



Research Highlights

in the Demography and Economics of Aging

Issue No. 4

February 1999

Socioeconomic Status, Health and Longevity

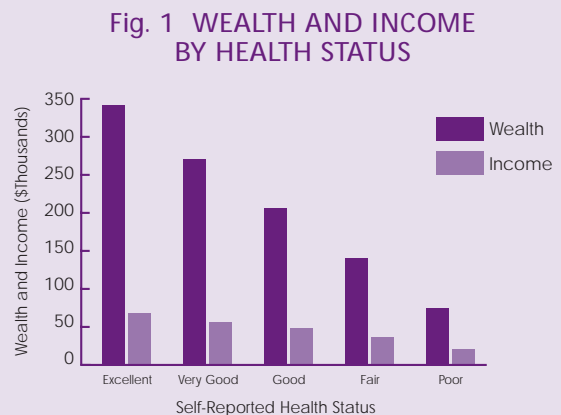
There is a striking relationship between socioeconomic status, health and longevity. People with higher incomes and more wealth tend to be healthier and to live longer. While this relationship is well documented, and quite significant, its causes are largely unknown. Does more income and wealth cause people to be healthier, such as through better access to health care, or lower job and household stress? Or does poor health cause people to have lower income and wealth, such as through higher health care expenditures, decreased work, and lower earnings? Or do healthier people deliberately save more (and possibly work more) because they expect to live longer, and to need more savings to support their longer lives? Or are there other factors, such as environment, personality, education or genetics, that jointly influence lifestyle decisions affecting both health and economic status?

The National Institute on Aging (NIA) supports several research projects that begin to address these questions, drawing on new data resources that measure people's health and economic circumstances as they change over time. This issue of *Research Highlights* summarizes recent findings from the NIA-supported Centers at RAND Corporation, the University of California at Berkeley, the University of Michigan, and the National Bureau of Economic Research (NBER). Findings are also presented from a research project at University College London, cosponsored by NIA, the National Heart Lung and Blood Institute and the UK Medical Research Council.

The summary is organized in four sections. The first presents some statistical background on the magnitude of the relationship between socioeconomic status, on the one hand, and health and mortality on the other. It highlights the dramatic correlation between economic and health measures. The second section presents findings on the economic consequences of health events at older ages. It demonstrates how adverse health events can lead to a reduction in income and wealth, largely through their effect on labor force participation. The third section considers the longer-term determinants of health status, and how health and economic status may evolve jointly over the life course. Recent findings are presented on how job level and job control affect health, and on the relationships between education and health-related behavior. The fourth section is a broader discussion of these findings and their implications.

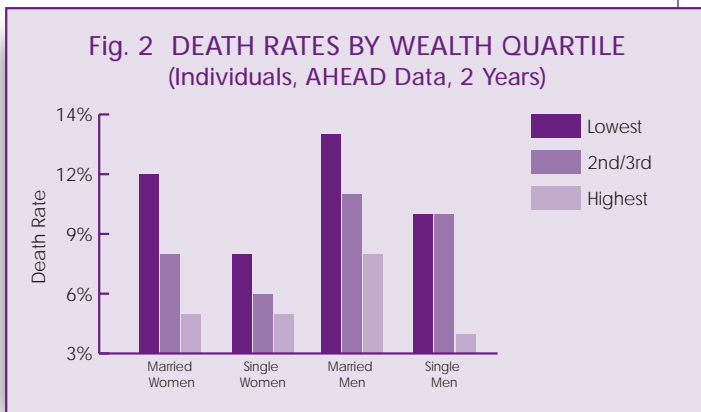
The Striking Relationship

Several recent studies by James Smith have documented the dramatic relationship between health, wealth and income among individuals between ages 51 and 61 in the 1992 data from the Health and Retirement Study (HRS). The average income of individuals in excellent health is more than three times as high as the average income of individuals in poor health; and their average wealth accumulation is more than five times as high. More detail on income and wealth as they vary by health status is provided in figure 1.

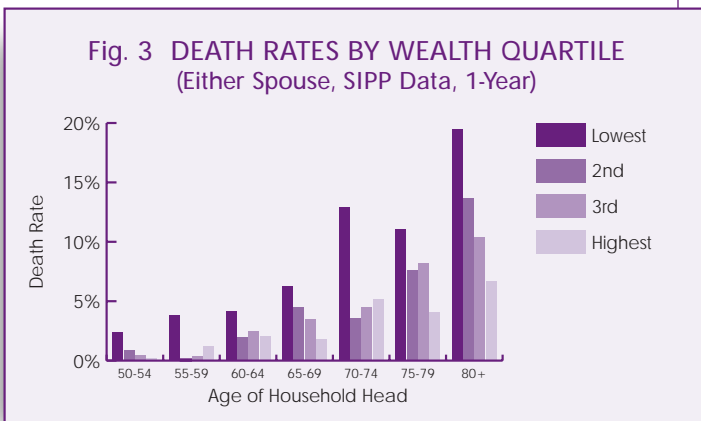


A study by Michael Hurd, Daniel McFadden, and Angela Merrill, and one by Orazio Attanasio and Hilary Hoynes have documented a similarly strong

relationship between wealth and mortality. The more recent study (by Hurd, McFadden and Merrill) uses 1993 and 1995 data from the Survey of Asset and Health Dynamics Among the Oldest Old (AHEAD). These authors examine the death rates of individuals age 70 and older during the two-year period between the 1993 and 1995 surveys. They then compare death rates among individuals with different levels of wealth. As shown in figure 2, individuals in the lowest wealth quartile were about twice as likely to die during this period as individuals in the highest wealth quartile.



Similar results are found in the study by Attanasio and Hoynes using 1984 and 1987 data from the Survey of Income and Program Participation. Figure 3 shows the likelihood that one or both spouses in a married couple will die in a year, based on income quartile in the SIPP data. Again, a pronounced relationship is found between wealth and mortality.



The Consequences of Adverse Health Events

One potential reason for the strong relationship between wealth and health at older ages is that adverse health events may have adverse economic implications. As people age, there is an increasing likelihood that they will experience an acute health event (such as a heart attack or stroke) or the onset of a new chronic illness (such as cancer or diabetes). Recent research by James Smith, and by Tracy Falba and Mark McClellan has explored the economic implications of such experiences, based on health events occurring between the 1992 and 1996 interviews of the HRS.

The most obvious potential implication of an adverse health event (either acute or chronic) is the need to pay for medical care costs. While a large part of medical care is covered by insurance, some portion of the population remains uninsured, and some medical care services are excluded, even for those who have insurance. So there is at least a potential for adverse health events to be costly. Smith finds that adverse health events do, as one would expect, increase out-of-pocket medical expenditures. However, only a small percentage of households experiences out-of-pocket expenditures that would substantively change their overall economic circumstances. The median out-of-pocket expenditure for an individual with a severe health event is about \$2000, compared with median out-of-pocket expenditures of about \$1000 for an individual with no health event. About ten percent of people with severe health events have out-of-pocket expenditures exceeding \$10,000.

Does this mean that the economic consequences of adverse health events are significant only for a minority of households? To the contrary, Smith finds that people who experience adverse health events have much larger reductions in total wealth than their medical expenses would suggest. The loss of wealth associated with an adverse health event and the out-of-pocket medical costs incurred are shown in table 1. The first row shows the average reduction in wealth and the average out-of-pocket medical expenditures for all HRS participants who experienced a severe health event. These health events took place between the 1992 and 1996 surveys, when these individuals were between ages 51 and 65, and the wealth consequences are measured over this four year period. The average reduction in wealth following a severe health event was about \$17,000, or 7 percent of total wealth, even though out-of-pocket medical expenditures averaged only \$2,266.

The other rows of table 1 show the reduction in wealth associated with an adverse health event for selected subgroups in the HRS. For example, the second and third rows show the reduction in wealth following an adverse health event for individuals with incomes above and below median income. While higher-income individuals have larger absolute losses of wealth, the loss for lower-income individuals is still over \$11,000. The fourth and fifth rows show the reduction in wealth for individuals with and without health insurance. These results are interesting, because they show just as large a reduction in wealth among those who have health insurance, as among those who do not have health insurance. This finding in particular shows the limitations of health insurance in fully insuring people from the economic costs of adverse health events.

In each of the population subgroups shown in table 1, the reductions in wealth following an adverse health event are significant, and much larger than the out-of-pocket costs for health care services. The explanation for these larger reductions in wealth appears to come from the effect of adverse health events in inducing earlier retirement or other reductions in work. The use of accumulated savings appears to replace lost earnings from work.

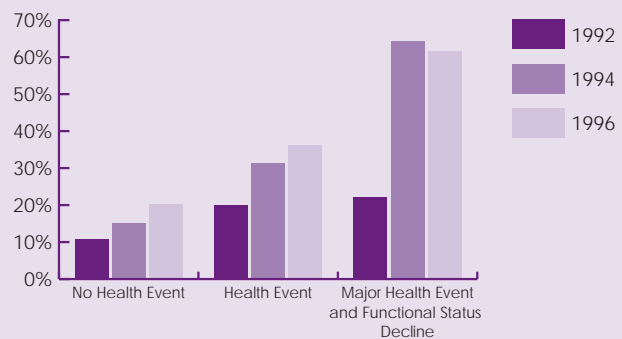
TABLE 1: Out-of-Pocket Medical Expenditures and Reductions in Wealth Following a Severe Health Event

	OUT-OF-POCKET MEDICAL EXPENSES	LOSS OF WEALTH
Full Sample (All Severe Health Events)	\$2,266	-\$16,846
Income Above Median	\$2,014	-\$25,371
Income Below Median	\$2,439	-\$11,348
With Health Insurance	\$1,912	-\$17,417
Without Health Insurance	\$4,576	-\$17,282

To explore the immediate and longer-term implications of adverse health events on work, Falba and McClellan follow the labor force behavior of HRS respondents through the first three HRS interviews in 1992, 1994 and 1996. They categorize the survey respondents, based on the health events occurring between the 1992 and 1994 surveys. Thus they can see both the short-term impact of the event (in the 1994 data), and the longer-term impact (in the 1996 data). Selected results are shown in figure 4. The three bars at the left show a modest labor force withdrawal among the

HRS sample, even with no health event. The three bars in the middle show the accelerated labor force withdrawal among those with some form of health event (acute, chronic, or decline in functional ability). The three bars on the right show the dramatic and immediate labor force withdrawal among those with both an acute health event (such as a heart attack or stroke) and a decline in functional ability.

Fig. 4 PERCENT NOT WORKING (HEALTH EVENT BETWEEN THE 1992 AND 1994 SURVEYS)



Collectively, these findings suggest significant economic consequences of health events, not so much because of high out-of-pocket expenses, but because of reductions in work, and possibly other life changes that affect wealth. This is an ongoing area of NIA-supported research, and we expect to learn more about these consequences as the research progresses.

Health and Economic Status Over the Life Course

Another approach used to explore the relationship between socioeconomic status and health has focused on the determinants of health as it evolves over the life course. This approach has encompassed studies about how health and mortality at older ages relate to genetics, the fetal environment, health-related aspects of childhood, job circumstances and stresses in mid-life, and the accumulation of health-related events and stresses that occur throughout life.

In this issue of *Research Highlights*, we report on Michael Marmot's recent work using the Whitehall II study of 10,000 civil servants in the United Kingdom. The study is investigating the strong relationship between job grade and health, including cardiovascular disease, mental health and cognitive function. The data include biomedical examinations, and extensive survey responses about current

and past health outcomes, diets, health behaviors, work histories, networks of social support, and characteristics of the work environment. The psycho-social influences, such as work related stress and social support networks, are presented as major contributors to health, both directly and indirectly by encouraging poor health behaviors. At work, low job control and an imbalance between work effort and rewards, have been found to be important factors influencing health status. Indeed Marmot and his coauthors find that those reporting low job control were significantly more likely to report that a physician had diagnosed a heart attack or angina; and that this relationship was stronger for those reporting low job control at two points in time, as compared with those reporting low job control at only one time.

Education is another factor that is closely linked to health and mortality, as well as to income and wealth. A recent study by Regula Herzog, Bob Wallace, Robert Willis and Linda Wray provides some dramatic new evidence on these relationships. Using HRS data, the study focuses on the changing behavior of smokers following a heart attack. The study looks at how many smokers who have a heart attack between the 1992 and 1994 surveys quit smoking following their heart attack. The influence of education is enormous. Among people with less than a high school education, about ten percent quit smoking after their heart attack — roughly the same as the quit rate among those with no adverse health event. Among college graduates, on the other hand, almost 90 percent quit smoking after their heart attack. These findings suggest fundamental influences of education in how people make health-related decisions.

Discussion

The results presented in this issue begin to address the difficult questions of why socioeconomic status and health are so strongly related. The finding that adverse health events have significant economic consequences is an important component of the story. It demonstrates how differences in health status can cause differences in economic circumstances. These results also suggest some direction for policy. They show, for example, that health insurance deals with only a small part of the economic cost of declining health. The much larger economic costs of decreased work and lost earnings might be more effectively addressed through disability insurance or in other ways.

The reverse causal relationship is suggested by the results from the Whitehall II research. This research points to the

beneficial psycho-social effects of increased job control as a cause of better health. The full story almost certainly encompasses both sets of causal relationships. Indeed an emerging hypothesis is that economic circumstances have a more important influence on health earlier in life, while health has a more important influence on economic circumstances later in life.

The findings reported in this issue of *Research Highlights* only begin to address the relationships among socioeconomic status, health and mortality. The subject is a strong continuing priority of research at the National Institute on Aging, and it is drawing the attention of an increasing number of NIA-supported investigators.

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The National Institute on Aging supports nine research centers on the demography and economics of aging, based at the University of California at Berkeley, the University of Chicago, Duke University, Johns Hopkins University, the University of Michigan, the National Bureau of Economic Research, the University of Pennsylvania, RAND Corporation, and Syracuse University. *Research Highlights in the Demography and Economics of Aging* is prepared for NIA as a cooperative activity of these NIA research centers. The managing editor is Richard Woodbury. For information on the Centers, call Lora Myers at 734-998-8693; for NIA programs in the demography and economics of aging, call 301-496-3138; for the series editor, call 207-847-9300.