Is Self-Rated Health a Valid Outcome Measure for Studying Educational Differences in Health?

RESEARCH QUESTION

Self-rated health (SRH) is a commonly used outcome measure in research on socioeconomic determinants of health. Most SRH assessments ask respondents to rate their current health on a five-point scale, ranging from poor to excellent. Its popularity lies in its simplicity, reliability, and its strong predictive power of future mortality, even controlling for 'objective' measures of health status such as chronic conditions and functional limitations (Idler and Benyamini 1997). This consistent finding suggests that SRH captures broad health processes, though the precise content of this measure is still not well understood. This global health rating appears to be more inclusive than current physical status, encompassing assessments of health behaviors, psychological well-being, trajectories in health over time, and social well-being.

A number of recent studies have found significant race/ethnic and gender differences in the predictive effect of SRH on mortality. For instance, SRH is a weaker predictor of mortality for less-acculturated Hispanic adults (Finch et al. 2002), possibly because of their tendency to somatize mental and emotional well-being and thus putting a greater weight to these non-life-threatening issues in health assessment. SRH has also been shown to be a stronger predictor of mortality for men than for women (Benjamins et al. 2004; Hays et al. 1996; Idler et al. 2000; Benyamini and Idler 1999), although some studies found no significant difference or even a stronger effect for women compared to men. We are aware of no studies that examined educational differentials in the health-evaluation process by comparing the effect of SRH on mortality. We found only a single study (Franks, et al 2003), that focused on a different measure of subjective health and found it to be more predictive of mortality for individuals with a higher educational attainment.

This paper tests whether SRH differs in predicting future mortality by educational groups. With the widespread use of SRH in research on of the educational differences in health, it is

crucial to know whether SRH captures health status and equates to objective health outcomes the same way for all education groups. Most studies using SRH implicitly equate SRH with objective health status based on its relationship with future mortality found in the population as a whole. If the effect of SRH on mortality differs significantly by educational attainment, it would call into question the validity of using SRH as a health outcome in analyses of educational differences in health. To our knowledge, no examination exists of differences by educational attainment on the relationship between the traditional five-point SRH and future mortality.

A number of factors associated with educational attainment may influence the health-evaluation process and produce a different relationship between SRH and future mortality. We propose and test two opposing hypotheses: according to the first, individuals with more schooling have better knowledge of their underlying health status and future health trajectory. This better knowledge could result from more contact with the health care system due to better access and utilization, better understanding of how health behaviors affect future health, or increased awareness of family health history. This hypothesis predicts that SRH evaluation of individuals with more education is will predict their mortality better that for their less-educated counterparts. The alternative hypothesis suggests that less-educated individuals, who on average suffer more chronic conditions and functional limitations, may judge their future health better by basing it more closely on their current physical state, relying less on broader aspects of health evaluation such as health behaviors, which may not predict mortality as accurately. This hypothesis predicts that SRH will predict mortality better for adults with less schooling.

DATA AND METHODS

The analyses are based on a non-publicly available version of the National Health Interview Survey-Multiple Cause of Death (NHIS-MCD) dataset. The NHIS is an annual survey of households that produces a sample representative of the U.S. civilian non-institutionalized population. We include surveys conducted in 1986-2000. The data from the NHIS are linked through statistical matching technique to the MCD data files from the National Death

Index covering years 1986-2002. The NHIS-MCD is a large dataset that includes more than a million adults and over 100,000 deaths, allowing a unique opportunity for sub-group and cause-specific mortality analysis.

Our analysis is limited to adults 25 and older because a high proportion of younger adults have not completed their education. We include both education and self-rated health as continuous variables, coded in completed years of schooling and on a 5-point scale from excellent to poor, respectively. We exclude all accidental, suicide, and homicide deaths, with the reasoning that such deaths are not due to physiological dysfunctions of the organism but are relatively random from a health perspective.
We model educational differences in SRH's prediction of all-cause mortality, as well as several major causes of death including cardiovascular disease, respiratory diseases, strokes, and cancer.

We test our hypotheses by estimating Cox proportional hazards models of mortality and discrete-time logit models. We estimate education-stratified models to examine the effects across groups, as well as models with education by SRH interaction to formally assess the significance level of the differences. We also estimate a set of nested models, in which we gradually adjust for 'objective' health measures such as chronic conditions, activity limitations, bed days, and health behaviors in order to explain any differential links between SRH and mortality by education. Taking into account known heterogeneity in the population, we estimate all models separately by gender and race.

DISCUSSION

Because of the widespread use of self-rated health in social science research, especially in discussions of socioeconomic disparities in health, it is important to fully understand the content of the measure we are using. If SRH captures different aspects of the true health status for adults with varying levels of education, research focused on explaining or reducing health disparities using this outcome may be missing its mark.