Many Elderly at Nutritional Risk

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The elderly constitute a rapidly expanding segment of the American population. The number of Americans age 60 or over has grown from about 5 million in 1900 to approximately 42 million in 1990—a figure that will more than double by the year 2030 (fig. 1). The proportion of Americans over 60 years of age has also increased, from 6.4 to 18.4 percent of the U. S. population during 1900-90—a share that will expand to almost a quarter of the population by 2030.

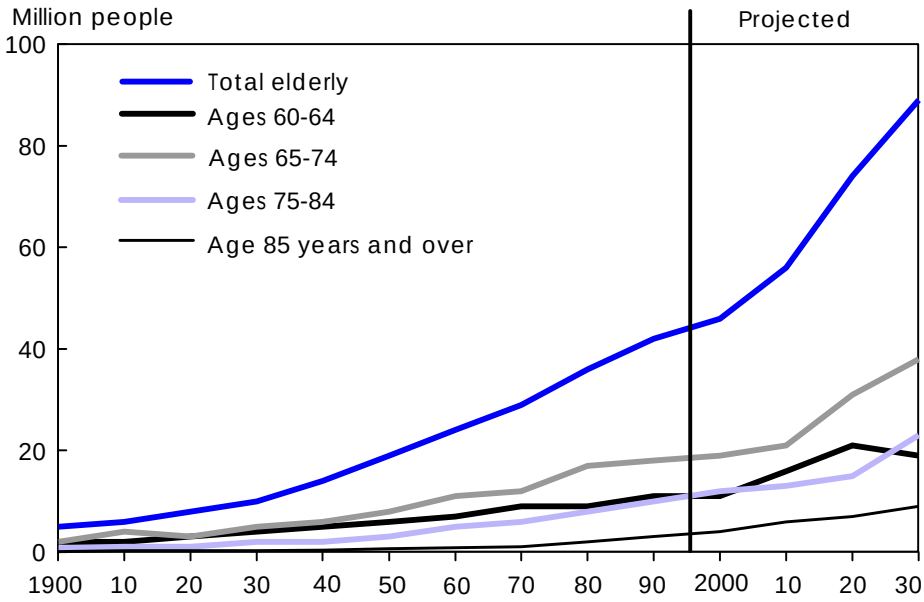
The elderly account for about 30 percent of all healthcare expenditures in the United States. They also use hospitals at nearly three times the rate of younger persons, average seven to eight medical visits per year, and occupy the majority of nursing residence beds. The maintenance of health and functional independence of older persons is a national priority, as identified in the U.S. Department of Health and Human Services (DHHS) report *Healthy People 2000.*

Poor nutritional status is a primary concern for the elderly. Nutritionally inadequate diets can contribute to or exacerbate chronic and acute diseases, hasten the development of degenerative diseases associated with aging, and delay recovery from illnesses. A number of studies indicate that the diets of many older Americans do not provide the level of nutrients needed to maintain a healthy body. Chronic diseases and poverty are two important influences on the nutritional status of the elderly.

Gauges of Dietary Quality for the Elderly Have Limitations

Methodologies for assessing nutritional status include anthropometric measurements (for example, weight and height), biochemical analyses

Figure 1
Elderly Population Increases Each Decade



Source: Bureau of the Census.

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(laboratory tests on blood and urine samples), clinical evaluations (examining physical changes in skin, hair, eyes, and mouth), and dietary intake surveys. Evidence on the nutritional status of the elderly has been based largely on the results of nationally representative dietary surveys, such as the U.S. Department of Agriculture's (USDA) Nationwide Food Consumption Surveys (NFCS) and their Continuing Surveys of Food Intakes by Individuals (CSFII) in addition to DHHS's National Health and Nutrition Examination Surveys (NHANES). Dietary assessment methods are intended to provide detailed information on food consumption, but it should be recognized that there can be problems associated with dietary intake assessments. For example, if a dietary study uses a 24-hour recall method (respondents report on the types and amounts of foods consumed the previous 24 hours), there may be a tendency to underreport the consumption of certain foods and, thus, the intake of certain nutritional components. There has been some evidence in the past to show, for example, that respondents have underestimated caloric and fat intake. However, this problem and others associated with the dietary assessment methods can be minimized as long as standardized procedures and close interview monitoring are used during data gathering.

Dietary studies frequently define an adequate, nutritious diet as one fulfilling the Recommended Dietary Allowances (RDA's) issued by the National Academy of Sciences. RDA's specify the levels of the average intake of nutrients essential for maintaining normal body functioning for a healthy population. Therefore, diets under 100 percent of the RDA's are associated with, but do not necessarily mean, deficiency. The most recent RDA's, published in 1989, provide guidelines for healthy adults age 51 and over. Despite their importance as guidelines for the elderly's nutrient intake, the existing RDA's fail to address some current concerns about the diet and health of the elderly. For example, separate RDA's for subgroups of the older population may be preferable. It is unrealistic to assume that a 60-year-old healthy individual and an 85-year-old homebound individual have similar nutritional requirements. However, insufficient data have prevented the establishment of separate RDA's for elderly subgroups.

The RDA's do not cover unusual nutrient needs for special conditions, such as metabolic disorders, or the continued use of medicines. Similarly, margins of safety built into the RDA standards do not cover modifications for any additional requirements caused by disease. Many diseases, especially those to which many elderly succumb, have profound impacts on an individual's nutrient requirements. For example, the incidence of chronic diseases, such as diabetes, increases with age. Therefore, the RDA's may have limited use in evaluating diets of the elderly.

Some at Higher Nutritional Risk

All these caveats notwithstanding, the most recent information from surveys on the dietary status of older Americans gives reason for concern. Severe or life-threatening nutrient deficiencies are rare, although many elderly are at high risk of deficient intakes of some essential nutrients. Calories, calcium, vitamin B-6, magnesium, and zinc are most frequently below the recommendations for the elderly. For example, caloric intakes averaged only 80 percent of the RDA for elderly men and 73 percent for elderly women, according to data from recent CSFII surveys. Although this caloric dietary pattern is somewhat similar to that of younger adults and may be partly due to underreporting, decreased calorie intake with advancing age nevertheless has important implications for the elderly's diet in terms of meeting existing standards for other nutrients. Researchers have found that it becomes difficult to ensure diet quality for the elderly when overall calorie intake is low, requiring a careful selection of nutrient-rich foods.

Moreover, the risk of nutritional deficiencies is greater among certain subgroups of that population (some examples are shown in table 1). Low-income elderly have a substantially greater risk of deficient calorie, calcium, magnesium, and zinc intakes than do the elderly as a whole. Intakes of energy and calcium have been found to be lower among black and Hispanic elderly, and elderly Hispanic women have relatively low intakes of energy, vitamin E, magnesium, thiamin and iron.

The frail elderly (those requiring assistance to carry out daily activities) appear to have a nutrient- poor diet—more deficient in thiamin, riboflavin, vitamin B-6, vitamin C, and all minerals than diets of the elderly population as a whole. Those age 85 years and above are also at greater risk, with lower levels of calorie and vitamin B-6 intake.

There is considerable evidence that the elderly population is also at risk of excessive intakes of fat, saturated fat, cholesterol, and sodium. For example, the *Dietary Guidelines for Americans* recommend that fat be restricted to no more than 30 percent of total calories, and saturated fat intake to be less than 10 percent. National dietary intake surveys over the years show that elderly men and women have been obtaining between 34 and 41 percent of total calories from fat and between 11 and 13 percent of calories from saturated fat. This is similar to the overall dietary pattern for the U.S. population. However, many of the most

prevalent nutrition-related problems of the elderly are chronic conditions that benefit from diet therapy. Some of these conditions may be exacerbated by high intakes of fat and saturated fat.

The extent to which dietary, personal, and environmental factors influence the nutritional status of the elderly is only partially understood. Social isolation, depression, attitudes, and lifestyles are cited by some researchers as factors affecting the elderly's appetite, eating patterns, energy level, and hence, nutritional status. However, considering all the factors thought to influence the nutritional status of the elderly, chronic diseases and the financial burdens imposed by limited income are among the most important.

Chronic Diseases Interfere with Nutritional Health

Chronic diseases can have a wide range of negative effects on the nutritional status of the elderly. There are diseases which can affect digestion, absorption, and utilization of nutrients (such as circulatory and musculoskeletal problems); those which interfere with nutrient intake (for example, oral problems, including poor dentition); and those which hinder the absorption of specific nutrients (examples are diabetes and infections). Statistics show that approximately 80 percent of those 65 years of age and over are afflicted with one or more chronic diseases, compared with 40 percent of adults between 18 and 64 years of age. People 65 years of age and over more often suffer from chronic diseases, such as heart disorders, arthritis, bone diseases, and diseases that affect the respiratory and digestive systems (table 2).

The *Vital and Health Statistics* report from the Centers for Disease Control and Prevention indicates

Table 1
Elderly Have Deficient Intakes of Some Essential Nutrients

Race, gender, and income	Energy (kcal)	Vitamin B_6 (mg)	Calcium (mg)	Vitamin E (mg alph-Tocopherol)	Magnesium (mg)	Zinc (mg)
RDA's for people 51 years and over[1]:						
Male	2,300	2	800	10	350	15
Female	1,900	1.6	800	8	280	12
Average nutrient intakes for people 60 years and over[2]:						
Male	1,956	2	816	9.3	306	12.1
Female	1,471	1.6	666	7.8	244	8.9
Non-Hispanic white[2]:						
Male	1,946	2	823	9.4	307	12.1
Female	1,454	1.6	675	8.0	244	8.8
Non-Hispanic black[2]:						
Male	1,728	1.6	600	6.7	236	10.3
Female	1,404	1.3	502	6.0	211	7.3
Hispanic[2]:						
Male	1,842	1.6	777	7.1	290	11.1
Female	1,288	1.3	601	5.9	208	8.0
Low income[3,4]:						
Male	1,638	1.7	645	6.7	239	9.5
Female	1,303	1.4	539	6.1	199	7.9

Notes: [1]Source: Food and Nutrition Board, National Academy of Sciences, Recommended Dietary Allowances, revised edition, 1989.
[2]Source: National Health and Nutrition Examination Survey, Phase I, 1989-91, U.S. Department of Health and Human Services.
[3]Source: Continuing Survey of Food Intakes by Individuals, 1989-91, U.S. Department of Agriculture, Agricultural Research Service.
[4]Low income defined as households with annual income at or below 130 percent of the Federal poverty thresholds.

that the incidence of these diseases is not confined to just one sex, race, or other demographic stratum within the elderly population. For example, the rate of hypertension in women is nearly twice that in men, and the rate of hypertension in blacks is higher than that of other races. The incidence of coronary heart disease is similar across educational strata, but more prevalent in elderly men than women and more prevalent among whites than other races.

Drugs often have a favorable effect on nutritional status by limiting the disease process, enhancing appetite, and correcting underlying metabolic defects. However, there are also examples of adverse drug/nutrition interactions. For instance, antibiotic therapy can produce vitamin deficiency. Chronic use of some medications can produce gastrointestinal abnormalities which affect nutritional status, and prolonged use of over-the-counter relief products, such as laxatives, can result in altered absorption of certain vitamins, diarrhea, weight loss, and fatigue.

Poverty Takes a Toll on Nutritional Adequacy

Poverty may be one of the most important environmental determinants of inadequate nutrition among the elderly. Poverty alone cannot precipitate a nutritional deficiency, but may affect a person's ability to obtain an adequate diet. Poverty may also reduce a person's ability to obtain the healthcare needed to diagnose, treat, and manage chronic diseases linked to nutrition. Researchers at Cornell University, who have been involved in measuring hunger and food insecurity in the elderly, indicate that low-income elderly are more likely than higher income elderly to report that they don't get enough to eat, that they skip meals because they have no food available, and that they have to make the choice between buying medicine and buying food.

According to 1995 estimates by the Bureau of Census, almost 11 percent of Americans over age 65 had incomes below the official Federal poverty levels, compared with, for example, a poverty rate of 8 percent for "middle-aged" Americans (35-54 years of age). The poverty rate was higher for elderly women than for elderly men, and higher among elderly blacks than among other racial groups.

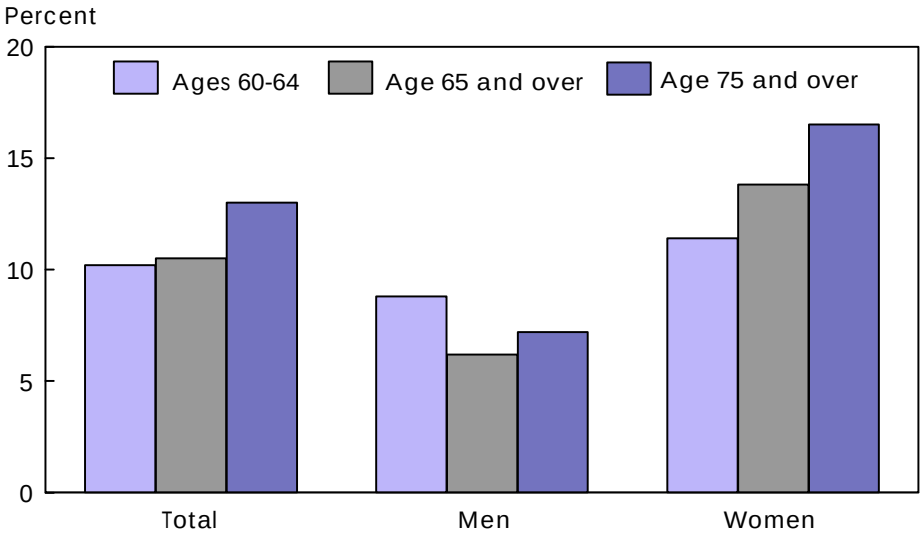
Differences were even more pronounced for those 75 years of age and over. The overall poverty rate for this age group was 13 percent, but women in this age bracket had a poverty rate of almost 17 percent, versus 8 percent for men that age (fig. 2). About 33 percent of blacks

Table 2
Some Chronic Conditions Are More Prevalent Among the Elderly

Chronic condition	Total population affected	Elderly 65 years and over affected
	Number of people per 1,000	
Heart disease	85.8	324.9
Cerebrovasular disease	11.5	40.7
Arthritis	128.8	501.5
Emphysema	7.8	45.5
Diverticulosis	8.3	32.5
Bone or cartilage disorder	5.9	18.5
Diabetes	29.9	101.2

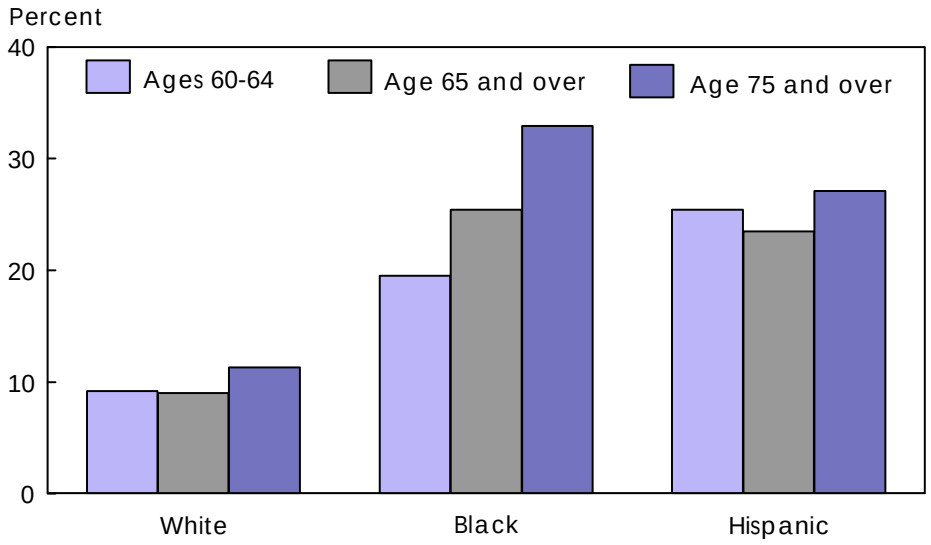
Source : U.S. Department of Health and Human Services, Vital and Health Statistics, National Center for Health Statistics Series 10, No. 193, Dec. 1995.

Figure 2
Poverty Rate Is Higher for Elderly Females



Source: Official Government poverty level as defined by the U.S. Bureau of the Census. *Current Population Survey*, March 1996.

Figure 3
Poverty Rate Is Higher for Elderly Blacks



Source: Official Government poverty level as defined by the U.S. Bureau of the Census. *Current Population Survey,* March 1996.

over age 75 were in poverty, compared with 11 percent for whites and 27 percent for Hispanics (fig. 3).

Many elderly live on fixed incomes (such as pensions), while retail food prices continue to rise. As a result, households headed by the elderly spend an average of about 15 percent of their incomes for food, compared with about 12 percent for all U.S. households.

Government Efforts for Intervention

A variety of food and nutrition programs have been implemented at the Federal, State, and local levels during the past few decades. In particular, two large-scale Federal food-assistance programs have been developed to help ease the income burden for many elderly as well as to enhance their nutritional status.

Food Stamp Program's Impact

USDA's Food Stamp Program is intended to improve the ability of low-income households to purchase nutritionally adequate diets by supplementing their food expenditures. The program provides food assistance through coupons that are redeemable for food in retail stores or via electronic benefit transfer (similar to debit cards). Recipients must meet certain income, asset, and employment-related requirements. In 1995, the Food Stamp Program served approximately 2 million people ages 60 or over each month—about 7 percent of all food stamp participants.

Only 35 percent of elderly Americans who were eligible for food stamps actually applied for and received them in Jaunary 1994, compared with 71 percent of the 38 million people in the United States eligible for benefits. Elderly persons who received food stamps tended to live alone—76 percent of all food stamp households with elderly members were single-person households.

The Food Stamp Act of 1977 made several major revisions to the Food Stamp Program, one of the most far-reaching was the elimination of the purchase requirement. Prior to the Act, food stamp recipients were required to make a cash payment for their food stamps. The amount of food stamps they received was equal in value to their cash payment, plus an additional amount known as the "bonus." After the Act eliminated this purchase requirement, recipients received only the bonus (with no cash transaction). Several studies in the early 1970's suggested that inability to make the cash payment required under the original Food Stamp Program may have been a major reason why many eligible households headed by the elderly did not participate. Since elimination of the purchase requirement took effect, participation by households headed by an elderly person did increase somewhat, but minimally. USDA's Food and Consumer Service (FCS), which oversees the Food Stamp Program, is initiating an indepth study to better understand the low participation rate of the elderly.

There are also special provisions in effect specifically to encourage elderly participation in the Food Stamp Program. For example, a provision has been made for the allowance of higher medical and shelter deductions when determining the size of the food stamp benefits. Elderly participants are subject to less stringent asset and income eligibility requirements. Also, the elderly can now apply for benefits at home or over the phone. The elderly are not subject to the employment-related eligibility requirements. And, USDA allows approved, nonprofit foodservice providers to accept food stamps as payment for meals served to the elderly. However, despite these special provisions, elderly persons may be less likely than others to participate because they generally qualify for smaller benefits. The size of the food stamp allotment is based on household size, less 30 percent of the elderly's household net income. Because they tend to have higher incomes (relative to non-elderly food stamp participants), their household food stamp allotments

are generally smaller than those received by non-elderly participants. These smaller allotments, in turn, may not allow elderly-headed households to purchase more nutritionally adequate diets.

Relatively few studies have focused exclusively on evaluating the impacts of the Food Stamp Program on the nutritional status of elderly recipients. In 1990, USDA did an exhaustive review of studies to examine the extent to which the Food Stamp Program enhanced the nutritional status of elderly participants. Generally, these few studies tend to show that food stamp participation has a positive, although small, impact on elderly recipients' nutrient intake. The studies indicate that low-income elderly Food Stamp Program participants spend about $5 to $10 more on food per month than do nonparticipants, and their intake of nutrients is 3 to 6 percent higher for each nutrient.

The Elderly Nutrition Program's Impact

In 1973, Congress appropriated nearly $100 million to establish the first Federal nutrition intervention program specifically for the Nation's older population—the Elderly Nutrition Program. This program, administered by DHHS's Administration on Aging, provides grants to State agencies to support congregate and home-delivered nutrition services to eligible elderly individuals. Funds to States are awarded according to a formula based on a State's relative share of those age 60 and over. Funds within a State are awarded to area agencies on aging, which contract with local nutrition service providers. USDA provides additional support to the program in the form of commodities or cash in lieu of commodities for each meal served.

Persons at least 60 years of age and their spouses (regardless of age) are eligible for congregate-meal benefits. Home-delivered meals are available to the elderly who are homebound due to disability, illness, or geographic isolation. Unlike with the Food Stamp Program, there are no income or asset requirements to participate in this program, although preference for meal benefits is given to those exhibiting the greatest economic or social need. In fiscal 1995, about 123.4 million congregate meals were served to 2.4 million elderly people, and 119 million home-delivered meals were served to 988,738 homebound elderly people.

A 1993 amendment to the Act requires that meals served under State-established and operated projects comply with the *Dietary Guidelines for Americans*. States are also to provide to each participating elderly person a minimum of one-third of the RDA's if the project provided one meal a day, a minimum of two-thirds of the RDA's if the project provided two meals per day, and 100 percent of the RDA's if the project provided three meals a day.

Earlier studies had evaluated the impact of the Elderly Nutrition Program on the nutritional status of the elderly, but there were limitations: inadequate measures of dietary intake, self-selected samples of participants, and failure to include eligible nonparticipants as comparison groups. But despite these various shortcomings, most of these earlier studies found that the dietary intake of most nutrients was greater for the elderly participating in the program than for both nonparticipants and former participants.

DHHS recently released the results of a long-term, comprehensive nationwide evaluation of the Elderly Nutrition Program. The results of this comprehensive evaluation indicated that participants in both congregate and home-delivered meal programs had higher daily intakes of key nutrients than did similar nonparticipants. For example, the average daily intake of calcium (as a percentage of the RDA's) for congregate meal program participants was 93 percent, compared with 75 percent for elderly nonparticipants. Similarly, the average daily intake of calcium for home-delivered meal participants was 91 percent, compared with 73 percent for a comparison group of nonparticipants.

Close Attention to the Issue Must Continue

Inappropriate food intake, chronic disease, and functional impairment place a substantial number of elderly Americans at nutritional risk. Unrecognized or untreated malnutrition can lead to dsyfuction and disability, reduce the quality of life, increase morbidity, increase the need for healthcare and social services, and lead to institutionalization. Consequently, the growth in the elderly population, particularly in the oldest segment (age 85 and over) has far-reaching implications for public policy.

The Food Stamp Program and the Elderly Nutrition Program, in conjunction with non-Federal programs, have sought to enhance the nutritional status of elderly Americans. Both Federal programs have taken active steps to reach more elderly people in recent years. Although evaluation of the effectiveness of these two Federal programs has not always been conclusive, it generally appears that these programs have led to nutritional improvement among the elderly. In view of increasingly tight budgetary constraints being imposed on Federal agencies, it is difficult to anticipate what changes, if any, might be made to the Federal Government's intervention efforts to enhance the elderly's nutritional status.

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