

# Socioeconomic Determinants of Health in Late Life: Wealth, Education, and Mortality Among US Medicare Beneficiaries

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## Background

- Socioeconomic status (SES) is associated with health outcomes in older adults in the US<sup>1</sup>
- Wealth and education are often used to measure SES, although they may function differently in this population<sup>2</sup>
- The role of age is not fully understood

## Objective

To compare long-term trends in all-cause mortality based on wealth and education in a sample of older adults in the US. Then, assess the influence of age on these associations.

## Methods

### Data source

- Rounds 1-9 (2011-2019) of the National Health and Aging Trends Study
- Longitudinal study of 7,609 community-dwelling Medicare beneficiaries ≥65 years of age

### Variables

- *Wealth*: assets minus liabilities, described using quintiles (Q)
- *Education*: <HS, =HS, >HS
- *Mortality*: recorded upon recontact each year
- *Covariates*: age, racial/ethnic group, gender, marital status, history of smoking, and anxious/depressive symptoms

### Statistical analysis

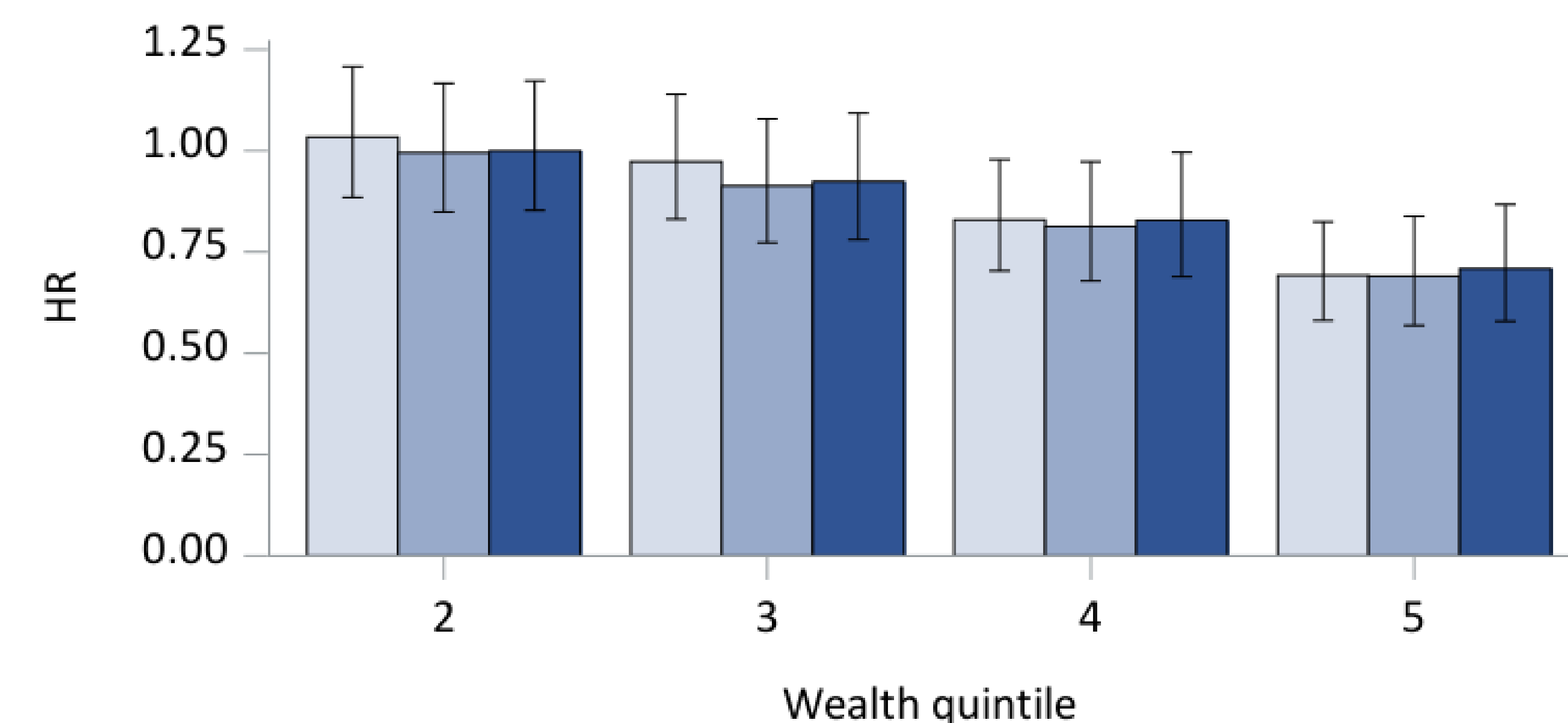
- *Kaplan Meier estimates*: descriptive analysis of mortality over time based on wealth/education
- *Cox proportional hazards models*: assess change in mortality risk based on each measure of SES, adjusted for covariates and the opposing measure
- *Age-SES interaction analyses*: interaction of Cox proportional hazards models with age, to observe how mortality risk varies by age and SES

## Results

Mortality correlates more with wealth than education in older adults in the US, although associations weakened at older age.

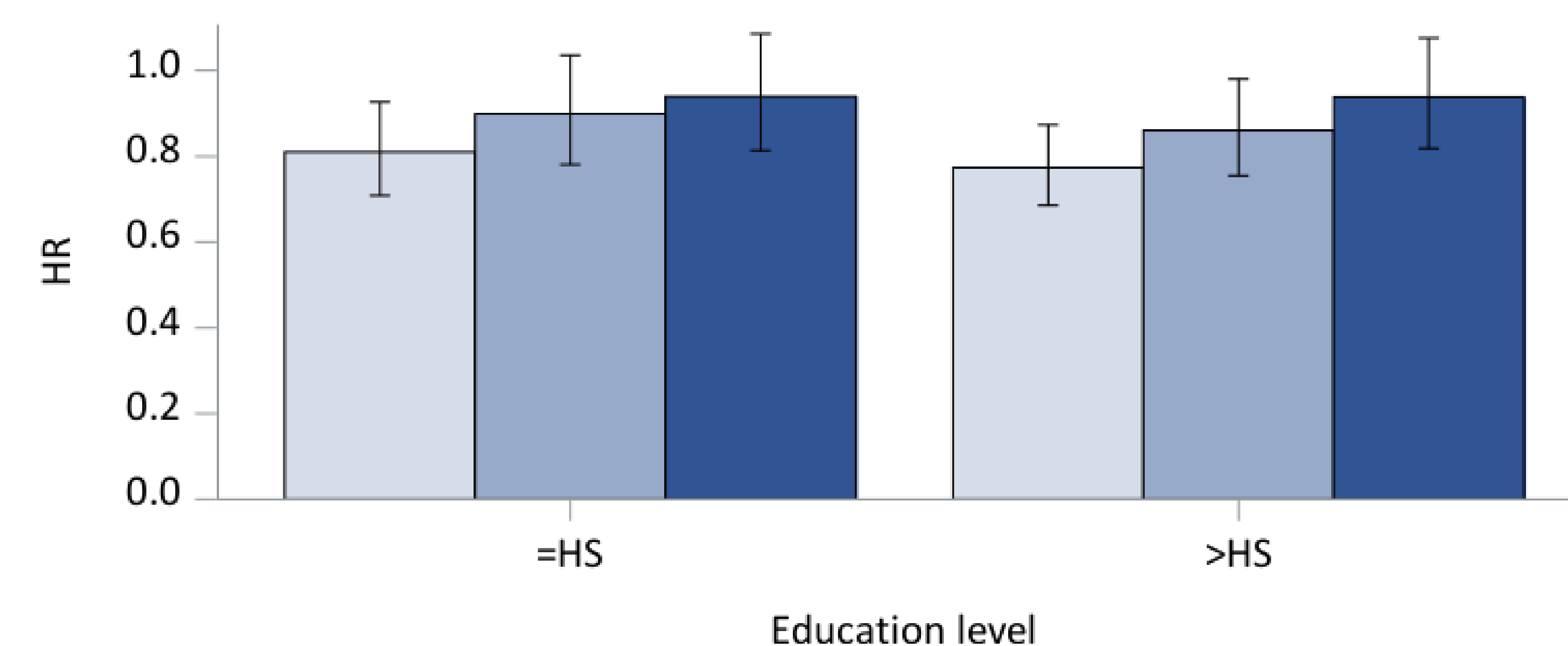
### Cox proportional hazard models

Figure 1. Risk of mortality based on wealth, compared to Q1.



Confounding Adjustment □ A. Unadjusted □ B. A + covariates ■ C. B + education

Figure 2. Risk of mortality based on education, compared to <HS.



Confounding Adjustment □ A. Unadjusted □ B. A + covariates ■ C. B + wealth

Adjustment for wealth resulted in loss of statistical significance of education coefficients – wealth mediated the effect of education on survival in this population. However, education did not have the same effect in models based on wealth.

### Baseline Characteristics

- Final study sample of 4,639 older adults, excluding those missing wealth (n=2,910) or education/covariate information (n=60)
  - Median wealth: \$91,500 (IQR: \$1,800-\$329,000)
  - <HS: 29.6%, =HS: 26.8%, >HS: 43.6%
  - 56.2% female; 66.4% non-Hispanic White, 22.6% non-Hispanic Black, 7.7% Hispanic, and 3.3% some other racial/ethnic group
- 35.7% lost-to-follow-up; 30.6% died by Round 9

### Kaplan-Meier estimates

- Wealthier individuals were more likely to survive to Round 9 (Q1: 33.4% mortality; Q5: 22.6% mortality)
- More educated individuals were also more likely to survive to Round 9 (<HS: 37.0% mortality; >HS: 26.8% mortality)

### Age-SES interaction analyses

- More significant changes in mortality risk with age in models based on wealth than education
- Significant results found in ages 65-79, diminished in older age groups

## Conclusions

- Wealth may serve as a better indicator of SES in this population
- Focus on addressing modifiable pathways between economic status and health
- Efforts more impactful in younger older adults

## References

1. McMaughan DJ, Olorunfoba O, Smith ML. Socioeconomic Status and Access to Healthcare: Interrelated Drivers for Health Aging. *Front Public Health*. 2020;8. doi:10.3389/fpubh.2020.00231
2. Gleib DA, Lee C, Weinstein M. Assessment of Mortality Disparities by Wealth Relative to Other Measures of Socioeconomic Status Among US Adults. *JAMA Netw Open*. 2022;5(4). doi: 10.001/jamanetworkopen.2022.6547

