



Disparities in Diet and Health: The Role of Food Insecurity

Cindy Leung, ScD, MPH

Assistant Professor of Public Health Nutrition

Harvard T.H. Chan School of Public Health

NASEM Food Forum, August 15, 2023

Conflicts of interest

None

Trends in diet quality

Figure 1. Alternate Healthy Eating Index 2010 Score Among Adults Aged 20 to 85 Years by National Health and Nutrition Examination Survey Cycle

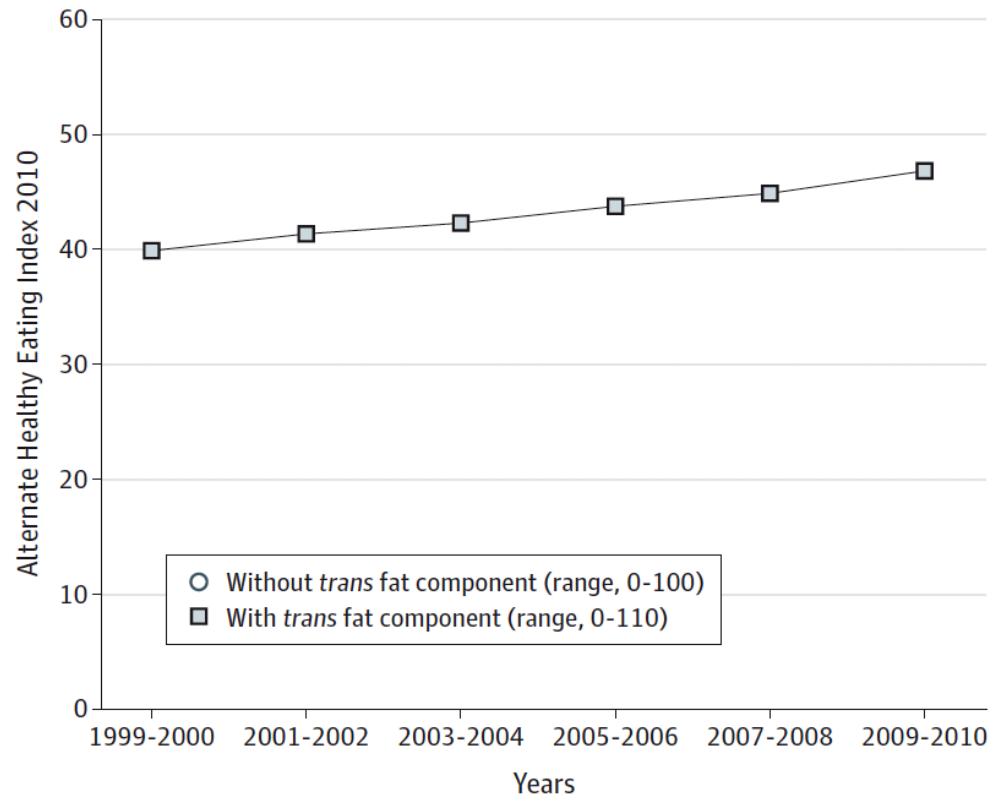
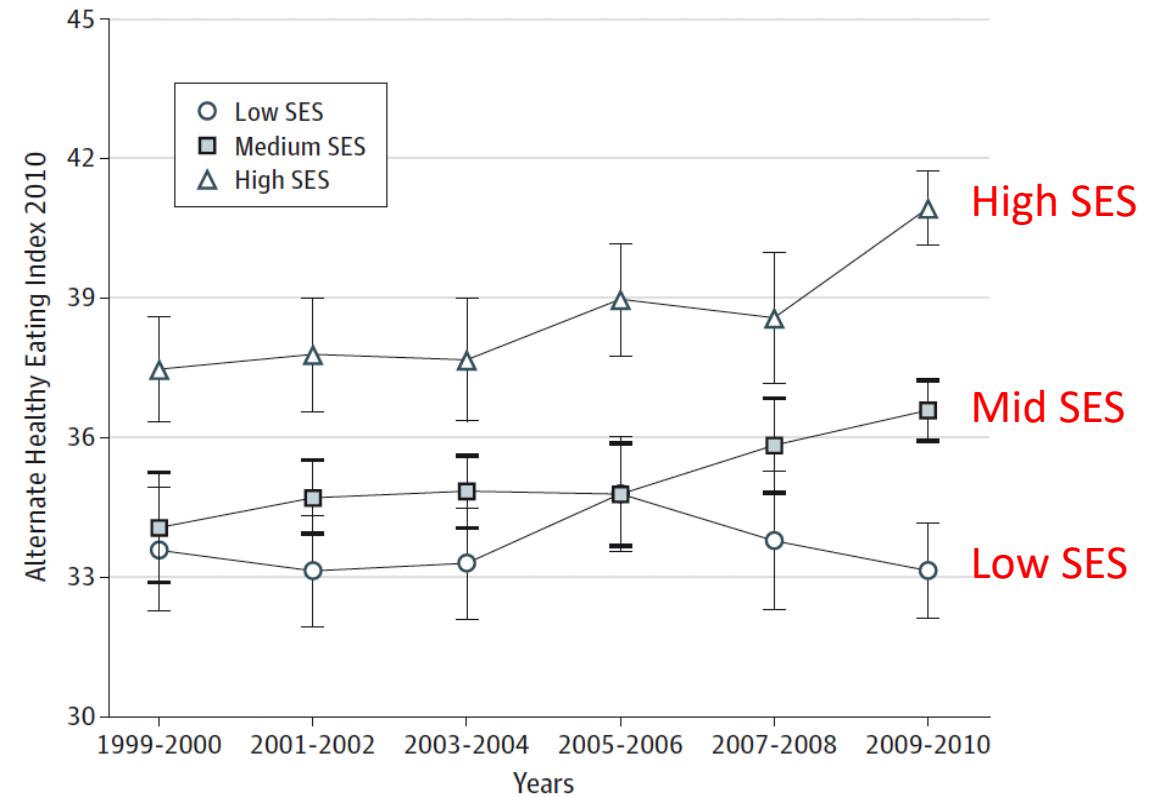


Figure 3. Alternate Healthy Eating Index 2010 Score Without the *trans* Fat Component According to Socioeconomic Status (SES) by National Health and Nutrition Examination Survey Cycle



Wang, Leung, et al. JAMA Int Med. 2014



“Differences in dietary intake, dietary behaviors, and dietary patterns in different segments of the population, resulting in poorer dietary quality and inferior health outcomes for certain groups and an unequal burden in terms of disease incidence, morbidity, mortality, survival, and quality of life.”

Defining food security and insecurity

“**Food security** exists when **all** people, at **all** times, have physical and economic access to safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

SOURCE: World Food Summit 1996



Defining food security and insecurity

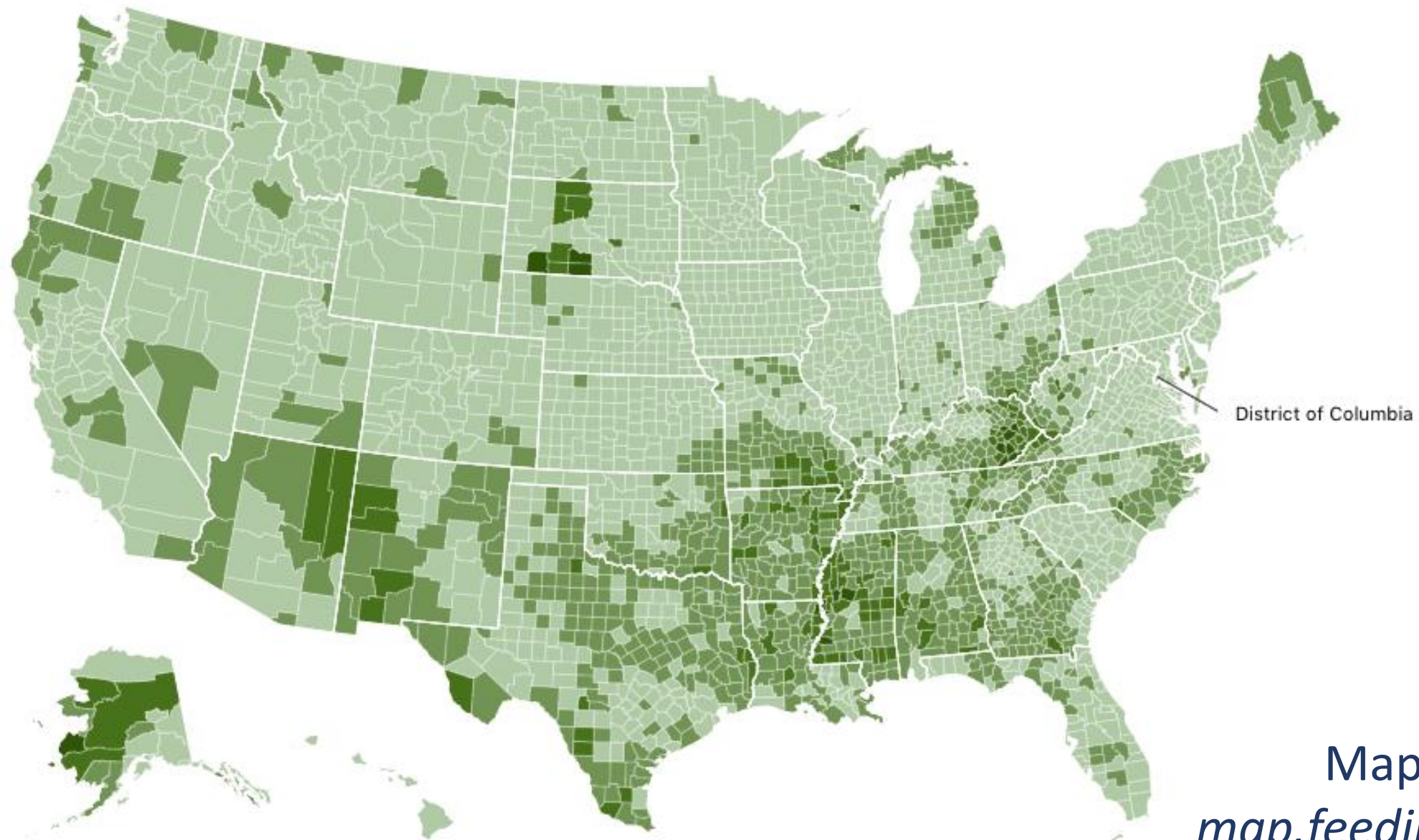
“**Food security** exists when **all** people, **at all times**, have physical and economic access to safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

SOURCE: World Food Summit 1996

“**Food insecurity** is the **limited or uncertain availability** of nutritionally adequate and safe foods, **or limited or uncertain ability to acquire** acceptable foods in socially acceptable ways.”

SOURCE: U.S. Department of Agriculture





Map the Meal Gap
map.feedingamerica.org

Food Insecurity Rates

4-14%

15-19%

20-24%

25-29%

30% +

Who experiences food insecurity?



- **Household composition**

- Households with children (14.8%)
- Households with young children (15.3%)
- Female headed household (27.7%)
- Male headed household (16.3%)

- **Race/ethnicity**

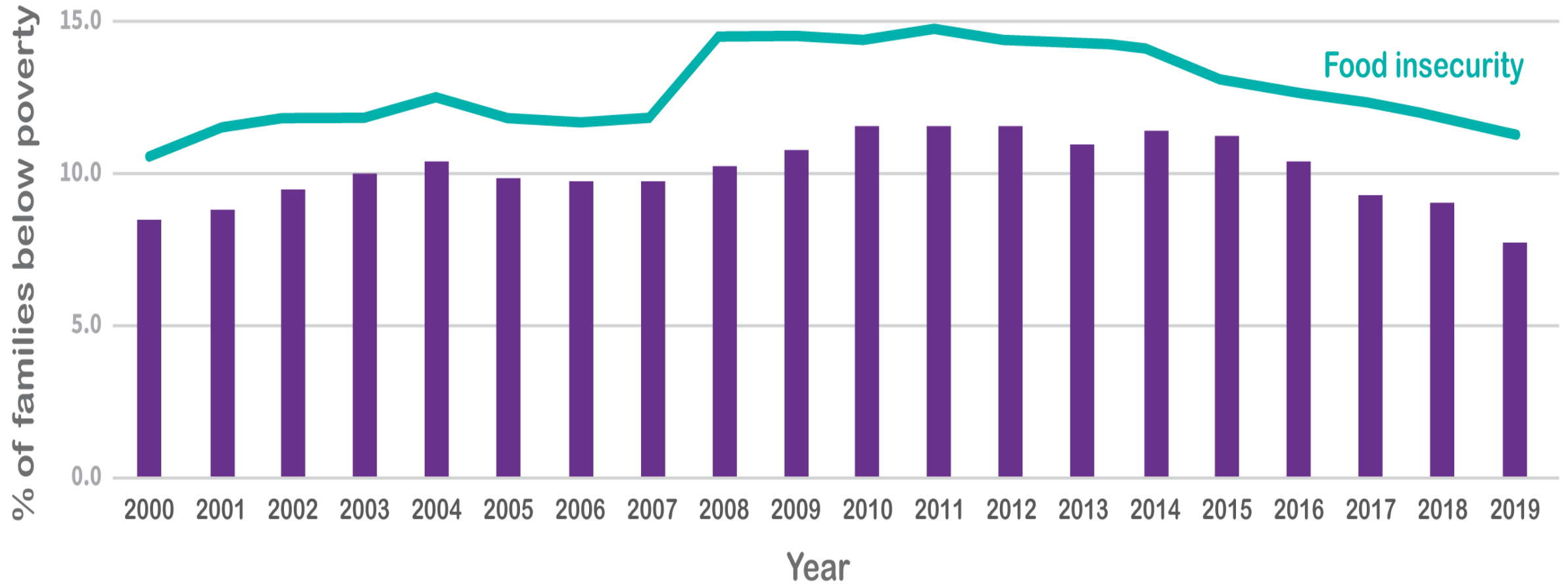
- Black, non-Hispanic household (21.7%)
- Hispanic household (17.2%)

- **Income to poverty ratio**

- Under 1.85 (28.6%)
- Under 1.30 (33.1%)
- Under 1.00 (35.3%)

SOURCE: Household Food Security in the United States in 2021.

Poverty and food insecurity



Food insecurity and cardiometabolic disease

48% higher prevalence of diabetes (Seligman et al. 2010)

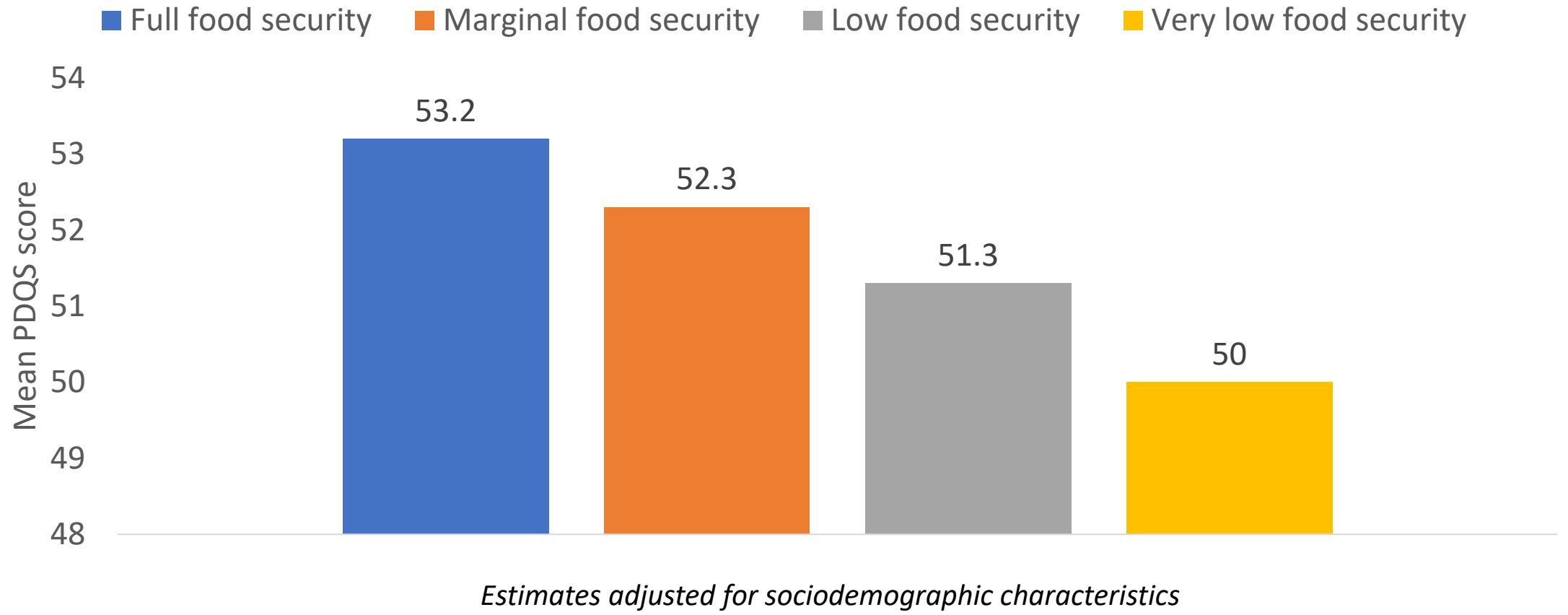
65% higher odds of metabolic syndrome (Parker et al. 2010)

21% higher odds of inflammation (Gowda et al. 2012)

21% higher prevalence of hypertension (Seligman et al. 2010)

38% higher odds of non-alcoholic fatty liver disease (Golovaty et al. 2020)

Food insecurity and Diet Quality



SOURCE: Wolfson JA, Posluszny H, Gicevic S, Willett W, Leung CW. J Acad Nutr Diet 2022.

Food insecurity and diet quality

Fewer dark
green
vegetables

Less liquid
oils

More
white
potatoes

More
sugary
beverages

Fewer
cruciferous
vegetables

Fewer
nuts and
seeds

Less
low-fat dairy

More
processed
meats

More fried
foods

Fewer
fruits

Less
fish

Fewer
whole grains

More refined
grains

SOURCE: Wolfson JA, Posluszny H, Gicevic S, Willett W, Leung CW. J Acad Nutr Diet 2022.

Why do these associations exist?



?



The environment nudges us towards the foods that do not support health.





Simply Orange
NOT FROM CONCENTRATE
100% Pure Squeezed
Pasteurized Orange Juice
100% Juice

BEST IF USED BY JUL 06 14
LOT 13 35 3 E 040 E USA 05

HIGH PULP
Simply Orange
NOT FROM CONCENTRATE
100% Pure Squeezed
Pasteurized Orange Juice
100% Juice

ITEM 323
2500005280
SIMPLY ORANGE JUICE HIGH PULP
89 FZ
1L
25 04314
6.99
39610073
7.9c

Florida's Natural
100% Juice

Florida's Natural
100% Juice

BURGER CHEESE PULLEY GRILLERY
BURGER CHEESE CHICKEN

PASTRAMI ROAST TURKEY

TAQUERIA MENU

SHRIMP BURRITO
BEEF BURRITO
PORK BURRITO
CHICKEN BURRITO
VEGETARIAN BURRITO



\$5.49 \$5.99 \$6.99 \$7.99 \$8.99 \$9.99 \$10.99 \$11.99

Menu board with various food items and prices.

Menu board with various food items and prices.

Menu board with various food items and prices.

CRISPY RESTAURANT CHICKEN



YOU BUY WE FRY!

CRISPY RESTAURANT CHICKEN
WINGS IN MILD, HOT, AND TANGY
SAUCE. AVAILABLE FOR CATERING.



Why do these associations exist?



?



Food insecurity requires additional cognitive and physical demand to cope.

GROCERYOUTLET
bargain market

GROCERYOUTLET
bargain market





St: 278 Oakland

880

1440 7th Street

Oakland CA 94607

FRESH SWEET CORN	1 @ 3/	.9999	0.3333
FRESH SWEET CORN	1 @ 3/	.9999	0.3333
FRESH SWEET CORN	1 @ 3/	.9999	0.3333
CELERY 1 STALK	1 @	.9999	0.9999
YELLOW ONIONS/2Lbs/#60001	1 @	.9999	0.9999
GREEN CABBAGE/#65271	1 @	.9999	0.9999
PillsburyDessrtMltCkiesSnare9c	1 @	.9999	0.9999
GrinnwayFarmsBabyCarrots16oz#	1 @	.9999	0.9999
PaperCarryOutBagWith99Logo	1 @	.1000	0.1000



Why do these associations exist?



?



Food insecurity is a source of TOXIC stress.







Federal food assistance programs



Nutrition assistance programs

- Supplemental Nutrition Assistance Program (SNAP)
- WIC
- Farmers' Market Nutrition Program
- Senior Farmers' Market Nutrition Program

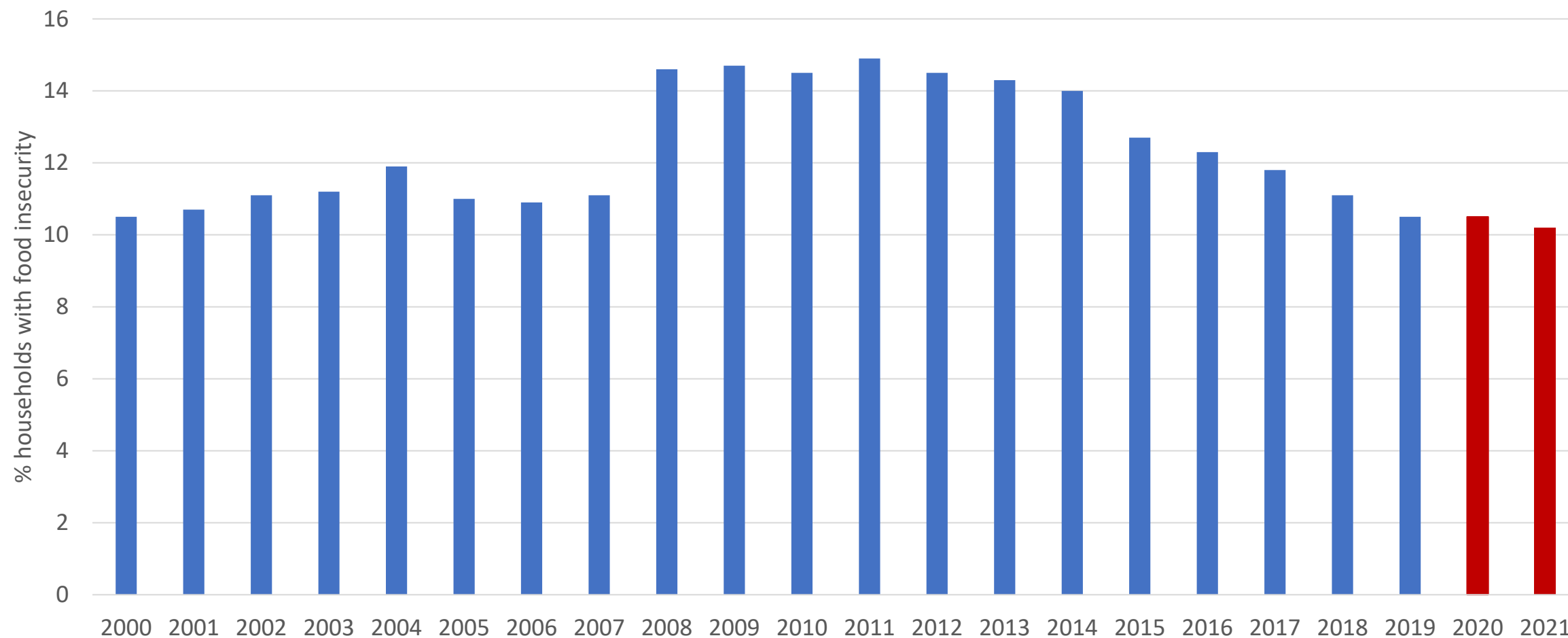
Food Distribution Programs

- Commodity Supplemental Food Program
- Food Distribution Program on Indian Reservations
- The Emergency Food Assistance Program

Children's Food Programs

- Child and Adult Care Food Program
- Fresh Fruit and Vegetable Program
- National School Lunch Program
- School Breakfast Program
- Special Milk Program
- Summer Food Service Program

National trends in food insecurity



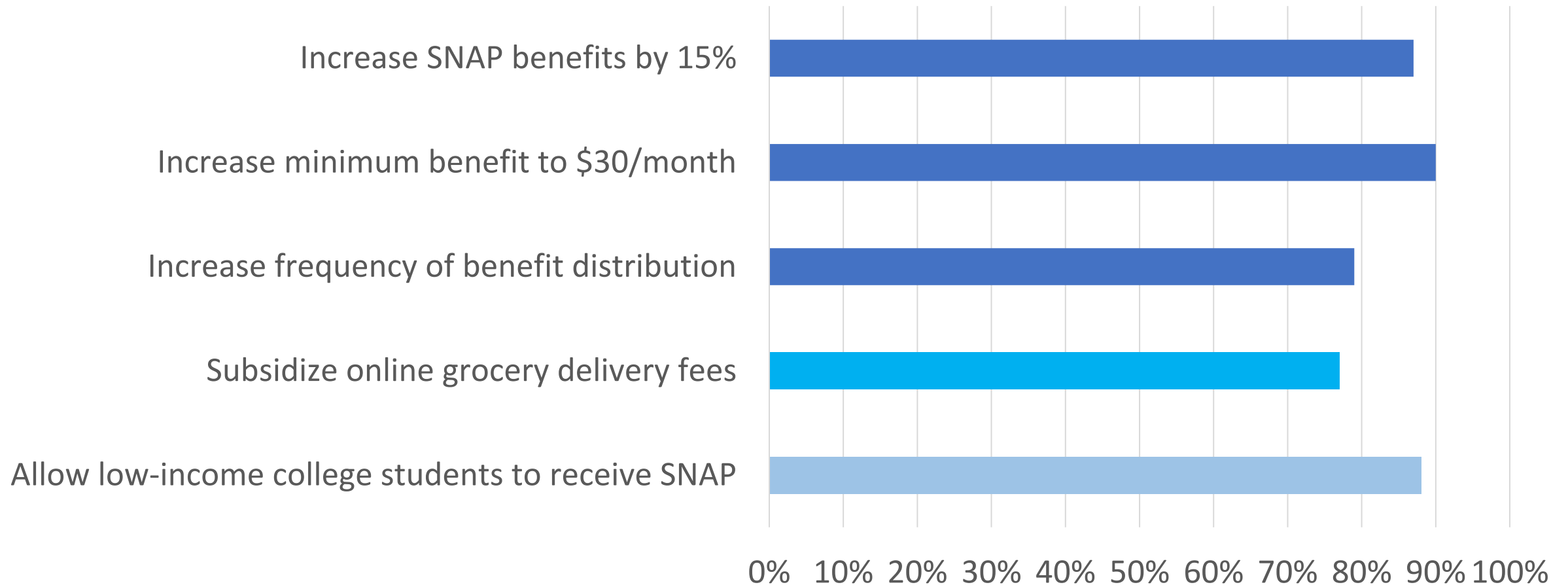
SOURCE: Household Food Security in the United States in 2020.

Mobilization of SNAP



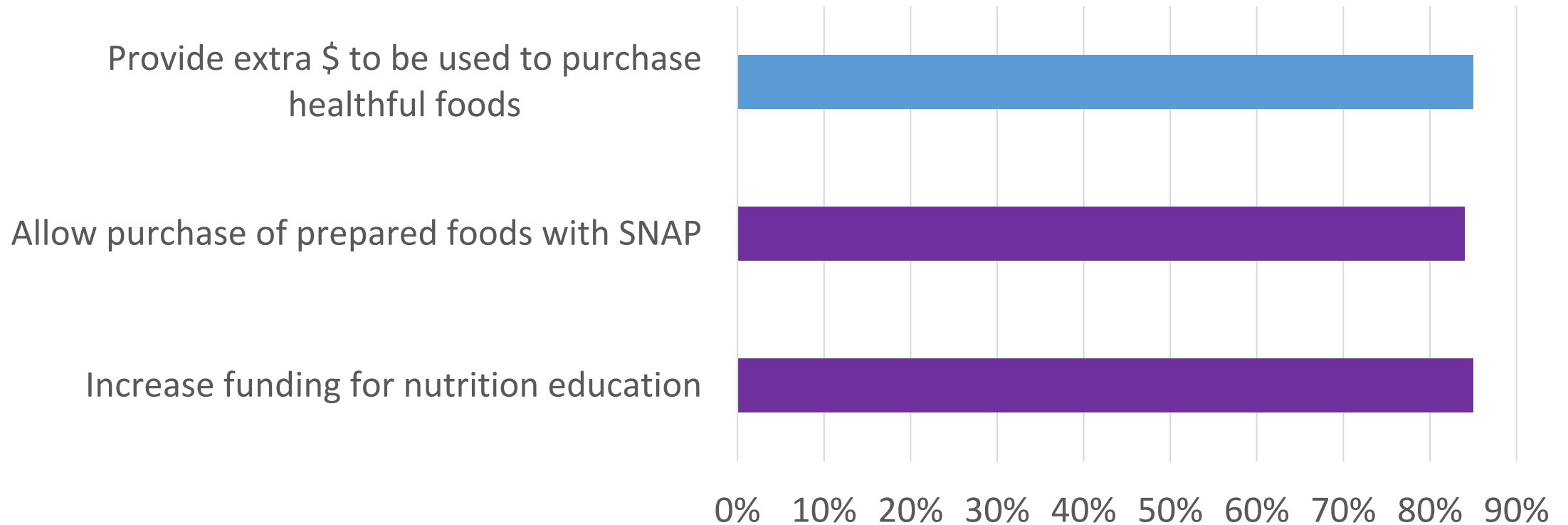
- **Families First Coronavirus Response Act of March 2020**
 - Raised SNAP benefit allotments to maximum benefit amount for HH size
 - Relaxed 3-mo limit for ABAWDs to receive benefits
 - Provide states greater flexibility to recertify existing participants
- **American Rescue Plan Act of 2021**
 - Increased SNAP benefits by 15%
 - Allow states greater administrative support to process increased SNAP applications
- **Online Purchasing Pilot**
 - Expanded to 47 states in 2020
- **White House Executive Order**
 - Reevaluated Thrifty Food Plan, leading to 21% permanent increase of SNAP benefits

Policy Priorities for SNAP



SOURCE: Wolfson JA, Leung CW, Moran A. Milbank Quarterly Opinion 2021.

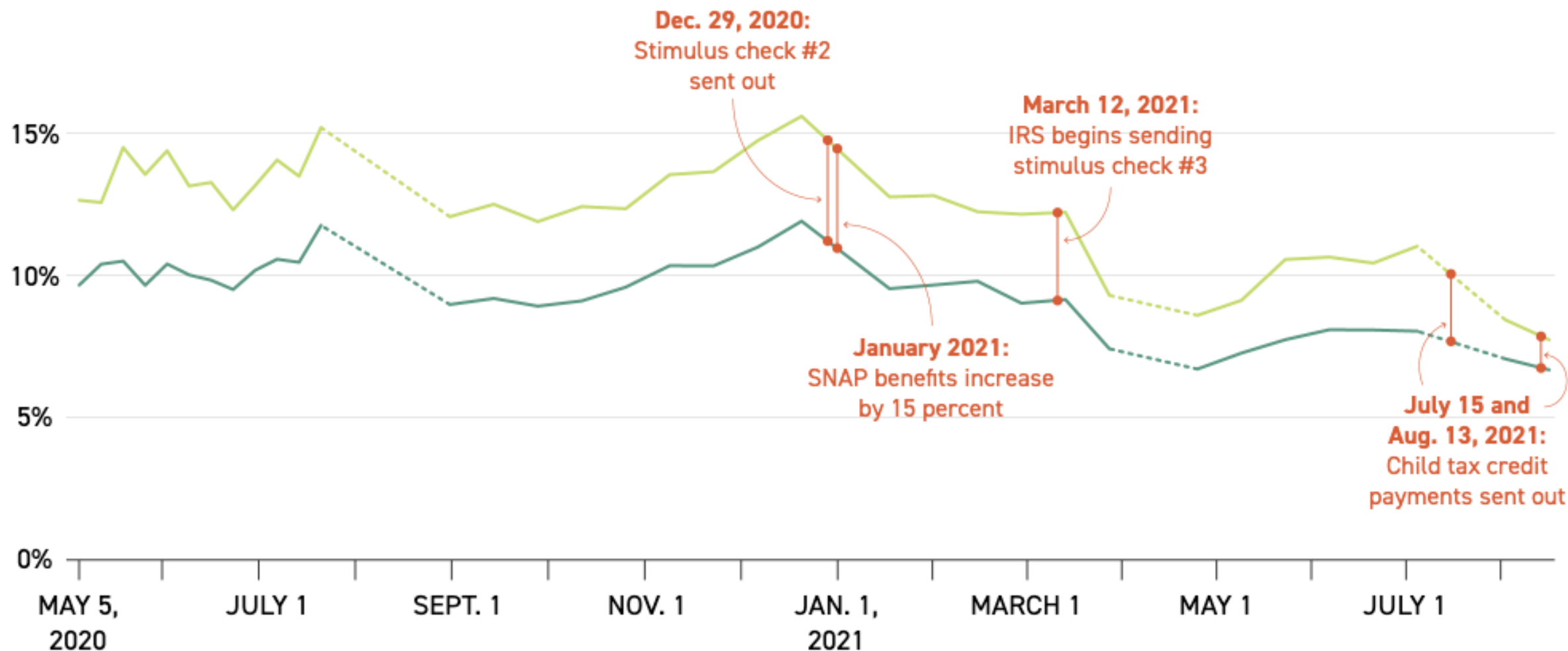
Policy Priorities for SNAP



SOURCE: Wolfson JA, Leung CW, Moran A. Milbank Quarterly Opinion 2021.

PERCENTAGE OF HOUSEHOLDS THAT SOMETIMES OR OFTEN DIDN'T HAVE ENOUGH TO EAT

— All households — Households with children



Note: Data is plotted as of the end of the two-week survey collection period. Dotted lines represent breaks in survey collection.

Source: Biweekly Census Bureau Household Pulse Survey of an average of 250,000 Americans

By: Annette Choi/POLITICO

Summary



- Food insecurity is a critical risk factor for poor nutrition and health
- Food insecurity persists in the US despite robust suite of federal nutrition programs
- Lessons learned from the pandemic can inform more future programs and policies to prevent food insecurity

E-mail: cleung@hsph.harvard.edu