

For 25 Years, Food Security Has Included a Nutrition Domain: Is a New Measure of Nutrition Security Needed?



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THE US HOUSEHOLD FOOD SECURITY SURVEY MODULE AND ITS RELATIONSHIP WITH NUTRITION

Access to adequate, nutritious food, particularly in early childhood, is essential for keeping current and future generations healthy across the life span. When families lack enough resources to afford competing basic necessities, such as housing, utilities, health care, medication, and child care, food is often where they economize.¹ Coping strategies include reducing the quality of food purchased, decreasing the quantity of food eaten or served to family members, acquiring food from emergency private food assistance sources (eg, charities and food pantries), and other behaviors.

An oft-used abbreviated definition of food insecurity, “lack of consistent access to enough healthful food for an active healthy life,”² is directly linked to inadequate availability of household-level financial resources, which in turn is a consequence of persistent societal inequities and systemic barriers.³ Food insecurity negatively influences cognitive function and the physical and mental health of children and adults.⁴⁻⁶ Food insecurity aggravates a wide variety of co-occurring adverse health conditions,⁷⁻¹⁰ disproportionately burdening families with low socioeconomic status, families of color, and immigrant families.¹¹

Preceding the development of a food security measure, food insecurity was indirectly assessed to inform mitigation of the social problem of hunger. Aggregate food availability indicators (eg, Food and Agriculture Organization of the United Nations [FAO] food balance sheets, and indicators of malnutrition prevalence), poverty indicators (eg, income and education), nutritional status indicators (eg, anthropometric, biochemical, and clinical indexes), and food intake indicators

(eg, 24-hour recall and food frequency) all were used to infer food insecurity.¹²

Nutrition, nutritional status, and nutritional state were all prominent features of the conceptualization and definition of food security by the Life Sciences Research Office of the Federation of American Societies for Experimental Biology.² An expert panel of the Life Sciences Research Office, including highly regarded experts in nutrition from around the United States (eg, William H Dietz Jr, MD, PhD; Johanna Dwyer, DSc; and Jean-Pierre Habicht, MD, MPH, PhD) articulated a conceptual framework for nutritional state defined as “the assimilation and utilization of nutrients by the body plus interactions of environmental factors such as those that affect food consumption and food security. Thus, evaluation of nutritional state requires assessment of food consumption and food insecurity as well as biochemical, clinical, and anthropometric indices of nutritional status.”²

Later, during development and validation of the US Household Food Security Survey Module (HFSSM), four dimensions were incorporated as its foundational basis: “quantity of food intake, quality of food intake, anxiety about the adequacy of food supply, and social acceptability of the sources of food.”² Based on this construct, the expanded definition of food security was stated as “access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum: (1) the ready availability of nutritionally adequate and safe foods, and (2) the assured ability to acquire acceptable foods in socially acceptable ways (eg., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).”¹³ In turn, food insecurity was defined as “whenever the availability of nutritionally adequate and safe foods, or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain.” In this sense, the core HFSSM dimensions and definitions of food security and food insecurity were understood as an outcome of systemic/societal factors influencing economic deprivation,¹⁴ which in turn affected people’s ability to be nourished.

PREVIOUS DEFINITION OF NUTRITION SECURITY INCLUDES NUTRITION COUPLED WITH OTHER NECESSARY SYSTEMS FOR A HEALTHY LIFE

Nutrition security has long been defined by the FAO as “a situation that exists when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care, in order to ensure a healthy and active life for all household members.”¹⁵ Over the

past year, a new suggested definition of nutrition security as “having consistent access, availability, and affordability of foods and beverages that promote well-being and prevent (and if needed, treat) disease”¹⁶ has been proposed in the United States.

Although concern for ensuring all people in the United States have access to sufficient healthful, affordable food and avoid diet-related diseases is a widely shared goal, domains included in the new definition of nutrition security were, in fact, core to development of the US food security definition and measure. Furthermore, this new, suggested definition narrows the established FAO definition that also considers nutrition security to include health and hygiene, sanitation, and adequate health care, in addition to dietary adequacy.¹⁵ Thus, shifting from food security to the proposed nutrition security definition comes with grave concern because it is based on a partial understanding of existing internationally established concepts, historical context, the core essence of the food security measure, and its relation to nutritional state, while also undermining 25 years of robust national, state, and local data and research solidifying causes and consequences of food insecurity.

WHY IS THE PROPOSED NEW DEFINITION OF NUTRITION SECURITY LIKELY TO POSE A RISK FOR FOOD POLICY?

The steady increase since the 1970s in prevalence of noncommunicable diseases, such as obesity, hypertension, and type 2 diabetes, is without doubt a public health issue that requires attention.¹⁷ Nutrition-sensitive conditions and income are the main motivations cited as the need for a nutrition security measure.¹⁶ However, to address these conditions, it is crucial to understand that they are products of complex trends in our political and economic system that influence the entire population, not just individual consumer behaviors or choices. For example, a 2017 Centers for Disease Control and Prevention brief¹⁸ showed that among men, obesity prevalence is similar at all income levels, with a tendency to be higher at income levels above 130% of the federal poverty level; and among women, obesity prevalence increases as income decreases. Thus, obesity is multifactorial and not entirely dependent on income. Comparing data points between 1999 and 2014, the prevalence of obesity increased in adults at all income and education levels, meaning that obesity is present in all strata of society independent of financial access to food.

When high prevalence of obesity and other related noncommunicable diseases and their relationship with income are proposed as reasons for shifting focus from food insecurity to nutrition security, it must be acknowledged that this shift comes with complications for food policy and program implementation. Specifically, when a new terminology is proposed, it needs to be studied, developed and validated¹⁹ before being advertised as a substitute for an established, internationally accepted reference measure. Policy makers, health care and service providers, and community leaders rely heavily on recognized researchers to make informed decisions. Thus, there is a special responsibility on the part of researchers to ensure that they are accurately representing

context and research when sharing information. The primacy of the proposed nutrition security term over food security is likely to result in erroneous and misleading assumptions, as already seen happening in the halls of Congress.²⁰ In addition, serious concerns arise when such claims are also used as a rationale for circumscribing what people with low incomes can purchase in perhaps well intended but misguided attempts to improve their nutritional state. Poor quality diets are a society-wide problem in the United States, not merely an individual choice, and thus solutions must also be societal.²¹ Fundamental systemic changes in food advertisement to children and adults,^{22,23} ensuring that work pays real cost-of-living wages,²⁴ reining in rampant “financialization” of the economy,²⁵ eliminating inequities in education attainment, earnings, and incomes by race, ethnic origin, nativity, and gender,^{26,27} and reducing the excessive influence of corporate food and agriculture industries on the US food system^{28,29} are all necessary to decrease rates of noncommunicable diseases. None of these factors are addressed by shifting the emphasis from food security to the proposed narrow definition of nutrition security. Thus, it is important to recognize systemic causes of low prices and unlimited availability of poor quality, energy-dense, nutrient-sparse foods, and limited availability and high costs of healthful foods, instead of attributing high prevalence of noncommunicable diseases to people’s poor choices—and, more specifically, the choices of people who are poor.³⁰

CONCLUSIONS

Replacing food security, the well-established and widely used HFSSM measure that is backed by 25 years of data and empirical research, with the new, ambiguous and poorly defined construct of nutrition security, for which there is no measure, has the potential to have detrimental effects on research, policy, and ultimately on the health and well-being of people. Although focusing on and emphasizing the necessity for all people to have a healthy nutritional state is essential and laudable, shifting focus from food security to nutrition security, or healthy nutritional state, is similarly risky because food security is a necessary condition for a healthy nutritional state, or nutrition security. Instead, focus should be given to action-oriented research examining the multiple systemic, political–economic factors that perpetuate food insecurity and make a healthy nutritional state unachievable for a large proportion of the US population. Those factors include inequitable and exclusionary social policies, lack of jobs that pay living wages, food advertising to adults and children, inequitable education funding mechanisms and low education attainment, and trends in corporate food production and marketing that strongly influence nutritional state in all sociodemographic groups. Nutrition scientists and other leaders in the field can play important roles in mitigating the adverse influence of these factors; however, continued insistence on shifting attention, resources, and effort from reducing and eliminating food insecurity to nutrition security is certain to be damaging to those living with food insecurity and others in need of improvement in their nutritional state.

References

- Knowles M, Rabinowich J, Ettinger de Cuba S, Cutts DB, Chilton M. "Do you wanna breathe or eat?": Parent perspectives on child health consequences of food insecurity, trade-offs, and toxic Stress. *Matern Child Health J*. 2016;20(1):25-32.
- Anderson SA. Core indicators of nutritional state for difficult-to-sample populations. *J Nutr*. 1990;120(11 Suppl):1557-1600.
- Odoms-Young A, Bruce MA. Examining the impact of structural racism on food insecurity: implications for addressing racial/ethnic disparities. *Fam Community Health*. 2018;41(Suppl 2):S3-S6.
- Drennen CR, Coleman SM, Ettinger de Cuba S, et al. Food insecurity, health, and development in children under age four years. *Pediatrics*. 2019;144(4):e20190824.
- Shankar P, Chung R, Frank DA. Association of food insecurity with children's behavioral, emotional, and academic outcomes: a systematic review. *J Dev Behav Pediatr*. 2017;38:135-150.
- Cook JT, Black M, Chilton M, Cutts D, et al. Are Food insecurity's health impacts underestimated in the U.S. population? Marginal food security also predicts adverse health outcomes in young U.S. children and mothers. *Adv Nutr*. 2013;4:51-61.
- Cook JT. Clinical implications of household food security: definitions, monitoring, and policy. *Nutr Clin Care*. 2002;5(4):152-167.
- Ettinger de Cuba S, Casey P, Cutts D, et al. Household food insecurity positively associated with increased hospital charges for infants. Accessed May 6, 2022. <https://digitalcommons.library.tmc.edu/cgi/viewcontent.cgi?article=1355&context=childrenatrisk>
- Cook JT, Frank DA. Food security, poverty, and human development in the United States. *Ann N Y Acad Sci*. 2008;1136:193-209.
- Cook JT, Frank DA, Berkowitz C, et al. Food insecurity is associated with adverse health outcomes among human infants and toddlers. *J Nutr*. 2004;134(6):1432-1438.
- Coleman-Jensen A, Rabbitt MP, Gregory CA, Singh A. Household food insecurity in the United States in 2020. Accessed May 6, 2022. <https://www.ers.usda.gov/webdocs/publications/102076/err-298.pdf?v=5431.3>
- Perez-Escamilla R, Segall-Correa AM. Food security measurement and indicators. *Rev Nutr*. 2008;21(Suppl):15s-26s.
- Bickel G, Nord M, Price C, Hamilton W, Cook J. Guide to Measuring Household Food Security, Revised 2000. Accessed May 6, 2022. <https://fns-prod.azureedge.us/sites/default/files/FSGuide.pdf>
- Andrews MS, Prell MA, Eds. Second Food Security Measurement and Research Conference, Volume II: Papers. Accessed May 6, 2022. https://www.ers.usda.gov/webdocs/publications/46448/31750_fanr111-2_002.pdf?v=0
- Food and Agriculture Organization of the United Nations. The state of food insecurity in the world 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition. Accessed May 6, 2022. <https://www.fao.org/publications/card/en/c/d63542a7-6eb0-5284-9c7d-a960894b9183/>
- Mozaffarian D, Fleischhacker S, Andres JR. Prioritizing nutrition security in the US. *JAMA Viewpoint*. 2021;325(16):1605-1606.
- Rodgers A, Woodward A, Swinburn B, Dietz W. Prevalence trends tell us what did not precipitate the US obesity epidemic. *Lancet*. 2018;3:e162-e163.
- Ogden CL, Fakhouri TH, Carroll MD, et al. Prevalence of obesity among adults, by household income and education – United States, 2011. *MMWR Morbid Mortal Wkly Rep*. 2017;66:1369-1373.
- Poblacion A, Ettinger de Cuba S, Cook J. Comparing food security before and during the COVID-19 pandemic: considerations when using measures. *J Acad Nutr Diet*. 2021;121(10):1945-1947.
- US Senate Committee on Agriculture, Nutrition, and Forestry. The state of nutrition in America. Accessed May 6, 2022. <https://www.agriculture.senate.gov/hearings/the-state-of-nutrition-in-america-2021>
- Berg J, Gibson A. Why the world should not follow the failed United States model of fighting domestic hunger. *Int J Environ Res Public Health*. 2022;19:814.
- Boylard EJ, Whalen R. Food advertising to children and its effects on diet: review of recent prevalence and impact data. *Pediatr Diabet*. 2015;16(5):331-337.
- Zimmerman FJ, Shimoga SV. The effects of food advertising and cognitive load on food choices. *BMC Public Health*. 2014;14:342.
- Harris K. "Forty years of falling manufacturing employment." Beyond the numbers: employment and unemployment. Accessed May 6, 2022. <https://www.bls.gov/opub/btn/volume-9/forty-years-of-falling-manufacturing-employment.htm>
- Davis GF, Kim S. Financialization of the economy. *Annu Rev Sociol*. 2015;41:203-221.
- Pickett KE, Wilkinson RG. Income inequality and health: a causal review. *Soc Sci Med*. 2015;128:316-326.
- Nestle M. *Food Politics: How the Food Industry Influences Nutrition and Health*. University of California Press; 2013.
- Edelman M. Hollowed out Heartland, USA: how capital sacrificed communities and paved the way for authoritarian populism. *J Rural Studies*. 2021;82:505-517.
- Howard PH. *Concentration and Power in the Food System: Who Controls What We Eat?* Bloomsbury Academic, Bloomsbury Publishing; 2016.
- Gundersen C. The Supplemental Nutrition Assistance Program: improving health by decreasing food insecurity. *Ann Intern Med*. 2021;174(12):1751-1752.

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