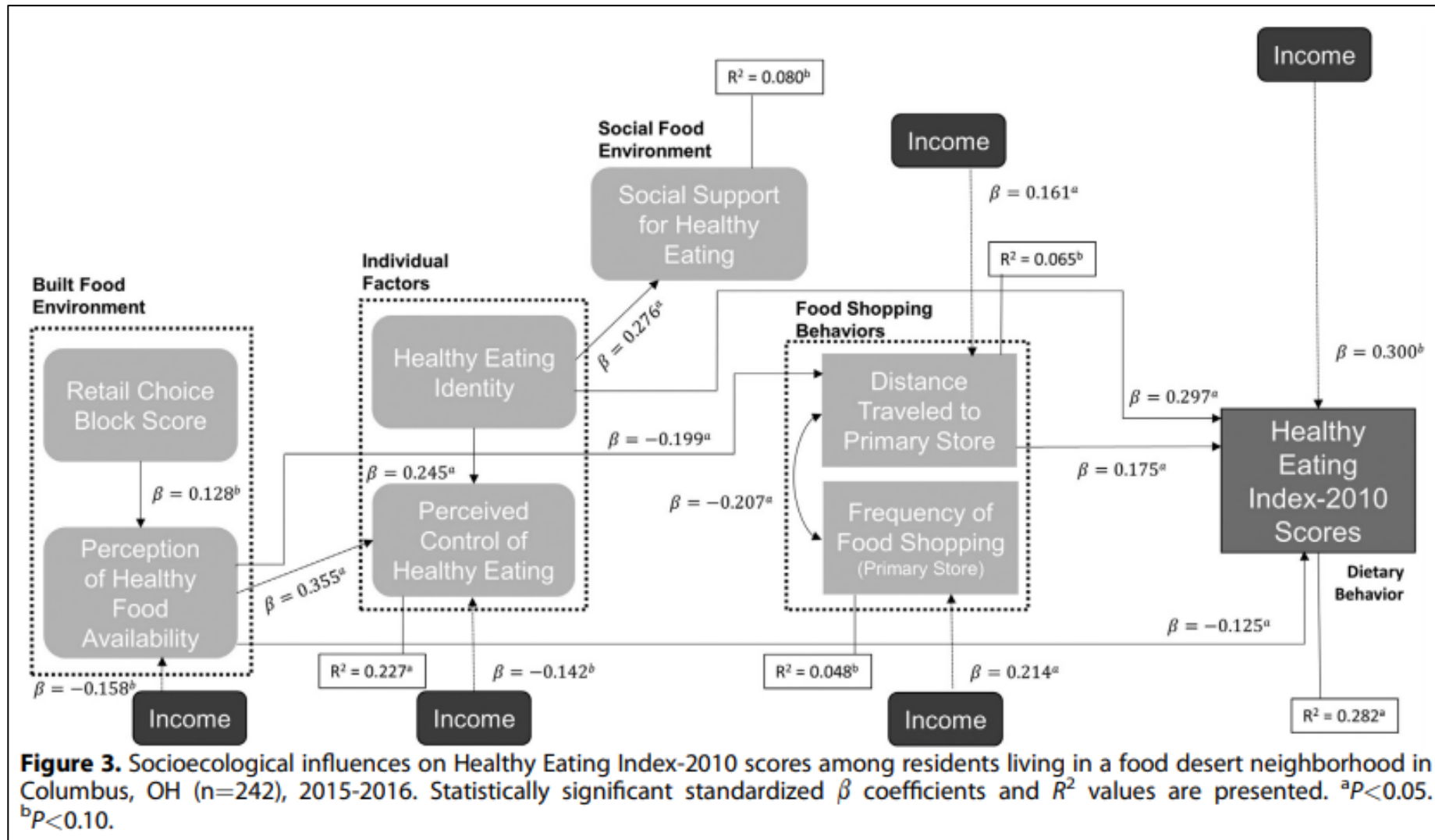


Figure 2. Socioecological influences on Healthy Eating Index-2010 scores among residents living in a food desert neighborhood in Cleveland, OH (n=240), 2015-2016. Statistically significant standardized β coefficients and R^2 values are presented. ^a $P < 0.05$. ^b $P < 0.10$.

Differences Can Be Hyper-Local: Columbus



Freedman DA, Bell BA, Clark JK, Sharpe PA, Trapl ES, Borawski EA, Pike SN, Rouse C, Sehgal AR. Socioecological Path Analytic Model of Diet Quality among Residents in Two Urban Food Deserts. Journal of the Academy of Nutrition and Dietetics. 2019 Jul 1;119(7):1150-9.

Babey, Susan H., Joelle Wolstein, and Allison L. Diamant. "Food environments near home and school related to consumption of soda and fast food." (2011).



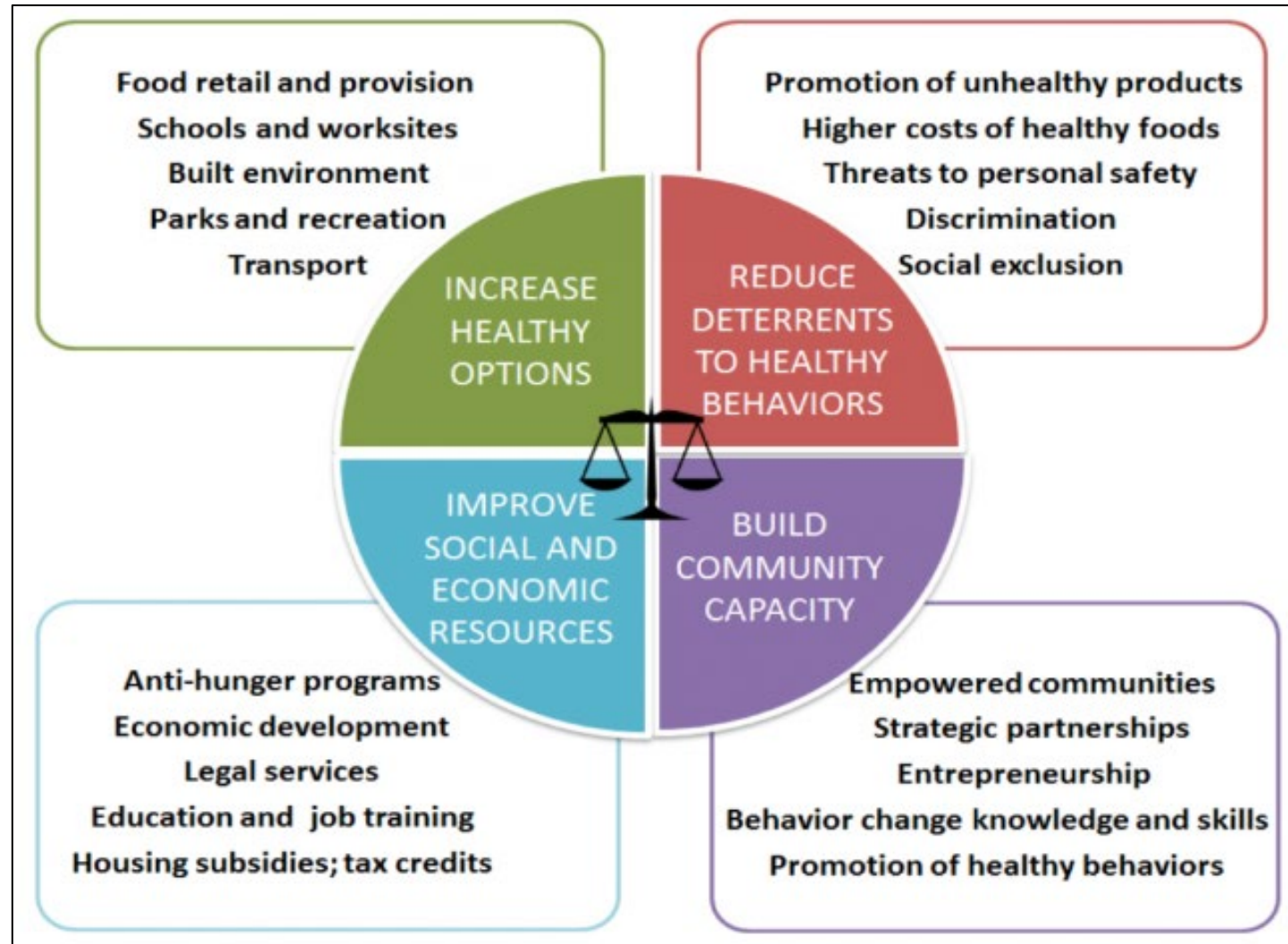
- People who live in poor food environments consume more weekly servings of sweetened beverages like sodas.
- People who live in poor food environments consume more fast food.
- At the state-level, these neighborhood influences account for millions of additional unhealthy meals per week.

Improvement is Possible!!



- Efforts to improve healthy food availability and reduce cost of healthy food are generally associated with small improvements
- Partnerships between clinics, community members and with retail (e.g. farmer's markets) are generally met with a positive community response and are more likely to show improvements
- Activity-based understandings of food environments are needed (not just where people live, but where they work, learn, play and engage in other activities)

Kumanyika, S. 2017. Getting to Equity in Obesity Prevention: A New Framework. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. doi: 10.31478/201701c





Thank you!

Questions/Discussion