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Race, Socioeconomic Status, and Health in Life-Course Perspective

Introduction to the Special Issue

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Racial disparities in health have been well documented over the past several decades. Most of the research on racial disparities has focused primarily on comparisons of Blacks and Whites—and this special issue is no exception—for two reasons. First, Blacks and Whites currently constitute the vast majority of the population, approximately 85% (Grieco and Cassidy 2001). To be sure, persons claiming Hispanic ethnicity constitute an increasing proportion of the population, but many Hispanics claim White or Black as their racial group. Second, some of the largest health disparities in the United States are between Blacks and Whites. For example, in 2000, life expectancy at birth for Whites was 77.6 years, but it was 71.9 years for Blacks, a gap of about 6 years and the largest gap that exists between Whites and any other race in the United States (National Center for Health Statistics 2006).

Socioeconomic disparities in health, like racial disparities, are remarkable and have also been thoroughly documented over the past several decades, beginning with Kitagawa and Hauser's (1973) seminal study of education-based mortality differences in the United States. Since that study, research has consistently shown that socioeconomic status (SES), whether the construct is measured by education or income (or sometimes occupation), is one of the strongest predictors of health and mortality among all variables used in social science.

Linking SES and race has been a growing focus of research on racial inequalities in health over the past few decades. It has long been assumed, and is now established, that a sizable proportion of the Black-White disparity

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in health is attributable to SES differences between races (e.g., Hayward et al. 2000; Hummer 1996; Rogers 1992; Sudano and Baker 2005; Williams and Collins 1995). Less research on racial inequalities in health, however, has considered that the role SES plays in explaining race differences may be dynamic across age, cohort, and time.

More generally, although both racial and socioeconomic disparities in health by race have been studied for several decades, a life-course focus in such disparities is only recent. The life-course perspective explicitly recognizes that relationships between race, SES, and health do not exist in a sociohistorical vacuum. Instead, the perspective recognizes that inequalities may be fluid over time at both individual and societal levels. At the individual level, inequalities between individuals may increase or decrease across age. Similarly, between-individual variation itself may increase or decrease across time, as measured by birth cohort or period.

To date, two overarching life-course hypotheses, and their complements, have been advanced regarding change in SES and racial disparities in health across age: the cumulative disadvantage hypothesis and the double jeopardy hypothesis. The cumulative disadvantage hypothesis, as described in the articles in this issue, argues that socioeconomic-based health inequalities increase across the life-course, largely as a result of differential exposure to risk factors associated with SES (e.g., smoking, diet, exercise) and different access to protective resources (e.g., access to health care) (O'Rand 2002).

The double jeopardy hypothesis is similar to the cumulative disadvantage perspective but is concerned primarily with how race differences in health, not SES differences, unfold across the life course. The original hypothesis posited that the health gap between Blacks and Whites increases in later adulthood because of the double disadvantage of age and racial minority status (Ferraro 1987; see Brown and Lynch 2004 for an extensive review).

Both hypotheses have their complements in age-as-leveler hypotheses. To date, the preponderance of the evidence in the health literature shows that observed health gaps in fact narrow between Blacks and Whites and higher and lower SES groups in later life (see, e.g., Beckett 2000; House et al. 1994). In the demography of mortality literature, the age-as-leveler hypothesis has also received support. In that literature, it is well documented that White and Black mortality rates "cross over," at around age 75; that is, Black mortality rates exceed those of Whites until late in life, when Blacks seem to acquire an advantage (e.g., see Lynch, Brown, and Harmsen 2003; see Preston et al. 1996 for a data-quality perspective that suggests that Black and White convergence in mortality rates is a function of Black age misreporting).

The proponents of the age-as-leveler view have a solid theoretical reason for the hypothesis, namely, that biological differences overwhelm other factors in old age. That is, although social factors such as race and SES may produce diverging health trajectories at younger ages as exposure to risk factors accumulates, at older ages, health differentials are reduced because everyone, regardless of race and class, eventually succumbs to biological forces that produce poor health and mortality.

Additionally, from a more methodological perspective, higher mortality rates for disadvantaged populations lead to a narrowing health gap in later life. That is, heterogeneity in subpopulations produces early mortality among the frailest members of society so that at older ages, all that remains are very robust individuals who are healthy, regardless of race or class (see, e.g., Brown and Lynch 2004; House et al. 1994; Vaupel and Yashin 1985). Thus, the health gap narrows as a function of change in between-individual differences.

Assessing whether the cumulative disadvantage or age-as-leveler hypothesis is true is complex, given the effect of selective mortality. However, the complexity is amplified further by the fact that life-course health trajectories and inequalities in them may change across time. Recent demographic research, for example, has shown that the relationship between SES and health has varied historically and that among more recent birth cohorts, the relationship is strengthening (Lauderdale 2001; Lynch 2003). Similarly, Black-White health inequality has increased across recent birth cohorts as well (Williams and Collins 1995).

Rising cohort inequalities mask divergence in age-based health trajectories if cohort change is ignored, potentially leading to support for the age-as-leveler hypothesis, even if the cumulative disadvantage (or double jeopardy) hypothesis is true (Lynch 2003). Thus, in general, one-level statistical models applied to single cross-sections are simply inadequate for producing valid tests of life-course hypotheses. Yet much of the research on racial and SES disparities in health prior to 2000 did not use hierarchical modeling of longitudinal data, because of both a lack of sufficient data and a lack of appropriate statistical methods and computing power.

In terms of data limitations, the ideal data for disentangling life-course and cohort processes would come from a panel data set with replenishment covering many birth cohorts across the entire life course. Yet there are no such data in existence. Available panel data tend to be relatively short term with respect to the portion of the life course covered for any birth cohort, and although they may cover many birth cohorts, the coverage of overlapping segments of the life course restricts true cross-cohort comparisons to only a few at a time.

Available repeated cross-sectional data, in contrast to available panel data, cover many birth cohorts and generally provide for an assessment of cross-cohort differences, because the age ranges at which successive cohorts are observed overlap to a larger degree than in panels. However, the key drawback to repeated cross-sectional data is that within-individual health patterns cannot be observed. Instead, life-course patterns can be easily constructed only for survivors within a cohort across age. Thus, selective mortality, one of the possible explanations for converging health inequalities in later life, cannot be easily addressed.

In terms of historical limitations of statistical methods and computational power, much of the older literature on health inequalities used relatively simplistic regression models to examine life-course and cohort patterns in health inequalities. Until the past decade or so, more sophisticated methods, such as growth modeling, were unavailable to social scientists or too costly in terms of computing time. Yet standard regression modeling techniques only capture differences in means between individuals and do not capture change within individuals across age, making them especially susceptible to finding convergence in health inequalities as a function of selective mortality.

Most of the articles in this special issue were selected in part because of their authors' use of advanced statistical techniques applied to some of the best longitudinal data—repeated cross-sectional or panel—available for addressing the cumulative disadvantage hypothesis. All of the articles in this issue were selected because they simultaneously focus on both race and SES patterns in health inequality across age, cohort, and/or time, providing a much-needed nexus between contemporary life-course research focusing on racial inequalities in health (i.e., current research on the double jeopardy hypothesis) and contemporary research focusing on SES inequalities in health (i.e., current research on the cumulative disadvantage hypothesis).

The authors represented in this issue used a wide variety of data sets, including one repeated cross-sectional study (the General Social Survey [GSS]; Cummings and Jackson) and four panels: the National Longitudinal Survey of Youth (Walsemann, Geronimus, and Gee), the Panel Study of Income Dynamics (Shuey and Willson), the Duke Established Populations for Epidemiological Studies of the Elderly (Taylor), and the Americans' Changing Lives Study (Yao and Robert). These data sets constitute some of the best data for examining age, cohort, and period patterns in racial and socioeconomic disparities in health.

The methods used in these articles range from basic trend models using ordinary least squares regression (Cummings and Jackson) to random intercept models (Walsemann et al.), growth models (Shuey and Willson),

growth models that explicitly differentiate between timing of the onset of health problems and their rate of accumulation (Taylor), and three-level growth models that include extraindividual (i.e., neighborhood) characteristics as an explicit level of hierarchy (Yao and Robert). These methods constitute the best contemporary methods, in my opinion, for disentangling inequalities in health patterns across different dimensions of time (see, e.g., Mirowsky and Kim 2007 for a recent methodological exposition on disentangling age and cohort patterns in growth models).

The first article in this issue, by Cummings and Jackson, describes the results of a largely descriptive investigation of trends in self-rated health by sex, race, and SES in the GSS. This article provides a context for the subsequent articles in the issue by considering macro-level patterns in health within which the age and cohort experiences discussed in the subsequent articles are nested. That is, it is important to note that the GSS covers three decades—the 1970s through the 1990s—whereas the surveys used in the other articles cover narrower periods.

Although the analyses are straightforward, this article is one of the first to examine long-term trends in self-rated health and is the first to consider these trends simultaneously by sex, race, and SES. The results are complex and bear further investigation. The first part of the analyses focus on trends by sex and race. The overall findings include the following:

1. Self-rated health has improved somewhat over time, but this improvement has been unequally distributed.
2. Men have experienced little to no change in self-rated health over time. Black men's health improved over the first half of the study but then declined, although Black men's health improved and then declined.
3. Women's health on the whole has improved over time, but this pattern varies by race. White women's health improved and then declined, whereas Black women experienced fairly steady improvement.

The second part of the analyses seeks to explain these patterns by incorporating income and education as measures of SES, along with marital and employment status. The key results of those analyses include the following:

1. The racial disparity for men would be eliminated if levels of education were comparable for Black and White men. Income shows a similar pattern in reducing racial disparities (and gender disparities) but explains far less of the total disparity.
2. SES provides unequal returns to health for women of both races than for men. Men, especially Black men, appear to gain more from improvement in SES than women, while the SES returns to health for Black women are the lowest.

3. Although SES returns for women are less than for men, at comparable levels of SES, White women's health is equivalent to that of White men.

Overall, Cummings and Jackson's article highlights the need to consider health inequalities following the "intersectionality paradigm" in a life-course framework. That is, the authors suggest that a focus on "main effects" models that consider sex, race, and SES as additive, not interactive, is misguided and produces a picture of change in health inequality that glosses over important heterogeneity within any one of these statuses. This conclusion is an extremely important one, but the article ultimately raises as many substantive questions as it answers. Given that the research presented in the article was largely descriptive, why the complex patterns observed exist will require considerable additional research. For example, why did Black men's health improve and then decline over the period whereas Black women saw steady improvement? Although the authors offer explanations for many of the observed patterns, the explanations are largely post hoc and will require further study for us to obtain more definitive answers.

Walsemann et al. used random intercept models of data from the National Longitudinal Study of Youth to investigate whether educational advantages in youth influence health trajectories across young adulthood, over and above the influence of adult educational attainment. Although a number of studies have examined the influence of education on health across age (e.g., House et al. 1994) or trajectories of health (e.g., Lynch 2003), this study is unique in considering more distal factors and precursors that influence the acquisition and quality of education in youth rather than considering education a fixed, adult characteristic. In this regard, this article can be situated within the growing body of literature on the influence of early life experiences on adult health (e.g., Hayward and Gorman 2004; O'Rand and Hamil-Luker 2005). However, Walsemann et al.'s study is unique compared with such studies in two ways. First, it simultaneously considers racial and socioeconomic disparities in trajectories of health across age. Second, it simultaneously considers the influence of youth educational advantage measured at multiple levels and adult attainment.

The key results of the study include (1) that early educational advantages produce divergent health trajectories in young adulthood, even after controlling for adulthood educational attainment, and (2) that race-based (Black vs. White) disparities in health trajectories persist in adulthood when adult educational attainment is considered, but they disappear when educational advantage in youth is controlled. Both results highlight the need to reconsider exactly what measures of adult educational attainment capture and what they

obscure in terms of the process leading to final attainment. Additionally, they suggest that the relationship between race and SES is complex and should continue to be investigated within a life-course framework that is sensitive to early-life disparities in socioeconomic conditions.

The third article in this issue, by Shuey and Willson, shifts the focus from early life toward young and later adulthood. Using data from the Panel Study of Income Dynamics, the authors examine (1) whether SES disparities in health follow a cumulative disadvantage framework, such that the disparities grow across the life course; (2) whether racial disparities in self-rated health trajectories also grow across the life course; and (3) whether growth in racial disparities is accounted for by growth in SES disparities.

Although a growing body of literature has used growth models to examine the cumulative disadvantage hypothesis (Lynch 2003) and similar methods to investigate the race-based double jeopardy hypothesis (Ferraro and Farmer 1996), this article offers two unique contributions to the literature. First, this study considers multiple measures of SES, including education, household income, and total household wealth, and considers them as dynamic across age. Second, this study investigates the role of SES in explaining racial disparities in health trajectories across age. Many studies have considered the role that SES plays in explaining racial differences in health, but few if any have considered this role dynamically.

The key results of this study include that until past midlife, SES-based and race-based inequalities in health increase across age. Furthermore, the growing disparity is not explained entirely by between-race SES differences, but this conclusion depends on the choice of measurement for SES. Specifically, returns from education to health across age are weaker for Blacks than for Whites, whereas income and wealth returns appear to be comparable. The conclusion is that education itself does not translate into comparable income and wealth returns.

The fourth article, by Taylor, focuses on disability differentials by race, and to some extent SES, in later adulthood using data from the Duke Established Populations for Epidemiological Studies of the Elderly. Similar to most of the other studies presented in this issue, Taylor's analysis involves growth models of health (disability) trajectories in investigating the cumulative disadvantage hypothesis by race. However, unlike other studies in this issue, as well as other extant studies, Taylor's analysis simultaneously models disability onset and growth in disability conditional on onset. To my knowledge, this is the first article to adopt this strategy using a multivariate model to examine disability.

Taylor's article has two substantial findings. First, racial disparity in disability does not increase across age once the timing of onset for initial disability is controlled. In other words, according to the study, evidence for the cumulative disadvantage or double jeopardy hypothesis is driven entirely by race differences in the onset, not the growth, of disability. Second, given that the race differences in disability reduce to the timing of onset, it appears that much of the influence of race differences in SES for explaining race differences in disability is in its effect on the onset of disability. As Taylor notes, this finding suggests a refinement of our view of the cumulative disadvantage hypothesis. That is, the results provide some evidence for a race-based cumulative disadvantage hypothesis with respect to timing rather than growth, and much of the difference in timing is explained by SES differences between races, especially as they translate into differences in health care access.

The final article in this issue, by Yao and Robert, extends the two-level general growth modeling strategy used by others in this issue to a third level by incorporating neighborhood socioeconomic characteristics into the analysis. Although a growing body of studies on health has considered the influence of neighborhood characteristics on individual health, most studies to date have used only cross-sectional data and have not taken a life-course perspective (see Yao and Robert for exceptions). In this study, the authors investigate whether individual-level trajectories in health, as well as mortality risk, are influenced both by individual and extra-individual (i.e., neighborhood) factors.

Among the several findings of this research, Yao and Robert show that racial disparities in health increase across time but that this growth is explained by a combination of both individual and neighborhood socioeconomic factors. To be sure, racial disparities in health remain across age after controlling for socioeconomic factors, but the growth in inequality across age does not. This result presents a more complex view of racial disparities, and the role SES plays in explaining them, than previous studies have provided. That is, the results suggest that cross-sectional studies may find that individual and/or neighborhood socioeconomic conditions may not fully explain racial disparities, but they do explain why such disparities persist and potentially increase at older ages. Furthermore, the results highlight the potential importance of neighborhood conditions, beyond individual factors, in explaining health disparities.

All in all, the articles in this special issue provide a significant contribution to our understanding of racial and socioeconomic disparities in health from a life-course perspective. They demonstrate not only that the relationships

among race, SES, and health are complex but also that the complexity is increased by the fact that the interrelationships are dynamic across age and time. As a result, this collection of articles is not an ending point for life-course analyses of health disparities. Rather, these articles provide a starting point for future research on the dynamics of health across both SES and race. In short, simple cross-sectional analyses of health by race or SES—the bread and butter of most published research on health over the past several decades—can no longer be viewed as sufficient.

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