REVIEW ARTICLE

NUTRITION IN MEDICINE
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Effects of Food and Nutrition Insecurity on Global Health

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In all countries worldwide, people are affected by hunger and food insecurity, with the greatest effects among those with the least access to resources.[1] Food and nutrition insecurity contributes to malnutrition and is associated with communicable diseases, noncommunicable diseases, and poor mental and physical health.[2-4] In 2022, approximately 9% of the international population experienced hunger (an end result of food insecurity), and nearly 30% experienced moderate-to-severe food insecurity.[1] Ensuring food availability and accessibility requires consideration of complex interactions among social, economic, political, and environmental factors that profoundly affect physical, mental, emotional, and social health and overall well-being.[5] This review defines food and nutrition insecurity, describes assessment, examines populations at highest risk, and explores mechanisms and associated health consequences in diverse contexts. Finally, actionable policies that may contribute to food and nutrition security are considered.

Definition and Drivers of Food and Nutrition Security and Insecurity

The U.N. Food and Agriculture Organization (FAO) provides the most commonly accepted definition of food and nutrition security: "[Food security] exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."[1,5] The specification of food that is "sufficient" and "nutritious" emphasizes energy sufficiency (enough food), combined with appropriate dietary diversity and nutrient density (nutritious food).[6] There have been calls to distinguish "nutrition insecurity" from "food insecurity."[7] Nutrition insecurity can result from factors beyond food insecurity and thus affects a much larger proportion of the population, whereas the focus of food insecurity may be on agriculture and food markets rather than health.[8] Conversely, a focus on nutrition security could lead to the redirection of resources away from people who disproportionately experience the effects of economic, social, and structural inequities. Interventions that deliver nutrition and emphasize the role of food security help to enhance nutritional status, promote well-being, and prevent and treat disease.[8,9] Throughout this review, I refer to food and nutrition insecurity jointly, even though food insecurity and nutrition insecurity are emerging as separate concepts.

Six dimensions have been identified to characterize food and nutrition security. The first three dimensions are availability, access, and utilization of food and

KEY POINTS

EFFECTS OF FOOD AND NUTRITION INSECURITY ON GLOBAL HEALTH

- Food and nutrition security exists when all people at all times have access to nutritious food for the prevention and treatment of disease and the promotion of health and well-being.
- Food and nutrition insecurity disproportionately affects those with the fewest resources. Two thirds of persons in low-income countries are affected, and in high-income countries, disadvantaged people and households are at the highest risk.
- The risk factors for and drivers of food and nutrition insecurity include political conflict, climate change, adverse weather events, structural violence (inequities and injustices that are built into and perpetuated by systems), and poverty.
- Any level of food and nutrition insecurity can have health consequences. Food and nutrition insecurity is associated with malnutrition, growth faltering, infections, poor maternal and child health outcomes, and chronic conditions through nutritional, psychological, and behavioral pathways.
- Resolving food and nutrition insecurity requires nutrition-sensitive and nutrition-specific interventions at multiple levels to affect upstream contributors (e.g., agriculture and income) and downstream contributors (e.g., food access and food literacy).
- Health service providers should consider screening patients for food and nutrition insecurity, with referral to a food safety net or "food as medicine" program as appropriate. Clinicians should also advocate for changes to policies and programs that directly affect the ability of people, families, and communities to feed themselves with dignity.

nutrition. The other three dimensions encompass the broader conditions that are necessary for food to be available, accessible, and utilized — that is, stability, sustainability, and agency. The definition and components of each dimension of food and nutrition security are summarized in Table 1.

Systemically, the predominant drivers of or risk factors for international food and nutrition insecurity are political conflict, climate change, adverse weather events, adverse consequences of international trade, economic instability, and social and income inequalities.[9] Countries affected by more than one of these risk factors have the highest prevalence of food and nutrition insecurity.[9] Examples of international events involving climate change, war, famine, and political pressure that contributed to food and nutrition insecurity in 2024 are provided in Table S2 in the Supplementary Appendix, available with the full text of this article at NEJM.org.

ASSESSMENT OF FOOD AND NUTRITION SECURITY

Measuring food and nutrition security or insecurity fully is challenging. A comprehensive assessment of food and nutrition security requires evaluations of dietary quality, nutritional status, the environment, climate, income with respect to poverty level, equity, and sustainability.[10] The assessment must be performed at the population level to inform policy but must also be sufficiently granular to inform interventions at the household and individual levels. Table S3 summarizes the tools currently used to assess food and nutrition security.

Since international indicators of food insecurity can mask household and personal experience, experience-based surveys that can assess the severity of food insecurity at the household or individual level are gaining traction (Table S4).[11] Experience scales highlight a continuum of experiences and draw attention to social inequalities between and within countries. Current scales make assumptions with regard to food procurement and the household; thus, foods that are obtained without being purchased, nontraditional household structures, and housing insecurity may not be accurately represented in the data.[12]

The failure to consume a nutritious diet is now increasingly recognized as the largest contributor to the international burden of disease.[13] The FAO has responded by measuring and collecting data on the affordability of diets that align with dietary guidelines.[9] Although the concept of nutrition security as a separate construct is emerging, no tools for widescale measurement of nutrition security are currently validated.[14,15]

Table 1. Dimensions of Food and Nutrition Security.*

Dimension	Description
Food availability	Enough safe, healthy, nutritious, diverse, and culturally acceptable food is available in the communities in which people live, through either domestic production or imports. Food availability is affected by agriculture, transportation, manufacturing, international trade, and social policies. The largest international threats to food availability are climate change, political conflict, and economic underdevelopment.
Food access	Physical access: sufficient infrastructure and means are available for people to physically procure foods without undue burden on household resources. Economic access: income is sufficient to meet the needs of daily living, and nutritious food is affordable. Social access: access to food is not restricted by personal circumstances or characteristics and does not require stigmatized behavior (e.g., begging).
Food utilization	Physiologic utilization: nutrients are effectively absorbed and metabolized by the body, processes that require a safe water supply and adequate sanitation and hygiene. Social and informational utilization: reliable information on food safety, nutrition, and food literacy is available; social utilization also includes intrahousehold distribution of food, which affects the ability of individual members of the household to obtain food. Household resource utilization: households have access to equipment and space required to store, prepare, and eat food, as well as access to mediators of sanitation (e.g., soap and toilets).
Stability	Availability of, access to, and utilization of nutritious food require a stable system that ensures food irrespective of seasonal variation, weather events, natural disasters, pandemics, violence (civil and domestic), and economic volatility.
Sustainability	Stability accounts for short-term disruptions, whereas sustainability entails the connections between ecosystems and economies to support food security across generations. Food practices, economies, and social systems need to contribute to the long-term regeneration of resources. Food systems are responsible for the greatest proportion of all greenhouse gas emissions, and moving toward more sustainable food systems will be essential to ensure future food security.
Agency	Agency involves the capacity for persons and communities to make choices about food and access to food. Agency implies that persons and communities can create a food system that meets their needs (nutritionally, economically, socially, and culturally) and that is environmentally, economically, and socioculturally sustainable. Agency is affected by power imbalances among countries, citizens, and corporations, as well as by differential access to resources and information.

* More detailed information is provided in Table S1 in the Supplementary Appendix, available with the full text of this article at NEJM.org.

EPIDEMIOLOGY OF FOOD AND NUTRITION INSECURITY

On the basis of the FAO Food Insecurity Experience Scale, 2.33 billion people worldwide had moderate-to-severe food insecurity in 2023, and 864 million had severe food insecurity. In other words, 864 million people reported having reduced dietary intake for a day or going for at least an entire day without food within the past 12 months because of lack of money or resources.[9] In countries designated as low income by the World Bank, 64.5% of the population experienced moderate-to-severe food insecurity between 2021 and 2023.[9] In the same period, the prevalence of moderate-to-severe food insecurity in low-to-middle-income, upper-middle-income, and high-income countries was 43.1%, 12.9%, and 8.0%, respectively.[4] Although the prevalence of food insecurity is known to decrease with the increasing economic development of a country, economic prosperity does not guarantee food and nutrition security. In high-income countries, low national prevalence of food and nutrition insecurity may not accurately represent households and persons experiencing food and nutrition insecurity, especially if income inequality exists within the country.[16] Common risk factors for food and nutrition insecurity are outlined in Table S5.

Populations and households that have been subjected to drivers of food and nutrition insecurity — such as political conflict, climate change, and adverse weather events (e.g., floods or drought) — have the highest risk of food and nutrition insecurity. The World Food Program

currently provides food aid (distribution of selected foods to meet energy needs) and food assistance (which may involve distribution of nonfood items such as cash transfers) to more than 123 countries affected by emergencies as a direct result of these drivers.[17] Even in the absence of an emergency and with food generally available (though not necessarily nutritious), poverty, a low level of education or no education, unemployment or underemployment, or employment in underpaid or precarious work increases the risk of financial inability to meet household food needs.[18-20]

The risk of food and nutrition insecurity varies across the stages of life. Women of childbearing age, pregnant women, children, and older adults, who have a higher requirement for nutrient-dense foods than the general population, are at increased risk, and in particular, households headed by women and households with children have a greater prevalence of food and nutrition insecurity than those headed by men and those without children.[21,22] In addition, the health status of both adults and children affects health expenditure, income generation, and the functional ability to procure food.[23,24] Finally, marginalization, domestic and family violence, structural violence (inequities and injustices that are built into and perpetuated by systems), and discrimination related to racism, sexism, or homophobia can all increase the risk of food and nutrition insecurity.[25,26] Consequently, the risk of food and nutrition insecurity is increased among people who experience discrimination and violence because of race, skin color, sex, or gender identity; migrants and refugees; and Indigenous people.[27-32] The prevalence of food and nutrition insecurity among Indigenous people living in colonized countries, who were dispossessed of lands and rights, is six times as high as that in the non-Indigenous population.[27,31]

FOOD INSECURITY AND HEALTH

Any level of food and nutrition insecurity can affect health.[11] Food plays important roles in supporting growth and development, preventing disease, and enhancing well-being. Table 2 lists health consequences of food insecurity in adults and children. Most health consequences cited in Table 2 persist after adjustment for income and demographic factors, which suggests an effect of food insecurity beyond that mediated by poverty alone. Many of these associations are bidirectional. For example, mental illness may limit the ability to earn an income, secure stable housing, or engage in the planning and preparation of meals, which may lead to food and nutrition insecurity. Conversely, food and nutrition insecurity may lead to the development and exacerbation of mental illness.[33] Although severe food and nutrition insecurity, which manifests as hunger, is associated with the most severe health consequences, growing evidence suggests a dose–response association between the level of food insecurity (starting with marginal insecurity, which is marked by anxiety surrounding the procurement of food) and poor health outcomes, including suboptimal child development.[11] Since very little of the available evidence comes from studies that have considered dietary quality or diversity, we lack an understanding of the independent and synergistic contributions of nutrition insecurity.

PATHWAYS LINKING FOOD AND NUTRITION INSECURITY TO HEALTH

Food and nutrition insecurity can lead to poor physical and mental health through nutritional, psychological, and behavioral pathways.[34] All three pathways may contribute to increases in chronic stress and the cumulative physiologic load on the human body, with the potential to alter epigenetic information (e.g., telomere length and DNA methylation) that appears to be transferable across generations.[35-38] The nutritional pathway is supported by biochemical evidence. Physiologic evidence exists for the psychological pathway, but the association of mental health with food and nutrition insecurity has yet to be fully elucidated. The behavioral pathway has been identified through accounts of lived experience.

NUTRITIONAL PATHWAY

Three main factors contribute to the nutritional pathway that links moderate and severe food and nutrition insecurity to potential health consequences: maternal nutritional status and feeding practices, which may directly or indirectly

Table 2. Health Effects of Food and Nutrition Insecurity (FNI).*

Affected Population and Health Effects	Description of Effects or Associated Factors
Pregnant women, children, and adolescents	
Gestational weight gain and adverse pregnancy outcomes	Low-income countries: micronutrient deficiencies, low dietary diversity, and low caloric intake associated with poor weight gain, preterm birth, and low birth weight Middle- and high-income countries: weight gain above or below recommended levels; gestational diabetes
Death	All countries: undernutrition, which accounts for nearly half of all deaths among children <5 yr of age, with increased mortality from infectious diseases
Malnutrition and growth faltering	Low-income countries: micronutrient deficiencies, particularly iron, vitamin A, and zinc deficiencies High-income countries: children who experience FNI at increased risk for being underweight before 5 yr of age and having overweight or obesity at 5 yr or older
Infectious diseases	Low-income countries: children more susceptible to respiratory and diarrheal diseases, with higher associated mortality High-income countries: increased rates of hospitalization for infections among children
Impaired child development	All countries: elevated risk of developmental delay, poor cognitive and academic outcomes, and internalizing (withdrawing) and externalizing (acting out) behaviors; poor development of interpersonal skills; children living in households with FNI less ready for school, with need for increased educational support
Mental health and psychological distress	Adolescents in all countries: increased risk of suicidal ideation, mood and anxiety disorders, psychological distress, and loneliness
Disordered eating	Adolescents in high-income countries: increased risk of disordered eating — specifically, binge eating
Adults	
Death and reduced life expectancy	All countries: premature death and increased all-cause mortality, as well as reduced life expectancy Most countries: triple burden of disease (undernutrition, overnutrition, and micronutrient deficiencies) related to FNI, with increased deaths from noncommunicable diseases
Generally poor health	All countries: poor physical health, mental health, and quality of life
Infectious diseases	Low-income countries: increased susceptibility to respiratory-tract infections, diarrheal disease, HIV infection, and tuberculosis; food insecurity also associated with worse outcomes of HIV infection and tuberculosis
Mental health disorders	All countries: increased risk of mental illness, including anxiety disorders, mood disorders, psychological distress, and suicidal ideation, as well as increased stress and sleep disorders
Weight effects	Low-income countries: underweight among poorest women with severe FNI Middle- and high-income countries: increased risk of overweight, with women more susceptible than men; underweight among women with severe FNI
Noncommunicable diseases	Low-income countries: emerging evidence of hyperlipidemia, hypertension, and obesity High-income countries: metabolic syndrome, coronary artery disease, diabetes, and hypertension, in a dose-dependent manner; chronic pain, restrictive lung disease, asthma, dental caries, kidney stones, and metabolic dysfunction–associated steatotic liver disease
Diabetes	High-income countries: poor glycemic control in adults with type 2 diabetes mellitus and FNI, missed eye examinations and vision loss, hypoglycemic medication nonadherence, and hospitalizations
Disordered eating	High-income countries: binge eating disorder and bulimia nervosa when FNI is moderate or severe
Older adults	
Generally poor health	All countries: cognitive impairment and more rapid decline in executive function, as well as increased risk of sarcopenia, falls, and frailty

* A full, annotated list of health consequences is provided in Table S6. HIV denotes human immunodeficiency virus.

affect infant outcomes and the potential for future adult disease in the affected infant; poor dietary quality with energy deficits (severe food insecurity); and poor dietary quality in the absence of energy deficits (moderate food insecurity).

Maternal Nutritional Status and Feeding Practices

The importance of dietary adequacy and quality in the first 1000 days of life (from periconception to the age of 2 years) is well known.[39,40] Periconceptual and prenatal maternal food and nutrition insecurity, characterized by diets that provide insufficient energy, may lead to intrauterine growth restriction, manifested as low birth weight (<2500 g).[39] Babies with low birth weight are at increased risk for suboptimal growth and development, illness, and death. Inadequate diets and subsequent rapid catch-up growth are linked to epigenetic programming, which may lead to an increased risk of noncommunicable disorders (including cardiovascular disease, obesity, the metabolic syndrome, diabetes, depression, and accelerated aging in adulthood), a phenomenon termed "perinatal programming" or the "developmental origins of health and disease."[39,41] Periconceptual and prenatal micronutrient deficiencies — in particular, iron, folate, iodine, vitamin A, and zinc deficits — can affect child development, growth, and immunity and are associated with the development of disease later in life.[42]

For infants and children under the age of 2 years, the World Health Organization (WHO) recommends exclusive breast-feeding until 6 months of age, followed by breast-feeding that is supplemented with appropriate complementary foods until 2 years of age.[43] International breast-feeding rates are suboptimal, and the marketing practices of formula manufacturers contribute to wasting, stunting, and death in children.[44] According to one estimate, the implementation of universal breast-feeding could prevent 823,000 deaths per year in children under 5 years of age.[43] A lack of availability of and access to complementary foods that are rich in iron, iodine, and zinc, combined with a lack of clean water, sanitation, and hygiene, leads to diarrheal disease. Diarrhea, in turn, affects the utilization of food and nutrition by causing malabsorption during a critical window, which affects survival, physical and cognitive development, and a child's overall potential.

Dietary Quality

In the presence of conflict or other emergencies in low-income countries or poverty in high-income countries, people can have inadequate quantities of food (energy deficits), combined with compromised dietary quality. In these situations, there is an overreliance on starchy staple foods (e.g., rice, bread, potatoes, and cassava), with lower intake of high-quality protein sources and foods supplying essential micronutrients. This dietary pattern results in undernourishment and micronutrient deficiencies.[1] In general, across countries, people experiencing food and nutrition insecurity increase consumption of energy-dense, hyperpalatable (predominantly ultra-processed) foods and decrease consumption of fruits and vegetables, which results in an overall diet that is low in diversity and quality.[45-48] These unhealthy diets contribute to systemic inflammation, abdominal obesity, and an elevated risk of noncommunicable diseases.[49,50] Low dietary quality and food deprivation have also been linked to gut microbiome disruption and are implicated in hepatic inflammation, mental health disorders, and poor general health.[51]

Food and nutrition insecurity is often characterized by cycles of "feast and famine," which correlate with seasonal variations in food availability in low-income countries and pay cycles in high-income countries.[1] In high-income countries, many households with food and nutrition insecurity have sufficient access to high-quality food at the beginning of a pay cycle, but adults in those households may consume lower-quality food or limit their food intake by the end of the cycle.[52] The lack of food predictability may trigger insulin resistance, an evolutionary mechanism for storing energy and conserving muscle mass.[53,54] In middle- and high-income countries, this state of insulin excess occurs in an environment with a surplus of high-energy foods that are hyperpalatable and affordable but potentially proinflammatory.[55] These factors contribute to the development of overweight, obesity, and cardiometabolic disease.[7,56,57]

Table 3. Nutrition-Specific and Nutrition-Sensitive Interventions for Food and Nutrition Security.*

Nutrition-Specific Interventions	Nutrition-Sensitive Interventions
Fostering climate change mitigation and disaster preparedness	Upholding the right to food
Transforming food systems so that they are resilient and integrate human agency	Providing nutrition-sensitive agricultural interventions (e.g., homesteading, small-animal production, biofortification)
Reducing waste across the food system and promoting an equitable and sustainable food supply	Ensuring that people have access to resources for generating an income, including loans, productive assets (e.g., tools), employment, training, and support
Stabilizing food prices	Providing social protection and income support such as cash transfers and disability insurance
Promoting breast-feeding and counteracting marketing of artificial milk for infants and children	Ensuring minimum wage, wage growth, and employee benefits (e.g., sick leave)
Fortifying food	Providing universal access to affordable, high-quality education
Improving access to food production resources such as land, seeds, and water	Providing universal access to affordable health care
Promoting equitable trade policies	Providing affordable, safe housing
Strengthening regulatory and surveillance systems to maintain food safety	Providing affordable child care
Ensuring stable and affordable energy sources for heat and cooking	Addressing commercial determinants of health (e.g., aggressive marketing of ultraprocessed foods)
Ensuring access to a safe, stable water supply; improving sanitation facilities	Reducing inequities, structural racism, and intimate-partner and domestic violence
Providing access to food safety nets in the form of food aid during emergencies (e.g., ready-to-use therapeutic food), nutrition-focused food banks and pantries, and food vouchers	
Increasing access to nutritious food within health services through a "food as medicine" approach, with colocated pantries, medically tailored food boxes, or prescriptions	
Providing school meals	
Eliminating food deserts and increasing access to healthy food	
Building food and nutrition literacy (through life-skills development in schools and personal food and nutrition education)	

* A full, annotated list of interventions is provided in Table S7.

PSYCHOLOGICAL PATHWAY

The psychological pathway involves toxic stress (i.e., stress accumulated through adverse experiences and trauma) and the association of toxic stress with a reduced quality of life, decreased quantity and quality of sleep, and activation of hormonal cascades.[36] The main hormonal axis implicated is the hypothalamic–pituitary–adrenal axis. Physiologic and psychological stressors may cause secretion of corticotropin-releasing hormone from the hypothalamus and the downstream release of corticotropin and cortisol.[58] The potential systemic effects, including growth restriction in children, weight gain in adolescents and adults, insulin resistance, immunosuppression, and mental health dysregulation, have been extensively described.[49,59,60] Toxic stress may also increase an appetite for hyperpalatable but often nutritionally suboptimal foods as a coping mechanism.[37,49] In addition, stress associated with food and nutrition insecurity may contribute to the development of eating disorders in high-income countries.[61]

BEHAVIORAL PATHWAY

The concept of a behavioral pathway acknowledges the complex decisions made by people and households with food and nutrition insecurity that can directly affect health. For example, food and nutrition insecurity may force trade-offs between food and heating or cooling (as seen during the 2022 international energy crisis) and between food and medical care or medications.[62-64] Severe food and nutrition insecurity is also associated with sexual risk-taking and unsafe sexual practices, which can lead to an increased incidence of sexually transmitted infections.[65-67]

Persons with food and nutrition insecurity may have unmet medical needs, owing to lack of routine care or health care access, and may forgo timely medical evaluation and treatment, with the result that diseases are undiagnosed and untreated or underdiagnosed and undertreated.[63,68] These associations grow stronger with more severe food and nutrition insecurity, and poor health outcomes are magnified in countries without universal health care coverage.[63]

RESOLVING FOOD AND NUTRITION INSECURITY

Resolving food and nutrition insecurity requires collaboration across multiple sectors and agencies. The 2018 Global Nutrition Report outlined a framework for addressing food insecurity that included nutrition-specific and nutrition-sensitive interventions, highlighting the need for food and nutrition to be considered together.[69] Nutrition-specific interventions have a direct effect on the proximal determinants of malnutrition, whereas nutrition-sensitive interventions affect broader determinants. Table 3 provides examples of such interventions. A previous focus on food sufficiency led to interventions that have failed to include stable access to nutritious food. In middle- and high-income countries, for example, food banking relies on donated foods that are predominantly ultraprocessed and counterproductive to the generation of health and well-being. Unless interventions explicitly address nutrition, it is unlikely that health will be positively affected. As compared with nutrition-specific interventions that may frame food and nutrition insecurity as a personal issue, nutrition-sensitive interventions are holistic approaches with broad and potentially positive effects on food security, economic prosperity, human and planetary health, and social equity. Given the association between food and nutrition insecurity and a range of adverse health outcomes, health care services are positioned to identify and address the issue with screening, referrals, immediate food support, and broader advocacy (Fig. 1).

SCREENING

A range of tools are available for use in health care settings to efficiently screen for food and nutrition insecurity. Anthropometric measures such as weight and mid-upper-arm circumference are used to screen for potential underweight status in children and adults, especially in low-income countries.[70] In middle- and high-income countries

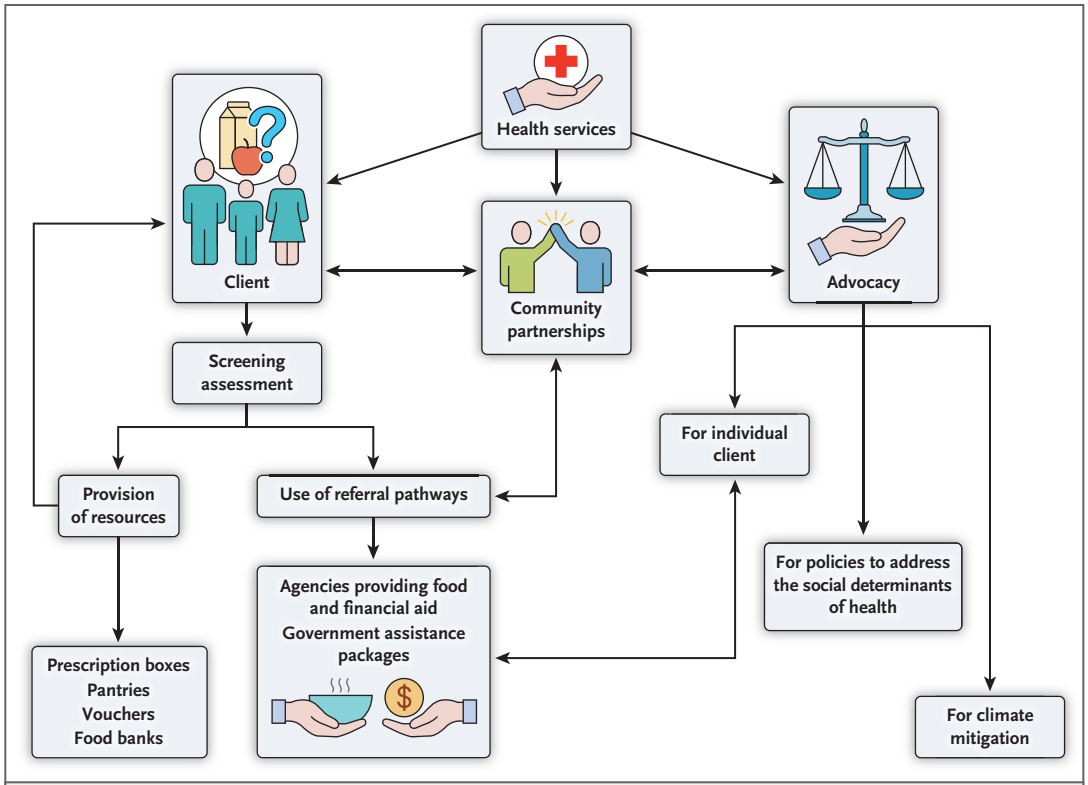

Figure 1. Health Service Actions for Addressing Household Food and Nutrition Insecurity.

where food and nutrition insecurity may be manifested as overweight or obesity, alternative screening tools are used.[71] In the United States, screening for food insecurity, but not yet for nutrition insecurity, has taken place predominantly in pediatric health care and adult primary care settings.[72,73] The two-question Hunger Vital Sign tool, which assesses food insecurity (and not hunger, despite its name), is the assessment tool with the most evidence to support the use and integration of the tool into health service workflows (Table S8). The sensitivity of a positive response to either question is 88 to 95%, and the specificity is 84 to 91%. An affirmative response to both questions has higher specificity but lower sensitivity for the identification of persons at risk for food insecurity.[74] In view of the potential stigmatization of food and nutrition insecurity, screening must be performed in a trauma-informed and culturally sensitive manner.

Screening for nutrition insecurity is in its infancy, but there is increasing recognition that people with both food and nutrition insecurity are likely to have more profound negative health outcomes than people with food insecurity alone. A single-question screening tool is being investigated as an adjunct to the Hunger Vital Sign.[75] This single question has high sensitivity (93%) but low specificity (78%) for nutrition insecurity and could potentially increase the health service burden if persons were misidentified as nutritionally insecure.

REFERRALS, SUPPORT, AND ADVOCACY

Screening for food and nutrition insecurity is effective only if the problem can be addressed once it has been identified. Clinicians, dietitians, and social workers should familiarize themselves with referral pathways, provide resources for directing persons with food and nutrition insecurity to food safety nets, and build community health partnerships that can address underlying trauma and social factors. Such supports may stretch beyond simple food relief to alleviate income and housing stress and, in theory, contribute to better overall health outcomes. The United States, unlike most other countries, has food and nutrition safety nets known as the Supplemental Nutrition Assistance Program (SNAP) and the Women, Infants, and Children (WIC) program, to which clients who meet eligibility criteria, including income requirements, can be referred.[76] Most other countries rely solely on charitable food assistance. Strong evidence indicates that charitable food assistance can be stigmatizing, which may contribute to the psychological pathway of poor health outcomes.[67] Health services are also increasingly adopting local "food as medicine" approaches, which provide access to food that is medically tailored to health conditions in the form of meal kits, food boxes, or prescriptions.[76]

Health professionals have a responsibility to advocate for policy changes that will ultimately improve population health, including nutrition-specific and nutrition-sensitive interventions. These interventions may include but are not limited to policies addressing climate change; transforming food systems; expanding affordable health care, child care, and housing; increasing the minimum wage and decreasing employment precarity; decreasing taxation on healthy food choices; banning racist practices; and optimizing ways to obtain food that promote agency.

SUMMARY AND CONCLUSIONS

Addressing food and nutrition insecurity requires cross-systems approaches that ameliorate the underlying drivers of insecurity while providing immediate food relief. The cost of food and nutrition insecurity and the effects on households, communities, and countries are profound. Governments should acknowledge the right to food and address food shortages, with the recognition that ameliorating hunger will improve the economy and health of the population. At the local level, clinicians and health and welfare service providers must understand the causes of food and nutrition insecurity and make screening and treatment part of routine practice. Health care professionals should advocate for changes that address the broad determinants of food and nutrition insecurity so that all persons, irrespective of geographic location, can have the opportunity to reach their full potential.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

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