

Malnutrition and Food Insecurity in Older Adults

Audrey Edmisten

In the next two decades, the population aged 65 and older will increase from 1.7 million to 2.7 million in North Carolina. Food-insecure older adults are more likely to have an increase in negative health outcomes, be frequent utilizers of health care, and have more high-cost health care needs.

Introduction

Older adult malnutrition is a growing crisis in America that has been exacerbated by the COVID-19 pandemic, which intensified disparities and social isolation. One out of two older adults in North Carolina is at risk for malnutrition, yet there is a gap in awareness, screening, and treatment of malnutrition for older adults. For many older adults, food insecurity is a major contributor to malnutrition. The unprecedented growth in North Carolina's older adult population has worsened the issues of older adult food insecurity and malnutrition, increased the number of older adults needing food and nutrition services, and complicated the ability for existing programs to provide services to older adults in need. In 2019, 23% of the total North Carolina population was aged 60 and older, and the 60+ population exceeded the under-18 population [1]. In the next two decades, the 65 and older population will increase from 1.7 million to 2.7 million, a projected growth of 52% [1]. Older adults have different nutrition needs and issues than their younger counterparts. It is important to be aware of these differences to ensure their nutritional needs are met.

Food Insecurity

The United States Department of Agriculture defines food insecurity as "a lack of consistent access to enough food for every person in a household to live an active, healthy life. This can be a temporary situation for a family or can last a long time" [2]. Many times, practitioners confuse food insecurity with hunger, which is a physical sensation the body experiences when there isn't enough nourishment. Previously, the terms "food insecure" and "hunger" were used interchangeably [3].

Factors contributing to food insecurity include poverty, having one or more chronic conditions, being disabled, living alone, living with grandchildren, being a racial or ethnic

minority in a community, living in a food desert, having challenges with transportation or mobility, and social isolation [4]. Older adults in North Carolina primarily live in communities (93.5%), 9.2% of North Carolina elders live below the poverty line, and 43% live in single-person households [1]. Forty-two percent of the estimated 87,329 grandparents in North Carolina responsible for grandchildren under age 18 were aged 60+ years in 2022 [1]. Eighty-one percent of elders have at least one chronic condition, 54% have two or more chronic conditions, and 41.1% have four or more chronic conditions; 34.5% of North Carolina elders have at least one disability [1]. In summary, many North Carolina older adults are at increased risk for food insecurity.

Older adults who are food insecure are more likely to see declines in functional health and mental health and increased complexity in chronic condition management. Food-insecure older adults are more likely to have an increase in negative health outcomes, be frequent utilizers of health care, and have more high-cost health care needs [4].

In 2020, North Carolina had the 14th-highest rate of older adult food insecurity in the United States; nearly 8% of older adults aged 60+ years were food insecure [5, 6].

Many low-income older adults face spending trade-offs that can lead to and worsen food insecurity (e.g., housing, utilities, food, transportation, health care). There are many options available, such as Food and Nutrition Services (Food Stamps/SNAP) (FNS), Meals on Wheels, local food banks, and other senior nutrition programs to assist with providing nutritious meals to the older adult population. FNS is an entitlement program; however, the FNS participation rate among eligible people aged 55+ is only 59% nationally [7]. Research shows that FNS reduces nursing home admission and hospital rates, but older adults are hesitant to participate due to stigma, the enrollment process, and misinformation [8]. Taking the time to ensure accurate information about food costs and available sup-

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Address correspondence to Audrey Edmisten, Division of Aging and Adult Services, 693 Palmer Dr, Raleigh, NC 27603 (audrey.edmisten@dhhs.nc.gov).

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ports is shared with the patient is essential in cases where food insecurity is an issue.

Malnutrition

Malnutrition is the inadequate intake of nutrients. Many times, malnutrition presents as the result of another acute and/or chronic disease or condition. Malnutrition is under-recognized in older adults in the United States and is an increasing crisis, with great impact on our elders, our health care system, and on state economics. Fifty percent of older adults are at risk of becoming malnourished upon hospital admission, yet only 8% are diagnosed [9]. It is estimated that \$51.3 billion is spent annually on disease-associated malnutrition in older adults in the United States [10, 11]. Protein-calorie deficiency, or protein-calorie malnutrition, is when a person isn't consuming adequate protein and calories. Older, hospitalized patients experience hospital stays two times longer if they are admitted in a state of protein-calorie malnutrition and are three times more likely to have a hospital stay that results in death [11]. Additionally, older adults who are malnourished are more likely to have more complications, are at increased risk of falls, and are more likely to be readmitted to the hospital within 30 days of discharge [11].

With such alarming outcomes, the US health care system (both inpatient and outpatient) needs to implement consistent and regular screening of all older adult patients. Examples of validated screening tools available to practitioners are the Malnutrition Screening Tool (MST), Malnutrition Universal Screening Tool (MUST), and the Mini Nutrition Assessment (MNA). Many hospitals and clinics across North Carolina are already utilizing these screening tools to identify older adults at risk for malnourishment or who are already malnourished. Screening should be completed by a trained member of the health care team.

After an older adult has screened positive for malnutrition, the older adult needs to have a further assessment. Typically, this is completed by a registered dietitian (RD). The patient's medical history is reviewed, as well as their weight history and food intake history, and a nutrition-focused physical exam is completed. The nutrition-focused physical exam assesses the patient for reduced body fat, reduced muscle, reduced hand grip strength, and fluid accumulation/edema. If an older adult has two or more indications of any of the above, they are diagnosed with malnutrition. Additionally, the older adult is screened for food insecurity. Without reliable access to enough affordable, culturally appropriate food upon discharge, solving malnutrition is challenging.

Practitioners working with malnourished older adults should be reminded that older adult malnutrition can occur in elders with many body types. The out-of-date concept that older adult malnutrition only occurs in small, thin bodies can cause practitioners to miss the opportunity to treat malnutrition.

Additionally, it is important for the practitioner to be aware of how aging affects the body so that nutritional interventions are relevant and effective. One of the principal nutritional concerns with older adults is unintended weight loss, which should be prevented, if possible. Research shows that unintended weight loss increases morbidity and mortality in older adults. Unintended weight loss affects 13% of home-dwelling older adults and between 50% and 60% of nursing home (long-term care) residents.

Older adults have unique dietary needs. The annual costs of disease-associated malnutrition for adults aged 65+ in North Carolina is \$140,348,592 [12]. Older adults may need fewer calories because they aren't as physically active as they once were, their body composition has changed, and their metabolic rate is slower. But despite the decreased need for calories, the older adult's body still requires the same or higher amounts of micronutrients. It is therefore important that older adults eat nutrient-dense foods and avoid empty-calorie foods [13].

Older adults also have an increased need for protein. While the Dietary Reference Intakes (DRIs) are still set at 0.8 g/kg per day for adults of all ages, many dietitians, gerontologists, and researchers believe that a higher protein intake between 1g and 1.2g/kg per day is beneficial to enhance muscle anabolism and reduce age-related loss of muscle mass. Experts now recommend that consuming 24g-30g of good-quality protein (~10g essential amino acids) at each meal can help decrease muscle loss [7].

Some DRIs have specific guidelines for older adults, which are broken into two categories: ages 51 to 70 years and those older than 70 years. Although the DRI for vitamin B12 is the same for all adults, supplementation of vitamin B12 is often recommended in the older population. Some nutrient needs increase with age, such as vitamin D and calcium, while other nutrient needs decrease, as with iron and chromium [8].

Physical Changes Affecting Intake

Many physical changes occur with aging that can significantly affect one's ability to eat, as well as to absorb and metabolize nutrients. Bone mass decreases with age: bones reach peak mass between ages 25 and 35 and then start to decline [14]. Most older adults have reduced exposure to sunlight, decreased skin synthesis, and decreased capacity of kidneys to convert vitamin D into its active form, so vitamin D deficiency is prevalent [14]. Additionally, many older adults consume less than the recommended amounts of calcium due to lactose intolerance or avoidance of high-fat foods necessary to absorb vitamin D. These all contribute to a higher risk of osteoporosis, especially among females, which leads to an increased risk of fractures and fear of falling, and can affect daily habits. Vitamin D and calcium supplementation are often recommended along with weight-bearing exercise.

Muscle loss is a natural part of aging. Age-related muscle

loss begins around age 40 and muscle mass can decrease by as much as 8% per decade, depending on the activity level of the individual [15]. After 70 years, muscle loss accelerates to approximately 15% per decade [15]. Sarcopenia, the age-related loss of muscle mass, strength, and function, was recognized by the Centers for Disease Control and Prevention (CDC) in 1999 as one of the top five major health risks facing the US population [16]. Loss of muscle and strength can lead to frailty. Frail older adults are at higher risk of malnutrition, falls, incident disability, hospitalization, and mortality. Identification of sarcopenia in the overweight or obese older adult (sarcopenic obesity) is often missed due to the misconception that sarcopenia only occurs in the frail elderly. Older adults with sarcopenic obesity are at higher risk for adverse outcomes, including cardiovascular disease and functional impairment [16]. Complicating the matter is whether these individuals should be prescribed a weight loss program. When people lose weight, they lose muscle in addition to fat. Dietary guidelines state that older adults (aged 65+) who are overweight or obese are encouraged to prevent additional weight gain [13]. For older adults who are obese, particularly those with cardiovascular disease risk factors, intentional weight loss can be beneficial and result in an improved quality of life, reducing the risk of chronic diseases and associated disabilities [13]. Since loss of lean mass occurs with aging, any weight loss is a concern for older adults. Consuming adequate protein and calories is especially important to delay sarcopenia and prevent malnutrition. Dehydration is a real concern for older adults as well; older adults do not feel as thirsty and they don't drink as much as when they were younger, and polypharmacy (the simultaneous use of multiple medications) has also been associated with dehydration in older adults [13].

Aging affects intestinal absorption of many nutrients. Carbohydrate, protein, fat, folate, vitamin B12, vitamin D, iron, and calcium all have reduced absorption, while absorption of cholesterol, vitamin A, and vitamin C increase [17]. Age-related changes in the gastrointestinal (GI) tract include delayed gastric emptying and reduced gastric acid secretion, which may result in decreased calcium and zinc absorption, increased prevalence of gallstones, and diminished pancreatic enzyme production [17]. Changes in GI function often result in low vitamin B12 levels, which can cause anemia, neuropathy, and cognitive impairment.

Poor dentition and periodontal disease affect a significant number of older adults. Roughly 25% of older adults are edentulous, or lacking teeth. An added complication is that dentures can be cost-prohibitive for some older adults. For those who can afford them, proper fit can become an issue, especially if weight loss occurs. Poor dentition often results in the need for mechanically altered foods that can negatively affect food appearance. Older adults also produce less saliva, so xerostomia (dry mouth) is very widespread. Saliva is needed to wash bacteria away, so when there is less of it, teeth and gums are more susceptible to decay and infection.

Xerostomia can make speaking, swallowing, and even tasting food difficult [18].

Aging affects the senses starting around age 60 with vision, taste, smell, and hearing changes. Eyesight changes can diminish the appearance of foods and the ability to recognize them. The capacity to taste sweet and salty may diminish sooner than the ability to taste bitter and sour; it is not uncommon to see an older adult use a lot of sugar to sweeten their food to cover the bitter taste. Decreased sense of taste and smell often leads to decreased intake because food is less appealing. Allowing patients to add taste and flavor in a manner that appeals to them, no matter how peculiar it seems to others, helps increase intake and prevent malnutrition. If intake is poor and/or unintended weight loss is an issue, restricting the patient's access to sugar becomes counterproductive because food is only nourishing when it is consumed. For patients who are visually impaired, colorful foods that contrast with the plate can increase consumption and pleasure in meals. Additionally, increasing the contrast between the plate and cup color and the color of the table setting also helps the visually impaired patient.

Cognitive health declines for many, but it is not considered a normal part of aging. Decreases in cognitive health can lead to depression, decreased food intake, and decreased ability to chew/swallow foods. As cognition declines, it is not uncommon for the frequency of meals to decrease or increase because patients forget when they've last eaten. Recognizing foods, remembering favorite foods, and, unfortunately, eventually remembering how to eat, will affect intake. Some people with dementia have an increased need to move or pace. This continued movement adds to their daily nutrient needs, which becomes a challenge when sitting down for a meal is not on their agenda. Offering frequent small meals and/or snacks helps reduce stress with patients who don't remember whether they just ate.

Social Changes Affecting Nutrition

In addition to physical and cognitive changes, there are also many social changes that can impact the older adult's food intake and nutrition, such as decreased income, loss of a spouse, loss of a driver's license, and change in living environment. Finances frequently cause apprehension in older adults, as Social Security benefits are often the sole source of income, and limited finances drive food choices [13]. Increased medical treatment costs and inadequate insurance compound this concern. Many older adults are unaware of, and therefore do not use, the many community nutrition programs that are available to them.

All these social changes can lead to depression. People with depression and feelings of loneliness often have a loss of appetite, which can lead to avoiding meals. Many older adults become the primary caregiver for their significant other, which can compound the changes mentioned. If the wife's health fails first and the husband becomes the primary caregiver when she had previously cared for him, this

role reversal can cause much stress and anxiety, particularly for the current generation of older adults.

Many older adults will not voluntarily admit to financial concerns, inability to access fresh foods, or depression. Interventions for optimal nutrition should not stop when the patient leaves the hospital. Working with support services to identify concerns and solutions will help continue the nutrition care plan after discharge. Practitioners are encouraged to ask questions about food procurement just as they would medication procurement.

The Academy of Nutrition and Dietetics recommends the use of the least restrictive diet for older adults to prioritize quality of life and their right to make choices over improving their health or increasing their longevity [19]. Another condition that often benefits from diet liberalization is diabetes; risk of hypoglycemia is one of the most important factors to consider when determining the treatment plan for older adults with diabetes [20]. Treatment goals for older adults should be based on overall health, food preferences, life expectancy, and anticipated clinical benefit.

Conclusion

Aging affects the body in multiple ways that can make adequate nutritional intake a challenge for the older adult. Changes in the GI system, renal function, bone mass, and oral status, along with the risk associated with unintended weight loss, are all important for registered dietitian nutritionists (RDNs) to consider when assessing an older adult patient. Interventions provided must be individualized and have the ability to adapt to the potential of different post-acute care centers. The entire interdisciplinary team needs to work together to create the best discharge plan to help the older adult patient continue to progress in improving their nutritional status.

It is imperative that policies focus on emphasizing nutritional quality, expanding reach, ensuring optimal utilization, improving coordination across different programs, ensuring stability of access to food assistance programs across the life course, and ensuring equity and dignity in access and utilization. NCMJ

Audrey Edmisten aging program specialist, North Carolina Division of Aging and Adult Services.

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