

## Peer Review

# Review of: "Understanding the United States Black-White Life Expectancy Gap, 2007-2018"

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The paper, "Understanding the United States Black-White Life Expectancy Gap, 2007-2018," aims to contribute to the extensive literature on the US Black-White life expectancy gap. Using the National Health and Nutrition Examination Survey and survival analysis, the author finds that education and income explain a substantial portion of the Black-White life expectancy gap. The paper could benefit from more thorough engagement with the existing literature as well as a clear data and methods section.

## Introduction:

- The author should more clearly discuss the contributions of the paper to the literature. How does this analysis differ from the existing literature on Black-White life expectancy variation?
- The author cites a paper from Schwandt and colleagues which found that, "Black American life expectancy increased more than White American life expectancy in all US areas." Be clear about what is meant by "in all US areas" (regions, states, counties, etc.).

## Data Source:

- The author mentions that the analysis focuses on the years 2007 to 2018 because "US life tables with specific results for Non-Hispanic Black and White populations were first published in 2006." It is unclear why this is relevant since published life tables are not used in the analysis. Additionally, race- and sex-specific US life tables have been published for decades by the CDC and NCHS.
- How many deaths were there in the sample over the study period? How many person-years? The basic descriptive statistics for a survival analysis are not presented.

- Given the increasing proportion of adults with high levels of education across successive cohorts, a discussion of the age composition of the sample is needed. In particular, does the age composition of the NHB and NHW sample differ? If so, by how much?

#### Covariates:

- It is highly likely that educational attainment and income are correlated, which leads to concerns about multicollinearity in the models. If educational attainment and income are not correlated in this data set, then this should be explained.
- Were the quartiles for the income measure created before or after sample weights were applied?

#### Data Analysis:

- Overall, this section needs to be clearer. There is a lack of specificity about the models and analytic strategy. In the results section, it is mentioned that the proportional hazards assumption fails, which is a serious problem for Cox and Weibull parametric models. How is this addressed? There is little justification for the use of the flexible parametric survival model.
- The author mentions that “Time-dependent effects (non-proportional excess hazards) were included with 3 degrees of freedom,” which variables in the models is the author considering time-dependent? Since the author mentions in the limitations section that education and income are only measured once, it is unclear what variables are time-varying.

#### Sample Characteristics:

- The percentage of respondents missing income is concerning since it is a key variable in the analysis. A discussion of how this high missingness is accounted for is necessary to allay fears about the potential for bias.

#### Results:

- Outputs from the models should be included in the paper beyond just the life expectancy gaps in table 3.

#### Discussion:

- A more robust discussion to position the findings within the broader literature would improve the paper. There is little engagement with the literature that explores the role of racism in initiating

and perpetuating health disparities.

Other:

- There is a lack of consistency in the use of Black and White or Non-Hispanic Black and Non-Hispanic White.
- At times, the author is explicit about which measure of life expectancy is being discussed (i.e., life expectancy at 20 or 40 years), while at others it is unclear (presumably life expectancy at birth).

## **Declarations**

**Potential competing interests:** No potential competing interests to declare.