Racial Disparities in Mortality Over the Life Cycle

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Abstract:

Racial differences in health are large and persistent. In 1980, the age-adjusted death rate of Black males aged 45 and over was 4,169 per 100,000 persons. The analogous figure for White males was 3,454. The implications of this difference are worth noting—for every 100,000 persons of each race, there are 715 fewer Black men than White men alive at these ages. In 2022, the age-adjusted death rate of males aged 45 and over was 3,047 and 2,485 per 100,000 persons for Black and White males, respectively, implying that for every 100,000 persons of each race, there are 562 fewer Black men alive at these ages.[1] While death rates have declined by approximately 25% for both races, the absolute decline is greater for Black than White males, although the relative improvement is modest (153 per 100,000 persons). Among females of the same ages, death rates are markedly lower than among males (30% to 40%), but the changes between 1980 and 2022 are qualitatively similar.

It is widely held that racism is a cause of these racial disparities in mortality. Racism can have a direct effect on health through biological mechanisms associated with heightened, sustained stress (McEwen 2017), and an indirect effect on health through its impact on distal (e.g., income) and proximate (e.g., quality of medical treatment) causes of health. It is for these reasons that racism has been referred to as a fundamental cause of health (Phelan and Link 2015).

Although the causal pathways linking racism to health are conceptually well defined, they are not well documented empirically. For example, one approach is to, first, identify the causal effect of distal (e.g., education) and proximate causes of health, and then assess racial disparities in these causes. Consider education. Causal estimates of the effect of education on health often examined small changes in education, for example, less than one additional year of education, at distinct margins, for example, staying in high school, and for narrow samples, for example, older cohorts affected by school reforms in 1960s or 1970s (Clark and Royer 2013; Davies et al. 2018; Meghir et al. 208; Janke et al. 2020). These studies are arguably not particularly relevant to the current racial gap in education in the US where 48% of White adults have less than an associate's degree compared to 62% of Black adults (American Council on Education 2024). None of these studies estimate the causal effect of a college degree, or large differences in education, on health and none assess whether the causal effects are moderated by race.

[1] Data are from authors' query of CDC Wonder database: https://wonder.cdc.gov/.

Similar characterizations and conclusions apply to income (Cesarini et al. 2016; Miller et al. 2024; Wehby et al. 2024).[2] As for proximate causes of health, though there are reliable, arguably externally valid estimates of the causal effects of important proximate causes of health, the racial disparity in many of these causes is small. Therefore, these pathways are unlikely to be an important explanation of the effect of racism on health. A second approach to measure the effect of racism on health is to directly measure exposure to racism, or racial bias among providers, and assess the impact of these types of racism on health. This line of research is plagued by a lack of credible estimates of causal effects as few studies used experimental or quasi-experimental designs. In sum, the literature has not greatly advanced the understanding of the pathways by which racism affects health. Furthermore, few studies have investigated how racial disparities in health evolve over the life cycle in a detailed, comprehensive, and non-parametric way.

In this study, we extend the human capital model of the demand for health (Grossman 1972) and use the extended model to analyze the evolution of black-white racial disparities in health over the life cycle. Specifically, we measure the association between race and mortality at several ages between ages 40 and 80 using a flexible, non-parametric specification and estimate the differential changes in mortality from one age to the next associated with race. The data come from the National Health Interview Survey (NHIS) from 1997 to 2014 that linked respondents to the National Death Index, which provides the date of death for those who died by 2019. We limit the sample to non-Hispanic Black and White individuals aged 40 to 70 at the time they are observed in the NHIS survey and stratify the analysis by sex.

The empirical analyses we conduct produce a large set of estimates of the association between race and the hazard rate by age including cause-specific estimates and separate estimates by sex. This collection of results can be informative about the underlying role of racism on mortality, particularly if viewed through the human capital model of health. For example, consider the finding that for causes of mortality other than cancer and cardiovascular disease (including stroke), estimates of the association between race and the hazard rate of dying are virtually zero after age 60 for males and zero from ages 40 to 80 for females. A conclusion consistent with this set of results is that racism has almost no adverse effect on mortality of Black people from causes of death besides cancer and cardiovascular disease even though these causes account for approximately one-third of all deaths. What theory of the effect of racism on health can explain this fact? Why would there be no differences by race in investment and depreciation related to these diseases, but racial differences in investment and depreciation for cardiovascular disease and cancer? If we assume that depreciation is a general, biological phenomenon that affects frailty and susceptibility to many types of diseases in a similar way, then the cause-specific differences in racial differences in the hazard rate of dying are more likely to be the result of racial differences in investment—i.e., racism primarily affects investment.

[2] Some studies examined short term changes in income on health and found that an increase in income was associated with higher mortality (Evans and Moore 2011; Andersson et al. 2015).