**Longitudinal Impacts of Preexisting Conditions on Future Health Outcomes among Aged Minority Populations in the United States**

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**Abstract:**

Concern over health trajectories among older racial and ethnic minorities is increasing. This increased emphasis on health disparities draws from a long history of concerns reflected in studies that show clear racial and ethnic differences in mortality rates, morbidity risks and health outcomes across the life course as well as the consistent relationship between race and socioeconomic status.

Drawing upon foundation studies for theoretical guidance, the present study uses longitudinal data from the Health and Retirement Study (HRS) to test a conceptual framework that refines existing measures of health and attempts to identify fresh links in the relationships between race, ethnicity and SES upon health outcomes. It is argued that the conceptual framework that underlies the analysis of the measures using a negative binomial distribution increases the explanatory power of the model and provides outcomes that provide new insights into the impacts of social inequalities on health outcomes among minorities.

**Introduction**

The graying of the US population is well established in the research literature but studies that focus on the implications of the growth of older racial and ethnic minorities have not received the same level of attention (U. S. Bureau of the Census, 2000 etc). This is surprising in the face of the long history of research reflecting clear racial and ethnic differences in mortality rates, morbidity risks and health outcomes across the life course (Kitagowa, 1977, Gornick, 2002; Howard et al., 2000; NCHS, 1998). Additionally, studies on racial differences in health outcomes have consistently found that socioeconomic status (SES) is strongly related to race and ethnicity (Adler et al., 1994; Gornick, 2002; House, Kessler & Herzog, et al., 1990; Manton, Patrick & Johnson, 1987; NRC, 1989; Susser, Watson & Hopper, 1985). A major shortcoming of some of these studies is their inattention to wealth. Research indicates that the widening health status disparities parallel widening economic disparities (Williams & Collins, 1995), and this may have implications for SES and health among minority elders (Williams & Wilson, 2001).

Building upon the existing work of scholars' the present study uses longitudinal data from the Health and Retirement Study (HRS) to test a conceptual framework that refines existing measures of health and attempts to identify fresh links in the relationships between race/ethnicity and SES upon health outcomes. It is argued that the conceptual framework that underlies the methodological operationalization of the measures used in this analysis can increase the explanatory power of the model and provides outcomes that can be employed to analyze differences in social inequalities in health among minorities, and establish new empirical generalities.

*Research question*

- What are the likely consequences of inattention to wealth?

**Method**

*Data*

The lack of conclusive research findings regarding the intersection of race/ethnicity and SES on the health of older adults is due, in part, by the limited number of longitudinal data sets with the combination of economic, health, and social characteristics required to study this question. We chose to use the Health and Retirement Study (HRS) in the present study because it is ideal to this purpose. The HRS is rich in information central to the current study, consisting of exhaustive measures of demographic, social, physical health, mental health, work, income, and wealth. Its detailed economic information (particularly wealth) is also essential for performing a more comprehensive assessment of the respondents' socioeconomic status, a unique feature of the present study. The HRS's panel design enables the exploration of health trajectories among older adults over time, explicitly exploring the relationships between health and retirement decisions within a longitudinal framework (Juster & Suzman, 1995; Wallace & Herzog, 1995).

*Sample*

The baseline sample used in this analysis is drawn from the 1998 panel of the HRS (subsequently referred to as Wave 4 (W4)). This panel is merged with the 2000 reinterview panel (Subsequently referred to as Wave 5 (W5)). The sample for the current study was restricted to 10,813 respondents age 51 years

or older identifying themselves as non-Hispanic White (8,064), non-Hispanic Black (1,686), and of Hispanic origin (841) (hereafter referred to as White, Black and Hispanic).

*Measurement*

The measurement of self-reported morbidity in HRS was obtained on target medical conditions that are prevalent among middle aged and older adults and can lead to work disability (Wallace & Herzog, 1995). Respondents were asked a series of questions regarding specific diseases in the following manner: “Has a doctor ever told you that you have/had…” [Condition]? For purposes of the current study, a medical condition is one of our diseases of interest. The diseases identified across waves were categorized into serious (life-threatening) conditions and non-serious (chronic) conditions (Ferraro & Farmer, 1996; 1999).

Counts for each type of medical condition and physical symptom were created at both W4 and W5. Serious medical conditions range from zero to five and include cancer, diabetes, heart conditions (angina, congestive heart failure, heart attack) hypertension, and stroke. Non-serious medical conditions range from zero to six and include arthritis, incontinence, lung disease, memory problems, psychiatric problems and stiff swollen joints. Physical symptoms range from zero to seven and include back pain, feet problems, severe tiredness, shortness of breath, wheezing, dizziness, and headaches. A total of eleven medical conditions and seven physical symptoms are presented for these analyses, and each malady was coded as a binary variable (1 = yes, 0 = no).

This procedure for measuring morbidity involving separate counts of serious chronic diseases, non-serious chronic diseases, and physical symptoms is advocated for these analyses (Ferraro & Farmer, 1996, 1999; Mutran & Ferraro, 1998). This technique, developed in consultation with a panel of physicians and nurses, is recommended for preventing the possible power problem associated with the binary variable approach, while presenting more specific and descriptive measures than the simple count of conditions (Ferraro & Wilmoth, 2000).

Demographic and social measures were used because evidence indicates a strong relationship between socioeconomic status and health across race. To capture this effect, educational attainment and

family income were included in the analyses. Education ranges from no formal schooling to post college. Family income was treated as a continuous variable and was logged to normalize the distribution. Likewise, net worth was included because of its important relationship to health, and was summarized into twenty categories, ranging from zero net worth to the 20th category ($1,051,517 and over). The other demographic variables presented in the models include: age measured in years, and categorized into 10-year ranges from 50-79, and 80 years of age and over; gender and current coupleness were each a binary variable where one equals female and married or with partner (all others were coded zero); race/ethnicity was also each a binary variable where one equals each category: White, Black, and Hispanic.

*Analytic Plan*

Dependent variables such as those employed in the present study— physical symptom counts and medical condition counts—are viewed as discrete random variables and are somewhat problematic to estimate because they are not normally distributed. Long (1997: 219) shows that Ordinary Lease Squares (OLS) is inappropriate in the context of count dependent variables, particularly when the average count is below 10 and Poisson, Zero Inflated Poisson (ZIP), Zero Inflated Negative Binomial (ZINB) regression, or Negative Binomial Regression (NBR) is preferred. For some of the dependent variables in the current study, Poisson, ZIP and ZINB estimates are biased. Therefore, NBR which accounts for the over dispersion with an additional parameter (denoted ‘alpha’) is used.

**Results and Conclusions**

This model extends existing work on the measurement of health disparities and allows us to study ethnic differences in health outcomes across time, controlling for preexisting conditions. The result reflect the fact that after controlling for ethnicity, health outcomes are less a result of income at a specific time but positively impacted by accumulated wealth across time.