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Novel Estimates of Mortality Associated With Poverty in the US

The US perennially has a far higher poverty rate than peer-rich democracies.¹ This high poverty rate in the US presents an enormous challenge to population health given that considerable research demonstrates that being in poverty is bad for one's health.² Despite valuable contributions of prior research on income and mortality, the quantity of mortality associated with poverty in the US remains unknown. In this cohort study, we estimated the association between poverty and mortality and quantified the proportion and number of deaths associated with poverty.

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Supplemental content

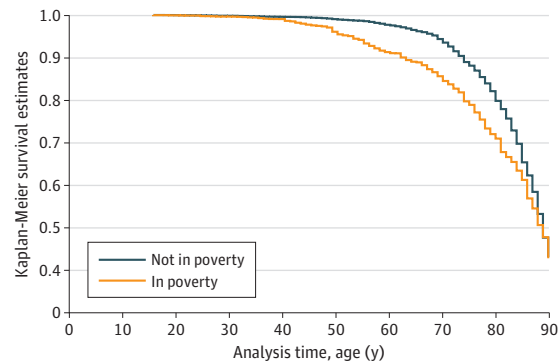
Methods | Statistical analyses were conducted on February 17, 2023. We analyzed the Panel Study of Income Dynamics 1997-2019 data merged with the Cross-National Equivalent File (eTable 1 in Supplement 1).^{3,4} This longitudinal survey³ observed mortality from surviving family members and was validated with the National Death Index. Innovatively, our higher-quality household income measure included all income sources, cash and near-cash transfers, and taxes and tax credits and was adjusted for household size.⁵ With use of leading standards in international poverty research, poverty was measured relatively as less than 50% of the median income.¹ Current poverty was observed contemporaneously in each year, and cumulative poverty was the proportion of the past 10 years. Cox hazards regression models were estimated using Stata, version 17.0 (StataCorp) for 18 995 respondents aged 15 years or older (135 790 person-years) (eAppendix 2 in Supplement 1). Analyses were robust to adjustment for self-rated health, overweight or obesity, smoking, acute health events, chronic disease, other confounders, and a wide variety of alternative details (see eTable 2 in eAppendix 2 and eFigures 1 and 2 in eAppendix 3 in Supplement 1). We used secondary unidentifiable archival data, so institutional review board approval was not needed.

Results | Current poverty is associated with a greater mortality hazard of 1.42 (95% CI, 1.26-1.60). Cumulative poverty—being always in poverty vs never in poverty in the past 10 years—is associated with a greater mortality hazard of 1.71 (95% CI, 1.45-2.02).

Figure 1 shows that survival of individuals in poverty mainly begins to diverge from survival of individuals not in poverty at approximately 40 years of age. The gap in survival between those in poverty and those not in poverty increases until a peak near 70 years when it begins to converge.

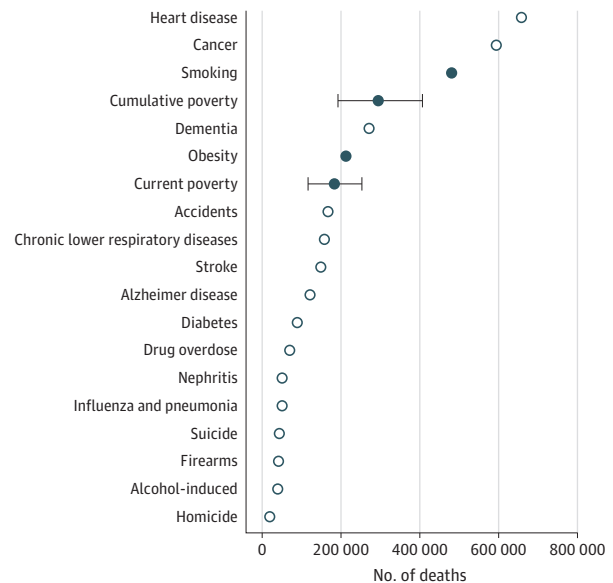
Figure 2 compares the number of deaths associated with poverty with other major causes and risk factors of death. In 2019, among those aged 15 years or older, 6.5% (95% CI, 4.1%-9.0%) of deaths and 183 003 deaths (95% CI, 116 173-254 507 deaths) were associated with current poverty, and 10.5% (95% CI, 6.9%-14.4%) of deaths and 295 431 deaths

Figure 1. Survival Curves for Individuals Currently in Poverty and Those Currently Not in Poverty in the US



Based on model 3 (eAppendix 2 in Supplement 1).

Figure 2. Number of Deaths Associated With Cumulative and Current Poverty and the Major Causes (Open Circles) and Risk Factors (Filled Circles) in the US in 2019



Error bars indicate 95% CI. Sources: See eAppendices 1 and 2 in Supplement 1.

(95% CI, 193 652-406 007 deaths) were associated with cumulative poverty. Current poverty was associated with greater mortality than major causes, such as accidents, lower respiratory diseases, and stroke. In 2019, current poverty was also associated with greater mortality than many far more visible causes—10 times as many deaths as homicide, 4.7 times as many deaths as firearms, 3.9 times as many deaths as suicide, and 2.6 times as many deaths as drug overdose. Cumulative poverty was associated with approximately 60% greater mortality than current poverty. Hence, cumulative poverty was associated with greater mortality than even obesity and dementia. Heart disease, cancer, and smoking were the only causes or risks with greater mortality than cumulative poverty.

Discussion | Because the US consistently has high poverty rates, these estimates can contribute to understanding why the US has comparatively lower life expectancy. Because certain ethnic and racial minority groups are far more likely to be in poverty, our estimates can improve understanding of ethnic and racial inequalities in life expectancy. The mortality associated with poverty is also associated with enormous economic costs. Therefore, benefit-cost calculations of poverty-reducing social policies should incorporate the benefits of lower mortality.⁶ Moreover, poverty likely aggravated the mortality impact of COVID-19, which occurred after our analyses ended in 2019. Therefore, one limitation of this study is that our estimates may be conservative about the number of deaths associated with poverty. Ultimately, we propose that poverty should be considered a major risk factor for death in the US.

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Internal Medicine Resident Perspectives on Virtual Recruitment

Residency and fellowship recruitment converted from nearly exclusively in-person interviews to virtual interviews after the onset of the COVID-19 pandemic. The virtual recruitment process has advantages, including convenience and decreased costs for both applicants and programs^{1,2}; the reduced cost likely makes the process more equitable for applicants with less resources. At the same time, virtual recruitment may contribute to application inflation¹⁻⁴ and reduce applicants' ability to assess the fit of a training program and location.^{1,2}

The Association of American Medical Colleges (AAMC) and other organizations have recommended virtual-only recruitment for the 2022 to 2023 residency and fellowship recruitment season regardless of pandemic-related travel restrictions.^{5,6} Little is known about applicants' perspectives on a virtual-only recruitment season. In this survey study, we sought to assess internal medicine residents' opinions regarding the first virtual-only recruitment cycle in the US.

Methods | A confidential, optional survey (eAppendix in Supplement 1) was administered to all residents immediately after completing the American College of Physicians Internal Medicine In-Training Examination (IM-ITE) in the fall of 2021. The survey included only internal medicine residents in US programs, including Puerto Rico. The Duke University School of Medicine Institutional Review Board deemed this study exempt from review because it posed minimal risk. Participants checked a box indicating consent for their responses to be shared as deidentified results. We followed the AAPOR reporting guideline.

The survey asked residents for their opinions about how virtual-only recruitment affected the number of programs medical students applied to and the number of interviews medical students accepted, and for their preferences for future recruitment seasons (eAppendix in Supplement 1 provides questions and response options). We separated responses by postgraduate year (PGY) to allow comparison between PGY-1 residents who completed virtual-only recruitment and PGY-2 and PGY-3 residents who had experienced in-person recruitment. We also compared responses by medical school type (US medical school graduate [USMG] vs international medical graduate [IMG]) and by sex.