

# Today's Research on Aging

PROGRAM AND POLICY IMPLICATIONS

Issue 11, June 2008

## Socioeconomic Status and Health Disparities in Old Age

Socioeconomic differences in mortality and health are well documented in the United States and in other developed countries such as England. Research has shown that individuals with lower incomes or less education are more likely to be physically impaired, to suffer from diseases, and to experience a greater loss of functioning than those who are financially better-off or who have more education.

Reducing and eliminating health gaps in the older population is one main area of emphasis for the National Institute on Aging (NIA). NIA funds a number of research projects that aim to understand the underlying cause of these persistent disparities, including the link between socioeconomic status and health. We discuss these and other studies here.

### How Does SES Affect Health?

Socioeconomic status (SES) is a broad concept incorporating various elements that influence an individual's or a family's social ranking. Three specific concepts are commonly used in the literature as indicators of socioeconomic position: occupational status, income, and education. Many research studies have found an association between socioeconomic status and health, but what explains this connection is not yet clearly understood.

#### In This Issue

- How Does SES Affect Health?
- Effects Over a Lifetime
- Health Affects SES
- Neighborhood Effects
- Education as Health Policy

This review summarizes research related to the objectives of the National Institute on Aging, with emphasis on work conducted at the NIA demography centers. Our objective is to provide decisionmakers in government, business, and nongovernmental organizations with up-to-date scientific evidence relevant to policy debates and program design. These newsletters can be accessed at [www.prb.org/TodaysResearch.aspx](http://www.prb.org/TodaysResearch.aspx).

SES affects health indirectly through various life experiences, opportunities, or choices. For example, adults with higher SES may have easier and more reliable access to health services. Adults with higher levels of education benefit, not only from having greater access to information about health but also from healthier attitudes and behaviors such as eating well, not smoking, and getting exercise. People with higher and more-stable incomes have fewer stressful life events and can more often get help in dealing with stress when stressful events occur. Finally, adults with higher SES tend to develop stronger psychological resources (including self-confidence, self-control, and a willingness to delay gratification) and lower levels of hostility, all of which improve both physical and mental health.

The Whitehall Study (I and II) of British civil servants led by Sir Michael Marmot ranked individuals by job classification and pay levels. Findings showed that health disparities exist across the entire socioeconomic spectrum, not just between those at the bottom and everyone else. Death rates for men in jobs at the lowest grade were three times the rates for men in the highest grade (Marmot, Shipley, and Rose 1984). However, even middle-class, white-collar adults are ill more frequently and have a greater chance of dying than those ranked above them. A follow-up study that looked at the Whitehall Study participants concluded that, even after retirement, the class differences in death rates remained (Marmot and Shipley 1996).

Recent analyses of data from the Whitehall Study tested possible explanations for the association between social status and health. These studies confirmed that lower socioeconomic status is associated with higher occurrence of coronary heart disease (CHD) and diabetes (Marmot and Brunner 2005). Other analyses provide evidence for specific psychosocial, behavioral, and pathophysiological processes that contribute to health inequalities. Job strain, for example, predicts CHD, common mental disorders, and absence from work due to sickness. In another study, researchers also observed that in addition to psychosocial factors at work, psychosocial factors at home and in the wider community contribute to disease development (Chandola et al. 2004).

## Effects Over a Lifetime

Socioeconomic status may affect an individual's health even before birth. Physically, a mother's nutritional and health status, which is in part a result of her socioeconomic status during her pregnancy, can have a long-term impact on the health of her child (Barker 1998). The socioeconomic status of one's parents during childhood may affect a person's old age morbidity through both behavioral and physical means. However, the relationship between childhood SES and adult well-being is somewhat contested. David Cutler and fellow researchers (2007) were unable "to detect any meaningful relationship between early life factors and outcomes in later life," using data on people born in the U.S. Dust Bowl region during the Depression of the 1930s. On the other hand, using data from the 1998 Health and Retirement Study in the United States, researchers found that for six self-reported measures of physical, mental, and cognitive well-being, higher childhood SES was strongly associated with better adult health outcomes (Luo and Waite 2005).

Behaviorally, childhood socioeconomic status influences preferences for smoking, drinking, educational attainment, and risk taking (Hayward and Gorman 2004). The impact of these behaviors on health is thought to be additive over the life course, but the relative importance of current socioeconomic status versus health conditions established earlier in life continues to puzzle researchers in many different fields (Palloni 2006).

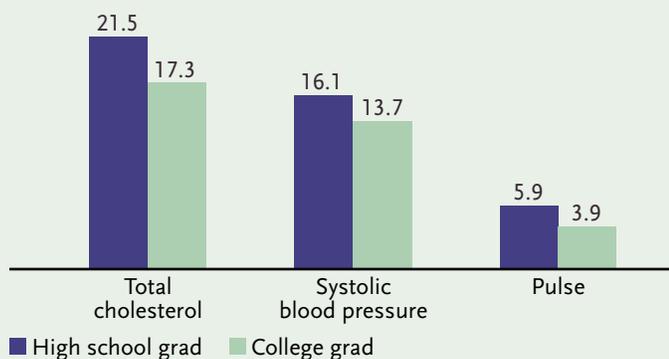
A study by Meich and Hauser (2001) compared the effect of educational attainment on health at midlife with the effect of occupation-based measures. Using data from the Wisconsin Longitudinal Study, Meich and Hauser determined that although occupation may be an important mechanism linking education and health, its effect is not as important once education is taken into account. In another study using data from the Americans' Changing Lives Study (1986 through 2001/2002), Herd and her colleagues (2007) examined the effects of education and income on different stages of health problems. They found that education is a stronger predictor than income of whether an individual develops health problems such as functional limitations or chronic conditions. Income, however, has a stronger effect than education on whether the condition worsens.

While socioeconomic resources affect health throughout the lifecycle, health differences across socioeconomic groups are reduced at older ages. Findings from the National Health Interview Survey show that differences in self-reported health by income groups get larger up to age 50. After 50, health disparities by income become less pronounced, as more people at every income level report worse overall health as they age (Smith 2004). Similarly, using the U.S. National Health and Nutrition Examination Survey (NHANES), other researchers found that education and income differences are not as strongly related to higher health risks at

**The percentage of people with "high-risk" values for cholesterol or blood pressure is greater for those with only a high school education or income below poverty level.**

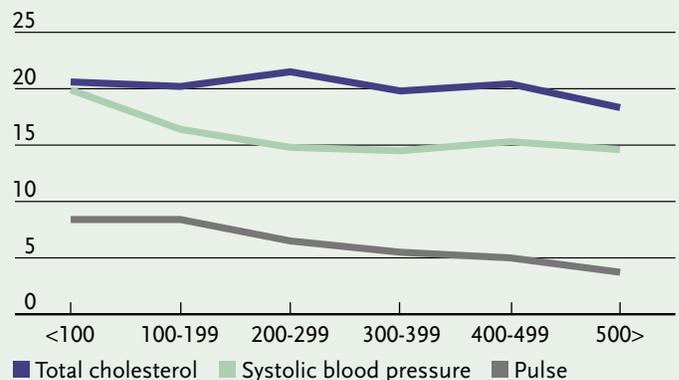
### Education and Selected Health Risk Factors

Percent with "high-risk" value



### Poverty Level and Selected Health Risk Factors

Percent with "high-risk" value



**Source:** Teresa Seeman et al., "Education, Income and Ethnic Differences in Cumulative Biological Risk Profiles in a National Sample of US Adults: NHANES III (1998-1994)," *Social Science and Medicine* 66, no. 1 (2008): 72-87.

---

older ages as at younger ages and that poverty is associated with biological risk factors at younger ages but not in old age (Seeman et al. 2008; Crimmins et al., forthcoming).

It may be that social influences on health diminish for the oldest age groups as biological changes related to aging take hold. Those who survive into old age may also differ from those who did not live until old age in that they are a healthier group overall—a fact particularly pertinent for disadvantaged groups.

In old age, the beneficial effect of SES on health appears to depend on which dimension of SES is examined. A study by Smith (2004) found that financial resources, such as household income and wealth, are often unrelated to the future onset of disease in old age, while education remains protective against the new onset of various major and minor diseases (except for cancer). In addition, a study by Goldman and Smith (2002) found that education benefits health through better self-management of complex medical regimens.

## Health Affects SES

The mechanisms that produce socioeconomic differentials in health are complex. Not only does lower SES often translate into poorer health, but the reverse is true as well: Poorer health translates into lower SES. People who experience a major health shock may stop working temporarily or may work fewer hours and increase out-of-pocket spending in the short run. Their long-term household income may also decrease if the condition is chronic or debilitating. Because the elderly, as a group, have lower labor-force participation rates, their income is less likely to be affected by major health events (Smith 2004). This is another reason why health disparities by income diminish at older ages.

## Neighborhood Effects

The socioeconomic status of a neighborhood is also associated with its health status. Researchers studying hypertension in urban Chicago found it to be less common in neighborhoods where the overall socioeconomic status was high (Morenoff et al. 2007). Part of the explanation for this relationship may be that residents of lower-income neighborhoods experience more daily stress. People in lower socioeconomic strata are more likely to report both higher levels of stress and worse health (Lantz et al. 2005). However, Morenoff and his colleagues also found that awareness is higher in neighborhoods where socioeconomic status is low. Researchers attributed this second result to a functioning public health system able to target high risk areas.

Looking at the association between SES and health among older adults, Wight and his fellow researchers (2008) found that individuals ages 70 and older in disadvantaged neighborhoods are more likely to report having poorer health than those living in better-off neighborhoods. This relationship between health and neighborhood SES is, however, not as strongly associated with reported diagnoses of cardiovascular disease or with functional limitations. In an earlier study of neighborhood context, these researchers also found that in high-education areas, older adults had better cognitive outcomes regardless of their own personal characteristics (Wight et al. 2006).

## Education as Health Policy

There are still many unanswered questions about how to improve the health of those in lower socioeconomic groups, and thus reduce health disparities across social strata. Recent findings by researchers at NIA centers for the demography and economics of aging do suggest, however, that educational attainment has an important role to play. In addition to the findings mentioned in this newsletter, research by Cutler and Lleras-Muney (in Schoeni et al. 2008) indicated that individual health gains from education may well outweigh the financial benefits gotten from education.

---

## References

- Eileen M. Crimmins, Jung Ki Kim, and Teresa E. Seeman, "Poverty and Biological Risk: The Earlier 'Aging' of the Poor," *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences* (forthcoming).
- David M. Cutler, Grant Miller, and Douglas M. Norton, "Evidence on Early-Life Income and Late-Life Health From America's Dust Bowl Era," *Proceedings of the National Academy of Sciences* 104, no. 33 (2007): 13244-49.
- David James Purslove Barker, *Mothers, Babies, and Health in Later Life* (New York: Churchill Livingstone, 1998).
- Tarani Chandola et al., "The Effect of Control at Home on CHD Events in the Whitehall II Study: Gender Differences in Psychosocial Domestic Pathways to Social Inequalities in CHD," *Social Science and Medicine* 58, no. 8 (2004): 1501-9.
- Dana P. Goldman and James P. Smith, "Can Patient Self-Management Help Explain the SES Health Gradient," *Proceedings of the National Academy of Sciences* 99, no. 16 (2002): 10929-34.
- Mark D. Hayward and Bridget K. Gorman, "The Long Arm of Childhood: The Influence of Early-Life Social Conditions on Men's Mortality," *Demography* 41, no. 1 (2004): 87-107.

Pamela Herd, Brian Goesling, and James S. House, "Socioeconomic Position and Health: The Differential Effects of Education Versus Income on the Onset Versus Progression of Health Problems," *Journal of Health and Social Behavior* 48, no. 3 (2007): 223-38.

Paula M. Lantz et al., "Stress, Life Events, and Socioeconomic Disparities in Health: Results From the American's Changing Lives Study," *Journal of Health and Social Behavior* 46, no. 3 (2005): 274-88.

Ye Luo and Linda J. Waite, "The Impact of Childhood and Adult SES on Physical, Mental, and Cognitive Well-Being in Later Life," *Journals of Gerontology Series B: Psychological Science and Social Science* 60, no. 2 (2005): S93-S101.

Michael Marmot and Eric Brunner, "Cohort Profile: The Whitehall II Study," *International Journal of Epidemiology* 34, no. 2 (2005): 251-56.

Michael Marmot and Martin J. Shipley, "Do Socioeconomic Differences in Mortality Persist After Retirement? 25-Year Follow-Up of Civil Servants From the First Whitehall Study," *British Medical Journal* 313, no. 7066 (1996): 1177-80.

Michael Marmot, Martin J. Shipley, and Geoffrey Rose, "Inequalities in Death-Specific Explanation of a General Pattern?" *The Lancet* 1, no. 8384 (1984): 1003-06.

Richard A. Meich and Robert M. Hauser, "Socioeconomic Status and Health at Midlife: A Comparison of Educational Attainment With Occupation-Based Indicators," *Annals of Epidemiology* 11, no. 2 (2001): 75-84.

Jeffrey D. Morenoff et al., "Understanding Social Disparities in Hypertension Prevalence, Awareness, Treatment, and Control: The Role of Neighborhood Context," *Social Science and Medicine* 65, no. 9 (2007): 1853-66.

Alberto Palloni et al., "Early Childhood Health, Reproduction of Economic Inequalities, and the Persistence of Health and Mortality Differentials," presentation at the Rand Summer Institute, July 14, 2006.

Robert F. Schoeni et al., *Making Americans Healthier: Social and Economic Policy as Health Policy* (New York: Russell Sage Foundation, 2008).

Teresa Seeman et al., "Education, Income and Ethnic Differences in Cumulative Biological Risk Profiles in a National Sample of US

Adults: NHANES III (1998-1994)," *Social Science and Medicine* 66, no. 1 (2008): 72-87.

James P. Smith, "Unraveling the SES: Health Connection," *Population and Development Review* 30, supplement: Aging, Health, and Public Policy (2004): 108-32.

Richard G. Wight et al., "A Multilevel Analysis of Urban Neighborhood Socioeconomic Disadvantage and Health in Late Life," *Social Science and Medicine* 66, no. 4 (2008): 862-72.

Richard G. Wight et al., "Urban Neighborhood Context, Educational Attainment, and Cognitive Function Among Older Adults," *American Journal of Epidemiology* 163, no. 12 (2006): 1071-78.

## The NIA Demography Centers

The National Institute on Aging supports 13 research centers on the demography and economics of aging, based at the University of California at Berkeley, the University of Chicago, Harvard University, the University of Michigan, the National Bureau of Economic Research, the University of North Carolina, the University of Pennsylvania, Pennsylvania State University, Princeton University, RAND Corporation, Stanford University, the University of Southern California/University of California at Los Angeles, and the University of Wisconsin.

This newsletter was produced by the Population Reference Bureau with funding from the University of Michigan Demography Center. This center coordinates dissemination of findings from the 13 NIA demography centers listed above. This issue was written by Marlene Lee, senior research associate, Population Reference Bureau; Megan Cagley, program associate, Population Reference Bureau; and Toshiko Kaneda, research associate, Population Reference Bureau.

## For More Information

### The American Changing Lives Study

[www.icpsr.umich.edu/cocoon/ICPSR/STUDY/04690.xml](http://www.icpsr.umich.edu/cocoon/ICPSR/STUDY/04690.xml)

### Study of Asset and Health Dynamics Among the Oldest Old

[http://hrsonline.isr.umich.edu/intro/sho\\_uinfo.php?hfy\\_e=overview\\_history&xtyp=2#ahd](http://hrsonline.isr.umich.edu/intro/sho_uinfo.php?hfy_e=overview_history&xtyp=2#ahd)

### Publications from the Whitehall II Study

[www.ucl.ac.uk/WhitehallII/publications.html](http://www.ucl.ac.uk/WhitehallII/publications.html)

### The Wisconsin Longitudinal Study

[www.ssc.wisc.edu/wlsresearch/](http://www.ssc.wisc.edu/wlsresearch/)

**PRB**

POPULATION REFERENCE BUREAU

1875 Connecticut Ave., NW, Suite 520, Washington, DC 20009 USA

Tel.: 202-483-1100 | Fax: 202-328-3937

E-mail: [popref@prb.org](mailto:popref@prb.org) | Website: [www.prb.org](http://www.prb.org)