

The Impact of Nutrition in Older Adults

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In 2010, when the oldest baby boomers reached 65, 13% of the population was 65 or over. By 2030, however, all of the baby boomers will be 65 and over and therefore this oldest segment of the population is projected to increase to 19% of the whole population, or 71 million people (Vincent, K., Velkoff, V., 2010, p.1). That means one in five Americans will be old enough to collect Social Security and be on Medicare under the current system's guidelines.

With such a large proportion of our population in the most expensive developmental stage, (Segal, 2013, p.271) it is important that policy-makers promote and invest in older people remaining healthy and active as long as possible. Eating well and exercising are crucial for older people to have what they want-- mobility, good health, free agency, social support networks, a sense of purpose, a high quality of life and access to resources. Eating well and exercising are also crucial if older people would like to avoid injury, disability, dementia, dependency, medical poverty, isolation and mental health issues.

If we as a society would like to promote our older people to have happy, healthy and productive lives, policy-makers must address the obstacles that are inhibiting this, such as poverty, food deserts, malnutrition and the preventable inflammatory lifestyle diseases that impact *most* older Americans; obesity, diabetes, cardiovascular disease and dementia.

“In the United States, average life expectancy in 1900 was only about 45... US life expectancy is now about 78—75 for men, 80 for women. But it varies considerably by region, race and economic status, with the poor and least educated dying earlier than others” (Baker, 2011, p.2). However, “the life expectancy of a sixty-five-year-old in 1900 was only about six years less than that of a sixty-five-year-old living today. When you adjust for age, rates of chronic diseases like cancer and type 2 diabetes are considerably higher than they were in 1900” (Pollan, 2008, p.93).

Most of the increase in longevity in the last 113 years is due to technological advances like vaccines, antibiotics and surgery that can keep young people alive. However, the United States currently ranks only 50th in longevity in the world (Baker, 2011, p.4).

“Scientists say genetics, healthy living and quality of life play central roles in longevity” (Baker, 2011, p.4). But the issue isn’t just extending life-span, it’s extending “health-span.” To that end, the Federal government is investing in research through the National Institute on Aging (NIA) to discover ways to avoid age-related, preventable chronic diseases.

Some people worry that increasing longevity now would break the Federal budget, but a recent study indicated otherwise. It found that with healthier habits like decreasing obesity and smoking, Americans’ life expectancy would increase 18 months to the same rate as that of Western Europeans (Baker, B., 2011, p8). Although this would increase the costs of pensions and Social Security, these expenses would be offset by a large reduction in health-care costs. The researchers estimated that even modest health improvements starting in middle age could result in a \$1.1 trillion dollar savings by 2050.

“If you look at the real data from the CDC (the Centers for Disease Control and Prevention), the medical costs in the last two years of life for people who die when they are about 100 are about one-third of those who die in their 70s...Not only do they live longer, but their medical costs were less.” (Baker, B., 2011, p8) "Among health care costs for older Americans, 95% are from chronic diseases" such as diabetes, arthritis, asthma, respiratory disease and hypertension. (“The State of Aging”, 2013, p.5) About 80% of older Americans have at least one chronic condition and 50% have at least two. Some have more than five. (“Healthy Aging,” 2011, p2) and the treatment for this population with multiple chronic illness accounts for 66% of the country's current health care budget. The costs for providing health care for someone over the age of 65 are 3 to 5 times higher than for that of someone under 65. Health care costs are projected to increase by at least 25% by 2030.

It’s clear that investing in health-span is a tremendous financial win as well as a societal win. If older

people are more self-sufficient, they are not only less expensive medically, they don't require caregivers to stop working in order to care for them and they are able to continue to contribute to their families and communities if they want to. This will be especially important as the baby boomers age, because the dependency ratio is projected to increase by 2030. This is a ratio of the number of dependents compared to 100 working age adults. In 2010, there were only 22 older Americans per 100 working age Americans. While the number of children remains relatively consistent, the ratio of older dependents spikes to 35 per 100 working age Americans by 2030, and 37 by 2040 (Vincent, 2010, p.3).

Special focus on the health of the poorest and least educated citizens yields clear financial benefits for countries with the foresight to invest in those populations. "Healthy longevity is a prime driver of a country's wealth and wellbeing", said James Vaupel of the Max Planck Institute for Demographic Research in Germany. 'Moreover, equity in the capability to maintain good health is central to any larger concept of societal justice'" (Baker, 2011, p.7).

An essential part of healthy aging is having access to healthy foods such as fruits, vegetables, whole grains and healthy fats and oils. Studies show that perception of access to fresh food choices correlates to consumption of a healthy diet and that poor access correlates with lower consumption of fruits and vegetables (Yamashita & Kunkel, 2012, p.288).

Poor nutrition in older adults can be a result of geographic location, mobility or transportation limitations or a lack of funds. Older people are statistically more likely to live in rural areas where public transportation isn't available, for example. (Yamashita & Kunkel, 2012, p288) Research has found that urban, impoverished older people are more likely to live in "food deserts," which are areas that lack supermarkets or any other outlets for buying healthy food. In these areas, there is an abundance of unhealthy food outlets, such as convenience stores or fast food restaurants, but few outlets where fruits and vegetables can be bought. "... The cost of healthy foods might be higher in the kind of food outlet that is more common in the low-income areas." (Yamashita & Kunkel, 2012, p290)

Food Deserts are usually in poor neighborhoods with high minority populations, contributing to a phenomenon called “deprivation amplification,” whereby those citizens who have the most profound economic challenges are deprived of their most basic access to elements –namely healthy food—that can keep them free of hunger, preventable diseases and mental health challenges. As noted earlier, it is these citizens who are most likely to die prematurely and with the maximum economic burden to the health care system. If an impoverished older person—who may have physical limitations-- must take public transportation to get to a supermarket more than an hour away and then carry heavy grocery bags home, they are less likely to obtain fruits and vegetables on a regular basis.

While the food stamp program (SNAP—Supplemental Nutrition Assistance Program) is available to help these seniors, a study which surveyed 14,724 impoverished US citizens over the age of 65 showed that only one-fifth of them were receiving food stamps (Fuller-Thompson & Redmond, 2008, p235). Barriers cited were confusion over eligibility requirements, enrollment impediments such as technology or language barriers, concern about the stigma of receiving benefits and misperceptions about lack of need. For those Americans that experienced the Great Depression, the initial 1939 food stamp program can be associated with a “welfare stigma” that will prevent them from asking for benefits they are eligible for. New technology such as the EBT cards, which cut down on the stigma barrier, presents instead a technology barrier for older people (Fuller-Thompson & Redmond, 2008, p241).

In fact, participation decreased with age such that while 24% of people aged 65-74 received food stamps, only 11% of people 85 and older received them. Even if they were impoverished and/or malnourished, the study found that a) those with high school or university degrees, b) those that owned their own home, c) men and d) the poorest of the poor were most likely to NOT receive benefits. Tragically, those extremely impoverished seniors who earned less than *a quarter* the poverty-line income (\$2206/yr.) were the *least* likely to be receiving food stamps (Fuller-Thompson & Redmond, 2008, p242)

Back in 1961, food stamps recipients in Detroit ate an average of 11.4 lbs of fruits and vegetables

weekly, as compared with only 8.28 lbs of fruits and vegetables consumed by those who didn't receive food stamp benefits. Today, it is no longer true that food stamps recipients have higher consumption levels of healthier foods. On the contrary, food stamps recipients have a much less nutrient-dense diet than the general population today. For example, soft drinks could not be purchased with food stamps in 1964 and now they can be (Schumacher, et al., 2011, p.128). It is important to acknowledge that even with food stamps AND access to a supermarket, the range of foods available to a modern older person is narrower, more processed and more nutritionally depleted than in previous eras.

34.6% of older Americans 65 and older are obese, which is defined as having a Body Mass Index (BMI) above 30. Obesity is a risk factor for heart disease, stroke, cancer, and arthritis (“The State of Aging”, 2013, p.5). "For persons with a BMI of 30 kg/m or above, mortality rates from all causes, and especially from cardiovascular disease, are generally increased by 50 to 100 percent above that of persons with BMIs in the range of 20 to 25 kg/m" (2013.)

Again, it's important to underscore that our modern industrial commodity food economy offers us thousands of nutrient-depleted, processed and convenience-food choices that are ultimately derived from only four species of subsidized commodity crops; corn, soy, wheat and rice. What appears to be an abundant variety of products is a mirage. Because our *average* life span increased by 30 years due to technological advances over the last century, it has perhaps been obscured that the quality of our food has declined precipitously during the same period-- also due to the technological advances of the industrial revolution.

“Many specific diseases such as cardiovascular disease, type 2 diabetes, hypertension, osteoporosis, obesity and certain cancers are linked to a poor diet.” (Yamashita & Kunkel, 2012, p288) Poor nutritional status is also often observed in those who have Alzheimer's disease (Shatenstein & Kergoat, 2008).

A 2009 study of older Mexicans revealed that they have adopted an "Americanized" lifestyle such that these older people experience overweight, obesity, diabetes, anemia and hyperlipidemia in approximately the same proportions as older Americans. Careful analysis of their diet revealed low fiber intakes, elevated sugar

intake and "remarkably suboptimal" micronutrient intake. (Martin-del-Campo et al. 2009, p296). 50% of participants in the survey had inadequate intakes of potassium, calcium, magnesium, zinc, folic acid and vitamin B12. 41% ate no vegetables yet 31% consumed soft drinks.

In addition to not consuming adequate nutrients, it's important to recognize that "age-related physiological changes in nutrient absorption and metabolism may predispose (them) to nutrient deficiencies and thus increase the risk for conditions such as anemia and neurological disorders." (Martin-del-Campo et al. 2009, p288) In other words, as people age they need to increase the nutrient density of their food to get more nutrients-per-calorie, because they aren't absorbed as well. Refined, processed foods like white bread and soda contribute to a state of malnutrition and older people are at a greater risk for this than younger age groups.

Nutrient deficiencies and suboptimal gut flora (Bountziouka, 2009 and Arnold, 2013) are also implicated in mental health issues. In a 2009 study in Greece that focused on omega 3 intake in older adults, a nutrient deficiency was revealed when a "strong, independent association between depression and...infrequent fish consumption was revealed..." when controlling for other factors (Bountziouka et al., 2009, p.876). Bountziouka et al. referenced another study that had measured depression in various parts of the world and had found a high prevalence of depression among middle-aged and older people in all countries studied, as well as in Greece.

Since Omega-3 (a type of healthy fat found in fish) supplementation has been found to be positively correlated with "reductions in cardiovascular disease (CVD) risk, depression and rheumatoid arthritis symptoms... there is also increased interest in the use of Omega 3 fatty acid supplementation for other psychiatric illness and the prevention of Alzheimer's disease." (Bountziouka et al., 2009, p.866)

The specific metabolic mechanism for why this is significant is actually relevant for many of the chronic illnesses that older people are experiencing in this country (and in others.) "Major depressed people had a significantly higher arachidonic acid:eicosapentaenoic acid (AA:EPA) ratio...and significantly higher omega6:omega3 ratio ...than healthy volunteers..." (Bountziouka et al., 2009, p.873)

Put simply, they were inflamed. AA and Omega 6s are inflammatory markers that are much too abundant in a modern diet. EPA and DHA are anti-inflammatory omega 3s that are almost always deficient in a modern diet. Chronic diseases like diabetes, arthritis, depression and Alzheimer's are all inflammatory conditions. "A hypothesis could be stated that eating more fish could lead to lower depression status through the modification of inflammation process....(and) the prevalence of the classical CVD risk factors (ie. hypertension, diabetes, dyslipidemias) seem to be lower among the participants who had been classified in the lowest geriatric depression scale." (Bountziouka et al., 2009, p874)

This suggests that eradicating nutrient deficiencies should be a primary strategy for treating those with multiple chronic illnesses, (including mental health issues) a population, as mentioned above, that requires 66% of our nation's health care budget.

In a 2010 paper that focuses on the specific challenges facing the American Indian/ Alaskan Native (AI/AN) population, Faith Harper points to higher rate of multimorbidity due to a strong correlation between mental health issues, substance abuse and diabetes. "AI/AN populations are diagnosed with a number of chronic illnesses in numbers significantly higher than those of the general population, (including) diabetes, alcohol abuse and suicide." (2010, p278) Harper notes that a 2005 study found rates of depression to be almost double that of whites, then links this state of affairs to diet. "The modern AI/AN diet is not fundamentally different from that of anyone else living in a Westernized society...And, oftentimes the diet is considerably worse, especially for individuals who live in tribal areas...(who) rely on food stamp programs, WIC, (etc.)" (Harper, 2010, p278)

It is noteworthy that she equates a food-stamp-program-based diet to inherently be worse than a typical Western diet. She also zooms in on the negative impact this diet—as compared to a traditional native diet-- has on disease rates and mental health issues. She references a study where diabetic Native Australians returned to an ancestral diet for 7 weeks and reversed their diabetes while improving "almost every measure of their health, including weight, blood sugar and triglycerides." (Harper, 2010, p277) This study and many like it conducted

on Native populations around the world since, as well as evidence from native tribes that have never adopted the Western diet (the Dogrib Indians) and who have maintained low prevalence rates of obesity and diabetes, highlight the destructive influence on the Western industrial commodity diet on the mental and physical health of Native populations everywhere. (Harper, 2010, p 278)

This destructive influence of the modern diet, while experienced by all humans, seems to have the greatest negative impact on people whose ancestors most recently transitioned from an ancestral diet, like Native populations. Genetic factors together with socio-ecological contexts may explain why rates of obesity and diabetes are much higher for people of color in America. “Non-Hispanic blacks have the highest age-adjusted rates of obesity (49.5%) compared with Mexican Americans (40.4%), all Hispanics (39.1%) and non-Hispanic whites (34.3%)” (<http://www.cdc.gov/obesity/data/adult.html#Groups>)

Robinson (2008) highlights the disproportionately high rates of death and disease in the African American population as compared with whites. Infant mortality rates are double, heart disease death rates are 40% higher and cancer deaths are 30% higher for African Americans than for white Americans. She links this increased morbidity and mortality with the fact that African Americans are the “least likely to adhere to the USDA Dietary Guidelines’ recommendations” (2008). Both Robinson and Harper urge policy-makers to develop “culturally appropriate and sensitive interventions” (Robinson, 2008, p.395) for minority populations that take into consideration their entire socio-ecological environment. Only then will efforts to ameliorate the health of the sickest, most malnourished and poorest sectors of our society—which happen to be disproportionately ethnically non-white—be successful.

In 2006, one of the lead researchers of the Nurses’ Health Study—a huge health investigation that was started in 1976 at Harvard with a cohort of 238,000 nurses—observed that only 3.1% of the cohort could be described as following a “low-risk” diet and lifestyle. (Pollan, 2008, p88)

Based on fourteen years of follow-up, (they) calculated that, had the entire cohort adopted these behaviors, 80% of coronary heart disease, 90% of Type 2 diabetes and more than 70% of colon cancer

cases could have been avoided. This analysis suggests that the worst effects of the Western diet can be avoided or reversed...and the potential for disease prevention by modern dietary and lifestyle changes...is enormous (Pollan, 2008, p88).

With exploding disease and disability rates in an aging sector of society that will soon make up one-fifth of the American population, it is crucial that policy-makers start promoting the “low-risk” (anti-inflammatory) diet and lifestyle to younger baby boomers now, before they turn 65. This means promoting the cultivation and consumption of nutrient-dense foods like fruits and vegetables, the minimization of consumption of refined foods, especially sugars, increased fish consumption, increased physical activity and only moderate alcohol consumption.

A clear solution to alleviating and preventing physical and mental health challenges in older adults is to prevent malnutrition. Increasing access to nutrient dense-foods may mean achieving higher enrollment in the SNAP program for older adults. Maine succeeded in increasing enrollment in its SNAP program by 49% between 2002 and 2005 by linking social welfare benefits in an integrated computer system. If an older person applied for any social welfare program (ie: heating assistance) their application was automatically submitted for SNAP as well (Fuller-Thompson & Redmond, 2008, p 242).

For older people in rural areas, (about half), the SNAP program allows them to afford buying not just food, but seeds to cultivate food (Harper, 2010, p285). If supported to plant kitchen gardens, this could increase the amount and the nutrient density of the vegetables they eat. Seniors enrolled in the SNAP program now have increasing ability to spend their SNAP dollars at CSAs and Farmer’s Markets (Schumacher, et al., 2011, p.132). Clearly consumption of certain nutrients would also support the prevention of physical and mental health issues and perhaps SNAP could start including these nutrients in the benefits in the form of supplements (a multivitamin, multimineral, Omega 3s, Vitamin D and probiotics.)

The current trends are going in a very expensive and unhealthy direction and have already reached a crisis point. It is now well past the time to emphasize the American values of personal responsibility while

deregulating the food industry. Of course personal responsibility is a crucial component, but it is the responsibility of policy-makers to create a cultural context that allows for more than 3.1% of the population to succeed. A complete reorganization of the Farm Bill—which funds both the industrial commodity products that contribute to ill-health, and the SNAP program that helps the poorest Americans eat them—is a crucial part of changing our direction.

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