

# Letters

## RESEARCH LETTER

### Race and Poverty Status as a Risk for Overall Mortality in Community-Dwelling Middle-Aged Adults

Recent data<sup>1</sup> highlighted the association between income and longevity in the United States, particularly the increasing differences during 2001 through 2014 in life expectancies for people in the top 5% range of household income compared with those in the bottom 5%. However, as Woolf and Purnell<sup>2</sup> note in their Editorial, these results depend on removing potential effects of race on mortality, especially the consequences of segregation, discrimination, and unequal resource distribution. It is important to know that income and longevity are associated, but addressing how this association contributes to health disparities and using this information to formulate public policy is impossible without considering the role of race differences.

**Methods** | We examined the contributions of sex, race, and socioeconomic differences to overall mortality in the Healthy Aging in Neighborhoods of Diversity Across the Life Span (HANDLS) study.<sup>3</sup> HANDLS recruited 3720 participants based on a factorial cross of sex, race, 5-year age group, and poverty status (above or below 125% of the US federal poverty guidelines). Participants self-identified as either African American (AA) or white. The National Institute of Environmental Health Sciences Institutional Review Board approved data collection. All participants provided written informed consent.

Participants were matched to National Death Index data to obtain death date and primary cause of death from the date

of HANDLS enrollment (August 2004 to March 2009) through December 31, 2013, providing up to 9 years of follow-up (mean, 6.8 years). We used Cox proportional hazards to estimate hazard ratios (HRs) and 95% confidence intervals and measured time by age at study entrance and exit. The proportionality assumption was assessed by testing Schoenfeld residuals.<sup>4</sup>

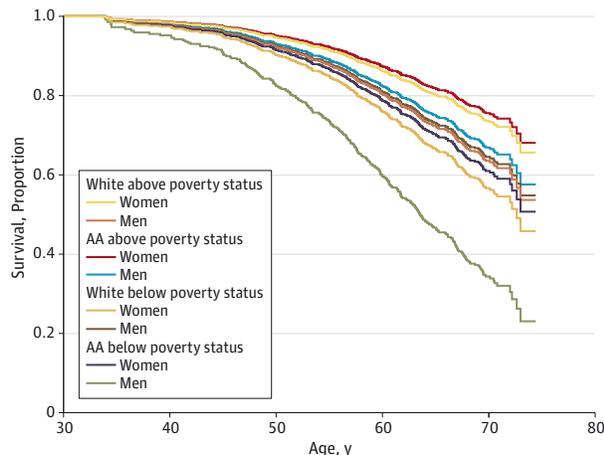
**Results** | The majority of HANDLS participants were AA (59%), female (55%), and above poverty status (59%), with a mean (SD) enrollment age of 48 (9.3) years (**Table**). We found a significant 3-way interaction among sex, race, and poverty status such that AA men below poverty status had the lowest overall survival (**Figure**). African American men below poverty status had a 2.66 times higher risk of mortality compared with AA men living above poverty status (HR, 2.66; 95% CI, 1.82-3.89). White men below poverty status had approximately the same risk as those above (HR, 0.97; 95% CI, 0.53-1.75). Both AA and white women living below poverty status were at an increased mortality risk relative to those above poverty status, but the risk was similar across race (HR, 1.77; 95% CI, 1.15-2.73 and HR, 1.85; 95% CI, 1.11-3.10, respectively). Cardiovascular disease was the most prevalent cause of death (97 [30%]), followed by cancers (76 [23%]), of which lung cancer (32 deaths) was most common.

**Discussion** | A 3-way interaction of sex, race, and poverty status showed that AA men with household incomes below 125% of the federal poverty level were at the greatest risk for overall mortality. The particular vulnerability of AA men living in poverty may be attributable to a variety of sources. Educational attainment, income, labor market participation, and

**Table. Baseline and Mortality Information for the Healthy Aging in Neighborhoods of Diversity Across the Life Span Study**

Parameter	African American		White	
	Men (n = 998)	Women (n = 1200)	Men (n = 687)	Women (n = 835)
Age at enrollment, No. (%), y				
30-34	106 (11)	125 (10)	63 (9)	98 (12)
35-39	133 (13)	142 (12)	91 (13)	95 (11)
40-44	133 (13)	165 (14)	95 (14)	116 (14)
45-49	189 (19)	227 (19)	126 (18)	150 (18)
50-54	180 (18)	194 (16)	116 (17)	141 (17)
55-59	158 (16)	187 (16)	104 (15)	128 (15)
60-64	99 (10)	160 (13)	92 (13)	107 (13)
Poverty status, No. (%)				
Below	456 (46)	586 (49)	198 (29)	295 (35)
Above	542 (54)	614 (51)	489 (71)	540 (65)
Mortality information				
Deaths, No. (%)	127 (13)	89 (7)	54 (8)	58 (7)
Mortality rate, per 100 000 person-years				
Crude	1850	1049	1185	1045
Age standardized	1524	875	1019	1041

Figure. Survival Curves Based on the Cox Proportional Hazards Model of Sex, Race, and Poverty Status



No. at risk			
White above poverty status			
Women	107	111	29
Men	101	98	24
AA above poverty status			
Women	131	148	34
Men	121	127	14
White below poverty status			
Women	76	57	13
Men	45	43	6
AA below poverty status			
Women	167	123	28
Men	118	94	17

AA indicates African American.

marital status are important covariates in evaluating life expectancy gaps between white and AA men. However, even when these factors are accounted for, a significant gap in life expectancy between white and AA men persists.<sup>5</sup> African American men living in poverty may also engage in health behaviors associated with mortality at younger ages. Predictors of mortality in AA men include socioeconomic status, access to health care, availability of high-quality care, and social and environmental conditions.<sup>6</sup>

African American males are feared and marginalized in American society. This lifelong ostracism facilitates cascading negative outcomes in education, employment, and in interaction with the criminal justice system. The resultant poverty is a virulent health risk factor for AA men. Our findings at 125% of the poverty line suggest that revision of poverty thresholds triggering eligibility for federal programs that influence quality of life, health, and equal opportunity should take into

account premature mortality driven by poverty as a first step to address the vulnerability of poor AA men.

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