
Vital and Health Statistics

Long-Term Care for the Functionally Dependent Elderly

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No. 104

This report presents the prevalence of functional dependency among the elderly population both inside and outside of institutions in 1984–85, as well as the prevalence of long-term care use (nursing homes, formal home care, and informal home care) by the functionally dependent elderly population. Estimates are based on data collected in the Supplement on Aging to the 1984 National Health Interview Survey and in the 1985 National Nursing Home Survey.

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Cooperation of the U.S. Bureau of the Census

Under the legislation establishing the National Health Interview Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the Division of Health Interview Statistics, the U.S. Bureau of the Census, under a contractual arrangement, participated in planning the survey and collecting the data.

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Symbols

- Data not available
 - ... Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Figure does not meet standard of reliability or precision (more than 30-percent relative standard error)
 - # Figure suppressed to comply with confidentiality requirements
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Long-term care for the functionally dependent elderly

by Esther Hing, Division of Health Care Statistics, and
Barbara Bloom, Division of Health Interview Statistics

Introduction

The population in need of long-term care has been defined as those requiring assistance either in the activities of daily living or in the instrumental activities of daily living (1–5). The activities of daily living (ADL's) reflect an individual's capacity for self care in such basic functions as bathing, dressing, eating, or using the toilet (6); whereas the instrumental activities of daily living (IADL's) are common everyday tasks such as preparing meals, shopping, or doing housework, which enable an individual to live independently in the community (7). For example, the National Long-Term Care Demonstration, initiated in 1980 by the Department of Health and Human Services to evaluate comprehensive case management of community care, used functional disability in ADL's and IADL's as eligibility criteria for inclusion in the study (5). In addition, the 1982 National Long-Term Care Survey defined the Medicare population at risk of needing long-term care as those functionally impaired in ADL's and IADL's for at least 3 months (4). The link between functional dependency and increased use of long-term care services has been cited in many previous studies (1,2,8–11). Weissert estimated that of 4.9 million persons dependent in ADL's or in mobility in 1977, 26 percent were in nursing homes and 52 percent of those dependent in toileting or eating resided in nursing homes (2). Branch and others found that dependency in ADL's was predictive of both nursing home placement and home care utilization in prospective studies of community-dwelling

elderly persons in Massachusetts (8–9). Other than the studies by Weissert and Scanlon (3), most of these studies have examined factors associated with either nursing home institutionalization or home care utilization, but not both. This report will examine the prevalence of ADL and IADL dependency among the elderly population both inside and outside of nursing homes in 1984–85, and the use of nursing homes and home care services by those dependent in either ADL's or IADL's. Data used in this report are from the Supplement on Aging (SOA) to the 1984 National Health Interview Survey (NHIS) and the 1985 National Nursing Home Survey (NNHS).

It should be pointed out that in order to link data on the elderly in the community (NHIS) and in nursing homes (NNHS), some modification of the definitions of functional dependency from each survey was necessary. The definitions of functional dependency used in this report are unique to this report. A recent study has found that differences in which ADL items are being measured, and how they are measured, accounts for much of the variation in size of the elderly population with ADL disabilities as estimated from recent national surveys (12). Estimates of functional disability may also vary from survey to survey because of differences in sample design, sample size, survey methodology, and age structure of the population at the time the surveys were conducted (12). Therefore, caution must be exercised when comparing results from this study with other studies.

Highlights

- In 1984–85, 29 percent of the institutionalized and noninstitutionalized elderly population (or about 8 million persons) were in need of long-term care services.
- Seventy-nine percent of the functionally dependent elderly received some type of long-term care in 1984–85. Informal home care services provided by friends or family members were the most frequent type of long-term care received by the functionally dependent elderly (42 percent), followed by formal home care services (21 percent) and nursing home care (16 percent).
- Use of nursing homes increased as the number of limitations in activities of daily living (ADL's) increased; nursing home use was greatest (59 percent) among those dependent in five to seven ADL's.
- Home care use was greater for those with four or fewer ADL limitations or for those with limitations only in instrumental activities of daily living (IADL's).
- Among the functionally dependent elderly, use of nursing homes increased with age and was greater for females, for white persons, for unmarried persons, and for persons with incomes below the poverty threshold.
- Among the functionally dependent elderly, use of formal home-care services was greater for females, for persons living alone, for unmarried persons, and for persons with incomes above the poverty threshold.
- Among the functionally dependent elderly, use of informal home-care services was greater for males, for black persons or persons of other races, for married persons, and for persons living with a spouse or others.
- Among the noninstitutionalized elderly population, use of health care services in the past year was greater among the functionally dependent elderly than among the functionally independent. Severely dependent elderly persons with five to seven ADL limitations had more physician contacts in the past year, were more likely to be hospitalized at least once in the past year, and were more likely to use home health services in the past year than were those with fewer ADL limitations.

Sources and limitations of the data

Data presented in this report are for the noninstitutionalized and institutionalized elderly population in 1984–85. The data presented on the civilian noninstitutionalized population 65 years of age and over were derived from responses to the Supplement on Aging (SOA) to the 1984 National Health Interview Survey (NHIS). The NHIS is a large, continuing survey of the civilian noninstitutionalized population of the United States conducted by the National Center for Health Statistics. Each year people in about 50,000 households are selected through a multistage area probability sampling process. The sample is divided into weekly subsamples. People in the households are interviewed once during the year by U.S. Bureau of the Census interviewers to obtain information about their health and use of health care.

In 1984, a special Supplement on Aging was added to the NHIS to obtain information about older people who were living in the community. A publication by Fitti and Kovar describes the SOA's background, sample design, questionnaire planning and development, survey operations, and analysis (13). Selected results from the SOA have already been published in numerous NCHS publications (14–22).

All members of households in the NHIS 65 years of age and over and a half sample of those 55–64 years of age were selected for the SOA sample. Where possible, information was obtained from the sample person. Of the 16,148 people for whom information was obtained, 92 percent answered the questions for themselves; for the remaining completed interviews, a proxy respondent provided the information on the sample person. This report is based on interviews for sample persons 65 years of age and over who numbered 11,497 and represented 26,433,000 persons in the population. The response rate was 97 percent. The supplement was also designed to be the basis of a family of longitudinal studies that are known collectively as the Longitudinal Study of Aging (LSOA). Data from the 1984 SOA and the 1986 LSOA have already been published (23).

Data on functional dependency of the civilian noninstitutionalized population 65 years of age and over in 1984 substantially underrepresent functional dependency of the total population 65 years of age and over in 1984, because many of the most dependent members of this age group were institutionalized in nursing homes, and were not represented in the SOA sample. Data on the functional limitations of nursing home residents, therefore, were included in this study for a more complete picture of functional dependency among the elderly.

Data on nursing home residents are from the 1985 National

Nursing Home Survey (NNHS), a nationwide sample survey of nursing homes, their residents, discharges, and staff, conducted periodically by the National Center for Health Statistics. Preliminary statistics from the 1985 NNHS about facilities, residents, discharges, and registered nurses have been published (24–27). Final statistics on a variety of topics (28–31) have also been published.

Estimates in this report are based on the sample of 4,650 residents 65 years of age and over from the 1,079 nursing homes participating in the survey. A sample of five or fewer residents per sample facility was selected. Residents included in the sample were those on the nursing home's roster the night before data collection began. Data were collected by interviewing knowledgeable nursing home staff members, who referred to the residents' medical records when necessary. The response rate for the resident sample was 97 percent. More details on the survey methodology of the NHIS and the NNHS are presented in appendix I.

By combining data from the NNHS and the SOA of the 1984 NHIS, a more complete picture of functional dependency and use of long-term care is obtained. However, certain caveats should be noted in combining 1985 NNHS and 1984 SOA data. First, nursing homes do not completely represent the institutionalized elderly population. Thus, the data analyzed in this report do not include all elderly persons in "board and care homes" or "residential care homes," mental hospitals, chronic disease, rehabilitation, or other long-term care hospitals. The 1984 SOA, however, includes independent group residences for the elderly, handicapped, and functionally disabled, which includes "board and care homes." Residences which provided any nursing or medical care were excluded from the SOA.

Second, it was assumed that the functionally dependent noninstitutionalized population in 1984 was similar to that in 1985. Table A shows the basis for this assumption. Between 1984 and 1986, the percent of noninstitutionalized elderly persons dependent in each of the personal care activities of bathing, dressing, using the toilet, transferring, and eating were similar. Table A also shows that there was no change in the percent of noninstitutionalized elderly persons dependent in preparing meals, shopping, managing money, using the telephone, and doing light and heavy housework during the same time period. In this report, the percent of functionally dependent elderly in the community in 1984 was used as a surrogate for the functionally dependent elderly in the community in 1985, and use of nursing homes in 1985 was assumed to be the same in 1984. Thus, it is assumed that the combined

Table A. Percent of noninstitutionalized persons 65 years of age and over dependent in selected activities of daily living and instrumental activities of daily living: United States, 1984 and 1986

<i>Selected activities of daily living and instrumental activities of daily living</i>	<i>1984</i>	<i>1986</i>
Activities of daily living	Percent	
Bathing	6.26	6.21
Dressing	4.34	4.38
Using the toilet	2.27	2.43
Transferring	2.88	3.24
Eating	1.06	1.09
Instrumental activities of daily living		
Preparing meals	3.84	3.88
Shopping	7.31	7.45
Managing money	3.44	3.26
Using the telephone	1.94	1.91
Light housework	4.40	4.87

SOURCE: Hendershot, G. The aging living in the community: Data from the 1986 and 1984 National Health Interview Surveys. Paper presented at the annual meeting of the Gerontological Society of America, Washington, D.C. 1987.

data represent cross-sectional estimates for the midpoint of the 1984-85 survey period.

Third, although it was assumed that the nursing home resident population in 1985 was independent of the noninstitutionalized elderly population sampled in 1984, some percent of the 1985 NNHS sample was in the community in 1984 and thus was eligible for inclusion in the 1984 SOA. The magnitude of this potential double counting, however, is probably small because on any given day the nursing home resident population is more representative of long-stay than short-stay patients (28).

And finally, there may be reporting differences due to the different methodologies employed by the two surveys. In the SOA, information about functional dependency, disability, medical care, and other health-related items was reported primarily by elderly respondents in personal interviews. In the NNHS, the comparable information was reported by nursing home staff respondents who referred to the patients' medical records when necessary. Differences in response to the same question may occur because of the different respondents. Responses may also differ because of differences in question wording in the two surveys. Appendix II presents definitions of terms used in this report. Reference to the definitions in appendix II is essential to interpret the data in this report. Facsimiles of selected questions on functional dependency used in the NHIS and NNHS are shown in appendix III.

Because the data in this report are national estimates based on two sample surveys and are subject to sampling errors, standard error charts are provided for each survey in appendix IV. The method used to estimate sampling errors for combined estimates from the NHIS and NNHS is also discussed in appendix IV.

Terms used in this report such as "similar" and "the same" indicate that no statistical significance exists between the statistics being compared. Terms that relate to differences (such as "greater" or "less") indicate that differences are statistically significant. The *t*-test with a critical value of 1.96 (0.05 level of significance) was used to test all comparisons that are discussed. Lack of comment regarding the difference between any two statistics does not mean that the difference was tested and found to be not significant.

Functional dependency among the elderly

Definition of functional dependency

In this report functional dependency refers to persons dependent in at least one activity of daily living (ADL) or instrumental activity of daily living (IADL). In this report, the ADL's are bathing, dressing, eating, getting in or out of bed or chair (transferring), mobility, using the toilet, and continence. The IADL's included were preparing meals, shopping, managing money, using the telephone, doing light housework, doing heavy housework, and getting outside. These IADL's are similar to those used in the Older American Resources and Services program (OARS) Multidimensional Functional Assessment Questionnaire (7).

The criteria for dependence in each of the individual activities for the noninstitutionalized elderly population were those used in a previous report on physical functioning of the aged (21). In that report, persons were considered dependent in ADL's if they (1) had difficulty performing the activity because of a health or physical problem and received the help of another person in performing the activity or (2) were unable to perform the activity without special equipment and did not have that equipment. Persons were considered dependent in IADL's if they had difficulty or were unable to perform the activity by themselves because of a health or physical problem.

The criteria for dependence for nursing home residents differed from those for the noninstitutionalized population. Nursing home residents were considered dependent in ADL's if at the time of the survey they (1) required the assistance of another person or special equipment to perform the activity or (2) did not perform the activity at all (because they were intravenously fed, chairfast, or for some other similar reason). Nursing home residents were considered dependent in IADL's if they received personal help or supervision to perform the activity at the time of the survey. It should be noted that although the NNHS question wording for ADL's employs the phrase "requires any assistance" (rather than "receives" assistance, as in the SOA), the data are probably comparable because residents in an institutional environment are more likely to receive assistance if they need it.

These criteria for the noninstitutionalized and institutionalized populations roughly conform to categories of physical function defined by Katz and others (6) for ADL's, and by the OARS Multidimensional Functional Assessment Questionnaire (7) for mobility and the IADL's. Because there are unavoidable differences between definitions in this report and definitions used elsewhere, the reader should consult appendix II of this report, which presents operational definitions

of dependence based on Supplement on Aging (SOA) questions and based on the National Nursing Home Survey (NNHS) current resident questions.

It should be noted that the definition of mobility used in this report differs from that used in the previously mentioned report on physical functioning of the aged. This was necessary because the NNHS questionnaire for nursing home residents differentiates between residents unable to walk (that is, chairfast or bedfast) and residents who walked with assistance. In the previously mentioned report, mobility was defined only by whether an individual walked with assistance or not. In this report, dependence in mobility is defined as: walks with assistance, is chairfast, or is bedfast.

Differences also exist between NNHS and SOA definitions of selected instrumental activities of daily living (IADL's). For nursing home residents, information on IADL's was modified for the nursing environment. The modified IADL's for nursing home residents include items on the need for assistance in caring for personal possessions, handling money, securing personal items such as newspapers, toilet articles, or snackfood, and using the telephone. For the purposes of this report, dependency in securing personal items was considered to be equivalent to shopping for noninstitutionalized persons, and care of personal possessions was considered to be equivalent to doing light housework. The two IADL's not appropriate for nursing home residents (preparing meals and doing heavy housework) were assumed to be activities in which the residents were dependent. This approach is also consistent with that used in the OARS Multidimensional Functional Assessment Instrument for institutionalized individuals (7). It should be noted, however, that although this report assumed that all nursing home residents received help in preparing meals and doing heavy housework, not all residents were dependent in these activities.

Prevalence

Table 1 presents the functional status in individual ADL's and IADL's for the noninstitutionalized population and for nursing home residents. The activities of daily living (ADL's) reflect an individual's capacity for self care. The instrumental activities of daily living (IADL's), on the other hand, are more complex tasks that enable an individual to live independently in the community. For example, the IADL of managing money involves cognitive functioning, whereas continence, an ADL, involves only physical functioning. In addition, some of the IADL's can only be performed if the individual is

able to perform some ADL's. For example, an individual needs assistance in shopping if they are chairfast or bedfast.

In general, elderly nursing home residents were more dependent in all ADL's and IADL's than their noninstitutionalized counterparts. Ninety-four percent of nursing home residents were dependent in at least one ADL and all nursing home residents were dependent in at least one IADL. In contrast, the comparable proportion among the noninstitutionalized population was 18 percent each for ADL's and IADL's. Among the noninstitutionalized elderly population, 4.8 million were dependent in at least one ADL and 4.7 were dependent in at least one IADL. Of the 6.7 million noninstitutionalized elderly who were dependent in either ADL's and IADL's, 41 percent were dependent in both ADL's and IADL's. The comparable proportion among nursing home residents was 94 percent.

For the remainder of this report, functional status will be reported by a summary measure of ADL and IADL dependence with five levels of impairment: independent, dependent in IADL's only, dependent in one to two ADL's, dependent in three to four ADL's, and dependent in five to seven ADL's. Persons dependent in both ADL's and IADL's were classified by the number of ADL dependencies. These categories reflect the range of functional limitations from complete independence to severe dependence (five to seven ADL dependencies).

Using the summary measure of functional dependence, table 2 shows that 25 percent or 6.7 million of the 26.4 million noninstitutionalized elderly were functionally dependent in ADL's and IADL's in 1984. Although defined differently, this estimate of functionally impaired elderly persons is similar in range to the 6 million noninstitutionalized elderly persons reporting difficulty with personal care activities and 7.1 million reporting difficulty with home management activities, reported in an earlier study using the 1984 SOA (19). In 1985, all 1.3 million elderly nursing home residents were functionally dependent in at least one ADL or IADL (table 3). Overall, 8.1 million elderly persons (both institutionalized and noninstitutionalized) were functionally dependent in at least one ADL or IADL in 1984-85.

Table 4 shows that overall, 29 percent of the elderly population were functionally dependent in at least one ADL or IADL, whereas 71 percent were independent in all activities. The most frequent category of functional dependence among the elderly was dependence in one to two ADL's (14 percent), followed by dependence in only IADL's (7 percent). Five percent of the elderly were in the most dependent category (five to seven ADL dependencies) and 3 percent were dependent in three to four ADL's.

Functional dependency increased with increasing age; from 20 percent among those 65-74 years of age to 66 percent among those 85 years of age and over. Dependency in each category of ADL or IADL dependency also increased with age. The percent increase by age among dependency categories was greatest for those severely dependent in five to seven ADL's; 5 percent of those 65-74 years of age were dependent in five to seven ADL's compared with 22 percent of those 85 years of age and over.

Overall, elderly females were 50 percent more likely to be functionally dependent (34 percent) than were elderly males

(22 percent). Elderly females were more likely to be functionally dependent regardless of age group. The level of functional dependence for elderly females, however, varied by age group. From 65-84 years of age, females were more likely than males of the same age to be dependent in only IADL's or in one to two ADL's. After 75 years, females were more likely to be dependent in five to seven ADL's than males of the same age. These findings may reflect the selective effect of mortality on the functional status of elderly males.

According to Moore, men appear to have higher health care utilization (hospitals, in particular) and mortality rates for fatal diseases (32), which may account for the tendency of elderly males living in the community or in nursing homes to be more functionally independent than their female counterparts. Elderly females, on the other hand, have more chronic conditions which are self-limiting, but usually not fatal (for example, arthritis or hypertension). Because women live longer, they also live with these chronic conditions longer (32).

Functional dependence also varied by race. Elderly black persons were more likely (36 percent) than elderly white persons (28 percent) to be functionally dependent in at least one ADL or IADL. The higher percentage of functionally dependent black persons was due to their greater representation in the mildly impaired categories. Eighteen percent of elderly black persons were dependent in one or two ADL's and 10 percent were dependent in only IADL's. The comparable proportions among elderly white persons were 14 and 7 percent, respectively. The proportions of elderly black and white persons severely impaired (five to seven ADL dependencies and three to four ADL dependencies) were statistically similar. There was no difference in prevalence of functional dependency by Hispanic origin.

Elderly persons who were not currently married (widowed, divorced, separated, or never married) were significantly more likely to be functionally dependent regardless of ADL or IADL dependency category. Overall, 38 percent of unmarried elderly were functionally dependent compared with 22 percent of married elderly persons.

Poverty status as defined by the U.S. Bureau of the Census depends on family size and annual income. In 1984, the poverty threshold for a single individual was \$4,980, and that for a two-person household was \$6,720 (33). Because information on income was not available for nursing home residents, use of Medicaid, State-funded indigent care, or other government assistance or welfare for payment last month was used as an indicator of poverty for the purposes of this report. See appendix II for more details on definitions of poverty from the SOA and NNHS. Table 4 shows that elderly persons with incomes below the poverty level were twice as likely (50 percent) as those with incomes above the poverty level (25 percent) to be functionally dependent.

Impact on living arrangement

Table 5 shows that the most likely living arrangement for the 8.1 million functionally dependent elderly was living with a spouse (36 percent), followed by living alone (29 percent), living with persons other than a spouse (19 percent),

and living in a nursing home (16 percent). Among functionally dependent elderly persons, the percent living with a spouse declined with increasing age; from 51 percent among those 65–74 years of age to 11 percent among those 85 years of age and over. In contrast, the proportion of persons living with others or in a nursing home increased with age. The percent of functionally dependent elderly persons living with others doubled from 15 percent of those 65–74 years of age to 28 percent among those 85 years of age and over. On the other hand, the comparable percentages of those living in nursing homes increased more than fivefold; from 6 percent among those 65–74 years of age to 36 percent among those 85 years of age and over. The increased risk of nursing home use by the functionally dependent elderly over the elderly population in general is shown in figure 1. Overall, functionally dependent elderly persons were over 3.5 times as likely to live in a nursing home than the general population, with the greatest differential in the 65–74 years age group.

The pattern of living arrangements for the functionally dependent elderly, however, varied by sex. Functionally dependent elderly males were more likely to live with a spouse than their female counterparts both overall (61 percent compared with 24 percent of females), and in each age group. This finding, in part, reflects the tendency of married men, who are usually older than their wives, to die before their wives do. The sex differential in percent living with a spouse increased with age, with functionally dependent males 85 years of age and over nearly 10 times more likely (36 percent) to live with a spouse than their female counterparts (4 percent).

Although functionally dependent males were most likely to live with a spouse, their female counterparts were most likely to live alone (35 percent compared with 14 percent of functionally dependent males). The pattern of living arrangements for functionally dependent females varied by age. Females 65–84 years of age were most likely to live alone. At 85 years of age and over, however, they were more likely to either live with persons other than a spouse (30 percent) or in a nursing home (38 percent) than any other arrangement.

Cross-sectional surveys of nursing home residents have found that at 65 years of age and over, females use nursing homes twice as often as males. In 1985, 6 percent of females 65 years of age and over resided in nursing homes compared with 3 percent of males of the same age (28). Among the functionally dependent elderly population, the sex differential in nursing home use still favors females but is much narrower than that found among the general elderly population. At 65 years of age and over, functionally dependent females were only 30 percent more likely to reside in a nursing home (18 percent) than their male counterparts (14 percent).

Functionally dependent black elderly persons were more likely than elderly white persons to live with persons other than a spouse. Thirty percent of black elderly persons lived with persons other than a spouse compared with 18 percent of elderly white persons. Functionally dependent white persons, in contrast, were more likely than functionally dependent persons of black or other races to reside in a nursing home (17 percent compared with 10 percent each of elderly persons of black or other races, respectively).

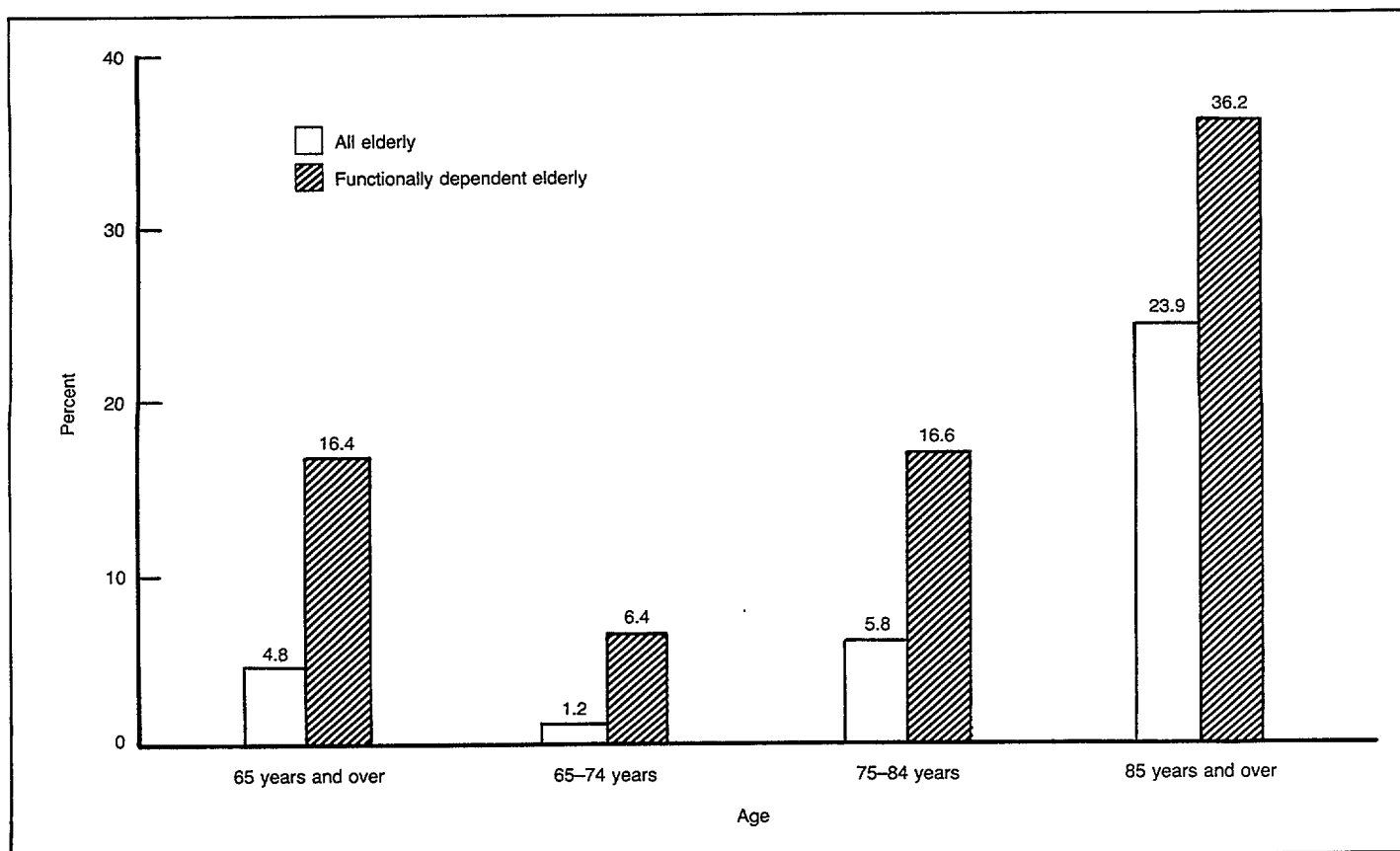


Figure 1. Percent of persons 65 years of age and over residing in nursing homes and percent of functionally dependent persons 65 years of age and over residing in nursing homes, by age: United States, 1984–85

Table 5 also shows that functionally dependent elderly persons who were married rarely resided in nursing homes (5 percent compared with 24 percent of the functionally dependent elderly who were not married). Although 91 percent of the functionally dependent married elderly lived with their spouse, their unmarried counterparts were most likely to live alone (46 percent) or with persons other than a spouse (31 percent). The strong effect of unmarried status on nursing home use is shown in table 6. Unmarried functionally dependent elderly persons used nursing homes more often than their married counterparts regardless of age, sex, race, Hispanic origin, or poverty status. Previous studies have found that persons living alone are at increased risk of nursing home placement. Table 6 shows that marital status may be viewed as a substitute measure for living alone because the functionally dependent elderly who were married rarely lived alone.

Poverty status also had an effect on living arrangements of the functionally dependent elderly. Table 5 shows that persons with income levels below the poverty line were more likely to either live alone (40 percent) or in a nursing home (37 percent) than the functionally dependent with incomes above the poverty line (25 and 10 percent, respectively).

As Kovar (23) noted, there is evidence of a progression of living arrangements among the elderly; from living alone, then with other people if available, to nursing homes. Table B shows that the common thread in this progression is the level of functional impairment. The elderly dependent in only IADL's or in one to two ADL's were most likely to live alone or with a spouse; 77 percent of the elderly dependent in only IADL's lived alone or with a spouse, and 76 percent of the elderly dependent in one to two ADL's lived alone or with a spouse. On the other hand, elderly dependent in three to four ADL's were most likely to live with a spouse (34 percent) or with others (29 percent). Elderly persons dependent in three to four ADL's were also four to six times more likely to be in a nursing home (26 percent) than mildly impaired elderly persons (6 percent for those with one to two ADL dependencies and 4 percent of those dependent in only IADL's). The elderly in the most dependent category (five to seven ADL's) were primarily in nursing homes (59 percent) and rarely lived alone (5 percent). In fact, figure 2 shows a nearly linear relationship between the percent of elderly residing in nursing homes and the number of ADL dependencies. About 76 percent of the elderly dependent in all ADL's were nursing home residents compared with

only 4 percent of the elderly dependent in only one ADL. The percent of elderly persons residing in nursing homes among those dependent in only IADL's and in only one ADL was the same (4 percent).

Impact on health status

In this section, health status is examined by level of functional dependency. Health status includes morbidity in terms of number of chronic conditions and prevalence of chronic conditions, as well as selected health measures available only for the noninstitutionalized population (bed days in the past 12 months and respondent-assessed health status).

In this report, prevalence refers to the number of persons with a specific condition at a given point in time. For both the noninstitutionalized and institutionalized elderly, prevalence estimates of specific conditions were obtained by aggregating the number of persons reported to have these conditions at the time of the survey. For nursing home residents, these conditions were reported by the nursing home staff respondents, who referred to the residents' medical records. For the noninstitutionalized elderly, these conditions were self-reported by the elderly respondent in the majority of cases through the interview process. For example, conditions causing trouble in performing ADL's and IADL's were elicited in the interview (see appendix III). The presence of specific conditions such as osteoporosis, hypertension, and coronary heart disease was also determined during the interview, as well as conditions causing any limitation of activities (see Ries for facsimile of entire National Health Interview Survey Questionnaire, including the Supplement on Aging Questionnaire). For the purposes of this report, only the first eight reported conditions were used to obtain prevalence estimates. Because of the difference in respondents and methods of obtaining medical conditions for the noninstitutionalized elderly, differences may occur in reporting of conditions.

Caution also needs to be exercised in comparing the person-based prevalence estimates of chronic conditions presented in this report, and estimates of the number of chronic conditions typically presented in reports based on the National Health Interview Survey (NHIS). The major difference is that the latter estimates of prevalence are a count of conditions existing at the time of the interview, and the prevalence estimates presented in this report reflect the number of *persons* with

Table B. Number and percent distribution of functionally dependent persons 65 years of age and over by living arrangements, according to dependency level: United States, 1984-85

Dependency level	Total	Living arrangements				Total	Living arrangements			
		Alone	Living with spouse	Living with others	Nursing home		Alone	Living with spouse	Living with others	Nursing home
		Number					Percent distribution			
Total dependent in ADL's or IADL's	8,051,100	2,314,500	2,872,400	1,545,900	1,318,300	100.0	28.7	35.7	19.2	16.4
5-7 ADL dependencies	1,373,800	65,100	257,000	239,700	812,000	100.0	4.7	18.7	17.4	59.1
3-4 ADL dependencies	728,000	85,700	243,800	210,400	188,200	100.0	11.8	33.5	28.9	25.9
1-2 ADL dependencies	3,968,600	1,374,800	1,633,300	721,700	238,800	100.0	34.6	41.2	18.2	6.0
Dependent in IADL's only	1,980,700	789,000	738,300	374,200	79,300	100.0	39.8	37.3	18.9	4.0

NOTE: ADL's are activities of daily living, IADL's are instrumental activities of daily living

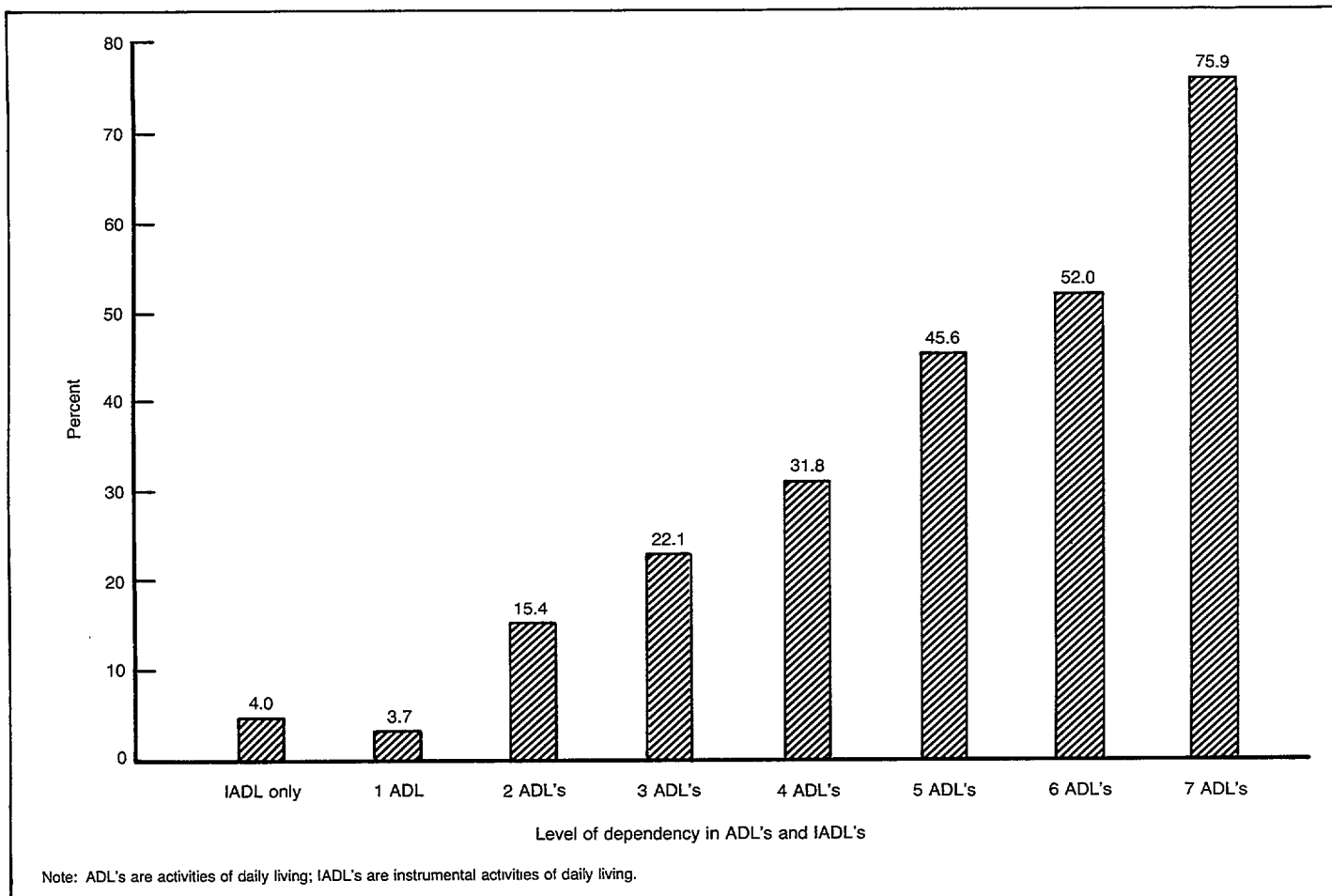


Figure 2. Percent of functionally dependent persons 65 years of age and over residing in nursing homes, by level of dependency: United States, 1984-85

the condition. Because a person might have several conditions within a category, such as heart disease, the average number of conditions usually presented in NHIS reports is generally higher than the person-based prevalence estimate of the same condition. For example, the average annual estimate of hypertension among noninstitutionalized elderly persons in 1984 was 10,740 thousand (34), whereas table 7 shows the person-based prevalence for the same condition was 10,283 thousand. Differences in the same direction were also found for heart disease, ischemic heart disease, diabetes, cataracts, and deafness. The difference was greatest, however, for heart disease and ischemic heart disease. The average annual rate of heart disease per 1,000 persons 65 years of age and over was 320 (34), whereas the person-based prevalence rate was 183.6. For ischemic heart disease, the average annual rate per 1,000 persons was 157.4 (34), whereas the person-based prevalence rate was 110. The difference in these rates resulted from the greater likelihood of persons with heart disease to have multiple heart conditions (35). Table 8 presents the prevalence of selected chronic conditions among the elderly in nursing homes by level of functional dependency.

Table 9 shows the prevalence of selected chronic conditions for both the institutionalized and noninstitutionalized elderly population by level of functional dependency. In 1984-85, the chronic conditions most prevalent among the functionally dependent elderly were arthritis or rheumatism (49 per-

cent), followed by hypertension (38 percent) and heart disease (31 percent). A similar pattern was also found among the mildly impaired elderly (one to two ADL dependencies and IADL dependencies only). Among the most severely impaired elderly (five to seven ADL dependencies), heart disease was the most prevalent chronic condition (37 percent), followed by arthritis or rheumatism (31 percent), mental disorders (25 percent), hypertension (24 percent), and cerebrovascular disease (23 percent). Among the elderly dependent in three to four ADL dependencies, arthritis or rheumatism was the most prevalent chronic condition (47 percent), followed by heart disease (37 percent), hypertension (30 percent), and cerebrovascular disease (19 percent).

In general, functionally dependent elderly persons had a higher prevalence of most of the chronic conditions shown in table 9. Functionally dependent elderly persons had higher prevalence rates per 100 persons than functionally independent elderly persons for the following conditions: diabetes mellitus, mental disorders, glaucoma, cataract, heart disease, ischemic heart disease, cerebrovascular disease, atherosclerosis, chronic obstructive pulmonary disease, and senility without mention of psychosis. The difference in prevalence rates for these two groups was particularly striking for mental disorders (8 per 100 functionally dependent elderly persons compared with less than 1 per 100 functionally independent elderly persons), heart disease (31 per 100 functionally dependent elderly

persons compared with 15 per 100 functionally independent elderly persons), and cerebrovascular disease (12 per 100 functionally dependent elderly persons compared with 3 per 100 functionally independent persons).

Among the functionally dependent elderly, prevalence of mental disorders increased as functional status worsened; from 3 percent among the elderly dependent in only IADL activities to 25 percent among those dependent in five to seven ADL's. In contrast, prevalence of hypertension was lower for functionally dependent elderly persons in the two most dependent categories (24 and 30 percent for elderly persons with five to seven and three to four ADL dependencies, respectively) than for those mildly impaired with one to two ADL dependencies (43 percent) or only with IADL dependencies (41 percent). This surprising finding may be related to a tendency to underreport less serious conditions when reporting other conditions of a more serious nature. Further research is needed to investigate this conjecture. Cerebrovascular disease was least prevalent among those with only IADL dependencies.

The average number of chronic conditions among elderly

persons with five to seven ADL dependencies was 3.7 and among elderly persons with three to four ADL dependencies it was 3.8. Among those less functionally impaired with one to two ADL dependencies or only IADL dependencies, the average number of chronic conditions was 3.5 and 3.6, respectively.

Table 10 shows that among the noninstitutionalized elderly, use of bed days last year was higher for the functionally dependent elderly; 56 percent of the functionally dependent elderly had one or more bed days last year compared with 28 percent among the functionally independent elderly.

Functional status also affected the noninstitutionalized elderly's assessment of their health status. The percent of elderly assessing their health as fair or poor was greatest among those in the two most dependent categories. Only 22 percent of functionally independent elderly persons assessed their health as fair or poor, whereas 78 and 75 percent of the elderly in the two most dependent categories (five to seven ADL dependencies and three to four ADL dependencies, respectively) assessed their health as fair or poor.

Use of long-term care

Home care

In this report, home care recipients were those who received the help of another person for the following activities: bathing, dressing, eating, transferring, walking, using the toilet, preparing meals, shopping, managing money, doing heavy housework, doing light housework, and getting outside. Home care recipients are the subset of persons "dependent" in these activities (as defined in the previous section) who received the help of another person. For example, not all persons classified as dependent in bathing received help from another person. Noninstitutionalized persons who were dependent in bathing included both persons who received help from another person as well as persons who were unable to bathe without special equipment and did not have that equipment. Noninstitutionalized persons dependent in IADL's, on the other hand, were those who had difficulty or were unable to perform the IADL by themselves because of a health or physical problem. Thus, for example, home care recipients who received help preparing meals are a subset of the persons dependent in preparing meals.

Although these home care activities are basically the same ADL's and IADL's previously examined in this report, there are some differences which warrant comment. First, continence is excluded because personal help in performing this activity is not applicable except for the small percentage of incontinent elderly who receive help taking care of a colostomy, urinary catheter, or other device to control bowels or urination (4 percent of the 3.2 million incontinent noninstitutionalized elderly). Second, personal help in walking was used as a criteria for home care, because information on personal help for the 549,000 bedfast and chairfast elderly was not obtained in the 1984 SOA. Thus, help from another person for the 1.2 million elderly dependent in walking may underestimate per-

sonal help received by all mobility dependent elderly in the community.

For each activity for which personal help was received, three types of information about the caregiver were obtained: who the caregiver was (relative or nonrelative), where the caregiver lived (household member or nonhousehold member), and whether the caregiver was paid or not. Table 11 presents information about the relationship of the caregiver for these activities. Overall, 60 percent of the 5.1 million community dwelling elderly dependent in the home care activities received help from only family members, 16 percent received help only from nonrelatives, 19 percent received help from both family and nonrelatives, and 5 percent received no help. These findings are consistent with previous studies that found that the bulk of long-term care is provided by family (36-39). For example, Callahan and others (40), in a review of the literature, found that between 60 and 85 percent of all impaired persons received help from family members. Table 11 shows that 79 percent of elderly persons dependent in home care activities received help from family members (either solely or in combination with nonrelatives).

Caregivers were more likely to live with the dependent elderly than not. Table 12 shows that 44 percent of the noninstitutionalized elderly dependent in home care activities received care from a household member, compared with 33 percent receiving care from nonhousehold members and 18 percent receiving care from persons living both inside and outside of the household. Overall, 65 percent of elderly persons receiving help in home care activities received care from relatives who were also household members (table C). Seventy percent of elderly persons relying solely on care from family members received care from relatives who lived in the same household. Elderly persons relying only on nonrelatives for

Table C. Number and percent distribution of noninstitutionalized persons 65 years of age and over dependent in home care activities, by living arrangement of caregivers, according to relationship of caregivers: United States, 1984

Relationship of caregivers	Total	Living arrangement of caregivers			Total	Living arrangement of caregivers		
		Household members	Nonhousehold members	Both household and nonhousehold members		Household members	Nonhousehold members	Both household and nonhousehold members
		Number				Percent distribution		
Total	4,801,800	2,227,600	1,660,500	913,700	100.0	46.4	34.6	19.0
Only relatives	3,048,200	2,142,500	613,600	292,100	100.0	70.3	20.1	9.6
Only nonrelatives	799,300	54,600	711,300	*33,400	100.0	6.8	89.0	*4.2
Both relatives and nonrelatives	954,300	*30,500	335,600	588,200	100.0	*3.2	35.2	61.6

care received care primarily from nonhousehold members (89 percent).

In the remainder of this report, formal home care services will be defined as those that were paid for. In the literature, formal home care services usually refer to those rendered by nurses, nurses' aides, personal companions, and other types of community helpers who are paid for their services. In the absence of information on type of helpers (only information on whether the helper was a relative or nonrelative was obtained in the 1984 SOA), paid status will be used in this report to represent formal home care services. Unpaid help will be referred to as informal home care in this report. Informal services are usually provided by relatives, friends, or neighbors and are not compensated.

Table 13 shows that, overall, 63 percent of the noninstitutionalized elderly dependent in home care activities relied solely on informal networks of caregivers, whereas 13 percent relied solely on formal caregivers. Eighteen percent relied on a mix of both formal and informal caregivers. The percent of noninstitutionalized elderly persons dependent solely on formal caregivers is slightly higher than that reported by Soldo from the 1979 National Health Interview Survey. Although the question wording for ADL's and IADL's from the 1979 NHIS differed from those in the 1984 SOA (the 1979 question was: "Because of a disability or health problem, did anyone in the family receive or need help from another person..."), the data showed change. In 1979, approximately 9 percent of the elderly needing home care received care only from formal helpers from the community. The percent of elderly persons classified as needing home care who received services from the formal and informal support networks (16 percent), however, was similar (41).

The finding that use of formal home care services has increased since 1979 may be due to the increasing availability of formal home care services since the 1970's. Between 1973 and 1985, the number of home health visits per 1,000 Medicare beneficiaries increased fivefold (30). The introduction of Medicare's prospective payment system (PPS) for hospitals also had an effect on home health care utilization. Under this payment system, hospitals are reimbursed a preestablished amount based on the Medicare patients' condition as classified by the diagnosis-related group. Because the prospective payment system gives hospitals strong incentives to limit costs incurred by Medicare patients, hospitals are discharging

patients after shorter stays (29). A recent study found that after PPS was introduced, there was an increase in hospital episodes resulting in use of home health services (13 to 16 percent) and also an increase in home health use without prior hospital stays (from 14 to 22 percent) (42).

Tables 11-13 show that 95 percent or 4.8 million of the 5.1 million noninstitutionalized elderly persons dependent in any of the 13 home care activities received help from another person. However, as mentioned earlier, this figure may underestimate the total number of functionally dependent noninstitutionalized elderly persons receiving home care because information was not obtained about assistance received by incontinent, bedfast, and chairfast elderly. Table 14 shows that when incontinent, bedfast, and chairfast elderly are included, about 241,100 of these persons received help in at least one of the 13 home care activities, increasing the number of home care recipients to 5 million. Thus, 63 percent of the 8 million functionally dependent elderly received home care services in 1984-85. As expected, the percent of functionally dependent elderly receiving home care services is higher than that received by the elderly population in general (18 percent).

In the next section, use of home care services (any formal or only informal) is compared with nursing home use by the functionally dependent elderly.

Nursing home and home care use

Overall, 6.4 million or 79 percent of functionally dependent elderly persons received long-term care services in 1984-85 (table 15). The most frequent type of long-term care received was informal home care services (42 percent), whereas 21 percent received at least some formal home care services. Sixteen percent received nursing home care.

Table D shows that all persons in the two most functionally dependent categories (five to seven ADL dependencies and three to four ADL dependencies) received some type of long-term care, whereas 62 and 90 percent of those mildly impaired in one to two ADL's or in only IADL's, respectively, received long-term care services. Use of nursing homes was far greater among persons dependent in five to seven ADL's (59 percent), but use of nursing homes did increase as level of dependency increased. Use of any formal home care service was greatest among the elderly dependent in only IADL's (33 percent

Table D. Number and percent of functionally dependent persons 65 years of age and over, by type of long-term care received and dependency level: United States, 1984-85

Dependency level	Total	Type of long-term care				Type of long-term care			
		All types of long-term care	Nursing home care	Formal home care ¹	Informal home care	All types of long-term care	Nursing home care	Formal home care ¹	Informal home care
		Number				Percent distribution			
Total dependent in ADL's or IADL's	8,051,100	6,361,300	1,318,300	1,662,500	3,380,400	79.0	16.4	20.6	42.0
5-7 ADL dependencies	1,373,800	1,373,800	812,100	225,500	336,200	100.0	59.1	16.4	24.5
3-4 ADL dependencies	728,000	728,000	188,200	166,300	373,500	100.0	25.9	22.8	51.3
1-2 ADL dependencies	3,968,600	2,477,000	238,800	627,100	1,611,200	62.4	6.0	15.8	40.6
Dependent in IADL's only	1,980,700	1,782,400	79,300	643,600	1,059,600	90.0	4.0	32.5	53.5

¹Includes persons receiving both formal and informal home care services

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living

compared with 16–22 percent of elderly in the more dependent categories). Informal home care services were most likely to be received by persons dependent in three to four ADL's (51 percent) and persons dependent in only IADL's (54 percent).

The greater use of formal and informal home care services by the elderly dependent in only IADL's is surprising because recent research and the preceding analysis have suggested a hierarchical relationship between IADL's and ADL's, with IADL dependencies representing less severe disability (43). However, according to a previous study of home care expenses among the disabled elderly, "payment for home-based care has a diversity of roles among the disabled elderly" (44). Among the highly disabled elderly, the high proportion receiving both formal and informal help indicates that "paid help may be a necessary complement for unpaid help in the case of the severely disabled elderly. Paid help also appears to serve as a source of assistance for people with mild limitations but who need assistance with chores such as shopping or laundry" (44). Table E shows that a similar pattern occurred among the noninstitutionalized functionally dependent elderly in 1984. Thirty-two percent of the severely dependent group (five to seven ADL dependencies) received help from both formal and informal helpers, in contrast to only 13 percent of those with only IADL dependencies. On the other hand, 25 percent of persons dependent in only IADL's relied solely on formal care providers, whereas 8 percent of their counterparts with five to seven ADL dependencies relied solely on formal care providers.

Among the functionally dependent elderly population, overall use of long-term care and use of nursing homes increased with age (table 15). Use of any formal home care services did not vary by age. Although it appears that use of informal home care services decreased with increasing age, the differences were not statistically significant. Functionally dependent nursing home residents were older, on the average 83 years, than their counterparts using formal (78 years) or informal home care services (77 years).

Overall, functionally dependent females received long-

term care services more often than their male counterparts (82 percent of females compared with 73 percent of males). Males, however, received informal home care services (46 percent) more often than females (40 percent). Females used formal home care services more often than males both overall and through ages 65–84 years. Although females used nursing homes more often than males overall (18 percent compared with 14 percent for elderly males), use of nursing homes for females exceeded that for males only in the age group 85 years and over.

Functionally dependent white elderly persons were more likely to reside in nursing homes (17 percent) than their counterparts of black or other races (10 percent). Functionally dependent elderly persons of black and other races, in contrast, were more likely to use informal home care services (49 percent compared with 41 percent by their white counterparts). These findings are consistent with the greater likelihood of functionally dependent elderly persons of black or other races to live with potential caregivers (table 5). There were no differences in use of long-term care services by Hispanic origin.

Overall, the unmarried functionally dependent elderly used long-term care (82 percent) more often than their married counterparts (74 percent); particularly nursing home and formal home care services. Twenty-four percent of unmarried functionally dependent elderly persons were in nursing homes and 23 percent used some type of formal home care service. The comparable percentages for their married counterparts were 5 and 17 percent, respectively. Functionally dependent elderly persons who were married, on the other hand, used informal home care (52 percent) more often than their unmarried counterparts (36 percent). Thus, it appears that greater use of formal home care services by unmarried functionally dependent elderly persons may be necessitated by lack of access to informal care helpers. Table E supports this conjecture, because it shows that noninstitutionalized functionally dependent elderly persons who used formal home care services were primarily those living alone (30 percent compared with 7 and 6 percent of those living with a spouse or with others,

Table E. Number and percent distribution of noninstitutionalized functionally dependent persons 65 years of age and over receiving home care by source of assistance, according to selected characteristics: United States, 1984

Selected characteristics	Total	Source of assistance			Total	Source of assistance		
		Only formal home care	Only informal home care	Both formal and informal home care		Only formal home care	Only informal home care	Both formal and informal home care
		Number				Percent distribution		
Total	5,042,900	712,400	3,380,400	950,100	100.0	14.1	67.0	18.8
Dependency level in ADL's or IADL's								
5–7 ADL dependencies	561,700	46,900	336,200	178,600	100.0	8.4	59.8	31.8
3–4 ADL dependencies	539,800	18,800	373,500	147,500	100.0	3.5	69.2	27.3
1–2 ADL dependencies	2,238,300	226,700	1,611,200	400,400	100.0	10.1	72.0	17.9
Dependent in IADL's only	1,703,100	419,900	1,059,600	223,600	100.0	24.7	62.2	13.1
Living arrangements								
Alone	1,564,000	473,500	737,600	352,900	100.0	30.3	47.2	22.6
With spouse	2,095,700	155,000	1,587,900	352,900	100.0	7.4	75.8	16.8
With others	1,383,200	83,800	1,055,000	244,400	100.0	6.1	76.3	17.7

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

respectively). In contrast, informal home care was solely used by 76 percent of functionally dependent elderly living with a spouse or with others.

Finally, poverty status was associated with greater long-term care use primarily because of the greater use of nursing homes (37 percent among those with incomes below the poverty threshold compared with 10 percent of those with incomes above the poverty threshold). Nonpoor functionally dependent elderly persons were more likely to use formal (23 percent) and informal home care services (45 percent) than were poor functionally dependent elderly persons (14 and 32 percent, respectively). Thus, it appears that having higher income levels allows the functionally dependent elderly to remain in the community longer by purchasing formal home care services.

Table F shows how the prevalence of chronic conditions varied among long-term care users. Although there were no differences in prevalence of conditions among persons receiving any formal home care services and persons receiving only informal home care services, prevalence of the less serious chronic conditions of glaucoma, cataracts, hypertension, atherosclerosis, and arthritis or rheumatism was higher among home care patients (formal or informal) than among nursing home residents. In contrast, nursing home residents had higher prevalence of mental disorders, heart disease, ischemic heart disease, and cerebrovascular disease. The disparity in prevalence of these conditions among the functionally dependent using nursing home and home care services in the community suggests that these conditions may be associated with an increased chance of institutionalization among the functionally dependent elderly. Figure 3 tends to confirm this association,

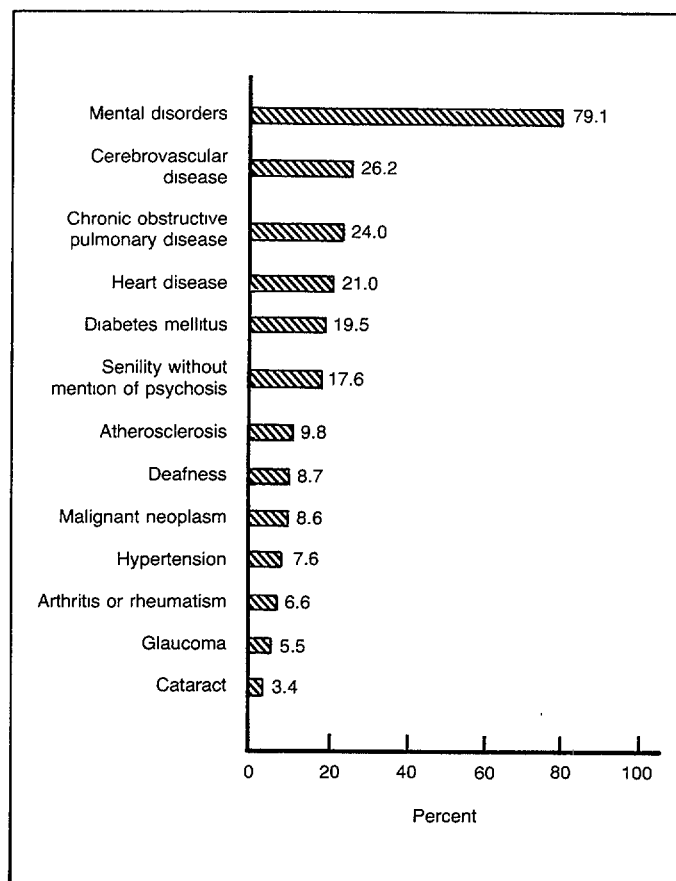


Figure 3. Percent of functionally dependent persons 65 years of age and over residing in nursing homes, by selected chronic conditions: United States, 1984-85

Table F. Number of persons 65 years of age and over receiving long-term care and prevalence rate of selected chronic conditions per 100 persons, by type of long-term care: United States, 1984-85

Selected chronic conditions	Type of long-term care		
	Nursing home care	Formal home care ¹	Informal home care
Number of persons	1,318,300	1,662,500	3,380,400
	Rate per 100 persons		
Total	100.0	100.0	100.0
Malignant neoplasm	5.1	11.1	10.2
Diabetes mellitus	12.5	10.3	11.1
Mental disorders	38.2	1.8	2.6
Glaucoma	2.6	10.5	9.5
Cataract	3.3	16.9	19.0
Deafness	2.2	3.3	5.5
Hypertension	17.5	41.8	41.7
Heart disease	40.0	30.4	31.9
Ischemic heart disease	26.4	15.5	16.1
Cerebrovascular disease	19.3	12.4	12.4
Atherosclerosis	8.3	15.8	16.9
Chronic obstructive pulmonary disease	7.2	4.9	4.9
Arthritis or rheumatism	19.8	56.8	53.0
Senility without mention of psychosis	4.2	5.0	4.9

¹Includes persons receiving both formal and informal home care

because functionally dependent elderly with mental disorders, cerebrovascular disease, chronic obstructive pulmonary disease, heart disease, diabetes mellitus, and senility (without mention of psychosis) resided in nursing homes significantly more often than functionally dependent elderly with other chronic conditions (3-10 percent). By far, the presence of mental disorders was the one condition most often associated with nursing home residency; 79 percent of functionally dependent elderly persons reported to have mental disorders resided in nursing homes. Similar findings have also been reported in the literature (3, 8, 11, 45-46).

It is of interest that the prevalence rate of malignant neoplasm among persons receiving either formal or informal home care services (11.1 and 10.2 per 100 persons, respectively) was twice that for nursing home residents (5.1 per 100 persons). Thus, more cancer patients are receiving care in their own homes than in nursing homes. This is particularly true of Medicare beneficiaries using the new hospice benefit enacted as part of the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982. In 1984-85, 89 percent of Medicare beneficiaries using the hospice benefit received routine home care services (47).

Use of health care and community services in the past year

In this section, health care and community services utilization of noninstitutionalized persons are presented by the level of functional dependency and by the type of home care received. Health care utilization includes average number of physician contacts per year, number of short-stay hospital episodes in the past year, average number of hospital days per person hospitalized, and nursing home admission in the past year. Community services include use of senior center, senior center meals, special transportation for the elderly, home-delivered meals, homemaker services, and home health services.

Table 16 presents health care and community services utilization data of the noninstitutionalized elderly by varying degree of functional dependency. In 1984, the severely impaired elderly with five to seven ADL dependencies had twice as many physician contacts (37 per person per year) as the moderately impaired with three to four ADL dependencies (19 per person per year); three times as many contacts as the mildly impaired with one to two ADL dependencies (12 per person per year); and six times as many as the independent elderly (6 per person per year).

Examination of hospital utilization shows the same pattern. A far greater percentage of the severely dependent elderly (60 percent) had at least one hospital episode in the past year compared with the moderately dependent elderly (43 percent), the mildly dependent elderly (31 percent), and the independent elderly (14 percent). In addition, the proportion of severely dependent elderly persons with three or more hospital episodes in the past year (15 percent) was at least triple that of any other group.

Admission to a nursing home in the past year was more likely for the elderly who were dependent in ADL's or IADL's (2 percent) than for the independent elderly (0.1 percent). However, there were no significant differences between the percent of severely, moderately, or mildly dependent elderly persons who were admitted to a nursing home in the past year.

Overall, the elderly with some dependency in ADL's or IADL's used community services (30 percent) more than the independent elderly (20 percent). However, there was variation in the kinds of services used by the different dependency groups. As expected, as dependency level increased, use of home health services which included visiting nurses and home health aides increased from 8 percent of the moderately dependent elderly to 38 percent of the severely dependent elderly.

Senior centers and senior center meals were used more by the mobile, mildly dependent elderly (16 and 10 percent, respectively) than the moderately dependent elderly (5 and

4 percent, respectively) or the severely dependent elderly (5 and 4 percent, respectively). No statistically significant differences were found between the mildly, moderately, and severely dependent elderly who used special transportation for the elderly, home-delivered meals, and homemaker services.

In Table 17, health care and community service utilization are examined by the type of home care received—formal, informal, or no home care received. The data presented is consistent with the overall picture that persons with greater dependency utilized more health care services than those who were less dependent.

Among the noninstitutionalized elderly, persons who received at least some formal or paid home care averaged more physician contacts per year (20 contacts) than persons who received only informal home care (14 contacts) or persons who did not receive any home care (8 contacts).

Hospitalizations followed the same pattern—the more dependent elderly who received formal home care had higher rates of hospitalization than the less dependent elderly who received informal home care. Forty-four percent of the elderly who received formal home care were hospitalized at least once in the past year compared with 37 percent of the elderly who received informal home care. The independent elderly who received no home care had the lowest rate with 21 percent of that group hospitalized at least once in the past year.

Although a greater percentage of the more dependent elderly were hospitalized at least once in the past year, there were no significant differences found between the home care categories for the average number of hospital days per person hospitalized or for admission to a nursing home in the past year.

Overall, the elderly who received formal home care used community services (46 percent) more than those who received informal home care (25 percent) or no home care (25 percent). Again, there was variation in the kinds of services used by the different dependency levels.

As expected, the elderly who received formal home care were the greatest consumers of home health services (23 percent) compared with the informal care recipients (9 percent) or the independent elderly (3 percent). The more dependent group also used special transportation for the elderly, home-delivered meals, and homemaker services more than the other groups.

Senior centers and senior meals were used by the independent (no home care received) elderly (18 and 12 percent, respectively) more than by the formal care recipients (13 and 9 percent, respectively) or the informal care recipients (11 and 7 percent, respectively).

Discussion

The findings in this report have shown joint associations between functional status and other characteristics (for example, age) and long-term care use. Thus, controlling for functional dependency, use of nursing homes still increased more than fivefold between the age groups 65–74 years and 85 years and over. The presence of mental disorders and functional dependency was also highly associated (79 percent) with nursing home use. Because many of the associations found in this report may be correlated with each other, multivariate techniques are necessary to evaluate the relative influences of each characteristic.

Another qualification for the results of this study is that they are highly dependent on the ADL and IADL items included in the definition of the functionally dependent elderly and the criteria used to differentiate dependence and independence in the ADL and IADL items (12). For example, the results of this study are not comparable with those of a previous study using the 1984 SOA (19) on the functional limitations of the noninstitutionalized elderly, because the criteria for dependencies in the ADL's and IADL's were different. And although this study found that 6.7 million noninstitutionalized elderly persons were functionally dependent in at least one ADL or IADL, a different estimate can be derived by simply

excluding one of the ADL's or IADL's. If this study had excluded doing heavy housework as an IADL, for example, the estimated number of functionally dependent elderly would have been 5.5 million.

Despite the "fluid" nature of these estimates, the results of this study are consistent with many previous studies (1–4, 7–11). For example, Weissert and Scanlon found that persons with a higher risk of nursing home use were those who were dependent in five to six ADL functions, unmarried, over 75 years of age, and had low incomes (3). The percent of elderly persons using formal home care services (6 percent) is similar to the proportion of aged Medicare beneficiaries using Medicare home health agency services (5 percent) (48). Branch and others found that receiving help with at least one activity of daily living was predictive of incident use of comprehensive medical home care among community-dwelling elders in Massachusetts (9). Liu and Manton found that dependency in ADL's was predictive of hospital use (42). The consistency of these results is reassuring because they occurred despite differences in populations, year of data collection, and survey methodology (sample frame, use of proxy respondents, and survey instrument design).

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Table 1. Number and percent of noninstitutionalized persons and nursing home residents 65 years of age and over, by functional status in ADL's and IADL's: United States, 1984 and 1985

<i>Functional status</i>	<i>Noninstitutionalized population, 1984</i>		<i>Nursing home residents, 1985</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Total	26,433,000	100.0	1,318,300	100.0
<i>Type of ADL dependency</i>				
Bathing	1,653,600	6.3	1,200,200	91.0
Dressing	1,146,600	4.3	1,022,700	77.6
Using toilet room	600,800	2.3	833,300	63.2
Transferring ¹	761,800	2.9	824,900	62.6
Continence—difficulty with bowel and/or bladder control	3,255,600	12.3	718,500	54.5
Eating	281,200	1.1	531,800	40.3
Mobility	1,795,000	6.8	969,800	73.6
<i>Type of IADL dependency</i>				
Preparing meals	1,014,900	3.8	1,318,300	100.0
Shopping for personal items ²	1,930,700	7.3	1,029,400	78.1
Managing money	910,200	3.4	1,008,600	76.5
Using the telephone	513,700	1.9	852,700	64.7
Going outside	1,499,200	5.7	611,600	46.4
Doing light housework ³	1,162,300	4.4	991,300	75.2
Doing heavy housework	4,035,400	15.3	1,318,300	100.0
<i>Number of ADL dependencies</i>				
None	21,601,600	81.7	79,300	6.0
1	3,063,200	11.6	117,600	8.9
2	666,600	2.5	121,100	9.2
3	347,000	1.3	98,200	7.4
4	192,900	0.7	90,000	6.8
5	207,900	0.8	174,200	13.2
6	230,500	0.9	249,400	18.9
7	123,400	0.5	388,400	29.5
<i>Number of IADL dependencies</i>				
None	21,766,100	82.3	—	—
1	2,340,100	8.9	—	—
2	791,200	3.0	53,800	4.1
3	452,400	1.7	155,800	11.8
4	284,800	1.1	107,300	8.1
5	331,800	1.3	157,800	12.0
6	277,400	1.0	568,300	43.1
7	189,100	0.7	275,300	20.9
<i>Overall dependency in ADL's and IADL's</i>				
Dependent in ADL's and IADL's	2,765,400	10.5	1,239,100	94.0
Dependent in ADL's only	2,065,900	7.8	—	—
Dependent in IADL's only	1,901,500	7.2	79,300	6.0
Independent in ADL's and IADL's	19,700,200	74.5	—	—

¹Transferring refers to getting in or out of a bed or chair.

²Refers to securing personal items for nursing home residents.

³Refers to care of personal possessions for nursing home residents.

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 2. Number of noninstitutionalized persons 65 years of age and over, by level of functional dependency in ADL's and IADL's and selected demographic characteristics: United States, 1984

Demographic characteristics	Level of functional dependency in ADL's and IADL's						
	All persons	Dependent in ADL's or IADL's					Not dependent in either ADL's or IADL's
		All dependencies	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies	Dependent in IADL's only	
Sex by age		Number					
Both sexes:							
Total 65 years and over	26,433,000	6,732,800	561,700	539,800	3,729,800	1,901,500	19,700,200
65-74 years	16,287,800	3,116,500	191,900	190,900	1,802,400	931,300	13,171,300
75-84 years	8,248,700	2,563,900	218,600	215,100	1,425,000	705,200	5,684,800
85 years and over	1,896,500	1,052,400	151,200	133,900	502,400	265,000	844,100
Male:							
Total 65 years and over	10,787,500	2,139,300	178,700	205,500	1,268,900	486,200	8,648,100
65-74 years	7,075,200	1,120,000	83,800	87,700	682,500	266,000	5,955,200
75-84 years	3,127,800	764,300	64,400	78,200	461,700	160,100	2,363,400
85 years and over	584,500	255,000	*30,500	*39,600	124,700	60,200	329,600
Female:							
Total 65 years and over	15,645,500	4,593,500	383,000	334,300	2,460,900	1,415,300	11,052,000
65-74 years	9,212,600	1,996,500	108,100	103,100	1,119,900	665,300	7,216,100
75-84 years	5,120,900	1,799,500	154,200	136,900	963,300	545,100	3,321,400
85 years and over	1,312,000	797,500	120,700	94,300	377,600	204,800	514,500
Race							
White	23,932,100	5,912,500	485,400	466,300	3,295,900	1,664,800	18,019,700
Black	2,182,500	743,300	63,700	62,300	402,000	215,300	1,439,200
Other	318,400	77,100	*12,700	*11,200	*31,800	*21,400	241,300
Hispanic origin							
Hispanic	779,700	211,500	*25,600	*28,400	112,800	44,600	568,200
Not Hispanic	25,653,300	6,521,300	536,100	511,400	3,617,000	1,856,900	19,132,000
Current marital status							
Married	14,522,100	2,984,300	271,800	248,500	1,703,100	760,900	11,537,800
Not married	11,910,900	3,748,500	289,900	291,300	2,026,700	1,140,600	8,162,400
Poverty status							
Below poverty threshold	3,382,100	1,295,000	91,700	86,900	756,800	359,700	2,087,000
Above poverty threshold	23,050,900	5,437,800	470,000	452,900	2,973,000	1,541,800	17,613,100

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 3. Number of nursing home residents 65 years of age and over, by level of functional dependency in ADL's and IADL's and selected demographic characteristics: United States, 1985

Demographic characteristics	Level of functional dependency in ADL's and IADL's						Not dependent in either ADL's or IADL's
	All residents	Dependent in ADL's or IADL's				Dependent in IADL's only	
		All dependencies	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies		
Sex by age		Number					
Both sexes:							
Total 65 years and over	1,318,300	1,318,300	812,100	188,200	238,800	79,300	-
65-74 years	212,100	212,100	110,700	26,800	50,400	24,200	-
75-84 years	509,000	509,000	299,900	73,800	102,000	33,400	-
85 years and over	597,300	597,300	401,500	87,600	86,400	21,700	-
Male:							
Total 65 years and over	334,400	334,400	181,800	51,300	68,500	32,900	-
65-74 years	80,600	80,600	37,800	9,300	19,100	14,400	-
75-84 years	141,300	141,300	75,200	22,100	32,200	11,800	-
85 years and over	112,600	112,600	68,900	19,900	17,200	6,700	-
Female:							
Total 65 years and over	983,900	983,900	630,300	136,900	170,300	46,400	-
65-74 years	131,500	131,500	73,000	17,500	31,300	9,800	-
75-84 years	367,700	367,700	224,700	51,600	69,800	21,600	-
85 years and over	484,700	484,700	332,600	67,700	69,300	15,000	-
Race							
White	1,227,400	1,227,400	751,800	173,200	226,700	75,700	-
Black	82,000	82,000	54,800	14,100	10,400	*2,800	-
Other	8,900	8,900	*5,500	*1,000	*1,700	*800	-
Hispanic origin							
Hispanic	35,300	35,300	23,400	*4,900	5,600	*1,300	-
Not Hispanic	1,283,000	1,283,000	788,700	183,300	233,200	77,900	-
Current marital status							
Married	168,400	168,400	120,900	20,400	20,000	7,100	-
Not married	1,150,000	1,150,000	691,100	167,800	218,800	72,200	-
Poverty status							
Below poverty threshold	749,400	749,400	474,900	109,500	129,500	35,500	-
Above poverty threshold	568,900	568,900	337,100	78,700	109,300	43,800	-

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 4. Number and percent distribution of persons 65 years of age and over by level of functional dependency in ADL's and IADL's, according to selected demographic characteristics: United States, 1984-85

Demographic characteristics	Level of functional dependency in ADL's and IADL's						Not dependent in either ADL's or IADL's
	All persons	Dependent in ADL's or IADL's				Dependent in IADL's only	
		All dependencies	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies		
Sex by age		Number					
Both sexes:							
Total 65 years and over	27,751,300	8,051,100	1,373,800	728,000	3,968,600	1,980,700	19,700,200
65-74 years	16,499,800	3,328,600	302,600	217,600	1,852,800	955,500	13,171,300
75-84 years	8,757,700	3,072,900	518,500	288,900	1,527,000	738,600	5,684,800
85 years and over	2,493,800	1,649,700	552,700	221,500	588,800	286,700	844,100
Male:							
Total 65 years and over	11,121,900	2,473,800	360,500	256,800	1,337,400	519,100	8,648,100
65-74 years	7,155,700	1,200,600	121,600	97,000	701,600	280,400	5,955,200
75-84 years	3,269,100	905,700	139,600	100,300	493,800	171,900	2,363,400
85 years and over	697,100	367,500	99,300	59,500	141,900	66,800	329,600
Female:							
Total 65 years and over	16,629,400	5,577,300	1,013,300	471,200	2,631,200	1,461,700	11,052,000
65-74 years	9,344,100	2,128,000	181,100	120,600	1,151,200	675,100	7,216,100
75-84 years	5,488,600	2,167,200	378,900	188,600	1,033,100	566,700	3,321,400
85 years and over	1,796,700	1,282,100	453,400	162,000	446,900	219,900	514,500

See note at end of table

Table 4. Number and percent distribution of persons 65 years of age and over by level of functional dependency in ADL's and IADL's, according to selected demographic characteristics: United States, 1984-85—Con.

Demographic characteristics	Level of functional dependency in ADL's and IADL's						
	All persons	Dependent in ADL's or IADL's					Not dependent in either ADL's or IADL's
		All dependencies	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies	Dependent in IADL's only	
		Number—Con.					
Race							
White	25,159,500	7,139,800	1,237,300	639,500	3,522,600	1,740,400	18,019,700
Black	2,264,500	825,300	118,400	76,300	412,400	218,100	1,439,200
Other	327,300	86,000	*18,100	*12,200	*33,500	*22,200	241,300
Hispanic origin							
Hispanic	815,000	246,800	49,000	33,400	118,400	46,000	568,200
Not Hispanic	26,936,300	7,804,300	1,324,800	694,600	3,850,100	1,934,800	19,132,000
Current marital status							
Married	14,690,400	3,152,700	392,800	268,900	1,723,100	767,900	11,537,800
Not married	13,060,900	4,898,500	981,000	459,200	2,245,400	1,212,800	8,162,400
Poverty status							
Below poverty threshold	4,131,500	2,044,500	566,600	196,400	886,200	395,200	2,087,000
Above poverty threshold	23,619,800	6,006,700	807,200	531,600	3,082,300	1,585,500	17,613,100
		Percent distribution					
Sex by age							
Both sexes:							
Total 65 years and over	100.0	29.0	5.0	2.6	14.3	7.1	71.0
65-74 years	100.0	20.2	1.8	1.3	11.2	5.8	79.8
75-84 years	100.0	35.1	5.9	3.3	17.4	8.4	64.9
85 years and over	100.0	66.2	22.2	8.9	23.6	11.5	33.8
Male:							
Total 65 years and over	100.0	22.2	3.2	2.3	12.0	4.7	77.8
65-74 years	100.0	16.8	1.7	1.4	9.8	3.9	83.2
75-84 years	100.0	27.7	4.3	3.1	15.1	5.3	72.3
85 years and over	100.0	52.7	14.3	8.5	20.4	9.6	47.3
Female:							
Total 65 years and over	100.0	33.5	6.1	2.8	15.8	8.8	66.5
65-74 years	100.0	22.8	1.9	1.3	12.3	7.2	77.2
75-84 years	100.0	39.5	6.9	3.4	18.8	10.3	60.5
85 years and over	100.0	71.4	25.2	9.0	24.9	12.2	28.6
Race							
White	100.0	28.4	4.9	2.5	14.0	6.9	71.6
Black	100.0	36.4	5.2	3.4	18.2	9.6	63.6
Other	100.0	26.3	*5.5	*3.7	*10.2	*6.8	73.7
Hispanic origin							
Hispanic	100.0	30.3	6.0	4.1	14.5	5.6	69.7
Not Hispanic	100.0	29.0	4.9	2.6	14.3	7.2	71.0
Current marital status							
Married	100.0	21.5	2.7	1.8	11.7	5.2	78.5
Not married	100.0	37.5	7.5	3.5	17.2	9.3	62.5
Poverty status							
Below poverty threshold	100.0	49.5	13.7	4.8	21.5	9.6	50.5
Above poverty threshold	100.0	25.4	3.4	2.3	13.0	6.7	74.6

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living.

Table 5. Number and percent distribution of functionally dependent persons 65 years of age and over by living arrangements, according to selected demographic characteristics: United States, 1984-85

Demographic characteristics	Living arrangements					Total	Living arrangements			
	Total	Alone	Living with spouse	Living with others	Nursing home		Total	Alone	Living with spouse	Living with others
Sex by age										
Both sexes:										
Total 65 years and over	8,051,100	2,314,500	2,872,400	1,545,900	1,318,300	100.0	28.7	35.7	19.2	16.4
65-74 years	3,328,600	932,700	1,699,300	484,500	212,100	100.0	28.0	51.1	14.6	6.4
75-84 years	3,072,900	984,900	985,800	593,200	509,000	100.0	32.1	32.1	19.3	16.6
85 years and over	1,649,700	396,800	187,300	468,300	597,300	100.0	24.1	11.4	28.4	36.2
Male:										
Total 65 years and over	2,473,800	351,800	1,514,700	272,800	334,400	100.0	14.2	61.2	11.0	13.5
65-74 years	1,200,600	178,600	842,200	99,200	80,600	100.0	14.9	70.2	8.3	6.7
75-84 years	905,700	128,200	542,200	94,000	141,300	100.0	14.2	59.9	10.4	15.6
85 years and over	367,500	45,000	130,300	79,600	112,600	100.0	12.3	35.5	21.7	30.6
Female:										
Total 65 years and over	5,577,300	1,962,600	1,357,700	1,273,200	983,900	100.0	35.2	24.3	22.8	17.6
65-74 years	2,128,000	754,100	857,100	385,300	131,500	100.0	35.4	40.3	18.1	6.2
75-84 years	2,167,200	856,700	443,600	499,200	367,700	100.0	39.5	20.5	23.0	17.0
85 years and over	1,282,100	351,800	56,900	388,700	484,700	100.0	27.4	4.4	30.3	37.8
Race										
White	7,139,800	2,053,600	2,587,200	1,271,600	1,227,400	100.0	28.8	36.2	17.8	17.2
Black	825,300	244,800	249,800	248,700	82,000	100.0	29.7	30.3	30.1	9.9
Other	86,000	*16,100	*35,400	*25,600	8,900	100.0	*18.7	*41.2	*29.8	10.4
Hispanic origin										
Hispanic	246,800	57,200	92,500	61,800	35,300	100.0	23.2	37.5	25.0	14.3
Not Hispanic	7,804,300	2,257,300	2,779,900	1,484,200	1,283,000	100.0	28.9	35.6	19.0	16.4
Current marital status										
Married	3,152,700	63,800	2,872,400	48,100	168,400	100.0	2.0	91.1	1.5	5.3
Not married	4,898,500	2,250,700	-	1,497,800	1,150,000	100.0	45.9	-	30.6	23.5
Poverty status										
Below poverty threshold	2,044,500	818,600	265,200	211,300	749,400	100.0	40.0	13.0	10.3	36.7
Above poverty threshold	6,006,700	1,495,900	2,607,200	1,334,700	568,900	100.0	24.9	43.4	22.2	9.5

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living.

Table 6. Number and percent distribution of functionally dependent persons 65 years of age and over by living arrangements, according to current marital status and selected demographic characteristics: United States, 1984-85

Current marital status and selected characteristics	Living arrangements					Total	Living arrangements			
	Total	Alone	Living with spouse	Living with others	Nursing home		Total	Alone	Living with spouse	Living with others
Married										
Sex by age:										
Both sexes:										
Total 65 years and over	3,152,700	63,800	2,872,400	48,100	168,400	100.0	2.0	91.1	1.5	5.3
65-74 years	1,791,900	*25,400	1,699,300	*24,600	42,500	100.0	*1.4	94.8	*1.4	2.4
75-84 years	1,113,200	*31,700	985,800	*17,000	78,700	100.0	*2.8	88.6	*1.5	7.1
85 years and over	247,600	*6,700	187,300	*6,500	47,200	100.0	*2.7	75.6	*2.6	19.1
Male:										
Total 65 years and over	1,647,900	*17,200	1,514,700	*21,900	94,100	100.0	*1.0	91.9	*1.3	5.7
65-74 years	882,900	*6,500	842,200	*13,100	21,100	100.0	*0.7	95.4	*1.5	2.4
75-84 years	594,600	*8,400	542,200	*2,300	41,800	100.0	*1.4	91.2	*0.4	7.0
85 years and over	170,400	*2,300	130,300	*6,500	31,300	100.0	*1.4	76.5	*3.8	18.4
Female:										
Total 65 years and over	1,504,800	46,600	1,357,700	*26,300	74,200	100.0	3.1	90.2	*1.7	4.9
65-74 years	908,900	*18,900	857,100	*11,500	21,500	100.0	*2.1	94.3	*1.3	2.4
75-84 years	518,600	*23,300	443,600	*14,800	36,900	100.0	*4.5	85.6	*2.8	7.1
85 years and over	77,300	*4,400	56,900	-	15,900	100.0	*5.7	73.7	-	20.6
Race:										
White	2,847,800	59,700	2,587,200	*41,700	159,100	100.0	2.1	90.9	*1.5	5.6
Black	266,400	*2,100	249,800	*6,400	8,200	100.0	*0.8	93.7	*2.4	3.1
Other	38,500	*2,000	35,400	-	*1,100	100.0	*5.2	92.0	-	*2.8
Hispanic origin:										
Hispanic	100,000	*2,200	92,500	-	*5,300	100.0	*2.2	92.5	-	*5.3
Not Hispanic	3,052,700	61,600	2,779,900	48,100	163,100	100.0	2.0	91.1	1.6	5.3
Poverty status:										
Below poverty threshold	378,800	*27,600	265,200	*6,000	80,000	100.0	*7.3	70.0	*1.6	21.1
Above poverty threshold	2,773,900	*36,200	2,607,200	*42,100	88,400	100.0	*1.3	94.0	*1.5	3.2
Not married										
Sex by age:										
Both sexes:										
Total 65 years and over	4,898,500	2,250,700	-	1,497,800	1,150,000	100.0	45.9	-	30.6	23.5
65-74 years	1,536,700	907,400	-	459,800	169,500	100.0	59.0	-	29.9	11.0
75-84 years	1,959,700	953,200	-	576,100	430,400	100.0	48.6	-	29.4	22.0
85 years and over	1,402,000	390,100	-	461,900	550,100	100.0	27.8	-	32.9	39.2
Male:										
Total 65 years and over	825,900	334,600	-	250,900	240,300	100.0	40.5	-	30.4	29.1
65-74 years	317,700	172,100	-	86,000	59,500	100.0	54.2	-	27.1	18.7
75-84 years	311,000	119,800	-	91,700	99,500	100.0	38.5	-	29.5	32.0
85 years and over	197,200	42,700	-	73,100	81,300	100.0	21.7	-	37.1	41.2
Female:										
Total 65 years and over	4,072,600	1,916,100	-	1,246,900	909,600	100.0	47.0	-	30.6	22.3
65-74 years	1,219,000	735,200	-	373,800	110,000	100.0	60.3	-	30.7	9.0
75-84 years	1,648,700	833,400	-	484,400	330,800	100.0	50.6	-	29.4	20.1
85 years and over	1,204,900	347,400	-	388,700	468,800	100.0	28.8	-	32.3	38.9
Race:										
White	4,292,100	1,993,900	-	1,229,900	1,068,200	100.0	46.5	-	28.7	24.9
Black	558,900	242,700	-	242,300	73,900	100.0	43.4	-	43.4	13.2
Other	47,500	*14,100	-	*25,600	7,800	100.0	*29.6	-	*53.9	16.5
Hispanic origin:										
Hispanic	146,800	55,000	-	61,800	30,000	100.0	37.5	-	42.1	20.4
Not Hispanic	4,751,700	2,195,700	-	1,436,000	1,120,000	100.0	46.2	-	30.2	23.6
Poverty status:										
Below poverty threshold	1,665,700	791,000	-	205,300	669,400	100.0	47.5	-	12.3	40.2
Above poverty threshold	3,232,800	1,459,700	-	1,292,500	480,500	100.0	45.2	-	40.0	14.9

Table 7. Number of selected chronic conditions among noninstitutionalized persons 65 years of age and over, by level of functional dependency in ADL's and IADL's: United States, 1984

Selected chronic conditions	All levels	Level of functional dependency in ADL's and IADL's					Not dependent in either ADL's or IADL's
		Dependent in ADL's or IADL's				Dependent in IADL's only	
		Total	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies		
							Number
Malignant neoplasm	2,594,300	718,500	67,000	56,000	407,000	188,500	1,875,800
Diabetes mellitus	2,031,500	681,300	81,800	66,300	347,900	185,300	1,350,200
Mental disorders	212,500	133,100	*25,200	*15,800	70,100	*22,000	79,400
Glaucoma	1,428,000	600,300	66,300	50,700	307,400	175,900	827,700
Cataract	3,922,300	1,259,800	86,600	92,000	716,200	365,000	2,662,500
Deafness	799,700	306,400	*20,600	45,200	154,100	86,600	493,300
Hypertension	10,283,800	2,826,100	190,300	191,100	1,643,900	800,800	7,457,700
Heart disease	4,852,300	1,981,200	183,600	180,800	1,001,800	615,000	2,871,100
Ischemic heart disease	2,908,400	1,012,500	79,800	73,800	518,200	340,800	1,895,900
Cerebrovascular disease	1,262,000	717,000	120,100	108,200	342,900	145,900	544,900
Atherosclerosis	2,182,100	1,004,100	112,800	100,400	496,100	294,900	1,177,900
Chronic obstructive pulmonary disease	666,600	301,000	*14,800	*21,000	160,600	104,600	365,600
Arthritis or rheumatism	12,018,000	3,669,500	256,100	305,800	2,037,300	1,070,400	8,348,500
Senility without mention of psychosis	423,600	261,300	*26,600	43,400	118,800	72,500	162,300

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living.

Table 8. Number of selected chronic conditions among nursing home residents 65 years of age and over, by level of functional dependency in ADL's and IADL's: United States, 1985

Selected chronic conditions	All levels	Level of functional dependency in ADL's and IADL's					Not dependent in either ADL's or IADL's
		Dependent in ADL's or IADL's				Dependent in IADL's only	
		Total	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies		
							Number
Malignant neoplasm	67,600	67,600	44,700	9,600	9,800	*3,600	-
Diabetes mellitus	165,000	165,000	100,100	28,400	27,800	8,700	-
Mental disorders	503,200	503,200	320,800	61,400	92,200	28,700	-
Glaucoma	34,700	34,700	21,900	6,900	*4,300	*1,700	-
Cataract	44,100	44,100	22,500	9,000	8,300	*4,300	-
Deafness	29,100	29,100	14,100	*5,200	7,500	*2,300	-
Hypertension	231,000	231,000	140,000	30,500	46,700	13,700	-
Heart disease	527,500	527,500	320,500	86,300	96,400	24,300	-
Ischemic heart disease	347,300	347,300	213,600	59,900	58,200	15,600	-
Cerebrovascular disease	254,800	254,800	194,500	30,600	25,800	*3,900	-
Atherosclerosis	109,600	109,600	63,900	19,700	18,000	8,100	-
Chronic obstructive pulmonary disease	95,200	95,200	48,400	16,000	24,100	6,700	-
Arthritis or rheumatism	260,600	260,600	165,100	37,700	47,600	10,200	-
Senility without mention of psychosis	55,700	55,700	38,000	9,900	6,000	1,800	-

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living.

Table 9. Number of selected chronic conditions among persons 65 years of age and over and rate per 100 persons, by level of functional dependency in ADL's and IADL's: United States, 1984-85

Selected chronic conditions	All levels	Level of functional dependency in ADL's and IADL's						
		Dependent in ADL's or IADL's						
		Total	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies	Dependent in IADL's only	Not dependent in either ADL's or IADL's	
All persons	27,751,300	8,051,100	1,373,800	728,000	3,968,600	1,980,700	19,700,200	
			Number					
Malignant neoplasm	2,661,900	786,100	111,700	65,600	416,800	192,000	1,875,800	
Diabetes mellitus	2,196,500	846,300	182,000	94,700	375,700	193,900	1,350,200	
Mental disorders	715,700	636,300	346,100	77,200	162,300	50,800	79,400	
Glaucoma	1,462,700	635,100	88,100	57,600	311,700	177,600	827,700	
Cataract	3,966,400	1,303,900	109,000	101,000	724,600	369,300	2,662,500	
Deafness	828,800	335,500	34,700	50,400	161,600	88,900	493,300	
Hypertension	10,514,700	3,057,100	330,400	221,700	1,690,600	814,500	7,457,700	
Heart disease	5,379,800	2,508,700	504,200	267,100	1,098,100	639,300	2,871,100	
Ischemic heart disease	3,255,800	1,359,900	293,400	133,700	576,400	356,400	1,895,900	
Cerebrovascular disease	1,516,800	971,900	314,500	138,800	368,700	149,800	544,900	
Atherosclerosis	2,291,700	1,113,800	176,700	120,100	514,000	302,900	1,177,900	
Chronic obstructive pulmonary disease	761,800	396,200	63,200	37,000	184,700	111,300	365,600	
Arthritis or rheumatism	12,278,600	3,930,100	421,200	343,500	2,084,900	1,080,500	8,348,500	
Senility without mention of psychosis	479,300	316,900	64,600	53,200	124,800	74,300	162,300	
			Rate per 100 persons					
Malignant neoplasm	9.6	9.8	8.1	9.0	10.5	9.7	9.5	
Diabetes mellitus	7.9	10.5	13.2	13.0	9.5	9.8	6.9	
Mental disorders	2.6	7.9	25.2	10.6	4.1	2.6	0.4	
Glaucoma	5.3	7.9	6.4	7.9	7.9	9.0	4.2	
Cataract	14.3	16.2	7.9	13.9	18.3	18.6	13.5	
Deafness	3.0	4.2	2.5	6.9	4.1	4.5	2.5	
Hypertension	37.9	38.0	24.0	30.4	42.6	41.1	37.9	
Heart disease	19.4	31.2	36.7	36.7	27.7	32.3	14.6	
Ischemic heart disease	11.7	16.9	21.4	18.4	14.5	18.0	9.6	
Cerebrovascular disease	5.5	12.1	22.9	19.1	9.3	7.6	2.8	
Atherosclerosis	8.3	13.8	12.9	16.5	13.0	15.3	6.0	
Chronic obstructive pulmonary disease	2.7	4.9	4.6	5.1	4.7	5.6	1.9	
Arthritis or rheumatism	44.2	48.8	30.7	47.2	52.5	54.6	42.4	
Senility without mention of psychosis	1.7	3.9	4.7	7.3	3.1	3.8	0.8	

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living.

Table 10. Number of noninstitutionalized persons 65 years of age and over by level of functional dependency; and percent distribution by bed days in the past 12 months and respondent-assessed health status, according to level of functional dependency: United States, 1984

Health status	All levels	Level of functional dependency in ADL's and IADL's						
		Dependent in ADL's or IADL's						
		Total	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies	Dependent in IADL's only	Not dependent in either ADL's or IADL's	
Number of persons	26,433,000	6,732,800	561,700	539,800	3,729,800	1,901,500	19,700,200	
			Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
			Bed days in past 12 months					
None or unknown	64.9	44.1	19.0	39.5	47.8	45.5	72.0	
1-7 days	15.6	15.8	*5.4	16.8	17.0	16.1	15.6	
8-30 days	12.5	20.1	17.4	19.4	18.8	23.6	9.9	
31-180 days	5.0	13.3	22.3	15.2	12.6	11.4	2.2	
181-365 days	1.9	6.8	35.9	9.0	3.8	3.3	0.2	
			Respondent-assessed health status					
Excellent	15.8	4.7	*1.6	*3.8	5.7	3.9	19.6	
Very good	20.4	10.4	*4.7	*4.3	11.5	11.5	23.8	
Good	31.8	22.9	15.5	17.3	24.2	24.3	34.8	
Fair	20.9	30.8	19.9	25.7	31.3	34.6	17.5	
Poor	11.1	31.1	58.3	48.9	27.3	25.6	4.3	

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 11. Number and percent distribution of noninstitutionalized persons 65 years of age and over dependent in home care activities by relationship of caregivers, according to home care activities: United States, 1984

Home care activities	Relationship of caregivers					Relationship of caregivers				
	Total	Relatives only	Nonrelatives only	Both relatives and nonrelatives	No help received	Total	Relatives only	Nonrelatives only	Both relatives and nonrelatives	No help received
Total dependent in home care activities	5,075,800	3,048,200	799,300	954,300	274,000	100.0	60.1	15.7	18.8	5.4
Bathing	1,653,600	1,039,300	370,500	152,900	90,900	100.0	62.8	22.4	9.2	5.5
Dressing	1,146,600	853,300	169,300	124,000	—	100.0	74.4	14.8	10.8	—
Using the toilet room	600,800	410,100	91,200	84,400	*15,100	100.0	68.3	15.2	14.0	*2.5
Transferring	761,800	550,100	101,800	96,700	*13,200	100.0	72.2	13.4	12.7	*1.7
Eating	281,200	192,300	*43,200	45,700	—	100.0	68.4	*15.4	16.3	—
Preparing meals	1,014,900	698,600	187,800	119,500	*8,900	100.0	68.8	18.5	11.8	*0.9
Shopping for personal items	1,930,700	1,464,300	283,400	140,000	*42,900	100.0	75.8	14.7	7.3	*2.2
Managing money	910,200	784,300	58,000	54,800	*13,200	100.0	86.2	6.4	6.0	*1.4
Using the telephone	513,700	313,400	*43,200	*26,400	130,700	100.0	61.0	*8.4	*5.1	25.4
Doing light housework	1,162,300	759,600	255,500	105,900	*41,300	100.0	65.4	22.0	9.1	*3.6
Doing heavy housework	4,035,400	2,349,200	1,063,100	235,800	387,400	100.0	58.2	26.3	5.8	9.6
Getting outside	1,499,200	1,015,800	196,200	191,300	95,900	100.0	67.8	13.1	12.8	6.4
Walking	1,266,900	870,500	180,200	157,800	58,400	100.0	68.7	14.2	12.5	4.6

Table 12. Number and percent distribution of noninstitutionalized persons 65 years of age and over dependent in home care activities by living arrangement of caregivers, according to home care activities: United States, 1984

Home care activities	Living arrangement of caregivers					Living arrangement of caregivers				
	Total	Household members	Nonhousehold members	Both household and non-household members	No help received	Total	Household members	Nonhousehold members	Both household and non-household members	No help received
Total dependent in home care activities	5,075,800	2,227,600	1,660,500	913,700	274,000	100.0	43.9	32.7	18.0	5.4
Bathing	1,653,600	932,900	494,700	135,000	90,900	100.0	56.4	29.9	8.2	5.5
Dressing	1,146,600	800,900	206,800	138,900	—	100.0	69.8	18.0	12.1	—
Using the toilet room	600,800	386,400	102,100	97,200	*15,100	100.0	64.3	17.0	16.2	*2.5
Transferring	761,800	510,700	125,000	112,800	*13,200	100.0	67.0	16.4	14.8	*1.7
Eating	281,200	185,100	48,400	47,700	—	100.0	65.8	17.2	17.0	—
Preparing meals	1,014,900	630,200	245,400	130,300	*8,900	100.0	62.1	24.2	12.8	*0.9
Shopping for personal items	1,930,700	1,089,000	658,100	140,600	*42,900	100.0	56.4	34.1	7.3	*2.2
Managing money	910,200	617,000	245,900	*34,200	*13,200	100.0	67.8	27.0	*3.8	*1.4
Using the telephone	513,700	302,100	55,400	*25,500	130,700	100.0	58.8	10.8	*5.0	25.4
Doing light housework	1,162,300	695,500	319,800	105,700	*41,300	100.0	59.8	27.5	9.1	*3.6
Doing heavy housework	4,035,400	1,758,100	1,665,100	224,800	387,400	100.0	43.6	41.3	5.6	9.6
Getting outside	1,499,200	819,100	394,300	189,900	95,900	100.0	54.6	26.3	12.7	6.4
Walking	1,266,900	773,100	260,400	175,000	58,400	100.0	61.0	20.6	13.8	4.6

Table 13. Number and percent distribution of noninstitutionalized persons 65 years of age and over dependent in home care activities by source of help, according to home care activities: United States, 1984

Home care activities	Source of help ¹					Source of help ¹				
	Total	Only paid help	Only unpaid help	Both paid and unpaid help	No help received	Total	Only paid help	Only unpaid help	Both paid and unpaid help	No help received
Total dependent in home care activities	5,075,800	659,800	3,219,000	923,000	274,000	100.0	13.0	63.4	18.2	5.4
Bathing	1,653,600	321,200	1,120,600	120,800	90,900	100.0	19.4	67.8	7.3	5.5
Dressing	1,146,600	139,200	905,000	102,300	—	100.0	12.1	78.9	8.9	—
Using the toilet room	600,800	80,700	431,200	73,800	*15,100	100.0	13.4	71.8	12.3	*2.5
Transferring	761,800	90,800	574,000	83,900	*13,200	100.0	11.9	75.3	11.0	*1.7
Eating	281,200	*41,200	196,500	*43,500	—	100.0	*14.7	69.9	*15.5	—
Preparing meals	1,014,900	186,100	720,200	99,700	*8,900	100.0	18.3	71.0	9.8	*0.9
Shopping for personal items	1,930,700	236,900	1,569,600	81,200	*42,900	100.0	12.3	81.3	4.2	*2.2
Managing money	910,200	62,000	811,500	*23,500	*13,200	100.0	6.8	89.2	*2.6	*1.4
Using the telephone	513,700	45,200	318,400	*19,300	130,700	100.0	8.8	62.0	*3.8	25.4
Doing light housework	1,162,300	244,800	785,200	91,100	*41,300	100.0	21.1	67.6	7.8	*3.6
Doing heavy housework	4,035,400	1,074,400	2,382,500	191,100	387,400	100.0	26.6	59.0	4.7	9.6
Getting outside	1,499,200	164,600	1,124,500	114,100	95,900	100.0	11.0	75.0	7.6	6.4
Walking	1,266,900	139,400	971,900	97,200	58,400	100.0	11.0	76.7	7.7	4.6

¹Persons who received help, paid status unknown, were considered unpaid for the purposes of this analysis.

Table 14. Number and percent distribution of functionally dependent noninstitutionalized persons 65 years of age and over receiving home care by type of home care, according to selected demographic characteristics: United States, 1984–85

Demographic characteristics	Total	Type of home care		Total	Type of home care	
		Formal home care ¹	Informal home care		Formal home care ¹	Informal home care
Sex by age						
Both sexes:						
Total 65 years and over	5,042,900	1,662,500	3,380,400	100.0	33.0	67.0
65–74 years	2,150,000	645,500	1,504,500	100.0	30.0	70.0
75–84 years	1,949,500	679,000	1,270,600	100.0	34.8	65.2
85 years and over	943,400	338,000	605,400	100.0	35.8	64.2
Male:						
Total 65 years and over	1,473,700	327,500	1,146,200	100.0	22.2	77.8
65–74 years	744,500	151,000	593,600	100.0	20.3	79.7
75–84 years	511,300	106,800	404,500	100.0	20.9	79.1
85 years and over	217,800	69,700	148,100	100.0	32.0	68.0
Female:						
Total 65 years and over	3,569,200	1,335,000	2,234,300	100.0	37.4	62.6
65–74 years	1,405,500	494,500	911,000	100.0	35.2	64.8
75–84 years	1,438,200	572,200	866,000	100.0	39.8	60.2
85 years and over	725,600	268,300	457,300	100.0	37.0	63.0
Race						
White	4,425,100	1,494,700	2,930,400	100.0	33.8	66.2
Black	554,100	159,300	394,900	100.0	28.7	71.3
Other	63,700	*8,600	55,200	100.0	*13.4	86.6
Hispanic origin						
Hispanic	164,100	52,500	111,600	100.0	32.0	68.0
Not Hispanic	4,878,800	1,609,900	3,268,900	100.0	33.0	67.0
Current marital status						
Married	2,177,200	537,200	1,640,000	100.0	24.7	75.3
Not married	2,865,800	1,125,300	1,740,400	100.0	39.3	60.7
Poverty status						
Below poverty threshold	951,600	292,900	658,700	100.0	30.8	69.2
Above poverty threshold	4,091,300	1,369,600	2,721,800	100.0	33.5	66.5

¹Includes persons receiving both formal and informal home care services.

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 15. Number and percent distribution of functionally dependent persons 65 years of age and over by type of long-term care used, according to selected demographic characteristics: United States, 1984-85

Demographic characteristics	Functionally dependent elderly	Type of long-term care			Functionally dependent elderly	Type of long-term care				
		Total	Nursing home care	Formal home care ¹		Informal home care	Total	Nursing home care	Formal home care ¹	Informal home care
Sex by age		Number				Percent distribution				
Both sexes:										
Total 65 years and over	8,051,100	6,361,300	1,318,300	1,662,500	3,380,400	100.0	79.0	16.4	20.6	42.0
65-74 years	3,328,600	2,362,100	212,100	645,500	1,504,500	100.0	71.0	6.4	19.4	45.2
75-84 years	3,072,900	2,458,500	509,000	679,000	1,270,600	100.0	80.0	16.6	22.1	41.3
85 years and over	1,649,700	1,540,700	597,300	338,000	605,400	100.0	93.4	36.2	20.5	36.7
Male:										
Total 65 years and over	2,473,800	1,808,100	334,400	327,500	1,146,200	100.0	73.1	13.5	13.2	46.3
65-74 years	1,200,600	825,100	80,600	151,000	593,600	100.0	68.7	6.7	12.6	49.4
75-84 years	905,700	652,700	141,300	106,800	404,500	100.0	72.1	15.6	11.8	44.7
85 years and over	367,500	330,400	112,600	69,700	148,100	100.0	89.9	30.6	19.0	40.3
Female:										
Total 65 years and over	5,577,300	4,553,100	983,900	1,335,000	2,234,300	100.0	81.6	17.6	23.9	40.1
65-74 years	2,128,000	1,537,000	131,500	494,500	911,000	100.0	72.2	6.2	23.2	42.8
75-84 years	2,167,200	1,805,900	367,700	572,200	866,000	100.0	83.3	17.0	26.4	40.0
85 years and over	1,282,100	1,210,300	484,700	268,300	457,300	100.0	94.4	37.8	20.9	35.7
Race										
White	7,139,800	5,652,500	1,227,400	1,494,700	2,930,400	100.0	79.2	17.2	20.9	41.0
Black	825,300	636,200	82,000	159,300	394,900	100.0	77.1	9.9	19.3	47.8
Other	86,000	72,600	8,900	*8,600	55,200	100.0	84.5	10.4	*10.0	64.1
Hispanic origin										
Hispanic	246,800	199,400	35,300	52,500	111,600	100.0	80.8	14.3	21.3	45.2
Not Hispanic	7,804,300	6,161,900	1,283,000	1,609,900	3,268,900	100.0	79.0	16.4	20.6	41.9
Current marital status										
Married	3,152,700	2,345,500	168,400	537,200	1,640,000	100.0	74.4	5.3	17.0	52.0
Not married	4,898,500	4,015,700	1,150,000	1,125,300	1,740,400	100.0	82.0	23.5	23.0	35.5
Poverty status										
Below poverty threshold	2,044,500	1,651,200	749,400	292,900	658,700	100.0	83.2	36.7	14.3	32.2
Above poverty threshold	6,006,700	4,710,000	568,900	1,369,600	2,721,800	100.0	77.6	9.5	22.8	45.3

¹Includes persons receiving both formal and informal home care

Table 16. Number of noninstitutionalized persons 65 years of age and over, by level of functional dependency in ADL's and IADL's and selected measures of health care and community service utilization last year; percent distribution of persons by number of short-stay hospital episodes and whether in a nursing home last year, according to level of functional dependency; and percent of persons using community services last year, by level of functional dependency: United States, 1984

Health care and community service utilization	All levels	Level of functional dependency in ADL's and IADL's					
		Dependent in ADL's or IADL's					
		Total	5-7 ADL dependencies	3-4 ADL dependencies	1-2 ADL dependencies	Dependent in IADL's only	Not dependent in either ADL's or IADL's
Number							
Number of persons	26,433,000	6,732,800	561,700	539,800	3,729,800	1,901,500	19,700,200
Number of physician contacts last year	217,041,500	93,507,900	20,503,100	10,044,300	43,050,300	19,910,300	123,533,600
Average number of physician contacts per person per year	8.2	13.9	36.5	18.6	11.5	10.5	6.3
Number of hospital days last year	67,752,800	41,390,500	10,570,700	4,094,500	18,252,600	8,472,700	26,362,200
Number of persons with hospital stays last year	5,151,800	2,328,400	337,900	230,800	1,147,200	612,400	2,823,500
Average number of hospital days per person hospitalized	13.2	17.8	31.3	17.7	15.9	13.8	9.3
Number of short-stay hospital episodes last year							
Percent distribution							
None	80.4	65.3	39.8	56.9	69.2	67.7	85.6
1	13.7	21.0	29.2	25.6	18.9	21.3	11.3
2	3.9	8.6	15.6	12.2	7.2	8.1	2.3
3 or more	1.9	5.1	15.3	5.3	4.7	3.0	0.9
In a nursing home last year							
One or more days	0.5	1.6	4.2	1.6	1.4	1.2	0.1
Not in a nursing home	99.5	98.4	95.8	98.4	98.6	98.8	99.9
Used community services last year							
Percent							
Used one service or more	22.7	30.3	46.9	27.4	29.6	27.7	20.1
Senior center	15.2	13.2	5.0	4.5	15.5	13.7	15.8
Senior center meals	8.5	8.8	3.5	4.0	10.4	8.7	8.5
Special transportation for the elderly	4.5	7.3	5.2	4.9	7.7	7.8	3.5
Home-delivered meals	2.1	5.4	5.2	7.6	5.1	5.3	1.0
Homemaker services	1.6	4.4	5.9	6.3	4.2	3.9	0.6
Home health services ¹	3.6	11.0	38.2	16.8	8.3	6.5	1.0

¹Includes visiting nurses and home health aides.

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

Table 17. Number of functionally dependent noninstitutionalized persons 65 years of age and over, by type of home care received and selected measures of health care and community service utilization last year; percent distribution of persons by number of short-stay hospital episodes and whether in a nursing home last year, according to type of home care received; and percent of persons using community services last year, by type of home care received: United States, 1984

Health care and community service utilization	Total	Type of home care received		
		Formal home care ¹	Informal home care	No home care received
		Number		
Number of persons	6,732,800	1,662,500	3,380,400	1,689,900
Number of physician contacts last year	93,507,900	33,371,700	46,212,900	13,923,300
Average number of physician contacts per person per year	13.9	20.1	13.7	8.2
Number of hospital days last year	41,390,500	14,705,400	22,052,700	4,632,500
Number of persons with hospital stays last year	2,328,400	728,600	1,252,000	347,800
Average number of hospital days per person hospitalized	17.8	20.2	17.6	13.3
		Percent distribution		
Number of short-stay hospital episodes last year				
None	65.3	56.2	62.8	79.4
1	21.0	25.8	22.1	14.0
2	8.6	11.2	9.5	4.1
3 or more	5.1	6.8	5.6	2.5
In a nursing home last year				
One or more days	1.6	2.4	1.6	0.9
Not in a nursing home	98.4	97.6	98.4	99.1
		Percent		
Used community services last year				
Used one service or more	30.3	46.2	25.4	24.8
Senior center	13.2	12.5	11.1	18.1
Senior center meals	8.8	8.7	7.3	11.9
Special transportation for the elderly	7.3	11.5	5.5	6.8
Home-delivered meals	5.4	12.5	3.8	1.4
Homemaker services	4.4	13.1	1.9	0.9
Home health services ²	11.0	23.0	9.2	2.7

¹Includes persons receiving both formal and informal home care services.

²Includes visiting nurses and home health aides.

NOTE: ADL's are activities of daily living; IADL's are instrumental activities of daily living. Figures may not add to totals because of rounding.

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Appendix I

Technical notes on methods

National Health Interview Survey methodology

Source and description of data

The National Health Interview Survey (NHIS) is a continuous, cross-sectional, nationwide survey conducted by household interview. Each week a probability sample of households is interviewed by personnel of the U.S. Bureau of the Census (as agents for NCHS) to obtain information on the health and other characteristics of each member of the household.

The population covered by the NHIS is the civilian, resident, noninstitutionalized population of the United States living at the time of the interview. The sample does not include persons residing in nursing homes, members of the Armed Forces, institutionalized persons, or U.S. nationals living abroad.

The NHIS questionnaire contains two major parts: The first consists of topics that remain the same from year to year. Among these topics are the incidence of acute conditions, the prevalence of chronic conditions, persons limited in activity due to chronic conditions, restriction in activity due to impairment or health problems, and utilization of health care services involving physician care and short-stay hospitalization. The second part consists of questions on special health topics that change each year. In 1984, the special topic was the concerns of the aged and the supplement to the NHIS was called the Supplement on Aging (SOA).

The objectives of the 1984 SOA were:

- To characterize the health and social status of people 55 years of age and over in the United States.
- To provide information about how psychosocial and environmental factors interact with health factors to influence the aging individual in a changing society.
- To provide a knowledge base for investigating issues of prevention and postponement of disability and dependency and for framing research questions and hypotheses on the interplay between changing home environment and the aging individual.
- To delineate issues and data for research on the enhancement of care, social support, and coping for those older people who do become disabled.
- To provide information about factors that influence individuals' ability to live independently in the household and the community as they grow older.
- To form the basis for a prospective study, the Longitudinal Study of Aging.

The completion rate for the NHIS survey has been between 96 and 98 percent over the years. In 1984, there were 41,471 eligible households in the NHIS sample. Interviews were conducted for the basic health and demographic household questionnaire in 39,996 (96 percent) of these households, yielding data on 105,290 persons of all ages who resided in them at the time of the interview (21).

A total of 16,697 sample persons in the 39,996 households responding to the 1984 NHIS were selected for the SOA interview. The SOA interviews were completed for 97 percent of the sample, or 16,148 persons. Self-response, which was the primary respondent rule, accounted for 90 percent, and proxy response for 7 percent; 3 percent did not respond to the SOA. Less than 1 percent were partial interviews. Thus, the effective response rate was 97 percent (the SOA response rate) multiplied by 96 percent (the NHIS household interview response rate) for a value of 93 percent.

Full descriptions of technical aspects for the National Health Interview Survey and the Supplement on Aging have been published elsewhere (13, 34, 49). This description excerpts and summarizes from those reports.

Sample design

National Health Interview Survey—The NHIS sample is designed to produce national estimates for the civilian noninstitutionalized population residing in the United States. The approach to doing this is first to divide the United States into geographically defined areas called primary sampling units (PSU's), which collectively cover the 50 States and the District of Columbia. The PSU's are classified into strata (combinations of PSU's with similar characteristics), and, in 1984 and earlier years, one PSU was selected from each stratum. Within the selected PSU's, small compact clusters, called segments, of housing units are then selected.

There is clustering within the PSU, within the segment, and within the household because all family members in the selected housing unit are in the sample. This clustering causes the procedures for analysis, especially the variance estimation, to differ from those in simple random sampling.

An important aspect of the NHIS sample design is that it is a multistage probability design that permits a continuous sampling of the civilian noninstitutionalized population in the United States. It is designed in such a way that the sample scheduled for each week is an independent sample of the population; the weekly samples are additive over time. Thus,

the design permits estimates for high-frequency measures (or for large groups) to be produced from a short period of data collection and estimates for low-frequency measures (or for smaller population subgroups) to be obtained from a larger period of data collection. Because interviewing is done throughout the year with about 800 households in the sample each week, there is no seasonal bias in the annual estimates.

The NHIS sample is updated or redesigned after each decennial census. The design that was implemented in 1973 was an update and modification of earlier sample designs rather than an entirely new design. This update formed the basis for the 1984 NHIS sample.

Supplement on Aging (SOA)—One of the objectives of the SOA was to provide finer statistical measures of functional limitations and the presence of chronic health conditions among older persons than is provided in the NHIS basic questionnaire. To produce a broader base for estimating these and other critical characteristics of this subpopulation, a sample design was developed that permitted the collection of the maximum amount of information about older people, namely people 65 years of age and over, among whom the occurrence of these health problems is greatest. Another objective of the SOA was to provide information about older people that could be used as baseline data in measurements of change over time through a later prospective study. With this objective of later contact to ascertain changes, the age level established for the SOA sample was 55 years and over. Because problems among younger people are less prevalent than among older people and for the cost savings it provided, it was decided further that including all people in the younger ages in the sample was not necessary.

Consequently, the design of the SOA sample was as follows:

- A systematic one-half sample of people in the 1984 NHIS households who were 55–64 years of age.
- All people in the 1984 NHIS households who were 65 years of age and over.

Presentation of estimates

Because the design of NHIS is a complex multistage probability sample, it is necessary to reflect these complex procedures in the derivation of estimates. The NHIS estimates presented in this report are based upon sample person counts for each year weighted to produce national estimates. The weight for each sample person is the product of four component weights: probability of selection, household nonresponse adjustment within segment, first-stage ratio adjustment, and post-stratification by age, sex, and race.

The main effect of the ratio-estimating process is to make the sample more closely representative of the target population by age, sex, race, and residence. The poststratification adjustment helps to reduce the component of bias resulting from sampling frame undercoverage; furthermore, this adjustment frequently reduces sampling variance.

Because NHIS estimates are based on a sample, they may differ somewhat from the figures that would have been obtained had a complete census been taken using the same survey and processing procedures. To the extent possible,

sampling and nonsampling errors are kept to a minimum by methods built into the survey procedures.

NHIS hospital discharge data are based on hospital discharges reported to have occurred within 6 months of the week of interview. Analysis has shown that there is an increase in underreporting of hospitalizations with an increase in the time interval between the discharge and the interview. The underreporting of discharges within 6 months of the week of interview is estimated to be about 5 percent (50). Because hospitalization is common in the period immediately preceding death or institutionalization and older persons are much more likely to die than younger ones, the underrepresentation for this specific NHIS estimate of elderly persons in particular may be sizable.

National Nursing Home Survey methodology

Source and description of data

The National Nursing Home Survey (NNHS) is a cross-sectional nationwide survey of nursing homes, their residents, discharges, and staff conducted by the National Center for Health Statistics. The most recent survey, which was conducted from August 1985 through January 1986, was the third of a continuing series of nursing home surveys. The first survey was conducted from August 1973 through April 1974, and the second was conducted from May through December 1977.

In this report only data from the current resident survey of the 1985 NNHS are presented. The NNHS, however, included not only data on residents but also on nursing home discharges and staff. Resident data were collected in personal interviews with a nurse familiar with the care provided to the resident. The nurse relied on the medical record and personal knowledge of the resident. Additional data about current and discharged residents were obtained by telephone interviews with next of kin in the 1985 survey only.

The scope of the 1985 NNHS included all types of nursing homes in the conterminous United States. The sample of 1,220 homes was selected from a sampling frame of 20,479 nursing and related care homes. The frame consisted of all homes in the 1982 NMFI (51), homes identified in the 1982 Complement Survey of the NMFI as “missing” from the 1982 NMFI, facilities that opened for business from 1982 through June 1984, and hospital-based nursing homes identified in the records of the Health Care Financing Administration. Data were obtained from 1,079 facilities, 1,763 registered nurses, 5,243 residents, and 6,023 discharges. Response rates were 93 percent for facilities, 68 percent for expenses, 80 percent for registered nurses, 97 percent for residents, 95 percent for discharges, and 90 percent for next of kin. The effective response rate for residents was 93 percent multiplied by 97 percent or 90 percent.

Sample design

The sampling was basically a stratified two-stage probability design. The first stage was the selection of facilities, and the second stage was a selection of residents, discharges, and staff from the sample facilities. In the 1985 NNHS, 20 certification-size primary strata were used in the selection

of facilities. For a more detailed description of the survey design of the 1985 NNHS, see (52).

The second stage sampling of residents was carried out by the interviewers at the time of their visits to facilities, in accordance with specific instructions given for each sample facility. The sample frame for residents was the total number of residents on the register of the facility on the evening prior to the day of the survey. Residents who were physically absent from the facility because of overnight leave or a hospital visit but who had a bed maintained for them at the facility were included in the sample frame. In the 1985 survey, a sample of five or fewer residents per facility was selected.

Presentation of estimates

Because the design of the NNHS is a complex, multistage probability sample, it is necessary to reflect these complex procedures in the derivation of estimates. The NNHS estimates

presented in this report are based upon sample person counts weighted to produce national estimates. The estimating procedure used to produce these estimates has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals.

Because NNHS estimates are based on a sample, they may differ somewhat from the figures that would have been obtained had a complete census been taken using the same survey and processing procedures. To the extent possible, sampling and nonsampling errors were kept to a minimum by methods built into the survey procedures.

Descriptive material on data collection, field procedures, and questionnaire development in the NNHS have been published, as well as a detailed description of the sample design, estimation procedure, and qualifications of the data (28).

Appendix II

Definitions of certain terms used in this report

Demographic terms

Age

NHIS—The age recorded for each person is the age at last birthday. Age is recorded in single years and grouped in a variety of distributions depending on the purpose of the table.

NNHS—The age of the resident on the day the survey was conducted, calculated from date of birth.

Race

NHIS—The population is divided into three racial groups: “white,” “black,” and “all other.” “All other” includes Aleut, Eskimo or American Indian, Asian or Pacific Islander, and any other races. Race characterization is based on the respondent’s description of his or her racial background.

NNHS—The racial background of the resident as reported by the nursing home staff respondent.

Hispanic origin

Hispanic

NHIS—Persons are Hispanic if any of the following describes their national origin or ancestry—Puerto Rican, Cuban, Mexican, Mexicano, Mexican-American, Chicano, other Latin American, other Spanish. Respondents make this determination by looking at a flashcard containing the above-listed Hispanic groups and deciding whether one of them describes their national origin or ancestry. The Hispanic population includes all Hispanic people, regardless of race.

NNHS—Hispanic refers to a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race, as reported by the nursing home staff respondent.

Not Hispanic

NHIS and NNHS—For this report, persons not classified as Hispanic are not Hispanic. This includes persons whose Hispanic status is unknown.

Current marital status

Married

NHIS—Includes all persons not separated from their spouses for reasons of marital discord. Persons living apart due to circumstances of their employment are considered married. Persons living together as husband and wife are considered married, regardless of legal status.

NNHS—Marital status of the resident at the time of the survey reported as married by the nursing home staff.

Not married

NHIS—Includes persons who are legally separated or divorced or who are living apart for reasons of marital discord, persons who have lost their spouse due to death, persons who were never married, and persons whose only marriage was annulled.

NNHS—Marital status of the resident at the time of the survey reported as not married by the nursing home staff.

Poverty

NHIS—Families and unrelated individuals are classified as being above or below the poverty level, using the poverty index that originated at the Social Security Administration in 1964 and was revised by Federal Interagency Communities in 1969 and 1980. The poverty index is based solely on monetary income and does not reflect the fact that many low-income persons receive noncash benefits such as food stamps, Medicaid, and public housing. The index is based on the Department of Agriculture’s 1961 economy food plan and reflects the varying consumption requirements of families based on their size and composition. The poverty thresholds are updated every year to reflect changes in the Consumer Price Index. Because NHIS data on family income are collected by income categories rather than specific amounts of money, NHIS estimates of the number of persons living in poverty will vary slightly from Current Population Survey estimates. The 1984 poverty index is based on the 1983 poverty levels in the March 1984 Current Population Survey.

NNHS—For this report, residents who used Medicaid, State-funded indigent care, or other public assistance or welfare as a primary or secondary source of payment in the last month were classified as below the poverty threshold. Medicaid is a joint Federal-State program providing medical benefits to persons who qualify for welfare and some of the “medically needy” (those who would be on welfare if their incomes were a little lower). The State-set criteria for Medicaid eligibility vary from State to State but cover most poor people in the United States (53). Residents who did not use these payment sources were classified as above the poverty threshold.

Terms relating to residents

Resident

NNHS—A person on the roster of the nursing home as of the night before the survey. Included are all residents for whom beds are maintained, even though they may be away on overnight leave or in a hospital.

Terms relating to physician contacts

Physician contact

NHIS—A physician contact is defined as consultation with a physician, in person or by telephone, for examination, diagnosis, treatment, or advice. (Physician contacts with hospital inpatients are not included.) The contact is considered to be a physician contact if the service is provided directly by the physician or by a nurse or other person acting under a physician's supervision. For the purpose of this definition, "physician" includes doctors of medicine and osteopathic physicians. However, the concept toward which all instructions are directed is that which is described here.

Physician contacts for services provided on a mass basis are not included in the tabulations. A service received on a mass basis is defined as any service involving only a single test (such as a test for diabetes) or a single procedure (such as a measles inoculation) when this single service is administered identically to all persons who are at the place for this purpose. Hence obtaining a chest x ray in a tuberculosis chest x-ray trailer is not included as a physician contact. However, a special chest x ray given in a physician's office or in an outpatient clinic is considered a physician contact.

If a physician is called to a house to see more than one person, the call is considered a separate physician contact for each person about whom the physician is consulted.

A physician contact is associated with the person about whom the advice is sought, even if the person does not actually see or consult the physician. For example, if a mother consults a physician about one of her children, the physician contact is ascribed to the child.

Terms relating to hospitalization

Hospital

NHIS—For this survey, a hospital is defined as any institution either (1) named in the listing of hospitals in the current American Hospital Association Guide to the Health Care Field or (2) found on the Master Facility Inventory List maintained by the National Center for Health Statistics.

Short-stay hospital

NHIS—A short-stay hospital is one in which the type of service provided is general; maternity; eye, ear, nose, and throat; children's; or osteopathic, or it may be the hospital department of an institution.

Hospital day

NHIS—A hospital day is a day on which a person is confined to a hospital. It is counted as a hospital day only if the patient stays overnight. Thus a patient who enters the hospital on Monday afternoon and leaves Wednesday noon is considered to have had 2 hospital days.

Hospital days during the year

NHIS—The number of hospital days during the year is the total number for all hospital episodes in the 12-month period prior to the interview week. For the purposes of this

estimate, episodes overlapping the beginning or end of the 12-month period are subdivided so that only those days falling within the period are included.

Hospital episode

NHIS—A hospital discharge is the completion of any continuous period of stay of 1 night or more in a hospital as an inpatient except the period of stay of a well newborn infant. A hospital episode is recorded for a family member whenever any part of his or her hospital stay is included in the 12-month period prior to the interview week.

Dependence terms

Dependence in instrumental activities of daily living (IADL's)

NHIS—Persons are considered dependent in IADL's if they are reported to have difficulty or to be unable to perform specific activities by themselves because of a health problem. These activities include preparing meals, shopping for personal items, managing their own money, using the telephone, doing light housework, doing heavy housework, and going outside.

NNHS—Nursing home residents are considered dependent in IADL's if they were reported by nursing home staff to receive personal help or supervision in the following activities: care of personal possessions, handling money, securing personal items (such as newspapers, toilet articles, or snack food), and using the telephone (dialing or receiving calls). For the purposes of this report, care of personal possessions was considered equivalent to doing light housework and securing personal items was considered equivalent to shopping. The two IADL's not appropriate for nursing home residents (preparing meals and doing heavy housework) were considered to be activities that the residents were dependent in for the purposes of this report.

Dependence in activities of daily living (ADL's)

NHIS—Persons are considered dependent in ADL's if they (1) have difficulty performing specific activities because of a health or physical problem and receive the help of another person in performing the activity or (2) are unable to perform the activity without special equipment and do not have that equipment. These activities include bathing, dressing, using (and getting to) the toilet, transferring into or out of a chair or bed, mobility, continence (that is, difficulty with bowel and/or bladder control or if they have had a colostomy, have a catheter, or have a device to control urination or bowels), and eating.

NNHS—Nursing home residents are considered dependent in ADL's if they were reported by nursing home staff to currently (1) require assistance of another person or special equipment in performing the activity or (2) did not currently perform the activity because the resident was tube-fed, chair-fast, had an ostomy, or some similar reason. For example, residents were considered dependent in eating if they currently were intravenously fed. The ADL's include bathing, dressing, using the toilet, transferring, mobility, continence, and eating.

Appendix III

Selected questions on functional dependency

Questions on functional dependency: National Health Interview Survey, 1984 Supplement on Aging

RT 70												
Section R1. ACTIVITIES OF DAILY LIVING (ADL'S)											3-4	
<i>Read to respondent — The next questions are about how well you are able to do certain activities — by yourself and without using special equipment.</i>												
1. Because of a health or physical problem, do you have ANY difficulty — Ask if "Doesn't do": Is this because of a HEALTH or PHYSICAL problem? If "Yes," mark box 1; if "No," mark box 3	(1) 5				(2) 22				(3) 39			
	Bathing or showering?				Dressing?				Eating?			
	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Doesn't do for other reason				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Doesn't do for other reason				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Doesn't do for other reason			
2. By yourself and without using special equipment, how much difficulty do you have (ADL), some, a lot, or are you unable to do it?	6				23				40			
	1 <input type="checkbox"/> Some 2 <input type="checkbox"/> A lot 3 <input type="checkbox"/> Unable				1 <input type="checkbox"/> Some 2 <input type="checkbox"/> A lot 3 <input type="checkbox"/> Unable				1 <input type="checkbox"/> Some 2 <input type="checkbox"/> A lot 3 <input type="checkbox"/> Unable			
3. Do you receive help from another person in (ADL)?	7				24				41			
	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (5)				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (5)				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (5)			
4a. Who gives this help? Anyone else? Mark the S/C/P box without asking if ONLY help is from spouse/children/parents. b. Is this help paid for? Ask if necessary: Which helpers are paid?	4a. Source of help 8-11		4b. Paid 12-15		4a. Source of help 25-28		4b. Paid 29-32		4a. Source of help 42-45		4b. Paid 46-49	
	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative		0 <input type="checkbox"/> S/C/P (5) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No		HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative		0 <input type="checkbox"/> S/C/P (5) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No		HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative		0 <input type="checkbox"/> S/C/P (5) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	
5a. Do you use any special equipment or aids in (ADL)?	16				33				50			
	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)			
b. What special equipment or aids do you use? Anything else?	Special equipment or aids				Special equipment or aids				Special equipment or aids			
	_____ 17-18				_____ 34-35				_____ 51-52			
	_____ 19-20				_____ 36-37				_____ 53-54			
6a. What (other) condition causes the trouble in (read ADL(s))? Ask if injury or operation: When did (the injury) occur? / you have the operation? Enter injury if over 3 months ago. Ask or reask 6b, if 0-3 months injury or operation. Ask if operation over 3 months ago: For what condition did you have the operation? Enter condition.	<input type="checkbox"/> Old age (6c)											
b. Besides (condition), is there any other condition which causes this trouble in (read ADL(s))?	<input type="checkbox"/> Yes (Reask 6a and b) <input type="checkbox"/> No (6d)											
c. Is this trouble in (read ADL(s)) caused by any (other) specific condition?	<input type="checkbox"/> Yes (Reask 6a and b) <input type="checkbox"/> No											
If multiple conditions, including old age, are listed in 6a, ask 6d for each ADL with a "Yes" in 1. Otherwise, mark appropriate box or transcribe the only listed condition for each ADL. d. Which of these conditions, that is (read conditions in 6a) would you say is the MAIN cause of the trouble in (ADL)?	(1) 21				(2) 38				(3) 55			
	1 <input type="checkbox"/> 0-3 month Inj/Op ONLY 2 <input type="checkbox"/> Old age 3 <input type="checkbox"/> _____ Ask 6d for next ADL with "Yes" in 1				1 <input type="checkbox"/> 0-3 month Inj/Op ONLY 2 <input type="checkbox"/> Old age 3 <input type="checkbox"/> _____ Ask 6d for next ADL with "Yes" in 1				1 <input type="checkbox"/> 0-3 month Inj/Op ONLY 2 <input type="checkbox"/> Old age 3 <input type="checkbox"/> _____ Ask 6d for next ADL with "Yes" in 1			
	Condition — Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.				Condition — Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.				Condition — Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.			
FOOTNOTES												

Section R1. ACTIVITIES OF DAILY LIVING (ADL'S), Continued

<p>Reask 1 (4) 56</p> <p>Getting in and out of bed or chairs?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p>(5) 73</p> <p>Walking?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p>(6) 90</p> <p>Getting outside?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p>(7) 5</p> <p>Using the toilet, including getting to the toilet?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>
<p>57</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p>74</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p>91</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p>6</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>
<p>58</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (5)</p>	<p>75</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (5)</p>	<p>92</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (5)</p>	<p>7</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (5)</p>
<p>4a. Source of help 59-62 4b. Paid 63-66</p> <p>HH member 0 <input type="checkbox"/> S/C/P (5)</p> <p>1 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>2 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>Non-HH member</p> <p>3 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>4 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>	<p>4a. Source of help 76-79 4b. Paid 80-83</p> <p>HH member 0 <input type="checkbox"/> S/C/P (5)</p> <p>1 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>2 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>Non-HH member</p> <p>3 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>4 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>	<p>4a. Source of help 93-96 4b. Paid 97-100</p> <p>HH member 0 <input type="checkbox"/> S/C/P (5)</p> <p>1 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>2 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>Non-HH member</p> <p>3 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>4 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>	<p>4a. Source of help 8-11 4b. Paid 12-15</p> <p>HH member 0 <input type="checkbox"/> S/C/P (5)</p> <p>1 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>2 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>Non-HH member</p> <p>3 <input type="checkbox"/> Relative 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p> <p>4 <input type="checkbox"/> Nonrelative . . 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>
<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)</p> <p>67</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)</p> <p>84</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (2 for next ADL with "Yes" in 1)</p> <p>101</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (6)</p> <p>16</p>
<p>Special equipment or aids</p> <p>_____ 68-69</p> <p>_____ 70-71</p>	<p>Special equipment or aids</p> <p>_____ 85-86</p> <p>_____ 87-88</p>	<p>Special equipment or aids</p> <p>_____ 102-103</p> <p>_____ 104-105</p>	<p>Special equipment or aids</p> <p>_____ 17-18</p> <p>_____ 19-20</p>
<p>(4) 72</p> <p>1 <input type="checkbox"/> 0-3 month Inj/Op ONLY } 2 <input type="checkbox"/> Old age } Ask 6d for next ADL with "Yes" in 1</p> <p>3 <input type="checkbox"/> _____ Condition - Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.</p>	<p>(5) 89</p> <p>1 <input type="checkbox"/> 0-3 month Inj/Op ONLY } 2 <input type="checkbox"/> Old age } Ask 6d for next ADL with "Yes" in 1</p> <p>3 <input type="checkbox"/> _____ Condition - Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.</p>	<p>(6) 106</p> <p>1 <input type="checkbox"/> 0-3 month Inj/Op ONLY } 2 <input type="checkbox"/> Old age } Ask 6d for next ADL with "Yes" in 1</p> <p>3 <input type="checkbox"/> _____ Condition - Enter in ADL box on Condition Summary Chart, THEN ask 6d for next ADL with "Yes" in 1.</p>	<p>(7) 21</p> <p>1 <input type="checkbox"/> 0-3 month Inj/Op ONLY } (Next page) 2 <input type="checkbox"/> Old age } 3 <input type="checkbox"/> _____ Condition - Enter in ADL box on Condition Summary Chart, THEN next page.</p>

FOOTNOTES

Section R1. ACTIVITIES OF DAILY LIVING (ADL'S), Continued

<p>7a. Do you have difficulty controlling your bowels?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (7c)</p>	22
<p>b. How frequently do you have this difficulty — daily, several times a week, once a week, or less than once a week?</p>	<p>1 <input type="checkbox"/> Daily 2 <input type="checkbox"/> Several times a week 3 <input type="checkbox"/> Once a week 4 <input type="checkbox"/> Less than once a week 9 <input type="checkbox"/> DK</p>	23
<p>c. Do you have a colostomy or a device to help control bowel movements?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (8)</p>	24
<p>d. Do you need help from another person in taking care of this device?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>	25
<p>8a. Do you have difficulty controlling urination?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (8c)</p>	26
<p>b. How frequently do you have this difficulty — daily, several times a week, once a week, or less than once a week?</p>	<p>1 <input type="checkbox"/> Daily 2 <input type="checkbox"/> Several times a week 3 <input type="checkbox"/> Once a week 4 <input type="checkbox"/> Less than once a week 9 <input type="checkbox"/> DK</p>	27
<p>c. Do you have a urinary catheter or a device to help control urination?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (R1)</p>	28
<p>d. Do you need help from another person in taking care of this device?</p>	<p>1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>	29
<p>R1 <i>Mark first appropriate box</i></p>	<p>1 <input type="checkbox"/> Respondent is a proxy 2 <input type="checkbox"/> Sample person has only been seen in a bed or chair 3 <input type="checkbox"/> Telephone interview 8 <input type="checkbox"/> All other (Next page)</p>	30
<p><i>Mark if known</i></p> <p>9. Because of a health or physical problem, do you usually —</p>	<p>1 <input type="checkbox"/> Yes (10) 2 <input type="checkbox"/> No</p>	31
<p>a. Stay in bed all or most of the time?</p>	<p>1 <input type="checkbox"/> Yes (10) 2 <input type="checkbox"/> No (Next page)</p>	32
<p>b. Stay in a chair all or most of the time?</p>	<p>1 <input type="checkbox"/> Yes (10) 2 <input type="checkbox"/> No (Next page)</p>	32
<p>10a. What (other) condition causes you to stay in [bed/a chair]?</p> <p><i>Ask if injury or operation: When did [the (injury) occur? / you have the operation?] Enter injury if over 3 months ago.</i></p> <p><i>Ask or reask 10b, if 0–3 months injury or operation.</i></p> <p><i>Ask if operation over 3 months ago: For what condition did you have the operation? Enter condition.</i></p>	<p><input type="checkbox"/> Old age (10c)</p>	
<p>b. Besides (condition), is there any other condition which causes this?</p>	<p><input type="checkbox"/> Yes (Reask 10a and b) <input type="checkbox"/> No (10d)</p>	
<p>c. Is this caused by any (other) specific condition?</p>	<p><input type="checkbox"/> Yes (Reask 10a and b) <input type="checkbox"/> No</p>	
<p><i>Ask if multiple conditions, including old age, are listed in 10a. Otherwise, mark appropriate box or transcribe the only listed condition.</i></p> <p>d. Which of these conditions, that is (read conditions in 10a) would you say is the MAIN cause of your staying in [bed/a chair] all or most of the time?</p>	<p>1 <input type="checkbox"/> 0–3 month Inj/Op ONLY } (Next page) 2 <input type="checkbox"/> Old age 3 <input type="checkbox"/> _____</p> <p>Condition — Enter "9" in ADL box on Condition Summary Chart, THEN next page.</p>	33

Section R2. INCIDENTAL ACTIVITIES OF DAILY LIVING (IADL'S)

Read to respondent — **Now I will ask about some other activities. Tell me about doing them by yourself.**

<p>11. Because of a health or physical problem, do you have ANY difficulty —</p> <p><i>Ask if "Doesn't do":</i></p> <p>Is this because of a HEALTH or PHYSICAL problem?</p> <p><i>If "Yes," mark box 1; if "No," mark box 3</i></p>	(1)	34		(2)	46
	Preparing your own meals?			Shopping for personal items, (such as toilet items or medicines)?	
	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Doesn't do for other reason			1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Doesn't do for other reason	
<i>Ask 12–14 for each IADL marked "Yes" in 11.</i>					
<p>12. By yourself, how much difficulty do you have (IADL), some, a lot, or are you unable to do it?</p>		35			47
	1 <input type="checkbox"/> Some 2 <input type="checkbox"/> A lot 3 <input type="checkbox"/> Unable			1 <input type="checkbox"/> Some 2 <input type="checkbox"/> A lot 3 <input type="checkbox"/> Unable	
<p>13. Do you receive help from another person in (IADL)?</p>		36			48
	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (12 for next IADL with "Yes" in 11)			1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (12 for next IADL with "Yes" in 11)	
<p>14a. Who gives this help?</p> <p>Anyone else?</p> <p><i>Mark the S/C/P box without asking if ONLY help is from spouse/children/parents. THEN 12 for next IADL with "Yes" in 11.</i></p> <p>b. Is this help paid for?</p> <p><i>Ask if necessary: Which helpers are paid?</i></p>	Source of help 14a.	Paid 14b.	Source of help 14a.	Paid 14b.	
	37–40	41–44	49–52	53–56	
	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	
<p><i>Ask 15 if any IADL marked "Yes" in 11.</i></p> <p>15a. What (other) condition causes the trouble in (read IADL(s))?</p> <p><i>Ask if injury or operation:</i></p> <p>When did (the (injury) occur? / you have the operation?)</p> <p><i>Enter injury if over 3 months ago.</i></p> <p><i>Ask or reask 15b, if 0–3 months injury or operation.</i></p> <p><i>Ask if operation over 3 months ago:</i></p> <p>For what condition did you have the operation?</p> <p><i>Enter condition.</i></p> <p>b. Besides (condition), is there any other condition which causes the trouble in (read IADL(s))?</p> <p>c. Is the trouble in (read IADL(s)) caused by any (other) specific condition?</p>	<input type="checkbox"/> Old age (15c)				
	<input type="checkbox"/> Yes (Reask 15a and b) <input type="checkbox"/> No (15d)				
	<input type="checkbox"/> Yes (Reask 15a and b) <input type="checkbox"/> No				
<p><i>If multiple conditions, including old age, are listed in 15a, ask 15d for each IADL with a "Yes" in 11. Otherwise, mark appropriate box or transcribe the only listed condition.</i></p> <p>d. Which of these conditions, that is (read conditions in 15a) would you say is the MAIN cause of the trouble in (IADL)?</p>	(1)	45		(2)	57
	1 <input type="checkbox"/> 0–3 month Inj/ Op ONLY 2 <input type="checkbox"/> Old age			1 <input type="checkbox"/> 0–3 month Inj/ Op ONLY 2 <input type="checkbox"/> Old age	
	Ask 15d for next IADL with "Yes" in 11			Ask 15d for next IADL with "Yes" in 11	
	3 <input type="checkbox"/> _____ Condition — Enter in IADL box on Condition Summary Chart, THEN ask 15d for next IADL with "Yes" in 11.			3 <input type="checkbox"/> _____ Condition — Enter in IADL box on Condition Summary Chart, THEN ask 15d for next IADL with "Yes" in 11.	

FOOTNOTES

Section R2. INCIDENTAL ACTIVITIES OF DAILY LIVING (IADL'S), Continued

<p align="center">(3) 58</p> <p>Managing your money, (such as keeping track of expenses or paying bills)?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p align="center">(4) 70</p> <p><i>Reask 11</i></p> <p>Using the telephone?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p align="center">(5) 82</p> <p>Doing heavy housework, (like scrubbing floors, or washing windows)?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>	<p align="center">(6) 94</p> <p>Doing light housework, (like doing dishes, straightening up, or light cleaning)?</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Doesn't do for other reason</p>
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<p align="center">59</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p align="center">71</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p align="center">83</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>	<p align="center">95</p> <p>1 <input type="checkbox"/> Some</p> <p>2 <input type="checkbox"/> A lot</p> <p>3 <input type="checkbox"/> Unable</p>
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<p align="center">60</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (12 for next IADL with "Yes" in 11)</p>	<p align="center">72</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (12 for next IADL with "Yes" in 11)</p>	<p align="center">84</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (12 for next IADL with "Yes" in 11)</p>	<p align="center">96</p> <p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (15)</p>
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Source of help 14a.	Paid 14b.	Source of help 14a.	Paid 14b.	Source of help 14a.	Paid 14b.	Source of help 14a.	Paid 14b.
61-64	65-68	73-76	77-80	85-88	89-92	97-100	101-104
HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	HH member 1 <input type="checkbox"/> Relative 2 <input type="checkbox"/> Nonrelative Non-HH member 3 <input type="checkbox"/> Relative 4 <input type="checkbox"/> Nonrelative	0 <input type="checkbox"/> S/C/P 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No

<p align="center">(3) 69</p> <p>1 <input type="checkbox"/> 0-3 month Inj/ Op ONLY } 2 <input type="checkbox"/> Old age } Ask 15d for next IADL with "Yes" in 11</p> <p>3 <input type="checkbox"/> _____</p> <p>Condition - Enter in IADL box on Condition Summary Chart, THEN ask 15d for next IADL with "Yes" in 11.</p>	<p align="center">(4) 81</p> <p>1 <input type="checkbox"/> 0-3 month Inj/ Op ONLY } 2 <input type="checkbox"/> Old age } Ask 15d for next IADL with "Yes" in 11</p> <p>3 <input type="checkbox"/> _____</p> <p>Condition - Enter in IADL box on Condition Summary Chart, THEN ask 15d for next IADL with "Yes" in 11</p>	<p align="center">(5) 93</p> <p>1 <input type="checkbox"/> 0-3 month Inj/ Op ONLY } 2 <input type="checkbox"/> Old age } Ask 15d for next IADL with "Yes" in 11</p> <p>3 <input type="checkbox"/> _____</p> <p>Condition - Enter in IADL box on Condition Summary Chart, THEN ask 15d for next IADL with "Yes" in 11.</p>	<p align="center">(6) 105</p> <p>1 <input type="checkbox"/> 0-3 month Inj/ Op ONLY } Next page 2 <input type="checkbox"/> Old age } 3 <input type="checkbox"/> _____</p> <p>Condition - Enter in IADL box on Condition Summary Chart, THEN next page.</p>
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FOOTNOTES

Questions on functional dependency: National
Nursing Home Survey, 1985 Current Resident
Questionnaire

19a. Does _____ currently require any assistance in bathing or showering?
01 Yes 02 No (SKIP TO Q. 20) 94 Don't know (SKIP TO Q. 20)

19b. Does _____ bath or shower with the help of:
(1) Special equipment? 01 Yes 02 No
(2) Another person? 01 Yes 02 No

20a. Does _____ currently require any assistance in dressing?
01 Yes
02 No (SKIP TO Q. 21)
03 Remains partially or completely undressed or is dressed by another and does not participate (SKIP TO Q. 21)
94 Don't know (SKIP TO Q. 21)

20b. Does _____ dress with the help of:
(1) Special equipment? 01 Yes 02 No
(2) Another person? 01 Yes 02 No

21a. Does _____ currently require any assistance in eating?
01 Yes
02 No (SKIP TO Q. 22)
03 Requires tube or intravenous feeding (SKIP TO Q. 22)
94 Don't know (SKIP TO Q. 22).

21b. Does _____ eat with the help of:
(1) Special equipment? 01 Yes 02 No
(2) Another person? 01 Yes 02 No

21c. Is _____ fed totally by another person? 01 Yes 02 No

22a. Is _____ bedfast?
01 Yes (SKIP TO Q. 23) 02 No

22b. Is _____ chairfast?
01 Yes 02 No

23a. Does _____ currently require any assistance transferring in and out of bed or chairs?

01 Yes

02 No (SKIP TO Q. 24)

94 Don't know (SKIP TO Q. 24)

23b. Does _____ require the help of:

(1) Special equipment? 01 Yes 02 No

(2) Another person? 01 Yes 02 No

IF YES TO EITHER Q. 23b(1) OR 23b(2), SKIP TO Q. 25

24a. Does _____ currently require any assistance in walking?

01 Yes 02 No (SKIP TO Q. 25) 94 Don't know (SKIP TO Q. 25)

24b. Does _____ walk with the help of:

(1) Special equipment? 01 Yes 02 No

(2) Another person? 01 Yes 02 No

25a. Does _____ go outside the grounds of this facility?

01 Yes 02 No (SKIP TO Q. 26) 94 Don't know (SKIP TO Q. 26)

25b. When _____ goes outside the grounds, does _____ require the help of:

(1) Special equipment 01 Yes 02 No

(2) Another person? 01 Yes 02 No

26a. Does _____ have an ostomy, an indwelling catheter or similar device?

01 Yes 02 No (SKIP TO Q. 26c)

26b. Does _____ require any assistance from another person in caring for this device?

01 Yes 02 No

26c. Does _____ currently require any assistance using the toilet room?

01 Yes

02 No (SKIP TO Q. 27)

03 Does not use toilet room (ostomy patient, chairfast, etc.) (SKIP TO Q. 27)

94 Don't know (SKIP TO Q. 27)

26d. Does _____ require the help of:

(1) Special equipment? 01 Yes 02 No

(2) Another person? 01 Yes 02 No

27a. Does _____ currently have any difficulty in controlling _____ bowels?

- 01 Yes
02 No (SKIP TO Q. 28)
03 Not applicable, has had an ostomy (SKIP TO Q. 28)
94 Don't know (SKIP TO Q. 28)

27b. How frequently does _____ have this difficulty?

- 01 Daily
02 Several times a week
03 Once a week
04 Less than once a week
94 Don't know

28a. Does _____ currently have any difficulty in controlling _____ bladder?

- 01 Yes
02 No (SKIP TO Q. 29)
03 Not applicable has indwelling catheter, ostomy, or external device (SKIP TO Q. 29)
94 Don't know (SKIP TO Q. 29)

28b. How frequently does _____ have this difficulty?

- 01 Daily
02 Several times a week
03 Once a week
04 Less than once a week
94 Don't know

28c. Does this occur only at night?

- 01 Yes 02 No 94 Don't know

29. Does _____ receive personal help or supervision in any of the following activities:

- | | Yes | No | Don't know |
|---|-----------------------------|-----------------------------|-----------------------------|
| a. Care of personal possessions? | 01 <input type="checkbox"/> | 02 <input type="checkbox"/> | 94 <input type="checkbox"/> |
| b. Handling money? | 01 <input type="checkbox"/> | 02 <input type="checkbox"/> | 94 <input type="checkbox"/> |
| c. Securing personal items such as newspapers,
toilet articles, snack foods? | 01 <input type="checkbox"/> | 02 <input type="checkbox"/> | 94 <input type="checkbox"/> |
| d. Using the telephone? (dialing or receiving calls) | 01 <input type="checkbox"/> | 02 <input type="checkbox"/> | 94 <input type="checkbox"/> |

Appendix IV

Notes on standard errors and statistical tests

Standard errors

The two surveys used as primary sources for the data contained in this report are based on multistage probability samples. The sampling errors for each survey were calculated taking their complex sample designs into account.

For the Supplement on Aging (SOA) to the National Health Interview Survey and the National Nursing Home Survey (NNHS), estimates for sampling variability were calculated using the method of half-sample replication. A description of the development and evaluation of the replication technique for error estimation has been published (54, 55).

To derive error estimates that would be applicable to a wide variety of statistics and could be prepared at moderate cost, several approximations were required.

Rather than calculate standard errors for particular estimates S_x , the calculated variances for a wide variety of estimates for each of these surveys were fitted into curves using the empirically determined relationship between the size of an estimate X and its relative variance (rel var X). This relationship is expressed as

$$\text{rel var } X = \frac{S^2_x}{X^2} = a + \frac{b}{X}$$

where a and b are regression estimates determined by an iterative procedure.

The relative standard error is then derived by taking the square root of the relative variance curve. The relative standard error estimates used for this report were read directly from these curves. Because of the relationship between the relative standard error of an estimate and the estimate, the standard error S_x can be derived from its relative standard error by multiplying the relative standard error of the estimate by the estimate itself. Figure I presents the relative standard error curve for estimated number of noninstitutionalized persons from the 1984 Supplement on Aging. Figure II presents the relative standard error curve for estimated number of nursing home residents from the 1985 NNHS. The parameters used to compute relative standard errors by type of estimate are also presented in table I.

Table I. Parameters used to compute relative standard errors, by type of estimate

Type of estimate	Parameters	
	a	b
Noninstitutionalized persons (SOA)	- 0.00009539	3,989.9
Nursing home residents (NNHS)	- 0.00017690	530.2

For combined estimates from the SOA and NNHS, for example, the percent of the functionally dependent elderly with five to seven ADL dependencies shown in table 4, the relative variance of the combined percent was based on the combined contributions of the fitted relative variance (rel var) from the SOA and from the NNHS. The contributions of each survey were determined from the following formulas

$$\text{where } p = \text{combined percent} = \frac{h + n}{H + N}$$

and h, H are from the SOA and n, N are from the NNHS.

$$\text{rel var} \left(\frac{h + n}{H + N} \right) = \text{rel var}(h + n) + \text{rel var}(H + N) - \frac{2 \text{Cov}(h + n, H + N)}{(h + n)(H + N)}$$

where $\text{Cov}(h + n, H + N)$ is the covariance between $h + n$ and $H + N$.

Because

$$\begin{aligned} \text{Cov}(h + n, H + N) &= \text{Cov}(h, H) + \text{Cov}(h, N) \\ &\quad + \text{Cov}(H, n) + \text{Cov}(n, N) \\ &= \text{Cov}(h, H) + \text{Cov}(h, N) \end{aligned}$$

($\text{Cov}(h, N) = 0$ and $\text{Cov}(H, n) = 0$ because the NNHS and SOA were sampled independently) and because it can be shown that under the assumption of a simple random sample

$$\begin{aligned} \text{Cov } h, H &= hH \text{ rel var } H \\ \text{Cov } n, N &= nN \text{ rel var } N \end{aligned}$$

rel var $\left(\frac{h + n}{H + N} \right)$ can be simplified into the following formula:

$$\begin{aligned} \text{rel var} \left(\frac{h + n}{H + N} \right) &= \frac{h^2 \text{rel var } h + n^2 \text{rel var } n}{(h + n)^2} \\ &\quad + \frac{H^2 \text{rel var } H + N^2 \text{rel var } N}{(H + N)^2} \\ &\quad - \frac{2(hH \text{rel var } H + nN \text{rel var } N)}{(h + n)(H + N)} \end{aligned}$$

In this report, the relative standard error (RSE (p)) and standard error (SE (p)) of a percent p were approximated by the following formulas:

$$\begin{aligned} \text{RSE}(p) &= \sqrt{\text{rel var}(p)} \\ \text{SE}(p) &= p \text{RSE}(p) \end{aligned}$$

In the case of the combined percent $p = \frac{h + n}{H + N}$,

$$\begin{aligned} \text{SE}(p) &= \text{SE} \left(\frac{h + n}{H + N} \right) \\ &= \frac{h + n}{H + N} \sqrt{\text{rel var} \left(\frac{h + n}{H + N} \right)} \end{aligned}$$

where $\text{rel var} \left(\frac{h + n}{H + N} \right)$ is defined above.

In the case of $p = \frac{x}{y} \cdot 100$, where x is the numerator of the estimated percent, y is the denominator, and both x and y are from the same survey, the following formula applies:

$$\text{rel var}(p) = \frac{b(100 - p)}{py}$$

where b is the appropriate parameter from table I. Examples of calculating the standard error for these two types of percentages follow:

Example of combined percent

Table 4 shows that 29 percent of the elderly were dependent in at least one ADL or IADL. The numerator of this percent (8,051,100) is the sum of 6,732,800 functionally dependent noninstitutionalized elderly persons (table 2) and 1,318,300 nursing home residents (table 3). The denominator of this percent (27,751,300) is the sum of 26,433,000 noninstitutionalized elderly persons (table 2) and 1,318,300 nursing home residents. Let:

$$\begin{aligned} h &= 6,732,800 & H &= 26,433,000 \\ n &= 1,318,300 & N &= 1,318,300 \\ h + n &= 8,051,100 & H + N &= 27,751,300 \end{aligned}$$

$$\text{Then, rel var } h = -0.00009539 + \frac{3,989.9}{6,732,800} = 0.000497$$

$$\text{rel var } H = -0.00009539 + \frac{3,989.9}{26,433,000} = 0.000055$$

$$\text{rel var } n = \text{rel var } N = -0.00017690 + \frac{530.2}{1,318,300} = 0.000225$$

$$\text{rel var} \left(\frac{h + n}{H + N} \right) = \frac{(6,732,800)^2(0.000497) + (1,318,300)^2(0.000225)}{(8,051,100)^2}$$

$$+ \frac{(26,433,000)^2(0.000055) + (1,318,300)^2(0.000225)}{(27,751,300)^2}$$

$$- \frac{2((6,732,800)(26,433,000)(0.000055) + (1,318,300)^2(0.000225))}{(8,051,100)(27,751,300)}$$

$$= 0.000313$$

$$\text{RSE} \frac{h + n}{H + N} = \sqrt{0.000313}$$

$$= 0.017692$$

$$\text{SE}(p) = (29.0)(0.017692)$$

$$= 0.51$$

Example of percent from a single survey

Table E shows that 67 percent of the 5,042,900 noninstitutionalized functionally dependent elderly persons receiving home care received informal home care from friends and family members. Let $y = 5,042,900$ and $p = 67.0$.

$$\text{Then rel var}(p) = \frac{3,989.9(100 - 67)}{(67)(5,042,900)}$$

$$= 0.000390$$

$$\text{RSE}(p) = \sqrt{0.000390}$$

$$= 0.019748$$

$$\text{SE}(p) = (67.0)(0.019748)$$

$$= 1.32$$

Statistical tests

In this report, the determination of statistical inference of rates and percents is based on the t -test with a critical value of 1.96 (0.05 level of significance). For more details on hypothesis testing performed for SOA and NNHS, see references 32 and 28, respectively.

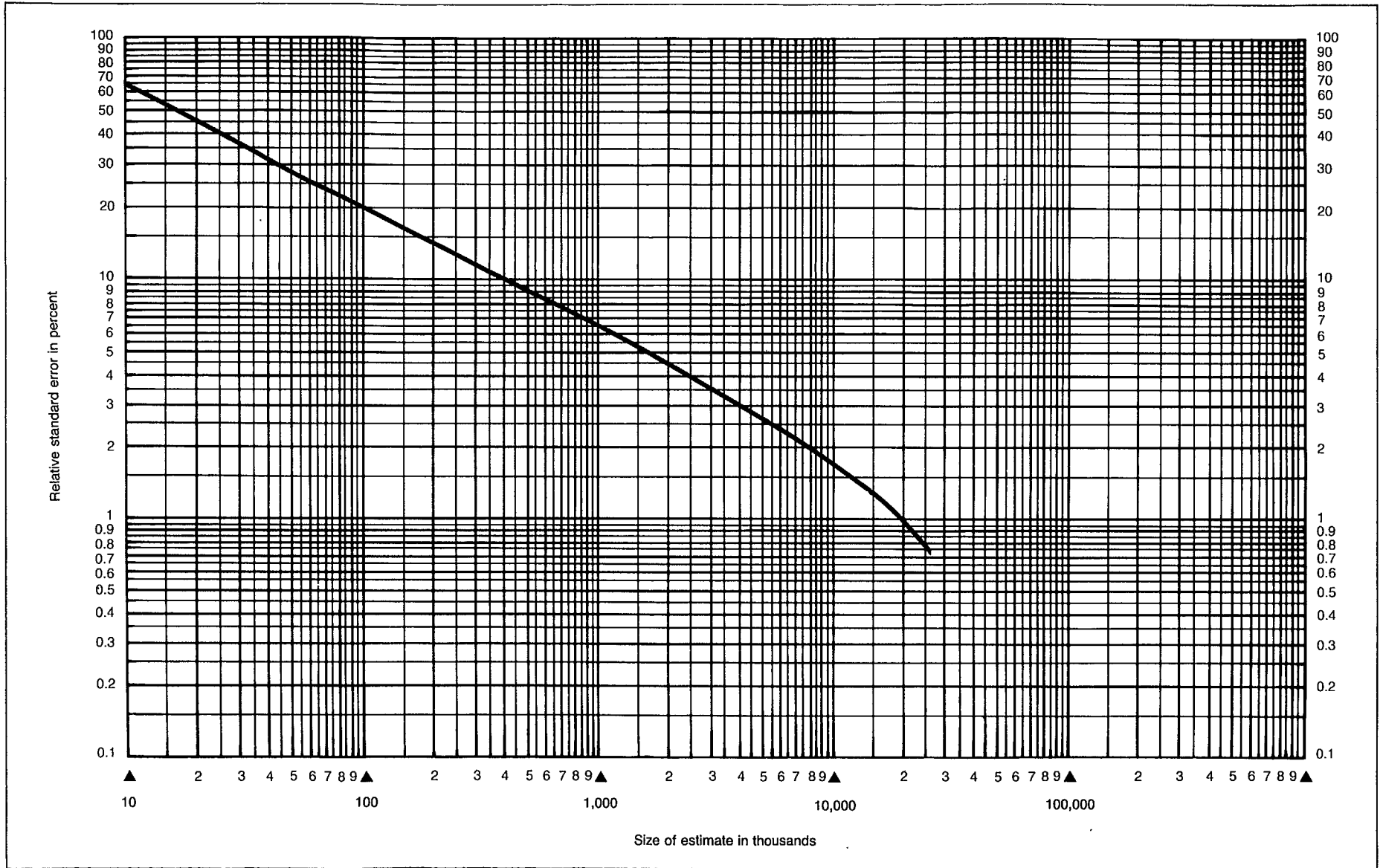


Figure I. Relative standard errors for estimated numbers of noninstitutionalized persons: United States, 1984

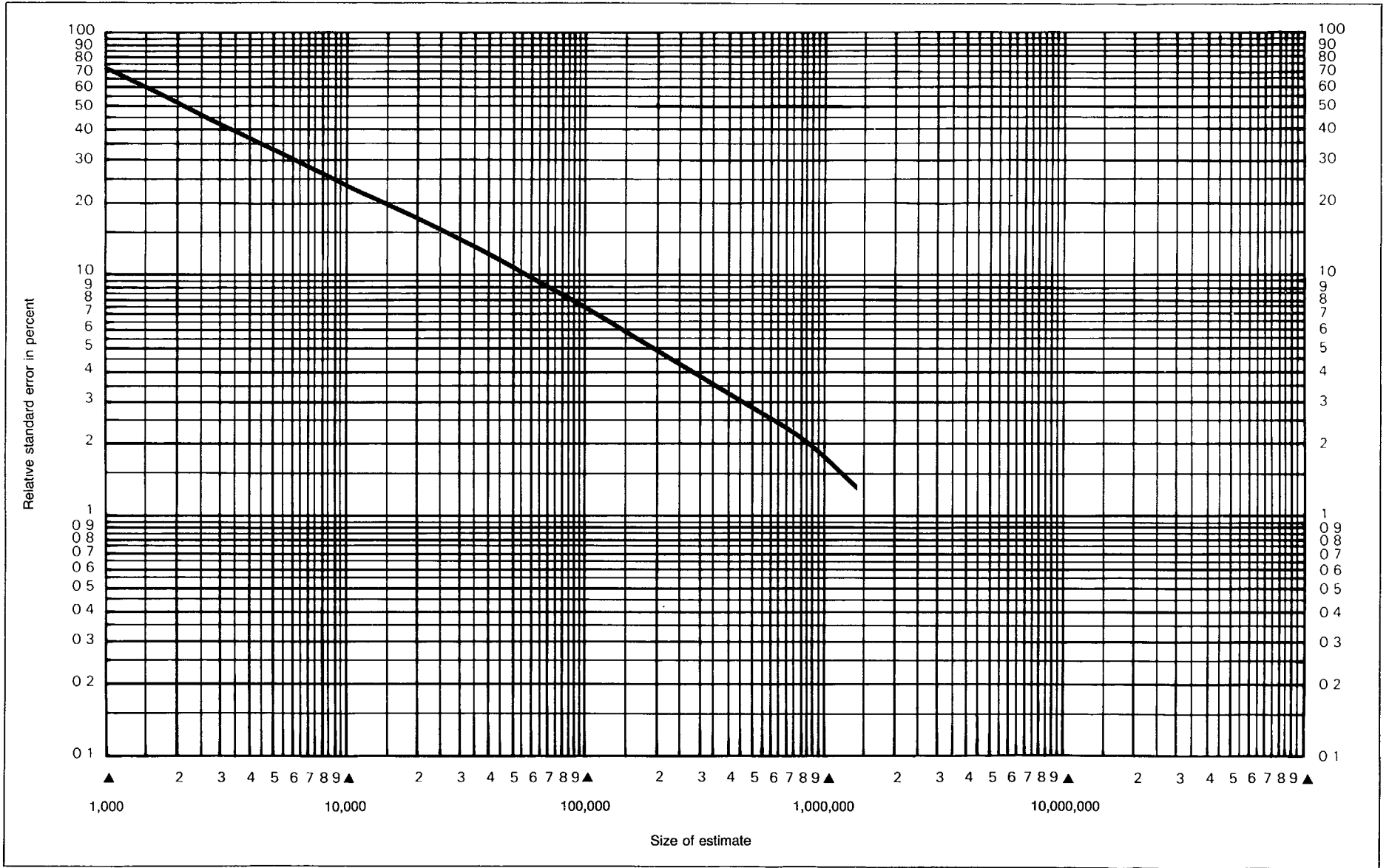


Figure II. Relative standard errors for estimated numbers of current nursing home residents: United States, 1985

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