Addressing Food Insecurity in Vulnerable Populations

A review of risk factors, health effects, screening, and resources.

ABSTRACT: Food insecurity affects people of all ages, in every area in which nurses work or volunteer. The U.S. Department of Agriculture describes food insecurity as the lack of "consistent, dependable access to adequate food for active, healthy living." The health effects of food insecurity include, but are not limited to, obesity, diabetes, hypertension, low birth weight, depression, and anxiety. Food insecurity is associated with single parenthood, low socioeconomic status, having three or more children, having low educational attainment, being a member of a racial or ethnic minority, renting a home, living in a city, and having a disabled household member. Veterans and military families; college students; members of the lesbian, gay, bisexual, and transgender community; and immigrants have also been identified as at elevated risk. The American Academy of Pediatrics, Academy of Nutrition and Dietetics, and AARP have called for innovative programs and universal screening tools to identify those who are experiencing or are at risk for food insecurity and connect them to available resources. In addition to screening patients for food insecurity and intervening on their behalf, nurses play a vital role in advocating for food-insecure families and supporting community involvement.

Keywords: food insecurity, screening, socioeconomic status

Food insecurity affects one in eight adults and one in six children in the United States.[1] Although the terms *food insecurity* and *hunger* are often used interchangeably, they are not synonymous. Hunger is a subjective feeling experienced by people, whereas food insecurity is a socioeconomic measure used to describe certain households. While a household may be subject to food insecurity, its members may or may not experience hunger.[2,3]

The U.S. Department of Agriculture (USDA) describes food insecurity as the lack of "consistent, dependable access to adequate food for active, healthy living."[1] According to data collected by the USDA, 41.2 million U.S. residents, including 12.9 million children, experienced food insecurity in 2016, though prevalence varies widely from state to state. Between 2014 and 2016, USDA data showed the prevalence of food insecurity ranging from 8.7% in Hawaii to 18.7% in Mississippi, with the national average being

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Twice a month, the Muslim Food Pantry in Flint, Michigan, distributes free food to anyone who needs it. A project of the nonprofit American Muslim Community Services, the pantry is run by volunteers and offers food, bottled water, and hygiene products to those who find themselves in a position of having limited or no food or clean water—the latter a result of the Flint water crisis. Photo by Jim West / The Image Works.

13%[1]—a far cry from the Healthy People 2020 goal of 6% or lower.[4] Nurses regularly interact with patients of all ages for whom food insecurity is a hidden barrier to health and well-being. These statistics underscore the importance of nursing intervention through screening, referral, and involvement in innovative solutions within patients' communities.

There are four dimensions of food insecurity: availability, access, utilization, and stability.[5] Whereas availability requires an adequate supply of healthy food options, access denotes their affordability and proximity. Utilization suggests a household's ability to benefit from the available healthy food options, given the cooking and feeding practices of its members. Stability requires all of these dimensions to be sustainable over time.

Food insecurity is categorized in one of two ways[1]:

- *low food security*, in which the quality and variety of the diet are reduced and there are problems with food acquisition, but food consumption and meal frequency are seldom affected
- *very low food security*, in which food intake is inadequate and eating patterns are disrupted

This article discusses the factors that contribute to food insecurity, the adverse health effects of food insecurity, and the populations at greatest risk. It also describes screening tools nurses can use to assess patients for food insecurity, as well as national and community resources to which nurses can refer vulnerable patients.

CONTRIBUTING FACTORS AND VULNERABLE POPULATIONS

Food insecurity is associated with low income, low educational attainment, belonging to a racial or ethnic minority, renting a home, living in an urban environment, being a single parent, having a disabled household member, and maternal depression.[6] Households with children; veterans and military families; college students; members of the lesbian, gay, bisexual, and transgender (LGBT) community; older adults; and immigrants have also been identified as being at elevated risk. Numerous factors can contribute to or perpetuate food insecurity, including high prices; unemployment; economic policies; and lack of social protections, such as health care and education.[7] Distance from a healthy food outlet further increases the

risk and severity of food insecurity, especially when transportation is a household concern.[8]

Households with children. In 2015 and 2016, at least 16.5% of American families with children under 18 experienced food insecurity, up from the 2007 prerecession level of 15.8%.[1] Families with three or more children have a higher prevalence of food insecurity than smaller families.[6] Although children may be sheltered from hunger in households with food insecurity because adult household members tend to reduce their own intake so the children can eat, they are not necessarily protected from food insecurity. In 2016, in nearly half of food-insecure households children experienced food insecurity, and in nearly 5% of those households, children experienced very low food security.[1]

Nurses can screen patients for food security in any clinical setting. Children and adults of all ages with frequent hospitalizations may be experiencing undetected food insecurity, which may be contributing to poor health outcomes.

Food-insecure, socioeconomically disadvantaged families were more often headed by mothers who had depression, psychosis spectrum disorder, or substance use disorder, or had experienced domestic violence.[9] Households with children who have chronic health, physical, developmental, or behavioral special needs are significantly more likely to experience both household and child food insecurity.[10,11] Socioeconomically disadvantaged families must often choose whether to allocate resources to medical care, medicine, household expenses, or food.

Veterans and military families. Food insecurity is also prevalent among veterans and active-duty military families. In a 2012 cross-sectional survey of veterans who had served in Iraq and Afghanistan, food insecurity was nearly double the national average (27% versus 14.5%) and very low food security was more than double the national average (12.1% versus 5.7%).[12] In this study, combat experience did not correlate with food insecurity, suggesting that socioeconomic factors such as employment and income may have a greater impact on food insecurity among veterans. During the spring of 2015, a cross-sectional survey of active-duty military families with at least one child under the age of six found that 9.4% of participants reported low food security and 4.7% reported very low food security.[6]

Immigrants. Complex and compounding factors, such as language barriers and fear of deportation as a result of exposure from applying for federal assistance programs, contribute to food insecurity among immigrants.[13] Children of foreign-born mothers living in the United States are more likely to experience food insecurity than children of U.S.-born mothers.[14]

Older Americans are more likely than their younger counterparts to be affected by limited income and high out-of-pocket medical expenses, two well-known correlates of food insecurity. Among older Americans, however, out-of-pocket medical expenses related to poor health may be a more reliable predictor of hardship and food insecurity than income. Medication underuse, chronic health issues with poor outcomes, increased health care expenses, and food insecurity may become a negative health cycle that goes undetected in the absence of food insecurity screening. Older adults who are food insecure have a greater rate of hospitalizations, ED visits, and clinical office visits than those who are food secure.[15]

College students and the LGBT community are two other vulnerable groups in which food insecurity has been found to be as high as 37% and 27%, respectively.[16,17] Food insecurity during college is associated with self-reported depression, poor health, and academic disruptions.[18] Within the LGBT community, food insecurity is more common among women, people between the ages of 18 and 49, members of racial or ethnic minorities, those without college degrees, those who are unmarried, and those with children in the home.[16]

These findings underscore the need to identify food insecurity in all of these vulnerable groups and make appropriate referrals.

FOOD INSECURITY AND QUALITY OF LIFE

Within all demographic groups, food insecurity is inversely associated with quality of life, potentially influencing or arising out of physical or mental health conditions and shaping both health behaviors and outcomes. Beyond the cost of human suffering, food insecurity in the United States is estimated to account for $77.5 billion in additional health care spending annually.[19]

Pregnancy complications. The newborns of women who report experiencing food insecurity during pregnancy are at greater risk for low birth weight and birth defects.[20,21] Food insecurity during pregnancy is also associated with higher postpartum weight gain and retention, as well as maternal stress.[22,23] Unwanted pregnancy increases the postpregnancy likelihood of food insecurity and family stressors.[24]

Intimate partner violence. Recent studies have associated food insecurity, as well as other socioeconomic hardships, with an increased risk of intimate partner violence and sexual victimization.[25,26] This risk is compounded for minority women who are experiencing additional socioeconomic hardships, such as housing or financial insecurity.[27,28]

Child health. Children who experience food insecurity have been found to have clinically significant behavioral problems compared with children who don't.[9] According to the American Academy of Pediatrics (AAP), such children are more often sick, more frequently hospitalized, and slower to recover from illness than their food-secure counterparts.[29] Food insecurity reduces a child's academic performance and contributes to stress, anxiety, and depression. And for children between the ages of four months and three years, it increases the risk of developmental problems.[29] In addition, children from food-insecure households have a 4% greater chance of developing asthma than children from food-secure households.[30] The more severe the household food insecurity, the greater the likelihood that young children and adolescents in the home will develop mental health disorders with impairment.[31]

Mental health and toxic stress. Depressive symptoms are independent risk factors for household and child food insecurity, which can compound the negative effects of poor mental health.[32,33] Mental health issues such as anxiety and depression can reduce the ability of caregivers to maintain steady employment, potentially exacerbating the mental health issues and, in turn, food insecurity.[34]

Food-insecure families report experiencing greater distress, anxiety, and depression than food-secure families.[35] The long-term mental health effects of stress as a result of chronic food insecurity as a young child can extend into adulthood.[36] Exposure to adverse childhood experiences, including food insecurity, which may trigger toxic stress, can alter brain structure and function, producing epigenetic changes that have intergenerational adverse effects on mental health, coping skills, educational and employment efforts, communication, and parenting skills.[32,37]

Obesity. Food insecurity sets up a cycle of obesogenic behaviors, with compensation leading to overconsumption of energy-dense, low-nutrient foods; decreased consumption of fruits, vegetables, and associated nutrients; disrupted eating patterns; and feelings of deprivation, which in turn lead to emotional overeating or binge eating when food is more readily available.[13] In other words, when adults and children experience food insecurity, which may manifest as disrupted eating patterns; limited food intake; or increased intake of inexpensive, calorie-dense, nutrient-poor food during times of limited resources, it may establish a subsequent pattern of overeating when resources are available. A longitudinal study of food insecurity in preschool children found that persistent household food insecurity—without hunger—was associated with a 22% increased risk of developing obesity, depending on maternal weight status.[38] Such findings suggest that targeting at-risk households for early intervention may help reduce overweight and obesity.

ADDRESSING FOOD INSECURITY IN NURSING PRACTICE

Nurses play a critical role in reducing food insecurity through screening, referral, and community education, and by integrating food insecurity assessment into nursing education.

Screening. A 2012 survey of health care providers by Hoisington and colleagues found that fewer than 25% of respondents routinely inquired about household food quality, and fewer than 13% routinely inquired about household food sufficiency.[39] While screening will not alleviate food insecurity, it provides an opportunity for nurses to connect patients in need with critical resources, such as the Supplemental Nutrition Assistance Program (SNAP) or the Special Supplemental Nutrition Program for Women, Infants, and Children.[40] It also helps nurses identify other stressors that affect child and family health, such as housing instability, exposure to violence within the home, and caregiver depression.[28,40,41] Nurses can screen patients for food security in any clinical setting. Children and adults of all ages with frequent hospitalizations may be experiencing undetected food insecurity, which may be contributing to poor health outcomes.

The Hunger Vital Sign, a validated two-question screening tool based on the USDA's 18-question Household Food Security Survey, has a sensitivity greater than 97%.[42,43] When using the Hunger Vital Sign screen, acknowledgment that either of the following two statements is "often true" or "sometimes true" (versus "never true") identified households at risk for food insecurity[43]:

- "Within the past 12 months, we worried whether our food would run out before we got money to buy more."
- "Within the past 12 months, the food we bought just didn't last and we didn't have money to get more."

Agreement with one or both statements also correlates with an increased risk of reporting poor or fair child health.[43] Both the AAP and AARP advocate using the Hunger Vital Sign for universal screening.[44] This tool has been effective as part of a clinic–community

Table 1. An Overview of Federal Food Assistance Programs

Program	Description
Food Distribution Programs	
Commodity Supplemental Food Program www.fns.usda.gov/csfp/commodity-supplemental-food-program-csfp	Through this program, the U.S. Department of Agriculture (USDA) supplements the diets of low-income older adults (60 years of age and older).
Food Distribution Program on Indian Reservations www.fns.usda.gov/fdpir/food-distribution-program-indian-reservations-fdpir	This program provides commodity foods to low-income Native American households, including the elderly, living on or near Indian reservations.
The Emergency Food Assistance Program www.fns.usda.gov/tefap/emergency-food-assistance-program-tefap	Under this program, the USDA makes food available to the states, which provide it to local agencies they have selected, usually food banks, which in turn distribute the food to soup kitchens and food pantries that directly serve the public.
Child Nutrition Programs	
Child and Adult Care Food Program www.fns.usda.gov/cacfp/child-and-adult-care-food-program	Each day, 2.6 million children in day care receive nutritious meals and snacks through this program, which also provides meals and snacks to 74,000 adults who receive care in nonresidential adult day care centers, meals to children residing in homeless shelters, and snacks and supper to youths in eligible afterschool programs.
Fresh Fruit and Vegetable Program www.fns.usda.gov/ffvp/fresh-fruit-and-vegetable-program	This program provides free fruits and vegetables to selected low-income elementary schools nationwide in order to increase children's fresh fruit and vegetable consumption, create healthier eating habits, and combat childhood obesity by improving children's overall diet.
National School Lunch Program www.fns.usda.gov/nslp/national-school-lunch-program-nslp	School districts and independent schools that take part in the program get cash subsidies and donated commodities from the USDA for each meal they serve. In return, they must serve lunches that meet federal requirements and offer free or reduced-price lunches to eligible children.
School Breakfast Program www.fns.usda.gov/sbp/school-breakfast-program-sbp	This program operates in the same manner as the National School Lunch Program. School districts and independent schools that choose to take part in the breakfast program receive cash subsidies from the USDA for each meal they serve. In return, they must serve breakfasts that meet federal requirements and offer free or reduced-price breakfasts to eligible children.
Special Milk Program www.fns.usda.gov/smp/special-milk-program	Participating schools and institutions receive reimbursement from the USDA for each half-pint of milk served. They must operate their milk program on a nonprofit basis and agree to use the federal reimbursement to reduce the price of milk for all children.
Summer Food Service Program www.fns.usda.gov/sfsp/summer-food-service-program	This program is the single largest federal resource for those schools and school districts that want to combine a feeding program with a summer activity program. Programs like the School Breakfast Program and National School Lunch Program end when school ends for the summer. The Summer Food Service Program helps fill the hunger gap.
Supplemental Nutrition Assistance Program (SNAP) www.fns.usda.gov/snap/supplemental-nutrition-assistance-program-snap	SNAP (formerly the Food Stamp Program) makes healthy food available to 28 million people each month via an EBT (electronic benefit transfer) card that can be used at most grocery stores. SNAP is the largest program in the domestic hunger safety net.
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) www.fns.usda.gov/wic/women-infants-and-children-wic	The WIC Program serves to safeguard the health of low-income women, infants, and children up to age five who are at nutritional risk by providing nutritious foods to supplement diets, information on healthy eating, and referrals to health care.

Table 1. Continued

Farmers Market Nutrition Program www.fns.usda.gov/fmnp/wic-farmers-market-nutrition-program-fmnp	This program provides fresh, unprepared, locally grown fruits and vegetables from local farmers markets to WIC recipients.
Senior Farmers Market Nutrition Program www.fns.usda.gov/sfmnp/senior-farmers-market-nutrition-program-sfmnp	This program awards grants to states, U.S. territories, and federally recognized Indian tribal governments to provide low-income seniors with coupons that can be exchanged for eligible foods at farmers markets, roadside stands, and community-supported agriculture programs.

USDA Food and Nutrition Service; 2018: www.fns.usda.gov/programs-and-services.

collaboration in improving the health outcomes of premature infants from low-income families.[40]

RESOURCES AND PROGRAMS

Beyond screening, nurses can educate patients and community members on immediate solutions and creative approaches to the problem of food insecurity, and can recommend various local, national, and community resources and educational programs (see Table 1 for a list of federal food assistance programs).

Immediate assistance: 211. A United Way program, 211, is available in all states via the organization's website, 211.org, or telephone number, 2-1-1, 24 hours a day, 365 days a year, in more than 100 languages. The website and telephone number provide free and anonymous links to local resources for food, including food pantries, senior meals, and farmers markets, as well as community resources for mental health services, shelter, and utility assistance. Nurses can discover how to connect patients with available resources by calling 211 or visiting the website. Becoming familiar with available resources is the first step in providing food-insecure patients, families, and community members with helpful guidance.

Community food programs serve a variety of needs. For example, the Summer Food Service Program is a federally subsidized program through which community sponsors, such as libraries, schools, or private nonprofit organizations, host meals for food-insecure children (and for food-insecure adults with mental or physical disabilities) during the summer months when school is not in session.[45] The Senior Farmers Market Nutrition Program, SNAP farmers market incentive vouchers, and community-supported agriculture programs address inadequate fresh fruit and vegetable consumption among participants, while promoting socialization.[46] Such programs have been particularly helpful in improving access to high-quality, culturally appropriate foods among older adults,[47] and in Native American communities.[48] Programs that deliver meals to the home, like Meals on Wheels, can help improve the health outcomes of older patients recently discharged from a hospital or seniors with limited mobility. Among Americans ages 60 and older, such programs have been shown to improve quality of life and promote aging in place.[49, 50]

Educational programs focused on nutrition and budgeting for healthy, affordable, culturally appropriate (familiar and desirable) foods can be helpful.[51-53] In some areas, SNAP offers on-site education or works in collaboration with community partners to teach food-insecure clients how to shop, cook, and budget for healthy options.[54]

Information about food insecurity assessment and related screening tools can be incorporated into all areas of nursing education.

Creative approaches include those in which community partners (food collaboratives, grocery stores, farmers markets, and health centers, for example) come together to initiate prescriptions for healthy food and nutritional education, as they did in Food Rx, a program developed on Chicago's South Side,[55] or St. Christopher's Foundation for Children, the Philadelphia initiative through which health care providers write prescriptions for a farm-to-families program, enabling families to receive a box of fresh produce at a reduced cost.[44] On-site food pantries, healthy food vouchers, community gardens, prescriptions or referrals to community-supported agriculture, and food vouchers for farmers market produce are all examples of the blossoming collaboration between health care providers and community partners.[56]

NURSING EDUCATION

Information about food insecurity assessment and related screening tools can be incorporated into all areas of nursing education, from maternal and infant

health to geriatric and psychiatric nursing. Additionally, we recommend that the National Council Licensure Examination (known as NCLEX) incorporate questions about food insecurity assessment. Outside the classroom, both students and faculty at nursing schools can participate in health fair and on-campus food insecurity screenings and food banks. ▼

For 40 additional continuing nursing education activities on nutrition screening and support, go to www.nursingcenter.com/ce.

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PROVIDER ACCREDITATION

LPD will award 1 contact hour for this continuing nursing education (CNE) activity. LPD is accredited as a provider of CNE by the American Nurses Credentialing Center's Commission on Accreditation.

This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1 contact hour. LPD is also an approved provider of CNE by the District of Columbia, Georgia, and Florida #50-1223. Your certificate is valid in all states.

PAYMENT

The registration fee for this test is $12.95.