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Recent Trends in Disability and Related Chronic Conditions Among People Ages Fifty to Sixty-Four

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Abstract

Although still below 2 percent, the proportion of people ages 50–64 who reported needing help with personal care activities increased significantly from 1997 to 2007. The proportions needing help with routine household chores and indicating difficulty with physical functions were stable. These patterns contrast with recently reported declines in disability among the population ages 65 and older. Particularly concerning among those ages 50–64 are significant increases of limitations in specific mobility-related activities, such as getting into and out of bed and climbing ten steps. Musculoskeletal conditions remained the most commonly cited as causes of disability at these ages. There were also substantial increases in the attributions of disability to depression, diabetes, and nervous system conditions.

The decline in disability at ages 65 and over in recent decades has been well documented,^{1,2,3} as has the increase in reports of many chronic conditions.^{4,5} Explanations for such seemingly contradictory trends include improved screening and earlier diagnosis, which likely reduce severity of chronic illness and its manifestation in disability; improved treatments for common and potentially debilitating conditions such as cardiovascular disease, vision impairment, and musculoskeletal conditions; and changes in how older adults accommodate their impairments, for example, by using assistive devices.^{6,7}

There is much less evidence regarding recent trends in disability for those approaching age 65. How this younger population is faring may have important implications for future health expenditures, demand for health care workers, and prospects for continued labor force participation and access to health insurance through employers. At least one report suggests that disability may have increased among pre-retirement adults during the early 1990s,⁸ but another finds no increase in limitations from 1992 to 2004.⁹ Overall, the average number of chronic conditions at midlife increased between 1996 and 2005.¹⁰ Self-reports of cardiovascular disease (including hypertension), lung problems, and diabetes increased from 1997 to 2006, but reports of musculoskeletal conditions declined.¹¹ The growing rate of obesity has been cited as a potential factor in increased prevalence of disability in middle age in the 1980s and 1990s,¹² but there also has been speculation that improved survival among those developing disabilities in childhood and young adulthood could be a contributing factor.¹³

In this paper, we focus on the pre-retirement years of 50 to 64 and use self-reported data from the annual National Health Interview Survey from 1997 to 2007. We update trends over time in physical functional limitations (e.g., difficulty climbing stairs or walking .25 mile); use of special equipment (such as a cane, wheelchair, special bed, or special phone) because of a health problem; and need for help with routine needs (instrumental activities of daily living or IADLs, such as household chores and shopping), and with personal care (activities of daily living or ADLs, such as bathing and eating). To understand better the factors underlying disability trends, we also examine changes in self-reports of health conditions as causes of disabilities, and changes in the age at onset of such conditions.

Data and Methods

We use annual data from the 1997 to 2007 National Health Interview Survey, which is nationally representative of the non-institutionalized population.¹⁴ The total population ages 50–64 ranges from about 36 million in 1997 to about 53 million in 2007.

One adult per household (5,500 to 7,400 individuals ages 50 to 64, depending on the survey year) is asked about difficulty with nine specific physical functions, as well as a general question about having a health problem that requires the use of special equipment such as a cane, a wheelchair, a special bed, or a special telephone. Those reporting having difficulties are asked to name up to five health conditions that are responsible for their limitations, which are subsequently recoded into 34 possible condition categories.¹⁵ We use all responses given.

In addition, for all household members (12,700 to 15,200 individuals ages 50 to 64, depending on the survey year) the National Health Interview Survey ascertains need for help with such routine needs as household chores and shopping, so-called IADLs, and need for help with such personal care activities as eating and bathing, so-called ADLs. Respondents reporting need for help are asked to name up to five health conditions that cause these problems, which also are recoded into 34 categories, and how long they have had the conditions. We use responses about duration of the condition as well as age of the respondent to create five categories reflecting age at onset (0–17, 18–29, 30–49, 50+, missing).

Such self-reports of disability as these are well accepted and are predictive of nursing home placement and mortality.¹⁶ Moreover, self-reports of conditions may be as good as, if not better than, medical examinations in predicting disability.¹⁷

To assess the statistical significance of trends for all outcomes except age at onset, we use data for all 11 years to fit logistic models that control for five-year age group and include calendar year as a trend variable. For trends in age at onset, we calculate chi-squared tests. For all statistical tests, we adjust standard errors to account for the complex design of the National Health Interview Survey. In exhibits, we present results averaged across three years to reduce year-to-year variation in survey estimates.

Trend Results

Difficulty functioning

Over 40% of people ages 50 to 64 report that, because of a health problem and without the use of any special equipment, they have difficulty with at least one of nine physical functions, and many have difficulty with more than one function (Exhibit 1). There is no statistically significant trend overall, but difficulty with four specific functions related to mobility and the lower body—namely, stooping, standing two hours, walking .25 mile, and climbing ten steps without resting—increased significantly over the 11-year period.

Over the same period there also was a significant increase in the reports of use of special equipment (such as a cane, a wheelchair, a special bed, or a special telephone) from 520 per 10,000 in 1997–99 to 684 per 10,000 in 2005–07.

Significant increases in reports of three particular conditions that respondents identified as the causes of their difficulties are consistent with the increased prevalence rate of mobility-related, lower-body difficulties that we found. The number who indicated difficulty with a physical function and named the most common cause, arthritis/rheumatism, increased from 1,376 per 10,000 in 1997–99 to 1,599 per 10,000 in 2005–07. The frequency of having difficulty and naming “other musculoskeletal condition” (including tendonitis and bursitis) increased from 328 to 684 per 10,000. Finally, the frequency for nervous system condition went from 154 to 231 per 10,000. Rounding out the top ten causes of difficulty for 2005–07 are back/neck problem (1,150 per 10,000), fractures/bone and joint injury (462 per 10,000), lung/breathing problem (298 per 10,000), depression/anxiety/emotional problem (283 per 10,000, up significantly from 195 per 10,000 in 1997–99), heart problem (259 per 10,000, down significantly from 302 per 10,000 in 1997–99), weight problem (259 per 10,000), and hypertension (225 per 10,000).

Needing help

In comparison to the prevalence of difficulty with physical functions, a much smaller proportion of respondents reported needing help with IADLs only, about 250 per 10,000, and with ADLs, 133 to 176 per 10,000 (Exhibit 2). The former is stable over time, but there is a significant increase during the 11-year period in the need for help with ADLs and with any activities (IADLs or ADLs).

Among the specific ADLs, there is a significant increase in the need for help with getting in or out of a bed or chair and with getting around inside the home, once again mobility-related activities.

Exhibit 3 lists in order the top ten conditions reported as causing the need for help with ADLs or IADLs for 1997–99 and for 2005–07, and shows the change over time in the numbers per 10,000 who reported needing help and named a specific condition as a cause. Focusing first on the rankings, arthritis/rheumatism and back/neck problem were the two most commonly cited in both periods shown. Heart problem, hypertension, lung/breathing problem, vision problem, fracture, and stroke became relatively less important over the 11 years (with the last two disappearing from the top ten). Diabetes, depression/anxiety/emotional problem, nervous system condition, and other musculoskeletal condition moved up the ranking (the last two moving into the top ten since 1997–99). Focusing on numbers per 10,000, there were statistically significant increases over the 11-year period for back/neck problem, diabetes, depression/anxiety/emotional problem, nervous system condition, and other musculoskeletal condition. The decline for arthritis/rheumatism also was significant.

The distribution of age at onset for the top ten conditions associated with needing help, ranked by their importance in 2005–07, is shown in Exhibit 4. Notably, for the top six conditions, as well as the tenth, the most common age group of onset is 30–49 years; for the other three conditions (heart problem, lung/breathing problem, vision problem), onset is most common at ages 50 and over. Tests of change in age of onset for each condition between 1997–99 and 2005–07 indicate that there were no significant changes.

Discussion

From 1997 to 2007, the proportion of persons ages 50–64 reporting difficulty with one or more physical functions was stable, as was the proportion indicating the need for help with IADLs

only. However, there were increases in specific mobility-related difficulties and in need for help with personal care activities, again related to mobility—getting in and out of bed and getting around inside one's home. The rate of needing help with ADLs overall remained quite low—less than 200 per 10,000—but, given the substantial personal and societal costs of caring for those experiencing ADL disability, the upward trend is a concern.¹⁸ Also on the rise was the reported use of special equipment, such as a cane, a wheelchair, a special bed, or a special telephone.

The importance of musculoskeletal conditions

Disability among those ages 50 to 64—whether measured as physical functioning difficulties or need for help with activities—is most often attributed to arthritis/rheumatism and back/neck problems. We also documented a growing role of other musculoskeletal conditions.

Arthritis/rheumatism was increasingly cited as a cause for physical functioning difficulty, but decreasingly so for needing help with ADLs or IADLs. These patterns are consistent with more people being aware of such conditions at less severe stages over time (and thus attributing relatively common difficulties such as climbing stairs to them), but fewer experiencing them in a severe form (and hence linking them to needing help). The latter would certainly be consistent with the increased use of antirheumatic drugs and joint replacement surgery that has occurred over the last few decades.^{19,20,21}

Back/neck problems (including disc disease and curvature of the spine) as a cause of difficulty with physical functions did not increase significantly (although they remained second most common), but there was a significant increased attribution of needing help to such problems. Indeed, performance-based studies have suggested a substantial link between back symptoms and lower extremity functional limitation at older ages.²²

The growing roles of diabetes, depression, and nervous system conditions

Our analysis also highlights a prominent and growing role for diabetes as a cause of disability at ages 50–64. The diagnostic threshold for diabetes was lowered in 1997, thereby increasing the pool of adults considered to have diabetes.²³ Moreover, the proportion of total diabetes cases that are diagnosed increased substantially. However, in 1999–2002, roughly 30 percent of diabetes remained undiagnosed and presumably untreated, suggesting that there is much to be done to reduce the prevalence and disabling effects of this disease.

Also of concern is the growing role played by depression, anxiety, and emotional problems. A recent nationally representative assessment of depression in the adult population by Kessler and colleagues also found a strong association of depression with functioning in work, household, relationship, and social roles.²⁴ They concluded that although treatment of depression had increased, emphasis should be given to further screening, additional expansion of treatment, and improvement of quality of care.

This analysis is the first to demonstrate that nervous system conditions are a growing cause of disability among 50–64-year-olds. This category includes many and varied conditions, such as paralysis, migraine, epilepsy, multiple sclerosis, Parkinson's, and amyotrophic lateral sclerosis. More research is needed to identify the specific neurological conditions increasingly resulting in disability and the factors associated with these trends.

A small role for obesity

Recently there has been considerable attention paid to the increase in obesity and the implications for disability,²⁵ but our analysis of trends in self-reports of what causes disability finds that weight problems do not play a prominent role. This response is tied for seventh place

with heart problems (259 per 10,000) as a self-identified cause of difficulty functioning in 2005–07 with no significant increase over the 11-year period. It is a growing cause of needing help with ADLs or IADLs, but ranks only 13th of 34 coded causes in 2005–07 (28 per 10,000).

Although many serious health problems are associated with obesity, a substantial proportion of obese people are relatively healthy.^{26,27,28} In addition, although National Health Interview Survey respondents could mention as many as five causal conditions, some may have been reluctant to cite weight problems. Indeed, our findings regarding arthritis/rheumatism, back/neck problem, other musculoskeletal conditions, and diabetes may be related to the growth in obesity.

Contrast with the older population

The disability trend results for the pre-retirement population examined here generally stand in contrast to those found elsewhere for the 65 and older population. In the latter, disability has declined substantially, albeit from a higher starting level. Declines in arthritis as a reported cause of disability have likely played a role in both age groups, but in the older group there also have been important declines in heart and circulatory conditions and vision impairments as causes of disability.⁵

Study limitations

The lack of specificity in self-reported conditions limits our conclusions to broad classes of conditions rather than specific illnesses.

Disability trends may reflect not only underlying medical conditions, but also features of the physical environment in which daily activities occur (such as the configuration of one's bathroom or the presence of sidewalks in one's neighborhood). The National Health Interview Survey does not provide such information, but its data did allow us to document an increase in the use of special equipment.

We also have not examined disparities in disability trends by gender, race/ethnicity, and socioeconomic status. Such analysis is beyond our scope, but may be valuable in ascertaining explanations for the trends found here.

Opportunities for intervention

A recent report of the Institute of Medicine suggested that more children and young adults with once fatal conditions are surviving to mid-life and experiencing extended disability.¹³ If enhanced survival from earlier onset of a particular condition were an explanation for the increase in disability at ages 50 to 64, then we might expect to see a lowering of the age of onset of the condition during our study period. We found no statistically significant changes, but our analysis was limited by the small numbers of people reporting any particular cause.

Notwithstanding this finding, the fact that the most important causes of disability at ages 50–64 are conditions that tend to appear before age 50 indicates possible opportunities for prevention and early intervention. Such efforts might well pay off in a reversal of the increase in disability that we found and the enhancement of participation in life activities, including engagement in the formal workforce, in the pre-retirement years. And, if successful, such efforts might facilitate more adults reaching the age of Medicare eligibility in relatively better health and, thus, contribute to the continued decline in potentially very costly disability in later life.

NOTES

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EXHIBIT 4.

Age of Onset of Conditions Causing Need for Help Among Population Ages 50–64, 2005–07.

SOURCE: National Health Interview Surveys, 2005–07

Exhibit 1**Numbers per 10,000 Reporting Difficulty with Physical Functions, Ages 50–64, 1997–2007**

	<u>1997–99</u>	<u>2005–07</u>
Difficulty with		
Any function	4,054	4,199
Specific functions		
Stooping, bending, kneeling	2,875	3,129 <i>a</i>
Standing two hours	2,321	2,491 <i>b</i>
Pushing/pulling large object	2,024	2,010
Walking a quarter mile	1,954	2,146 <i>a</i>
Climbing ten steps	1,537	1,749 <i>a</i>
Sitting two hours	1,445	1,491
Lifting and carrying 10 pounds	1,387	1,410
Reaching over head	1,149	1,186
Grasping small objects	1,109	1,128
(sample size)	18,919	18,207

SOURCE: National Health Interview Surveys, 1997–2007.

^a.01 > p for test of trend using data for the full 11-year period in a logistic model for each outcome, controlling for 5-year age groups and using all data from 1997 to 2007.

^b.05 > p ≥ .01 for test of trend using data for the full 11-year period in a logistic model for each outcome, controlling for 5-year age groups and using all data from 1997 to 2007.

Exhibit 2

Numbers per 10,000 Reporting Needing Help with Instrumental Activities of Daily Living Only and with Activities of Daily Living, Ages 50–64, 1997–2007

	<u>1997–99</u>	<u>2005–07</u>
Needing help with		
Instrumental Activities of Daily Living (IADLs) Only	257	245
Activities of Daily Living (ADLs)	133	176 ^a
IADLs or ADLs	390	422 ^b
Specific ADLs		
Bathing or showering	88	103
Dressing	83	96
Getting in/out of bed/chair	62	92 ^a
Getting around inside home	57	72 ^a
Using toilet (including reaching)	43	55
Eating	29	31
(sample size)	41,641	42,363

SOURCE: National Health Interview Surveys, 1997–2007.

^a.01 > p for test of trend using data for the full 11-year period in a logistic model for each outcome, controlling for 5-year age groups and using all data from 1997 to 2007.

^b.05 > p ≥ .01 for test of trend using data for the full 11-year period in a logistic model for each outcome, controlling for 5-year age groups and using all data from 1997 to 2007.

Exhibit 3

Numbers per 10,000 of Total Population Who Report Condition Caused Need for Help for Top Ten Conditions, Ages 50–64, 1997–2007^a

<u>Conditions by rank in 1997–99</u>	<u>1997–99 Average</u>	<u>Conditions by rank in 2005–07</u>	<u>2005–07 Average</u>	<u>Change^b</u>
Arthritis/rheumatism	113	Back/neck problem	121	31 ^c
Back/neck problem	90	Arthritis/rheumatism	95	–18 ^d
Heart problem	79	Diabetes	77	20 ^c
Hypertension	60	Depression, anxiety, emotional problem	75	25 ^c
Diabetes	57	Hypertension	72	12
Depression, anxiety, emotional problem	51	Nervous system condition	71	32 ^c
Lung/breathing problem	50	Heart problem	68	–11
Vision problem	46	Lung/breathing problem	59	8
Fracture, bone or joint injury	43	Vision problem	49	3
Stroke	40	Other musculoskeletal condition	49	23 ^c
(sample size)	41,641	(sample size)	42,363	

SOURCE: National Health Interview Surveys, 1997–2007.

^a Up to five causes were asked of each person who reported needing help with activities of daily living (ADLs) or instrumental activities of daily living (IADLs), or having limitations in some other aspect of life (working, walking without equipment, remembering, or activities in general). Included in the numerators here are conditions named by people reporting needing help with ADLs or IADLs.

^b Change per 10,000 and p value refer to the condition named in the "Conditions by rank in 2005–07" column.

^c .01 > p for test of trend using data for the full 11-year period in a logistic model for each condition, controlling for 5-year age groups and using all data from 1997 to 2007.

^d .05 > p ≥ .01 for test of trend using data for the full 11-year period in a logistic model for each condition, controlling for 5-year age groups and using all data from 1997 to 2007.