

Declining COVID-19 mortality risk ratios must be interpreted with caution

In their recent letter in *J Epidemiol Community Health*, Schultes *et al*¹ examined patterns of declining race/ethnic disparities in COVID-19 mortality in Connecticut from March 2020 to December 2021. This work is a helpful contribution to the expanding literature on race/ethnic disparities in SARS-CoV-2 mortality, and due to its attention to the differential toll of SARS-CoV-2 in congregate versus non-congregate settings by race/ethnicity is particularly important.

However, motivated by our shared concern about the inequities highlighted by Schultes *et al*, we feel compelled to address the authors' contention that their 'findings suggest that attenuation of racial and ethnic disparities is an achievable public health goal'. We believe that this statement reflects a broadly held misapprehension about the meaningfulness of declining mortality rate ratios (MRRs) as evidence of progress against inequity in pandemic-related mortality.

While changes in the MRR for non-whites as compared with whites—the main indicator of disparity used in the paper—may reflect some progress against race/ethnic and class-based disparities SARS-CoV-2 in infection and mortality, a narrow focus on declining group-specific MRRs may paint a far more optimistic picture of this progress than is warranted.

On a methodological level, ratio-based measures of SARS-CoV-2 inequality are made difficult to interpret because of their susceptibility to

distortion from change in the denominator: Diminishing MRRs by race may reflect declines in the numerator (the minoritised group in question) or increases in the denominator (an advantaged group, typically whites). In fact, Lawton *et al*² found that much of the declines in county-level SARS-CoV-2 MRRs by race were better explained by increasing overall prevalence reflecting increased infection and death among whites than precipitous declines in infection among non-whites.

From a health justice perspective, it is critical that within-pandemic successes in attenuating disparities not be conflated with success in combating racial capitalism³ and other manifestations of structural racism which contributed to differential participation in hazardous 'essential work' and other risks⁴ that made irreversible early-pandemic mortality disparities inevitable.

We suggest that, at a minimum, researchers and policymakers contemplate a simple thought experiment before concluding that secular declines in race/ethnic MRRs for COVID-19 suggest progress against infection inequity: If a novel pandemic characterised by similar lethality and transmissibility to SARS-CoV-2 was to emerge in the coming months, would the factors that led to declining MRRs *during* this pandemic translate into dramatically decreased disparities in death at the beginning of the next one? We doubt it and advocate for caution in interpretation of these declines as a result.

Jon Zelner ^{1,2}, Ramya Naraharisetti^{1,2}

¹Epidemiology, University of Michigan School of Public Health, Ann Arbor, Michigan, USA

²Center for Social Epidemiology and Population Health, University of Michigan School of Public Health, Ann Arbor, Michigan, USA

Correspondence to Dr Jon Zelner, Epidemiology, University of Michigan School of Public Health, Ann Arbor, Michigan, USA; jzelner@umich.edu

Twitter Jon Zelner @jzelner

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ORCID iD

Jon Zelner <http://orcid.org/0000-0002-0708-2008>

REFERENCES

- Schultes O, Lind ML, Brockmeyer J. Closing the health inequity gap during the pandemic: COVID-19 mortality among racial and ethnic groups in Connecticut, March 2020 to December 2021. *J Epidemiol Community Health* 2022.
- Lawton R, Zheng K, Zheng D, *et al*. A longitudinal study of convergence between black and white COVID-19 mortality: a County fixed effects approach. *The Lancet Regional Health - Americas* 2021;1:100011.
- Laster Pirtle WN. Racial capitalism: a fundamental cause of novel coronavirus (COVID-19) pandemic inequities in the United States. *Health Educ Behav* 2020;47:504–8.
- Chang S, Pierson E, Koh PW, *et al*. Mobility network models of COVID-19 explain inequities and inform reopening. *Nature* 2021;589:82–7.