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## Aging in the Eighties, Ability to Perform Work-Related Activities

Data From the Supplement on Aging to the National Health Interview Survey:  
United States, 1984

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### Introduction

At least three factors influence the exodus from paid employment among older Americans: public policy affecting retirement, the ability to perform work-related activities, and the desire on the part of the older worker to continue working or, alternatively, to enjoy leisure. The U.S. Congress has recently enacted two new laws that may influence the age at which Americans will choose to retire from active employment in the future. The first is an amendment to the Social Security Act implemented in April 1983 that will raise the minimum age of retirement for the receipt of full social security benefits from 65 to 67 years of age among persons born in 1960 or thereafter (Public Law 98-21). The second law amends the Age Discrimination in Employment Act of 1967 by eliminating a mandatory retirement age for most occupational groups (Public Law 99-592). Approved in October 1986, this law effectively extinguishes forced retirement at age 70. Thus, current Federal policy encourages Americans to retire at older ages than previously and now makes it legally possible for all older workers to remain employed, regardless of their chronological age, for as long as they possess the ability and desire to work.

The desire to continue working into the later years of life reflects a complex interplay among financial need and reward, gratification attained through work, and the functional capacity to meet job demands. This report is concerned primarily with the last of these forces—the physical ability to perform certain tasks associated with work.

### Source of data

The National Health Interview Survey (NHIS) is the National Center for Health Statistics' large continuing survey of the civilian noninstitutionalized population of the United States. Each year people in about 42,000 households are interviewed by U.S. Bureau of the Census interviewers to obtain information about their health and use of health care. Demographic information that is needed to interpret the data is also obtained. The interviewers have special training on this survey in addition to their regular training and response rates are high—about 97 percent. The only item with a relatively low response rate is family income.

In 1984 a special supplement was added to the questionnaire to obtain information about older people who were living in the community. This supplement, the Supplement on Aging (SOA), was designed to collect information about physical limitations, chronic conditions, housing, retirement status, interactions with family and organizations, use of community services, and other health-related and social information about middle-aged and older people. All household members age 65 years and over and a one-half sample of those 55-64 years of age were asked the questions on the supplement themselves when possible. Another household member was interviewed only when the selected person was unable to answer either because of physical or mental problems or because of being away from the household for a longer period than the interviewer would be in the area. Response rates to the SOA were also high; 95 percent

of the people selected from the NHIS sample had complete interviews to the SOA. Of the people ages 55-74 years, 93.0 percent responded for themselves.

The purpose of this report is to provide information about a particular segment of this population, people ages 55-74 years who had worked at some time since they were age 45. These people are of particular interest because of an impending or relatively recent change in their labor force participation. By virtue of their age and midlife active employment, such people are either approaching retirement, postretirement, or in transition between these two states. Information on work-related activities from the SOA makes it possible to describe the ability of these Americans to perform several activities that are basic and common to a variety of occupations. The intent is not to study the precise and detailed functional requirements of numerous individual occupations, but rather to describe a limited set of physical abilities among older workers in the ages surrounding retirement.

The estimates are based on a sample, and they will differ from estimates based on a complete census in which exactly the same questions and interviewing techniques are used. The authors have taken care not to make statements about differences unless it is likely that the same differences would be found using the same techniques in a complete census. The reader should use the material in the technical notes before deciding that differences not mentioned in the text are likely to be statistically significant. Biases that result from the way that the questions are worded, the lack of understanding by a respondent, or the difficulties inherent in asking people to think about themselves and report accurately will remain in any case.

The estimates of the prevalence of disability are based on responses of "yes." If for some reason there was no response, the response was not recorded, or the answer was unknown, data are treated as if the answer were "no." The impact of this procedure on the estimates is small. Usually less than 1 percent and never more than 2 percent of the sample had such responses.

**Background**

The SOA included questions to determine the ability to perform 10 work-related activities. The 10 items covered a wide range of abilities that involve mobility (walking one-quarter of a mile and walking up 10 steps without resting), endurance for confined movement (standing on feet for 2 hours and sitting for 2 hours), lower and upper body strength (stooping, crouching, or kneeling and lifting or carrying 25 or 10 pounds), freedom of movement (reaching up over head and reaching out to shake hands), and fine motor skills (grasping with fingers). Participants were first asked if they currently had any difficulty performing each activity. For the subset of persons with any difficulty, the amount of difficulty (some or a lot) was ascertained, including the inability to perform the activity in question. Data on the proportion of persons with any difficulty for each

activity and the subset unable to perform each activity are presented in this report.

Of the 38.3 million Americans 55-74 years of age, 36 million or 95 percent, had been employed at some time during their lives. Virtually all men had been employed, as had a high proportion of women. An estimated 32.3 million, or 84 percent, had worked at some time since the age of 45. However, while almost all men had worked at some time since age 45, only about three-quarters of the women had worked after their 45th birthday, as shown in the following table.

<i>Work status</i>	<i>Both sexes</i>	<i>Men</i>	<i>Women</i>
Total.....	100.0	100.0	100.0
Ever worked.....	95.3	99.6	91.7
Worked since age 45.....	84.3	97.6	73.2

The data in this report pertain to the people 55-74 years of age who continued to work or returned to work for at least some time during their middle years. These individuals constitute the population who must decide whether and when to retire as they achieve older ages.

The report is focused on differences in the ability to perform 10 work-related activities among 4 age groups and 3 employment groups (working, retired because of health, and retired for other reasons). Examination of differences among these subgroups of people employed since age 45 can shed light on the proportion of older Americans who still maintain the work-related functional abilities common to many jobs. It can also reveal the ability to work among people this age who have retired, those people who might remain in the work-force under the new retirement laws.

**Differences by age and sex**

Overall, of the 10 work-related activities studied, stooping, crouching, or kneeling caused difficulty for the largest proportion of the people, 28 percent (table 1). A substantial proportion also experienced difficulty lifting or carrying 25 pounds (23 percent), standing on their feet for 2 hours (22 percent), walking one-quarter of a mile (18 percent), and walking up 10 steps without resting (15 percent). Very few people in this age range had any difficulty reaching out to shake hands and very few were unable to lift 10 pounds.

In general, a greater proportion of women than men had difficulty performing the work-associated activities. The sex difference was largest for the proportion with difficulty lifting or carrying 25 pounds (31 percent of the women, compared with 16 percent of the men). Sex differences of a smaller magnitude were evident for the ability to walk up 10 steps; stoop, crouch, or kneel; and lift or carry 10 pounds. For these four activities, the sex differences were most pronounced in the oldest age category. Twenty-five percent of the women 70-74 years of age had difficulty walking up 10 steps without resting, including 10 percent who were unable to do so. In comparison, 18 percent of the

men this age had difficulty walking up 10 steps, including 9 percent who were unable to do so.

Among people who had worked since the age of 45, a definite increment from younger to older age groups was observed in both the proportion of people with any difficulty and the proportion unable to perform several of the activities assessed. Increases with age were especially apparent for five activities that reflect mobility and musculoskeletal strength: walking one-quarter of a mile; walking up 10 steps; standing on feet for 2 hours; stooping, crouching, or kneeling; and lifting or carrying 25 or 10 pounds. For each of these activities, people in the youngest age category (55-59 years) had the lowest proportion reporting any difficulty, and that proportion was nearly doubled among people in the oldest age category (70-74 years). For example, 12 percent of the people 55-59 years of age had difficulty walking one-quarter of a mile, compared with 25 percent of those ages 70-74 years.

The same kind of pattern was observed in the proportion of people unable to perform these activities. Nine percent of the people ages 55-59 years were unable to stoop, crouch, or kneel, compared with 17 percent of those ages 70-74 years. Differences in ability among age groups were absent or subtle for the other four activities (sitting for 2 hours, reaching up over head, reaching out to shake hands, and grasping with fingers).

### Employment status

Fewer than one-half of the people 55-74 years of age who had worked since their 45th birthday were presently employed—49 and 42 percent of men and women, respectively (table 2). The proportions changed dramatically across the age span. Nearly 4 out of 5 people 55-59 years of age were presently employed, compared with about 1 in 10 ages 70-74 years. Even among people who had worked in midlife, women exited the work force earlier than men. A lower proportion of women remained active in the labor force at each age, and the difference was especially notable at the youngest ages.

The percent of the people who attributed their retirement to their health was greatest at ages 65 and over, 20 percent or more of each sex in each age group. Among those who had retired, however, a greater proportion of people in the younger than the older age groups had retired because of their health.

### Differences among employment groups

The older age of people who were retired must be kept in mind when interpreting differences among the three employment-status groups. Nevertheless, there are major differences among the groups even within this relatively narrow age range. These differences are important when considering the impact of changes in retirement laws.

People who were presently employed were less likely than retired people to have difficulty performing each of the 10 work-associated activities (table 3). For the majority of the activities, the proportion with difficulty was two to

three times higher among people who had retired than among those who maintained employment. For example, 17 percent of the people who were presently employed had difficulty stooping, crouching, or kneeling, and 10 percent were unable to do so. In contrast, 37 percent of the retired population had this difficulty, and 15 percent were unable to stoop, crouch, or kneel. About 10 percent of presently employed people had difficulty standing on their feet for 2 hours, compared with about 32 percent of those who had retired.

People who had retired because of their health were the most likely of the three groups to have difficulty with each of the activities. The proportion with difficulty was highest for the activities associated with mobility and strength, such as walking one-quarter of a mile (54 percent); walking up 10 steps without resting (48 percent); standing on feet for 2 hours (63 percent); stooping, crouching, or kneeling (65 percent); and lifting or carrying 25 pounds (62 percent).

In general, the proportion with difficulty for each activity was somewhat higher among the people who had retired for reasons other than their health than among people who were presently employed. However, people who had retired for reasons other than their health were more similar to the presently employed than they were to people who had retired because of their health. The pattern of the lowest percents among the presently employed, intermediate percents among people who had retired for reasons not attributed to their health, and the highest percents among those retired because of their health was present and similar for both sexes.

### Differences by age within employment groups

Age-specific data for the three employment groups are shown for four activities in table 4. Generally, the proportion with difficulty was higher in successive age groups for both the presently employed and those who had retired for reasons other than their health. For example, among presently employed people, 7 percent of those 55-59 years of age had difficulty walking one-quarter of a mile compared with 11 percent at 70-74 years of age. Among people who had retired for reasons not related to their health, the percents were 7 and 18, respectively. The one exception was in difficulty walking up 10 steps without resting; there was no age difference among the presently employed. Age patterns similar to those for both sexes combined were observed for each sex in these two employment-status groups.

A much higher proportion with difficulty was observed in every age category of people who had retired because of their health than for other retired persons or the presently employed. The number of retired people in the youngest age group in the sample was small, estimates are less precise than for other age-specific groups, and few differences are statistically significant. However, there did appear to be a different pattern by age among those who had retired because of their health; for most activities, the

proportion with difficulty was highest among the youngest people. This was particularly noticeable for men in the youngest age category for activities related to mobility. For example, 71 percent of the men 55-59 years of age who had retired because of their health had difficulty walking one-quarter of a mile, compared with about one-half of such men in the other age groups.

### Commentary

Overall, 58 percent of the people ages 55-74 years who had worked at some time since their 45th birthday had no difficulty with any of the 10 work-related activities. The proportion was highest among those still working (73 percent) followed by those who had retired for reasons other than their health (60 percent), and it was lowest among those who had retired because of their health (14 percent). Potentially, many of the people who had retired for reasons other than their health could have remained in the labor force.

When retired people were asked if they could work at a job or business if such an opportunity were available, about

two-thirds of the people who had retired for reasons other than health answered affirmatively although only about 12 percent of them expressed a desire to work. Among people who had retired because of their health, only 28 percent said that they could work if a job were available, and only about 10 percent wanted to do so, as shown in the following table.

<i>Employment potential</i>	<i>Total retired</i>	<i>Retired because of:</i>	
		<i>Health</i>	<i>Other reasons</i>
No limitations.....	45.9	13.7	60.2
Could work if job available....	52.8	27.7	64.0
Want to work.....	11.2	10.2	11.6

Thus, the majority of those who were retired for reasons other than health were not impaired. They also said that they could work if a job were available. However, very few of these potential workers wanted to be employed. The majority of those who had retired because of their health had at least one limitation and said that they could not work. Therefore, whether the recent changes in retirement laws will actually change the age at which people retire remains to be seen.

**Table 1. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by sex, age, and activity: United States, 1984**

Activity	Both sexes					Men					Women				
	Total	55-59 years	60-64 years	65-69 years	70-74 years	Total	55-59 years	60-64 years	65-69 years	70-74 years	Total	55-59 years	60-64 years	65-69 years	70-74 years
	Number														
Sample.....	9,805	2,000	1,968	3,285	2,552	5,100	1,036	1,067	1,731	1,266	4,705	964	901	1,554	1,286
	Number in thousands														
Estimated population.....	32,305	9,645	9,235	7,561	5,864	16,936	5,023	5,037	3,969	2,907	15,368	4,622	4,197	3,592	2,957
	Percent of population														
<b>Walking ¼ mile</b>															
Difficulty.....	17.6	12.4	16.5	20.0	25.0	17.4	12.3	17.0	20.1	23.3	17.9	12.6	15.8	19.9	26.6
Unable.....	7.6	5.4	8.0	8.7	9.5	7.6	5.0	7.9	9.4	8.7	7.7	5.8	8.0	7.9	10.2
<b>Walking up 10 steps</b>															
Difficulty.....	15.2	10.9	14.5	16.9	21.4	12.8	9.5	12.1	14.2	17.9	17.9	12.4	17.4	19.7	24.8
Unable.....	6.9	5.2	6.9	7.4	9.5	5.6	3.8	5.3	6.0	8.7	8.4	6.7	8.8	8.8	10.2
<b>Standing on feet for 2 hours</b>															
Difficulty.....	22.0	15.1	20.7	26.1	30.1	20.6	13.5	18.9	25.5	28.9	23.5	16.8	22.8	26.7	31.2
Unable.....	9.0	6.5	8.3	10.9	11.6	8.1	5.2	7.2	10.6	11.5	9.9	7.8	9.7	11.3	11.6
<b>Sitting for 2 hours</b>															
Difficulty.....	9.7	8.3	10.6	10.4	9.7	8.4	7.0	8.9	9.9	7.9	11.2	9.8	12.7	10.9	11.6
Unable.....	5.9	5.3	6.5	6.4	5.5	4.9	4.2	5.4	5.7	4.1	7.1	6.4	7.9	7.2	6.9
<b>Stooping, crouching, or kneeling</b>															
Difficulty.....	27.8	20.1	27.0	30.9	37.8	24.6	18.0	23.4	27.7	33.7	31.4	22.4	31.3	34.3	41.7
Unable.....	12.6	9.4	12.5	13.7	16.5	11.4	8.3	11.1	12.5	15.9	13.9	10.7	14.2	15.0	17.2
<b>Reaching up over head</b>															
Difficulty.....	11.5	9.0	11.2	13.1	14.2	10.5	9.0	9.9	12.4	11.6	12.7	9.1	12.8	13.8	16.6
Unable.....	6.4	4.6	6.7	7.3	7.7	5.7	3.9	6.3	6.9	6.0	7.2	5.4	7.1	7.7	9.5
<b>Reaching out to shake hands</b>															
Difficulty.....	1.8	1.8	1.6	1.8	2.0	1.6	1.5	1.3	1.8	2.0	2.0	2.2	1.9	1.8	2.0
Unable.....	1.0	1.0	1.1	1.0	1.2	1.0	0.8	0.9	1.1	1.0	1.1	1.2	1.2	0.8	1.4
<b>Grasping with fingers</b>															
Difficulty.....	7.8	6.4	7.4	8.7	9.5	6.3	4.5	6.0	7.1	8.8	9.4	8.5	9.0	10.5	10.2
Unable.....	5.0	4.2	5.0	5.2	5.9	4.0	2.6	4.0	4.5	5.4	6.1	5.8	6.2	6.1	6.3
<b>Lifting or carrying 25 pounds</b>															
Difficulty.....	23.1	17.0	22.5	24.8	32.0	15.9	11.6	15.4	16.8	23.1	31.1	22.9	31.0	33.8	40.8
Unable.....	6.9	6.2	6.0	7.3	9.1	4.8	3.5	3.8	5.6	7.5	9.3	9.1	8.7	9.3	10.7
<b>Lifting or carrying 10 pounds</b>															
Difficulty.....	7.3	5.0	6.9	8.2	10.5	5.3	3.7	5.4	6.6	6.3	9.4	6.4	8.7	9.9	14.6
Unable.....	2.6	2.2	2.5	2.7	3.0	1.9	1.6	1.9	2.2	1.7	3.3	2.8	3.3	3.3	4.3

Table 2. Percent distribution of people 55-74 years of age who have worked since age 45 by employment status, according to sex and age: United States, 1984

Sex and age	Number in sample	Estimated population in thousands	Employment status				
			Reason for retirement			Working	Total
			Total	Other than health	Health		
Both sexes			Percent distribution				
55-74 years.....	9,805	32,305	100.0	45.7	54.3	37.6	16.7
55-59 years.....	2,000	9,645	100.0	78.7	21.3	12.0	9.3
60-64 years.....	1,968	9,235	100.0	52.4	47.6	31.4	16.2
65-69 years.....	3,285	7,561	100.0	21.4	78.6	56.5	22.1
70-74 years.....	2,552	5,864	100.0	12.6	87.4	65.0	22.4
Men							
55-74 years.....	5,100	16,936	100.0	48.9	51.1	33.7	17.4
55-59 years.....	1,036	5,023	100.0	83.0	17.0	8.3	8.7
60-64 years.....	1,067	5,037	100.0	55.5	44.5	27.1	17.4
65-69 years.....	1,731	3,969	100.0	22.0	78.0	54.0	23.9
70-74 years.....	1,266	2,907	100.0	15.2	84.8	61.1	23.7
Women							
55-74 years.....	4,705	15,368	100.0	42.3	57.7	41.9	15.8
55-59 years.....	964	4,622	100.0	73.9	26.1	16.0	10.0
60-64 years.....	901	4,197	100.0	48.6	51.4	36.7	14.8
65-69 years.....	1,554	3,592	100.0	20.6	79.4	59.2	20.2
70-74 years.....	1,286	2,957	100.0	10.1	89.9	68.8	21.1

Table 3. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by employment status, sex, and activity: United States, 1984

Activity	Total	Working	Reason for retirement		
			Total	Other than health	Health
<b>BOTH SEXES</b>			<b>Number</b>		
Sample.....	9,805	3,626	6,179	4,375	1,804
			<b>Number in thousands</b>		
Estimated population.....	32,305	14,777	17,527	12,146	5,382
<b>Walking ¼ mile</b>			<b>Percent of population</b>		
Difficulty.....	17.6	8.4	25.4	12.8	53.9
Unable.....	7.6	5.1	9.8	6.7	16.8
<b>Walking up 10 steps</b>					
Difficulty.....	15.2	6.6	22.5	11.0	48.4
Unable.....	6.9	4.2	9.2	6.0	16.4
<b>Standing on feet for 2 hours</b>					
Difficulty.....	22.0	10.2	31.9	18.2	62.8
Unable.....	9.0	5.9	11.6	9.3	16.7
<b>Sitting for 2 hours</b>					
Difficulty.....	9.7	5.4	13.4	6.8	28.3
Unable.....	5.9	3.9	7.6	4.7	14.2
<b>Stooping, crouching, or kneeling</b>					
Difficulty.....	27.8	17.0	36.9	24.4	65.2
Unable.....	12.6	9.7	15.0	13.2	19.3
<b>Reaching up over head</b>					
Difficulty.....	11.5	6.0	16.2	8.0	34.7
Unable.....	6.4	4.1	8.3	5.2	15.5
<b>Reaching out to shake hands</b>					
Difficulty.....	1.8	0.5	2.8	1.1	6.8
Unable.....	1.0	0.3	1.7	0.6	4.0
<b>Grasping with fingers</b>					
Difficulty.....	7.8	4.1	10.9	5.9	22.1
Unable.....	5.0	3.1	6.6	4.2	11.8
<b>Lifting or carrying 25 pounds</b>					
Difficulty.....	23.1	11.8	32.7	19.9	61.8
Unable.....	6.9	5.2	8.4	7.2	11.1
<b>Lifting or carrying 10 pounds</b>					
Difficulty.....	7.3	2.4	11.4	5.1	25.6
Unable.....	2.6	1.1	3.8	2.0	7.8
<b>MEN</b>			<b>Number</b>		
Sample.....	5,100	2,034	3,066	2,076	990
			<b>Number in thousands</b>		
Estimated population.....	16,936	8,282	8,654	5,704	2,950
<b>Walking ¼ mile</b>			<b>Percent of population</b>		
Difficulty.....	17.4	7.9	26.5	11.9	54.8
Unable.....	7.6	4.7	10.3	6.6	17.5
<b>Walking up 10 steps</b>					
Difficulty.....	12.8	4.6	20.7	8.1	45.1
Unable.....	5.6	2.5	8.5	4.7	15.9
<b>Standing on feet for 2 hours</b>					
Difficulty.....	20.6	8.6	32.0	16.1	62.7
Unable.....	8.1	4.9	11.3	8.9	15.7
<b>Sitting for 2 hours</b>					
Difficulty.....	8.4	4.2	12.4	5.3	26.0
Unable.....	4.9	3.0	6.7	3.7	12.5

**Table 3. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by employment status, sex, and activity: United States, 1984—Con.**

Activity	Total	Working	Reason for retirement		
			Total	Other than health	Health
<b>MEN—Con.</b>					
Stooping, crouching, or kneeling					
Difficulty .....	24.6	14.3	34.4	19.8	62.6
Unable .....	11.4	8.5	14.2	11.8	18.9
Reaching up over head					
Difficulty .....	10.5	5.4	15.4	5.8	33.9
Unable .....	5.7	3.5	7.8	3.6	15.8
Reaching out to shake hands					
Difficulty .....	1.6	0.4	2.7	0.9	6.2
Unable .....	1.0	0.3	1.6	0.5	3.6
Grasping with fingers					
Difficulty .....	6.3	2.7	9.7	4.0	20.7
Unable .....	4.0	2.0	5.8	3.1	11.0
Lifting or carrying 25 pounds					
Difficulty .....	15.9	5.9	25.6	10.9	53.8
Unable .....	4.8	2.6	6.8	5.0	10.3
Lifting or carrying 10 pounds					
Difficulty .....	5.3	1.3	9.2	2.9	21.5
Unable .....	1.9	0.7	3.0	1.2	6.5
<b>WOMEN</b>					
Sample .....	4,705	1,592	3,113	2,299	814
			Number		
			Number in thousands		
Estimated population .....	15,368	6,495	8,873	6,442	2,431
Walking ¼ mile					
Difficulty .....	17.9	9.1	24.4	13.6	52.9
Unable .....	7.7	5.5	9.3	6.8	15.9
Walking up 10 steps					
Difficulty .....	17.9	9.3	24.2	13.6	52.4
Unable .....	8.4	6.4	9.9	7.2	17.1
Standing on feet for 2 hours					
Difficulty .....	23.5	12.2	31.8	20.0	63.0
Unable .....	9.9	7.2	11.9	9.6	17.9
Sitting for 2 hours					
Difficulty .....	11.2	6.9	14.4	8.0	31.1
Unable .....	7.1	5.1	8.5	5.6	16.3
Stooping, crouching, or kneeling					
Difficulty .....	31.4	20.3	39.4	28.5	68.3
Unable .....	13.9	11.3	15.8	14.4	19.7
Reaching up over head					
Difficulty .....	12.7	6.7	17.0	10.0	35.6
Unable .....	7.2	4.8	8.9	6.6	15.1
Reaching out to shake hands					
Difficulty .....	2.0	0.7	2.9	1.2	7.4
Unable .....	1.1	0.3	1.8	0.7	4.5
Grasping with fingers					
Difficulty .....	9.4	5.8	12.1	7.6	23.9
Unable .....	6.1	4.4	7.3	5.2	12.8
Lifting or carrying 25 pounds					
Difficulty .....	31.1	19.3	39.7	27.8	71.5
Unable .....	9.3	8.5	10.0	9.2	12.1
Lifting or carrying 10 pounds					
Difficulty .....	9.4	3.8	13.5	7.1	30.5
Unable .....	3.3	1.7	4.5	2.7	9.4



**Table 4. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform selected activities by age, activity, and employment status: United States, 1984**

<i>Activity and employment status</i>	<i>Total</i>	<i>55-59 years</i>	<i>60-64 years</i>	<i>65-69 years</i>	<i>70-74 years</i>
Walking ¼ mile					
Percent of population with difficulty					
Working .....	8.4	7.2	9.3	10.1	11.1
Retired: Other than health.....	12.8	6.5	9.8	11.9	18.1
Retired: Health .....	53.9	64.3	52.5	50.4	52.8
Walking up 10 steps					
Working .....	6.6	6.2	7.2	7.0	6.1
Retired: Other than health.....	11.0	7.4	8.8	9.9	15.0
Retired: Health .....	48.4	54.5	49.3	44.1	48.7
Standing on feet for 2 hours					
Working .....	10.2	9.4	10.5	11.5	13.9
Retired: Other than health.....	18.2	10.9	15.4	18.0	22.8
Retired: Health .....	62.8	68.5	63.8	60.9	60.4
Stooping, crouching, or kneeling					
Working .....	17.0	15.4	17.8	18.1	24.9
Retired: Other than health.....	24.4	16.4	21.6	22.1	31.6
Retired: Health .....	65.2	64.8	67.0	65.6	62.9
Walking ¼ mile					
Percent of population unable					
Working .....	5.1	3.9	6.1	6.4	7.3
Retired: Other than health.....	6.7	4.2	5.4	6.7	8.4
Retired: Health .....	16.8	19.6	18.9	15.8	13.8
Walking up 10 steps					
Working .....	4.2	3.9	4.7	4.8	4.0
Retired: Other than health.....	6.0	3.6	5.3	5.4	8.0
Retired: Health .....	16.4	18.2	16.9	14.8	16.8
Standing on feet for 2 hours					
Working .....	5.9	5.5	5.9	6.7	7.5
Retired: Other than health.....	9.3	5.0	7.7	10.0	11.0
Retired: Health .....	16.7	16.4	17.4	17.2	15.5
Stooping, crouching, or kneeling					
Working .....	9.7	8.7	9.9	11.4	14.8
Retired: Other than health.....	13.2	8.1	11.6	12.4	16.8
Retired: Health .....	19.3	17.2	22.8	19.2	16.7

### Technical notes

Each week a probability sample of households in the United States is visited by U.S. Bureau of the Census interviewers to obtain a wide range of information about the health and health care characteristics of the people living in those households. A description of the survey design, methods used to make the national estimates, and general qualifications of the data are provided in a report in the *Vital and Health Statistics* series.

There was a special supplement for people age 55 and over to the NHIS in 1984, the Supplement on Aging (SOA). A report on the SOA design and procedures that contains the questionnaire is in press.<sup>2</sup> Two deviations from usual NHIS practice that are of importance for this report should be noted. First, although everyone age 65 and over in the NHIS households was included in the SOA sample, only one-half of the people 55-64 years of age were included. Second, extensive efforts were made to have each person answer the questions on the SOA personally regardless of whether he or she had been a self-respondent to the regular NHIS interview.

There were 11,744 people with responses to the SOA who were 55-74 years of age; 93 percent answered all questions for themselves (table I). There was little variation in whether people were self-respondents by age within this age range, but men were less likely to answer for themselves than women were, usually because the men, especially younger men, were away from home.

Table I. Response status of sample of people 55-74 years of age

Age and sex	All response statuses	Number		Percent self
		Self	Not self	
Total.....	11,744	10,927	817	93.0
Age				
55-59 years.....	2,341	2,150	191	91.8
60-64 years.....	2,310	2,134	176	92.4
65-69 years.....	3,956	3,706	250	93.7
70-74 years.....	3,137	2,937	200	93.6
Sex				
Men.....	5,233	4,694	539	89.7
Women.....	6,511	6,233	278	95.7

The estimates in this paper are based on a sample rather than on the entire population of people 55-74 years

<sup>1</sup>National Center for Health Statistics, M. G. Kovar and G. S. Poe: The National Health Interview Survey design, 1973-84, and procedures, 1975-83. *Vital and Health Statistics*. Series 1, No. 18. DHHS Pub. No. (PHS) 85-1320. Public Health Service. Washington. U.S. Government Printing Office, Aug. 1985.

<sup>2</sup>National Center for Health Statistics, J. Fitti and M. G. Kovar: The Supplement on Aging, design and procedures. *Vital and Health Statistics*. Series 1, No. 21. DHHS Pub. No. (PHS) 87-1320. Public Health Service, Washington. U.S. Government Printing Office. In press.

of age in the civilian noninstitutionalized population. Therefore, they are subject to sampling error. In addition, the sample had a complex design which has the effect of making the sampling errors somewhat larger than they would be from a simple random sample of the same size using the same procedures.

Most of the tables in this report show the number of people in the sample, and table II provides some average design effects to enable the user to estimate sampling errors that incorporate the complex sample design.

Table II. Average design effects for estimates of percent with difficulty

Population	Design effect	Square root of design effect
Total.....	1.2328	1.11
Men.....	1.3409	1.15
Women.....	1.2791	1.13
55-64 years.....	0.9770	0.99
65-74 years.....	1.1759	1.08

To estimate the sampling errors, convert the percent to a proportion, calculate the variance of a proportion assuming simple random sampling, multiply that variance by the design effect to allow for the complex sample, then compute standard errors, confidence intervals, or significance tests.

For example, there were 1,592 women 55-74 years of age in the sample who were working. Twenty percent had difficulty stooping, crouching, or kneeling. Therefore,

$$\begin{aligned} \text{Variance (simple random sample)} &= \frac{pq}{n} \\ &= \frac{(0.203)(0.797)}{1,592} \\ &= 0.000102. \end{aligned}$$

The average design effect for women is 1.2791.

$$\begin{aligned} \text{Variance (complex sample)} &= (0.000102)(1.2791) \\ &= 0.000130. \end{aligned}$$

$$\begin{aligned} \text{Standard error} &= (0.000130)^{1/2} \\ &= 0.0114. \end{aligned}$$

$$\begin{aligned} \text{95-percent confidence interval} &= 20.3 \pm (1.96)(1.14) \\ &= 20.3 \pm 2.2 \text{ percent.} \end{aligned}$$

It should be noted that this example gives a conservative estimate. Because of the half-sample of people ages 55-64 years, there is little clustering in households for people of that age and the design effects are so small that the complex sample design has little impact on the variance.

**Table III. Confidence intervals for selected estimates of percent with difficulty**

<i>Activity and sex</i>	<i>Estimated percent</i>	<i>95-percent confidence interval</i>	
		<i>Lower bound</i>	<i>Upper bound</i>
<b>Walking ¼ mile</b>			
Both sexes .....	17.6	16.8	18.5
Men .....	17.4	16.1	18.7
Women.....	17.9	16.8	19.0
<b>Walking up 10 steps without resting</b>			
Both sexes .....	15.2	14.4	16.0
Men .....	12.8	11.8	13.8
Women.....	17.9	16.6	19.2
<b>Standing for 2 hours</b>			
Both sexes .....	22.0	21.0	23.0
Men .....	20.6	19.3	21.9
Women.....	23.5	22.1	24.9
<b>Sitting for 2 hours</b>			
Both sexes .....	9.7	9.0	10.4
Men .....	8.4	7.5	9.3
Women.....	11.2	10.3	12.1
<b>Stooping, crouching, or kneeling</b>			
Both sexes .....	17.8	16.8	18.8
Men .....	24.6	23.4	25.8
Women.....	31.4	29.7	33.0
<b>Reaching up over head</b>			
Both sexes .....	11.5	10.9	12.2
Men .....	10.5	9.6	11.4
Women.....	12.7	11.7	13.6
<b>Reaching out to shake hands</b>			
Both sexes .....	1.8	1.5	2.0
Men .....	1.6	1.2	1.9
Women.....	2.0	1.6	2.4
<b>Grasping with fingers</b>			
Both sexes .....	7.8	7.1	8.4
Men .....	6.3	5.5	7.1
Women.....	9.4	8.3	10.5
<b>Lifting or carrying 25 pounds</b>			
Both sexes .....	23.1	22.2	24.1
Men .....	15.9	14.6	17.3
Women.....	31.1	29.5	32.7
<b>Lifting or carrying 10 pounds</b>			
Both sexes .....	7.3	6.8	7.8
Men .....	5.3	4.7	6.0
Women.....	9.4	8.5	10.4

Also, because the sample is so large, the standard errors are relatively small despite the complex sample. Confidence intervals are shown for each functional disability for both sexes and for men and women in table III for people who wish to use them.

Perhaps more important for interpretation than sampling errors, however, is a thorough understanding of what data from this, or any other, cross-sectional survey can provide.

The NHIS is a point-in-time study. Associations at one point in time should not be interpreted as causality. The differences in functional disability among the employment groups, for example, should not be interpreted to mean that these specific disabilities caused the people to retire because of health. A specific disability could have begun before or after retirement; data from a cross-sectional survey do not enable one to make that distinction. Nor can the data from a cross-sectional survey be used to estimate the total number of people who have done any specific thing in the past such as the number who retired because of health; there may have been differential mortality preceding the interview. The data serve only to point out that when they were interviewed, people who had retired, and especially those who had retired because of health, were more likely than those who were still working to report any of the disabilities that were investigated.

This may be enough to suggest, however, that data based solely on working populations are not sufficient for investigating age-related changes in the proportion of people with difficulty or inability to perform a specified task.

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