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Trends in healthy life expectancy in the United States, 1970–1990: gender, racial, and educational differences

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Abstract

This paper examines healthy life expectancy by gender and education for whites and African Americans in the United States at three dates: 1970, 1980 and 1990. There are large racial and educational differences in healthy life expectancy at each date and differences by education in healthy life expectancy are even larger than differences in total life expectancy. Large racial differences exist in healthy life expectancy at lower levels of education. Educational differences in healthy life expectancy have been increasing over time because of widening differentials in both mortality and morbidity. In the last decade, a compression of morbidity has begun among those of higher educational status; those of lower status are still experiencing expansion of morbidity. © 2001 Elsevier Science Ltd. All rights reserved.

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Introduction

Inequality in health is one of the most important health issues facing low-mortality countries today. Socioeconomic status is related to virtually all health outcomes in most countries. People with more education or income live longer and experience fewer adverse health events. Differences in healthy life expectancy summarize the combined effects of different levels of mortality and morbidity on the overall length of healthy life and provide a good summary indicator of the total health impact of differences in socioeconomic well being.

Changes over time in healthy and unhealthy life expectancy can be used to measure the overall effect on population health of time trends in the processes of mortality and morbidity (Robine, Romieu, & Cambois, 1997). Differences in time trends by socioeconomic status can be evidence of inequality in health progress. Increases in life expectancy accompanied by an increased proportion of life spent healthy can be regarded

as evidence of compression of morbidity; changes in life expectancy with a decreased proportion of life healthy can be evidence of an expansion of morbidity (Bone, Bebbington, & Nicholaas, 1998; Fries, 1981).

This paper examines healthy or disability-free life expectancy at three dates for racial and education subgroups in the United States. The major questions addressed include: how does healthy life expectancy differ among educational groups of the population and how have the differences changed over two decades? Did all educational segments experience the expansion of morbidity during the 1970s and the compression during the 1980s?

Background

Differences in healthy life expectancy by socioeconomic status

There is ample evidence that healthy life expectancy differs dramatically by socioeconomic status in many countries of the world. Socioeconomic differences in healthy life expectancy have been generally found to be

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substantial and to exceed differences in total life expectancy (Bebbington, 1993; Bone, Bebbington, Jagger, Morgan, & Nicolaas, 1995; Kaprio, Sarna, Fogelholm, & Koskenvuo, 1996; Katz et al., 1983; Sihvonen, Kunst, Lahelma, Valkonen, & Mackenbach, 1998; Valkonen, Sihvonen, & Lahelma, 1997; van den Bos & van der Maas, 1993; Wilkins & Adams, 1983).

It has long been recognized that those of lower socioeconomic status have higher mortality in the United States (Kitagawa & Hauser, 1973). The size of the socioeconomic difference in mortality, however, varies by gender, age, and race (Elo & Preston, 1996; Manton, Corder, & Stallard, 1997a; Sorlie, Backlund, & Keller, 1995; Sorlie, Rogot, Anderson, Johnson, & Backlund, 1992). Estimates of healthy life expectancy by indicators of socioeconomic status have not been available for the population of all ages for the United States because of the lack of life tables by socioeconomic status. Newly available follow-up data from sample surveys now allow this possibility.

Differential socioeconomic status is assumed to be the cause of large differences in healthy life expectancy for racial groups in the United States (Crimmins, Saito, & Ingegneri, 1989; Hayward & Heron, 1999; Sullivan, 1971; Williams & Collins, 1995). When healthy life expectancy at birth is estimated for the United States, whites are found to have longer healthy life and African Americans to have longer life in some disabled states (Crimmins et al., 1989; Hayward & Heron, 1999).

For the older US population, there have been a number of studies that have examined the impact of education as well as race on healthy life expectancy. While both education and race are related to healthy life expectancy, education has been found to be a more important predictor of differences in healthy life expectancy than race (Crimmins, Hayward, & Saito, 1996; Guralnik, Land, Blazer, Fillenbaum, & Branch, 1993).

At the older ages, the reported pattern of differences in healthy life expectancy by race varies somewhat (Branch et al., 1991; Guralnik et al., 1993; Manton & Stallard, 1991). In a national sample of those aged 70 and over, African American and white total life expectancy was quite similar, while white healthy life expectancy exceeded African American healthy life expectancy (Crimmins et al., 1996). However, in a North Carolina sample, African American life expectancy and healthy life expectancy above age 75 have been found to exceed white values (Guralnik et al., 1993; Land, Guralnik, & Blazer, 1994).

Trends in life expectancy and healthy life expectancy

During the 1980s, there were decreases in disability in the United States at some ages (Crimmins, Saito, & Ingegneri, 1997; Manton, Corder, & Stallard, 1993;

Manton, Stallard, & Corder, 1997b; Waidmann, Bound, & Schoenbaum, 1995). During this time, increases in life expectancy for the total population of the United States were concentrated in years without disability; this differed from the 1970s when increases in life expectancy were in disabled years (Crimmins et al., 1997). Thus, a decade of morbidity compression followed a decade of expansion. Similar trends have been observed in France (Robine, Mormiche, & Sermet, 1998).

In recent years, socioeconomic differentials in life expectancy have reportedly widened in England (Marmot, Kogevinas, & Elston, 1987; Pamuk, 1985; Townsend & David, 1982) and at least for men in the United States (Duleep, 1989; Elo & Preston, 1996; Feldman, Makuc, Kleinman, & Cornoni-Huntley, 1989; Manton et al., 1997a, b; Preston & Elo, 1995). Other countries also report a widening of socioeconomic differentials in mortality.

This reported widening of socioeconomic differentials in mortality, as well as reported declines in the prevalence of disability, and an increase in healthy life expectancy for the population, provides reason to investigate trends in differences in healthy life expectancy by educational status.

Data and methods

Operational definitions

Educational status

Years of school completed or the length of formal education is used as the measure of socioeconomic status in this study because it represents the best indicator of lifetime socioeconomic status across age and over time. Formal education is completed at a relatively young age and stays constant for most people across the adult life. We limit our analysis to those 30 years of age and over, an age at which formal educational levels have been achieved by most adults. Educational status in most data sources is measured by single years of school completed: grouped into elementary education (0–8), high school (9–12), and at least some higher education (13+). In order to make comparisons between similarly defined groups, we retain the same categorization of education at the three dates by matching the categories to the one data source based on categorized education. Others have chosen to look at differences in healthy life or mortality change for socioeconomic groups defined by relative status rather than absolute status (Pamuk, 1985; Preston & Elo, 1995; Sihvonen et al., 1998). Because we want to compare differences in measures combining mortality and morbidity among 12 population subgroups at three time points, we feel the absolute measures of socioeconomic status used here are most appropriate.

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