



Social Determinants of Health and Dementia Risk: Food Insecurity

What Is Already Known

Access to nutritious foods that support healthy eating patterns is a key component of overall health and well-being. However, millions of people across the United States face barriers that prevent them from obtaining these essential foods. In 2021, a report from an inter-agency workgroup convened by the National Institutes of Health noted the urgent need for research on identifying evidence-based solutions and actions to reduce nutrition disparities.

Food insecurity typically does not exist in isolation; people who are food-insecure generally experience multiple overlapping issues, such as lack of affordable housing, social isolation, economic disadvantage, inequities in the built environment, limited medical advantages and other barriers to promoting cognitive health.

Background and Evidence Base

What Is Food Insecurity?

The definition of food insecurity in the United States is sometimes limited to financial access to food, or food affordability. However, food insecurity is broader than that. People often make food choices on the basis of what is available to them, and there are documented disparities in the availability of healthier foods. These disparities result from issues such as distance to supermarkets and transportation to them, the existence of “food deserts” (i.e., areas where high-quality food is difficult to access), and the prevalence of “food swamps” (i.e., areas where fast food and convenience stores are more prevalent than grocery stores or restaurants with healthier options). For many, there is a stigma associated with participation in food assistance programs, which would help improve affordability of healthy foods. Additionally, programs that address food insecurity tend to focus on quantity, not quality, leading to increased consumption of inexpensive, over-processed foods.

Possible mechanisms linking food insecurity to adverse health outcomes include nutritional pathways, psychological pathways (such as added stress from being food-insecure), behavioral trade-offs (e.g., spending money on fresh produce and unprocessed nutrient dense foods may result in less money to spend on medications, gym

memberships, and social engagement), and prevention/management of chronic diseases. Additionally, an individual with food insecurity may have time constraints, such as from working multiple jobs and single parenting, that limit the time to prepare more nutritious home cooked meals using fresh foods or to travel from a food desert to a grocery store.

Prevalence of Food Insecurity

Multiple surveys have documented the prevalence of food insecurity in the United States. In 2020, an estimated 1 in 8 Americans experienced food insecurity, which the U.S. Department of Agriculture (USDA) defines as a lack of consistent access to food that fosters an active, healthy lifestyle. Surveillance data from the USDA show that food insecurity is higher among economically disadvantaged households, many of whom are Black and Hispanic. Food insecurity among Black Americans 50 years or older has increased dramatically in recent years while remaining largely unchanged for older adults in other racial and ethnic groups.

Although the COVID-19 pandemic exacerbated food insecurity and heightened awareness of this issue, the rate of food insecurity in the United States has been greater than 10% since the 1980s, suggesting that there are underlying structural and systemic causes, including a fragile food system and disparities that foster food-insecurity year after year.

Food Insecurity and Risk for Dementia

Diet has been found in several studies to be related to Alzheimer's disease risk and is therefore a potentially modifiable risk factor. Higher intake of omega-3 fatty acids, antioxidant nutrients (e.g., vitamin E, carotenoids, flavonoids), and B vitamins has been associated with a reduced risk for Alzheimer's disease. In addition, different food groups, including vegetables, leafy greens, berries, whole grain, and fish, are associated with cognition, slower cognitive decline, and Alzheimer's dementia risk. The Mediterranean and Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diets are associated with reduced Alzheimer's disease risk; less Alzheimer's disease pathology, cerebral infarcts, and white matter hyperintensities; and higher total brain volume and cortical thickness.

However, those who are food insecure are often unable to access many of these foods and nutrients resulting in unbalanced diets. In addition, data from the National Health and Nutrition Examination Survey (NHANES) showed that food insecurity was associated with lower cognitive functioning on performance-based tests of cognition. One study also reported that food-insecure individuals had reduced intake of whole grains, iron, dairy, and dark green vegetables, which, as noted above, are positively associated with cognitive health.

Studies have also linked a person's overall health with his or her food environment at the neighborhood level, which represents the choices available for obtaining food. One study reported that the presence of supermarkets was associated with a lower prevalence of obesity, a possible risk factor for dementia, while the presence of convenience stores was associated with a higher prevalence of obesity in a large community-dwelling sample of Americans.

Food insecurity is more common among disproportionately affected populations, but it is also prevalent among older adults. Research on racial differences in diet quality is scarce, but some studies have shown that, overall, Black and Hispanic Americans consume fewer fresh fruits and vegetables compared with White Americans. Additionally, studies suggest that Black individuals have overall poorer diets than White individuals. These disparities are likely attributable to a great degree to access to healthier foods.

A recent review examined whether there are racial disparities in the relationship between diet and Alzheimer's disease risk including longitudinal cohort studies that were at least 20% minority. The review included seven studies, with mixed results on race-by-diet interactions. The review concluded that there is insufficient evidence on racial differences in the relationship between diet and Alzheimer's disease risk. Additional research is needed on the food environment, food insecurity, and access to healthy foods, including factors that affect access (socioeconomic and cultural factors, geographic and environmental factors, neighborhood walkability, and social cohesion) and factors related to dietary behavior (nutritional knowledge, education, socioeconomic status, and affordability) – as well as on how all of these factors affect risk for Alzheimer's and other dementias among disproportionately affected populations. Research is also needed to investigate the interactions of these factors

and relationships with other possible risk conditions for dementia such as obesity, cardiovascular disease, and depressive symptoms.

Implications for Public Health

Creating a food environment with affordable healthy food choices and basic nutrition education is a key aspect to promote healthy dietary behavior. The Centers for Disease Control and Prevention (CDC) has implemented an initiative to improve access to healthy foods. The CDC works with states and communities to help them use food and nutrition guidelines in settings like work sites, hospitals, colleges, and food banks; leverage partnerships with industry to improve access to healthy foods; and encourage the use of behavioral design practices to help consumers select healthier foods and beverages. However, research is needed in this area to determine how well this initiative is helping older Americans and underserved communities disproportionately affected by food insecurity.

Discussion

Overall, more data in diverse populations and communities are needed. Currently, data are limited on food accessibility and the environment and how these differ among various demographic subgroups. It is important to address the barriers to food security, food accessibility, and diet quality among diverse older adults, and it is also important to have policies that can shape and improve the food/nutrition environment, especially in underserved communities, via food availability, pricing, food taxes, and catering policies.

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