Mortality Rates by Race and Ethnicity Among People with Disabilities*

Madeline Helfer† Becky Staiger‡ Jessica Van Parys§

January 29, 2026

Abstract

This paper uses Medicaid claims data from 2017-2021 to measure racial disparities in mid-life mortality among low-income adults with disabilities receiving Supplemental Security Income (SSI). We find that White and American Indian and Alaskan Native SSI recipients have the highest mid-life mortality rates (2.6% and 2.9%), followed by Blacks and Hispanics (2.1% and 1.7%), and then Asians (1.6%). We find differences in chronic conditions, "despair-related" conditions, substance use disorders, and disabling conditions by race/ethnicity; however, none of these factors fully explains the White-Black mortality gap. Our results show that among a socioeconomically vulnerable population, Black adults outlive Whites.

*The research reported herein was derived in whole or in part from research activities performed pursuant to grant RDR18000003 from the US Social Security Administration (SSA) funded as part of the Retirement and Disability Research Consortium (RDRC). The opinions and conclusions expressed are solely those of the authors and do not represent the opinions or policy of SSA, any agency of the Federal Government, or the NBER. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof. We thank Nicole Maestas, who directed the former NBER RDRC, and we thank Mohan Ramanujan, who helped us access data at the NBER. Madeline Helfer further acknowledges support by the National Science Foundation Graduate Research Fellowship under Grant No. 2234657.

†Boston University. Email: mshelfer@bu.edu

‡UC Berkeley. Email: bstaiger@berkeley.edu

§Hunter College, CUNY and NBER. Email: jessica.vanparys@hunter.cuny.edu

1 Introduction

There are large differences in life expectancy between racial/ethnic groups in the U.S. (Dwyer-Lingren et al., 2023; Ndugga, Hill and Artiga, 2024; Arias, Xu and Kochanek, 2025; Kaestner, Gangopadhyaya and Schiman, 2025). From 2000–2019, White non-Hispanic Americans lived between 3.6 to 5.8 longer than Black Americans, on average, and 4.1 to 5.8 years longer than American Indian and Alaskan Native (AIAN) Americans (Dwyer-Lindgren et al., 2022). While the magnitudes of these differences have changed over time—declining with increased mid-life mortality rates among White Americans in the early 2000s (Case and Deaton, 2021; Schwandt et al., 2021) and increasing again with the COVID-19 pandemic and opioid crisis' impact on Black Americans (Andrasfay and Goldman, 2021; Alsan, Chandra and Simon, 2021; Hébert and Hill, 2024; Miller, Wherry and Mazumder, 2021)—life expectancy at birth for the average White American is still nearly 5 years higher than the average Black American as of 2023 (Arias, Xu and Kochanek, 2025).

However, understanding *why* White non-Hispanic Americans ("Whites") live longer than Black and AIAN Americans remains unclear. One hypothesis is that Whites have more socioeconomic advantages, which lead to better health (Town et al., 2024; Williams and Jackson, 2005; Alexander and Currie, 2017; Cullen, Cummins and Fuchs, 2012; Morenoff et al., 2007; Foote et al., 2025). These advantages are easily observed empirically: in surveys of working-age Americans, Whites have more education, higher incomes, higher rates of home ownership, and more wealth than AIAN and Black Americans (Bhutta et al., 2020; Karna et al., 2025; Budig, Lim and Hodges, 2021). Whites also have lower rates of disability and unemployment than these other groups (Goodman, Morris and Boston, 2017; BLS, 2024; Steinweg, 2023). A large body of research establishes that higher socioeconomic status (SES) is positively correlated with good health and longevity in general (Currie, 2009; Cutler, Lleras-Muney and Vogl, 2011; Chetty et al., 2016). However, few studies have used administrative data to determine whether differences in SES characteristics can fully explain disparities in mid-life mortality by race/ethnicity.

One way to test whether socioeconomic status explains differences in life expectancy by race/ethnicity is to determine whether Whites still have lower mortality rates compared to AIAN and Black adults while holding SES constant across these groups. In this paper, we utilize national Medicaid administrative claims data from 36 states and D.C. from 2017-2021 to explore whether differences in mid-life mortality rates persist by race/ethnicity within an otherwise socioeconomically homogeneous population. Our

focus on mid-life mortality is due to its role in driving recent fluctuations in life expectancy gaps by race/ethnicity.

Our sample includes low-income, working-age adults (ages 18-64) with disabilities who are enrolled in Supplemental Security Income (SSI) and Medicaid. SSI and Medicaid are programs that provide financial support to low-income people with disabilities (PWD). SSI provides monthly payments to low-income individuals who have work-limiting disabilities. Medicaid covers healthcare costs for low-income PWD.

A key feature of our approach is our sample's shared socioeconomic characteristics: adults with disabilities who receive SSI face strict eligibility requirements to receive cash assistance and Medicaid health insurance. Their income must remain below $967 for single adults (or $1,450 for couples), their assets must be less than $2,000 ($3,000 if married), and their disability must be severe enough to limit their capacity to work. Therefore, the adults in our sample have similar rates of disability and employment, and similar average incomes and assets, but they differ in terms of race and ethnicity. We show these facts empirically using the Current Population Survey data.

Our sample is well-suited to measuring mid-life mortality rates by race/ethnicity among PWD for three reasons. First, low-income adults with disabilities who receive SSI are typically eligible for Medicaid; therefore, the Medicaid database we use is the most comprehensive data set for tracking the health of the SSI population. Second, the SSI population is more racially and ethnically diverse than the general population—32.0% of SSI recipients are Black, 14.6% Hispanic, 2.4% Asian, and 1.5% AIAN—obviating concerns about estimating mid-life mortality rates for small racial/ethnic groups. Third, we find that less than 3% of working-age SSI enrollees exit Medicaid each year for reasons other than death, which means that we observe mid-life mortality (or not) for the vast majority of SSI recipients.

Our methods are simple; we rely on the richness of our data to help explain racial/ethnic differences in mid-life mortality among adults with disabilities. First we estimate unadjusted mortality rates for SSI recipients from 2017–2021 by race/ethnicity (White, Black, Hispanic, Asian, and AIAN). Next, we adjust these rates for the recipient's age, sex, disability type, dual Medicaid-Medicare status, an urban county-of-residence indicator, and state-by-year fixed effects. Then we progressively add other predictors of mid-life mortality that might be correlated with race/ethnicity, such as indicators for 30 chronic conditions, indicators for 10 "despair and substance use related conditions," and 27 indicators for

"other chronic and disabling conditions." Then, we control for county-of-residence fixed effects instead of the urban county indicator. Finally, we control for average smoking rates among low-income people in the SSI recipient's same racial/ethnic group, state, and year. The goal of estimating these models is to determine if the gaps in mid-life mortality by race/ethnicity are eliminated when adults have similar SES characteristics and clinical profiles.

Our results are striking. We first show that the White unadjusted mid-life mortality rate is *higher* than the Black and Hispanic mortality rate, though lower than the AIAN mortality rate. Adjusting for characteristics such as sex, age, and disability type does not change our result. Next, we show that the rank order of mortality rates (highest to lowest) by race/ethnicity is persistent across the age distribution from 18-64: namely, AIAN mortality (2.92%) exceeds White mortality (2.55%), which exceeds Black (2.12%) and Hispanic mortality (1.69%), which exceeds Asian mortality (1.63%). We then show that differences in diagnosed health conditions do not explain the relatively high White mid-life mortality rate. Controlling for chronic conditions, despair conditions (e.g., chronic liver disease, chronic pain, and mental health conditions), substance use disorders, and other chronic and disabling conditions diminishes the differences between the White mortality rate and the Black mortality rates only slightly, with Black SSI recipients remaining 13.6% less likely to die than their White counterparts. Similarly, the AIAN mortality rate continues to exceed the mortality rate for all other racial/ethnic groups. Then we show that controlling for the county in which individuals live does not significantly change our estimates. Aggregated measures of smoking do not alter estimated gaps in mortality.[1] Our final estimates still show that low-income AIAN and White SSI recipients have the highest mid-life mortality rate among all five racial/ethnic groups.

One potential concern with a sample of SSI enrollees is that Whites may enter SSI in poorer health, on average, compared to other racial/ethnic groups. We take three approaches to address potential selection into SSI by race/ethnicity. First, we control for 67 diagnosed health conditions, where we define these health conditions flexibly and we require SSI enrollees to have at least one year of Medicaid enrollment in which to observe the 67 conditions. Since we control for such an extensive number of observable health conditions, Whites must be *unobservably* sicker than Blacks in SSI for selection to explain the reverse White-Black mortality gap. Second, we use the American Community Survey (ACS) to measure SSI take-up rates by race/ethnicity among people who are likely eligible for SSI (i.e., unmarried, low-

[1]This is in contrast to Foote et al. (2025), who find long-run smoking rates explain a substantial share of education mortality gaps in the U.S.

income PWD). We show that Black low-income PWD are 4.7 percentage points more likely to take-up SSI than their White counterparts, potentially making a case for selection. In response to this evidence, we use the estimated difference in SSI take-up rates to construct "Lee bounds" on our White-Black mid-life mortality gap. We show that the selected subsample of Black SSI recipients would need to have a mid-life mortality rate less than zero to equalize the mid-life mortality rates across the White and (non-selected) Black SSI samples. Third, we recreate our results for a sample of SSDI recipients enrolled in Medicare and/or Medicaid, where the Black SSDI take-up rate is only 1 percentage point higher than the White SSDI take-up rate. And yet, we still estimate that the Black mid-life mortality rate is 7.8% lower than White mid-life mortality rates among SSDI recipients. Altogether, our results suggest that differential selection into SSI/SSDI by race/ethnicity is unlikely to fully explain the reverse White-Black mortality gaps.

Overall, our paper extends the racial health disparities literature by demonstrating that once socioeconomic (dis)advantage is more equalized across groups, Black individuals outlive Whites in middle age. Our results are consistent with other research on low-income populations, but are less consistent with research on the general U.S. population (e.g., Dwyer-Lindgren et al. (2022)). Research on the general U.S. population shows that mid-life mortality is highest among AIAN, then Black, then White non-Hispanic Americans; whereas we find that mid-life mortality is highest among AIAN, then White non-Hispanic, then Black low-income PWD. Our results more closely mirror studies of other socioeconomically vulnerable populations, such as the homeless, where the mid-life mortality rate of Whites exceeds Blacks, on average (Fowle, Chang and Saxton, 2024). Our findings also resemble Novosad, Rafkin and Asher (2022), who find that the White mortality rate exceeds the Black mortality rate among adults in the bottom 10% of the education distribution. Therefore, our paper shows that there is a disconnect between what is happening to the relative health of *average* White and Black Americans, and what is happening to the relative health of *low-SES* White and Black Americans. One interpretation of our results is that socioeconomic factors play a large role in explaining racial/ethnic health disparities in the general population.

2 Data and Descriptive Statistics

To identify SSI recipients and their health outcomes, we use Medicaid administrative claims from the Transformed Medicaid Statistical Information System (T-MSIS) Analytical Files (TAF), 2017-2021.

The TAF data provide a complete record of Medicaid claims for hospitalizations, long-term care, other services, and prescriptions, allowing us to identify diagnoses and health characteristics across many different care settings in 50 states and D.C. The TAF also contain a rich array of demographic, geographic, and eligibility-related information for enrollees with fee-for-service (FFS) or managed-care (MC) benefits, which enables us to identify individuals' SSI receipt, race/ethnicity, and county of residence, among other key characteristics that may be associated with mortality.

The TAF data offer several advantages over other data sources that have previously been used to document mortality differences. First, the TAF data represent a near-universe of SSI recipients across the U.S. In 2021, 84% of SSI recipients received Medicaid coverage, due in large part to the tight link between SSI receipt and Medicaid eligibility (Giefer, 2023). State Medicaid programs fall into 3 categories: 1634 (34 states + D.C.), SSI Criteria (8 states), and 209b (8 states). In both 1634 and SSI Criteria states, SSI receipt guarantees Medicaid eligibility, and there is automatic enrollment in 1634 states. SSI recipients in 209b states face additional eligibility requirements for Medicaid; however, given the low income and asset limits for the SSI program, many SSI recipients in 209b states qualify for coverage through other pathways (Rupp and Riley, 2016). Therefore, Medicaid administrative claims provide a unique opportunity to study a representative sample of the SSI population.

We identify SSI recipients in the TAF as Medicaid beneficiaries with reported SSI receipt or Medicaid eligibility through SSI in any month of the given calendar year.[2] We further restrict our sample to SSI recipients aged 18-64 years. We do this to remove Child (<18) and Aged (65+) SSI recipients, who face different eligibility criteria than working-age adults (Duggan, Kearney and Rennane, 2015). We also restrict to SSI recipients who were enrolled in Medicaid in the prior reporting year. We do this to ensure that we have enough Medicaid claims history to construct a clinical profile for each adult in our sample. We additionally remove SSI recipients missing key demographic information – namely race, sex, and county of residence. Finally, once an adult receiving SSI enters our sample, they remain in our sample as long as they remain enrolled in Medicaid. In other words, we allow for adults to "churn" in and out of SSI eligibility while remaining in Medicaid.[3]

One concern with using the TAF is that mortality may be underreported in certain states and years (Li and Udalova, 2025). We account for this in two ways. First, we merge TAF records to the Medicare Beneficiary Summary File (MBSF) to supplement TAF date-of-death information for dual Medicare-

[2]Please refer to Appendix B.1 to see how we define SSI receipt in the TAF.

[3]The share of adults who churn out of SSI for causes unrelated to death is about 3% per year.

Medicaid enrollees in our sample. Second, in our main results, we drop 111 state-year observations with greater than 10% missing deaths as reported in Li and Udalova (2025).[4] However, we show that the mortality differences by race/ethnicity are similar regardless of whether we drop the state-years with >10% missing deaths (Appendix Table A5). This suggests that missing deaths may be less problematic in the SSI sample overall and/or that the degree of missing deaths does not vary by race/ethnicity.

Another advantage of the TAF is its vast information on beneficiary health. The TAF allows us to identify chronic conditions, other disabling conditions, substance use disorders (SUD), and conditions commonly associated with the "deaths of despair" literature (Case and Deaton, 2017). Specifically, we identify 30 chronic conditions using the Centers for Medicare & Medicaid Services (CMS) Chronic Conditions Warehouse (CCW). These conditions include disorders with large, documented racial/ethnic disparities in incidence, such as hypertension, diabetes, and heart disease (Boustan and Margo, 2014; Hutchinson and Shin, 2014; Sequist, Cullen and Acton, 2011; Lee, Brancati and Yeh, 2011). We identify 27 indicators for "other chronic and disabling conditions" from the CMS CCW, which include epilepsy, muscular dystrophy, autism, and hepatitis, among others. We determine whether SSI recipients have any substance use disorder (SUD) by following the technical specifications in Baller et al. (2021). Finally, we identify the health conditions discussed in Case and Deaton (2015), such as chronic liver disease, chronic pain, obesity, and mental health disorders.[5] For all conditions, we utilize claims for the full preceding calendar year to ensure we capture a full clinical profile of beneficiaries prior to death.[6] By measuring the clinical profiles of SSI recipients, we can show how mortality rates differ by race/ethnicity for people with the same diagnosed conditions.

We define several additional variables from the TAF. First, we focus on five racial/ethnic categories: White (non-Hispanic), Black (non-Hispanic), Hispanic, Asian, and American Indian and Alaska Native (non-Hispanic).[7] Second, we code other covariates for our analysis, including sex (male or female), age (1 year bins), whether the individual is dually-enrolled in Medicare ("duals"), whether the individual lives in an urban county, and whether the individual has one of six documented disabilities (e.g., vision

[4]Importantly, Li and Udalova (2025) report only 0.9%-1.5% of deaths recorded in the TAF were omitted in the Census Numident file, while an average of 13.5% of deaths recorded in the Census were missing in the TAF.

[5]Please refer to Table B1 for the full list of health conditions.

[6]To identify these conditions, we use all claims from the inpatient, other services, and long term care files. A beneficiary is classified as having a specific condition if they have at least one claim containing a diagnosis code associated with that condition in the preceding year. Our coding approach is broader than the CCW algorithm, which typically requires multiple claims to justify a diagnosis. We adopt this broader approach to mitigate the impact of disparities in access to care by race/ethnicity, which have been highlighted in related literature (Ndugga, Hill and Artiga, 2024). Nevertheless, our results are robust to using the more restrictive CCW algorithmic approach.

[7]We define SSI recipients who report non-Hispanic multiracial identity as Black non-Hispanic.

difficulties, difficulty doing errands, etc.).[8] Finally, we code our outcome variable —an indicator for mortality —using the date of death in the TAF.

To motivate our focus on SSI recipients for this study, Panel A of Table 1 presents average socioeconomic characteristics of working-age SSI recipients using the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) for 2017-2021. The CPS data show small socioeconomic differences between White SSI recipients and SSI recipients of other races/ethnicities (Table 1 Panel A). The SES differences between White and Black SSI recipients, in particular, are much smaller than what we observe in the general population (Table A1). For instance, Black-White gaps in income among SSI recipients are 6.4% the size of these income gaps in the full population. Nevertheless, even among SSI recipients, we still find that Whites are slightly more advantaged in income, home ownership, and rates of college education compared to Black, Hispanic, and AIAN SSI recipients. We return to this fact when discussing our main results. Lastly, the percentage of SSI respondents in CPS who report being in "Poor Self-Reported Health" previews the main result of our paper; namely, 23.2% of White SSI recipients report poor health compared with 20.3% of Black SSI Recipients, 21.0% of Hispanic SSI recipients, 13.7% of Asian SSI recipients, and 27.2% of AIAN SSI recipients. Therefore, the CPS data also show that White SSI recipients are in poorer health than other racial/ethnic groups, with the exception of AIAN.

In Table 1 Panel B, we present summary statistics of SSI recipients identified in the TAF 2017-2021. While average age is similar across SSI recipients in our sample, Asian recipients are the oldest at 46 years, followed by White and AIAN (46), Black (45), and Hispanic (44). Share female in the sample is similar across racial/ethnic groups, ranging from 50% among Asian SSI recipients to 54% among Black SSI recipients. However, large differences emerge when we examine urbanicity.[9] 94% of Asian SSI recipients reside in an urban county, followed by 82% of Hispanic recipients, 69% of Black recipients, 48% of White recipients, and 36% of AIAN recipients. These significant geographic differences motivate our use of an urban county indicator, state-by-year fixed effects, and ultimately county fixed effects.

Several interesting patterns emerge when we examine the clinical profile of SSI recipients in Table 1 Panel B. Asian SSI recipients report the highest rate of chronic conditions (45%), followed by AIAN (44%), Black (41%), Hispanic (40%), and White recipients (40%). Rates of "despair" conditions —liver

[8]The full list of 6Q disabilities includes vision difficulties, hearing difficulties, concentrating difficulties, difficulties dressing/bathing, difficulty doing errands, difficulty walking, or other disability.

[9]We define urban counties as those with 200,000 or more residents.

disease, chronic pain, and mental health disorders —are the highest among AIAN SSI recipients (52%), though Hispanic recipients are second highest.[10] SUD is the highest among AIAN (23%) and White (21%) SSI recipients, consistent with estimates for the full U.S. population (Dwyer-Lindgren et al., 2023). Controlling for health conditions could, therefore, be critical for explaining racial/ethnic gaps in mortality among SSI recipients.

3 Empirical Approach

Our empirical goal is to compare mortality rates across populations that are as similar as possible along key dimensions (socioeconomic status, age, gender, clinical profile, and geographic location), but who differ by race/ethnicity. To do so, we use least squares to estimate models of the following form:[11]

$$P(death_{ist} = 1) = \beta_1 Black_i + \beta_2 Hispanic_i + \beta_3 Asian_i + \beta_4 AIAN_i + \Gamma X_{ist} + \lambda_{st} + u_{ist} \qquad (1)$$

where $death_{ist}$ is a binary variable indicating whether SSI recipient i in state s died in year $t \in (2017, 2021)$. Our coefficients of interest are the βs, showing how the average probability of mortality differs for Black, Hispanic, Asian, and AIAN SSI recipients relative to White SSI recipients. X_{ist} is a vector of the SSI recipients' demographic characteristics including sex (male or female), "6 question" disability indicators, age (1-year bins), a dual Medicaid-Medicare enrollment indicator, and an urban county-of-residence indicator. In models (2)–(4), we control for 29 chronic conditions, 10 "despair conditions" and an indicator for a substance use disorder, and 27 other chronic and disabling conditions. In model (5) we replace the urban county indicator with county-of-residence fixed effects. In our final model (6), we assign each SSI recipient in our sample the average tobacco smoking rate for their race/ethnic group in their state and year using the CPS Tobacco Supplement.[12] In all specifications, we include state-by-year fixed effects (λ_{st}) and report heteroskedasticity-robust standard errors.

[10] This is largely due to the disproportionate rate of liver disease among the Hispanic population (Carrion et al., 2011).

[11] We have also estimated non-linear, logistic models. Results are similar and appear in the Appendix (see Table A4).

[12] Average tobacco smoking rates are calculated among respondents whose incomes fall below 100% of the federal poverty line (FPL), stratified by race/ethnicity, state, and year. Since the CPS Tobacco Supplement is administered only in select years, we impute missing values by carrying forward the most recent available estimates: the 2015 average for 2016, the 2018 rate for 2017, the 2019 rate for 2020, and the 2022 rate for 2021.

4 Results

Figure 1 displays unadjusted (dark blue bars) and adjusted (light blue bars) mortality rates by race/ethnicity among SSI recipients ages 18-64. Our unadjusted estimates show that mortality rates are highest among AIAN adults (2.9%), followed by White (2.6%), Black (2.1%), Hispanic (1.7%), and Asian adults (1.6%). The mean mortality rate in the SSI sample is 2.3%, which is nearly three times as large as the mid-life mortality rate among all U.S. adults ages 18-64 in 2019 (0.78%) (Dwyer-Lindgren et al., 2023). Adjusting the mortality rates by age (1-year bins), sex, type of disability, dual Medicaid-Medicare enrollment, an urban county indicator, and state-by-year fixed effects barely changes the results. The covariates primarily reduce the difference between Black and Hispanic mortality rates. This occurs, in part, because Hispanic SSI recipients are relatively younger than other racial/ethnic groups in SSI (Table 1 Panel B). In Appendix Figure A2 we split the sample by sex. We find that mortality rates are higher among men than women, but that the rank ordering (highest to lowest) of mortality rates by race/ethnicity is the same regardless of sex.

Figure 2 shows how adjusted mortality rates change across the age distribution by race/ethnicity. As expected, mortality rates increase significantly with age across all racial/ethnic groups, from about 1% of the SSI population ages 35–39 to nearly 4.5% of the SSI population ages 60–64. AIAN SSI recipients have the highest mortality rate starting at ages 25–29, and persisting until their mortality rate is statistically similar to Whites at ages 55–59. At the other extreme, Asian mortality rates remain below rates for the other groups at every point in the age distribution. White mortality rates start increasing faster than Black and Hispanic mortality rates around ages 45–49, and are statistically similar to AIAN mortality rates by ages 55–59.

Table 2 shows results from estimating Equation 1, with and without controls for clinical diagnoses, county-of-residence, and race-state-year-imputed smoking rates. The goal of Table 2 is to explain why White SSI recipients die at a higher rate than other racial/ethnic groups, except AIAN, on average. Column 1 shows how Black, Hispanic, Asian, and AIAN mortality rates compare to White mortality rates (the omitted group) after controlling for 1-year age bins, sex, type of disability, dual Medicaid-Medicare enrollment, an urban county-of-residence indicator, and state×year fixed effects. The results in Column 1 mirror the results shown in the light blue bars in Figure 1: Black mortality is 14% lower than White mortality, Hispanic mortality is 22% lower than White mortality, Asian mortality is 32%

lower than White mortality, and AIAN mortality is 18% higher than White mortality, on average.

Column 2 of Table 2 adds indicators for 29 chronic conditions. Table 1 showed that White SSI recipients are the least likely to have a diagnosed chronic condition (40%) compared to all other racial/ethnic groups. In addition, Appendix Table A2 shows that the types of diagnosed chronic conditions vary by race/ethnicity. For example, White SSI recipients have the highest rate of chronic obstructive pulmonary disease diagnoses among all racial/ethnic groups, while Black SSI recipients have the highest rates of diagnosed hypertension and heart failure. Once we control for these differences, Black mortality is now 17% lower than White mortality, Hispanic mortality is 20% lower than White mortality, Asian mortality is 22% lower than White mortality, and AIAN mortality is 11% higher than White mortality.

Column 3 of Table 2 adds indicators for the despair-related conditions and an indicator for a substance use disorder (SUD). Table 1 demonstrated that AIAN SSI recipients are most likely to have despair conditions (52%) and a SUD (23%). White SSI recipients are diagnosed with a despair-related condition (49%) at a similar rate as all other racial/ethnic groups (48-52%). However, White SSI recipients are the second most likely to have a SUD. Controlling for despair conditions and SUDs brings Black mortality to 15% lower than White mortality. Controlling for despair-related conditions and SUDs brings AIAN mortality down to 9% higher than White mortality. Overall, controlling for despair conditions and SUDs attenuates mortality gaps across all groups.

Column 4 of Table 2 adds indicators for other chronic and disabling conditions that were not included among the original 29 chronic conditions or the 10 despair conditions and SUD. Table 1 showed that Black SSI recipients are the least likely to be diagnosed with one of these conditions (26%), followed by White and Asian recipients (30%). Adding controls for these conditions slightly shrinks the gap between Black and White mortality. Black SSI recipient mortality is now 14% lower than White mortality, Hispanic mortality is 19% lower than White mortality, and Asian mortality is 17% lower than White mortality. AIAN mortality remains 9% higher than White mortality. Taken together, Columns 2-4 show that among SSI recipients with the same diagnosed conditions, AIAN and White SSI recipients die at the highest rates.

Column 5 of Table 2 explores whether geography explains our observed differences in mortality rates between White SSI recipients and the other groups, by adding county fixed effects. We continue to find higher mortality rates among White SSI recipients relative to Black, Hispanic, and Asian SSI recipients. Indeed, our estimated mortality gaps in Column 5 are nearly indistinguishable from those estimated

in Column 4 for all racial/ethnic groups. In addition, there is virtually no improvement in model fit, as measured by the adjusted R^2. The lack of improvement in model fit (R^2) suggests that county-of-residence does not significantly predict SSI recipient mortality rates after accounting for age, sex, disability type, dual Medicaid-Medicare enrollment, chronic conditions, despair conditions, substance use disorders, other disabling conditions, and state-by-year effects. Therefore, time-invariant differences across counties are unlikely to explain why adult White SSI recipients have a higher mid-life mortality rate than Black, Hispanic, or Asian SSI recipients.

Finally, we consider differences in smoking rates as a potential contributor to the relatively high mid-life mortality among White SSI recipients. Unfortunately, the TAF only contains information about whether an enrollee receives treatment for smoking cessation, a variable we already include among the list of SUDs. The TAF does not survey Medicaid enrollees about their smoking behaviors. To address this limitation, we turn to the CPS Tobacco Supplement (TS). The CPS TS asks respondents about their smoking behavior. We restrict the CPS TS to low-income adults, and calculate average smoking rates by racial/ethnic group, state, and year. Then we assign those rates to our SSI recipients in the TAF.[13] Average smoking rates by race/ethnicity appear in Table 1 Panel A. About 29% of low-income White adults report smoking from 2017-2021 compared with only 19% of Black adults, 9% of Hispanic adults, and 6% of Asian adults. The smoking rate is highest among AIAN adults at 33%. The results obtained after including these smoking probabilities appear in Column 6 of Table 2. The White-Black, White-Hispanic, White-Asian, and White-AIAN mid-life mortality gaps diminish only marginally.[14]

What explains the relatively higher mid-life mortality rates among White (vs. Black) SSI recipients? One hypothesis is that Black adults enter the SSI program earlier in their disability history, or in better health than White adults. Appendix Figure A1 shows that the take-up rate of SSI benefits is higher among low-income Black adults with disabilities compared to Whites, perhaps suggesting differential selection into SSI by race/ethnicity. However, we control for 56 chronic and disabling conditions, 10 despair-related conditions, and an indicator for a substance use disorder in our mortality models. If Black SSI recipients are in better health than White SSI recipients, then the reverse White-Black mortality gap should shrink toward zero after controlling for the clinical profiles of the two groups. However, we find that the reverse White-Black mortality gap persists, conditional on diagnoses. This means that White

[13]For example, if the low-income, White adult smoking rate was 0.3 in Alabama in 2017, then our White SSI recipients living in Alabama in 2017 receive a value of 0.3 for their probability of smoking.

[14]We acknowledge this may be due to measurement error in our assigned smoking rates.

SSI enrollees must be in *unobservably* worse health than Black SSI enrollees,[15] in order for differential selection into SSI by race/ethnicity to generate our results.

Nevertheless, we conduct a bounding exercise to determine the extent to which differential selection into SSI by race/ethnicity could explain the reverse White-Black mortality gap in the TAF data. We follow Lee (2009) in our approach. First, we use ACS data to show that the White SSI take-up rate is 38%, while the Black SSI take-up rate is 43% (Appendix Figure A1).[16] The differential SSI take-up rate between Black and White adults is 5 percentage points, or 11% of the Black SSI take-up rate ($11\% = \frac{4.7}{43} \times 100\%$). Therefore, we split the Black SSI enrollee sample into a "trimmed" (89%=100%-11%) component and an "excess" (i.e., selected) component (11%). In Figure 3, we show how differences in the mortality rate in the "selected" sample of Black SSI recipients (i.e., Black SSI recipients in "excess" of the White take-up rate) would impact the Black mortality rate observed in our data (McKenzie, 2024). Figure 3 shows that even if *none* of the Black SSI recipients in the "selected" sample died during our study period, the Black mortality rate would still be smaller than the White mortality rate (2.5%). Therefore, differential selection into the SSI program by Black and White adults, as a function of unobserved health, is unlikely to fully explain our results.

To provide another piece of evidence in support of our claim that differential selection into SSI by race/ethnicity is unlikely driving our results, we re-estimate Figure 1 for recipients of Social Security Disability Insurance (SSDI) ages 18-64 who are enrolled in Medicare and/or Medicaid. SSDI recipients generally have higher incomes and longer work histories than SSI recipients, and they qualify for Medicare health insurance after a 24-month waiting period. The differences in SSDI take-up rates by race/ethnicity are also smaller than in SSI. Panel A in Figure A3 shows the White SSDI take-up rate is 22.9%, while the Black SSDI take-up rate is 24.2%, making the differential take-up rate 1.3 percentage points. Meanwhile Panel B in Figure A3 shows that the adjusted White SSDI mortality rate is 2.8%, while the adjusted Black SSDI mortality rate is 2.5%, again highlighting a reverse White-Black mortality gap among adults with disabilities. Appendix Figure 3 shows the results from the Lee bounding exercise for SSDI recipients. Even with a mortality rate of 0 in the "excess" subsample of Black SSDI enrollees, the mortality rate

[15] For example, if White SSI enrollees have stage IV lung cancer, on average, while Black SSI enrollees have stage I lung cancer, on average.

[16] We calculate the SSI take-up rate as the # SSI enrollees divided by the total # of low-income, unmarried PWD in the ACS, by race/ethnicity. We note that the take-up rates are sensitive to how we construct the denominator. For example, the Black SSI take-up rate is much larger than the White SSI take-up rate if we use the full Black/White population as the denominator; however, the goal of our paper is to compare outcomes for people with similar socioeconomic characteristics. Hence we limit the denominator to people who are most likely to be eligible for SSI (low-income and disabled).

in the "trimmed" subsample of Black SSDI enrollees would be smaller than the mortality rate of White SSDI recipients.[17]

One limitation of our study is that TAF data has known data quality issues. The primary data quality concerns in our context are (i) incomplete reporting of race/ethnicity data and/or (ii) missing dates of death for some Medicaid enrollees. However, our results are robust to restricting to the 20 states with sufficiently high-quality race/ethnicity data (Appendix Table A3).[18] We similarly restrict to states with $< 10\%$ misreported deaths following Li and Udalova (2025), but note that our results are similarly robust to including all states (Appendix Table A5). Thus, it is unlikely that data quality issues drive our results, particularly when rates of missing deaths would have to differ systematically by race/ethnicity to bias our estimates.

5 Conclusion

This paper presents two key findings that advance our understanding of mid-life mortality in the United States. First, we show that mid-life mortality rates overall are nearly three times higher among low-income people with disabilities who receive Supplemental Security Income (SSI) than the general population (Dwyer-Lindgren et al., 2023). Second, we show that White and AIAN SSI recipients have higher mid-life mortality rates than similar Black, Hispanic, and Asian individuals. While prior research has demonstrated that AIAN individuals have the highest mortality rates among these racial/ethnic groups, our study finds a reverse White-Black mortality gap compared to other studies (Dwyer-Lingren et al., 2023; Doza, Jensen and Tarraf, 2021; Luo, Hendryx and Wang, 2021; Schwandt et al., 2021; Kaestner, Gangopadhyaya and Schiman, 2025).

Our results suggest that differences in average life expectancy between White and Black adults may not apply to low-SES populations. Even after accounting for health conditions (such as diseases of despair) and risky health behaviors (such as tobacco use) that are more common among White (vs. Black) individuals, we find that White SSI recipients have higher mortality rates than Black SSI recipients. This finding is particularly notable because we also show that White SSI recipients are slightly more economically advantaged than Black SSI recipients, as measured by average income, home ownership rates, and college education rates. Prior research using data through 2019 has demonstrated

[17] The full SSDI sample average mortality rate is 2.7%.

[18] These states include: CA, DE, FL, GA, ID, IL, IN, KY, ME, MN, NC, NH, ND, NJ, NM, OH, SD, VA, VT, WI.

that the White-Black mortality gap closes after adjusting for income (Doza, Jensen and Tarraf, 2021; Luo, Hendryx and Wang, 2021; Kaestner, Gangopadhyaya and Schiman, 2025); now, using more recent data on PWD, we show that the gap reverses. Our result is broadly consistent with Novosad, Rafkin and Asher (2022), who also find a reverse White-Black mortality gap in the least educated 10% of U.S. adults ages 50+ from 2016-2018. Future research could explore why racial health disparities in low-SES populations are different than the patterns observed in the general population.

References

Alexander, Diane, and Janet Currie. 2017. "Is it who you are or where you live? Residential segregation and racial gaps in childhood asthma." *Journal of Health Economics*, 55: 186–200.

Alsan, Marcella, Amitabh Chandra, and Kosali Simon. 2021. "The Great Unequalizer: Initial Health Effects of COVID-19 in the United States." *Journal of Economic Perspectives*, 35(3): 25–46.

Andrasfay, Theresa, and Noreen Goldman. 2021. "Reductions in 2020 US life expectancy due to COVID-19 and the disproportionate impact on the Black and Latino populations." *Proceedings of the National Academy of Sciences*, 118(5): e2014746118.

Arias, Elizabeth, Jiaquan Xu, and Kenneth Kochanek. 2025. "United States Life Tables, 2023." *National Vital Statistics Reports*, 74(6).

Baller, Julia, Allison Barrett, Preeti Gill, Andres Arguello, Puja Nair, Kimberly Proctor, Jessie Parker, and Jeffrey Galecki. 2021. "Identifying Beneficiaries with a Treated Substance Use Disorder (SUD): Technical Specifications." Centers for Medicare & Medicaid Services (CMS), Medicaid and CHIP Business Information Solutions (MACBIS) Technical Report. Prepared by Mathematica and CMS, Center for Medicaid and CHIP Services.

Bhutta, Neil, Andrew C. Chang, Lisa J. Dettling, and Joanne W. Hsu. 2020. "Disparities in Wealth by Race and Ethnicity in the 2019 Survey of Consumer Finances." *FEDS Notes*.

BLS. 2024. "Labor force characteristics by race and ethnicity, 2023." Bureau of Labor Statistics 1113.

Borchgrevink, Petter C., Mari Glette, Astrid Woodhouse, Stephen Butler, Tormod Landmark, Pål Romundstad, Ola Dale, Tore C. Stiles, Kaare H. Bonaa, Dagfinn Thorsvik, Sabina Thünte, and Stein Kaasa. 2022. "A Clinical Description of Chronic Pain in a General Population Using ICD-10 and ICD-11 (The HUNT Pain Examination Study)." *The Journal of Pain*, 23(2): 337–348. Publisher: Elsevier.

Boustan, Leah, and Robert A Margo. 2014. "Racial Differences in Health in Long-Run Perspective: A Brief Introduction." National Bureau of Economic Research Working Paper 20765.

Budig, Michelle J., Misun Lim, and Melissa J. Hodges. 2021. "Racial and gender pay disparities: The role of education." *Social Science Research*, 98: 102580.

Carrion, Andres F., Ravi Ghanta, Olveen Carrasquillo, and Paul Martin. 2011. "Chronic Liver Disease in the Hispanic Population of the United States." *Clinical Gastroenterology and Hepatology*, 9(10): 834–841.

Case, Anne, and Angus Deaton. 2015. "Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century." *PNAS*, 112(49).

Case, Anne, and Angus Deaton. 2017. "Mortality and Morbidity in the 21st Century." *Brookings Papers on Economic Activity*, 2017: 397–476.

Case, Anne, and Angus Deaton. 2021. "Life expectancy in adulthood is falling for those without a BA degree, but as educational gaps have widened, racial gaps have narrowed." *Proceedings of the National Academy of Sciences*, 118(11): e2024777118.

Centers for Medicare & Medicaid Services. 2025*a*. "DQ Atlas." https://www.medicaid.gov/dq-atlas/welcome, Accessed: July 2025.

Centers for Medicare & Medicaid Services, Chronic Conditions Warehouse (CCW). 2025*b*. "30 CCW Chronic Conditions Algorithms & Other Chronic Health, Mental Health, and Potentially Disabling Conditions Algorithms." Chronic Conditions Warehouse (CCW), CMS.

Chetty, Raj, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron, and David Cutler. 2016. "The Association Between Income and Life Expectancy in the United States, 2001–2014." *JAMA*, 315(16): 1750–1766.

Cullen, Mark R., Clint Cummins, and Victor R. Fuchs. 2012. "Geographic and Racial Variation in Premature Mortality in the U.S.: Analyzing the Disparities." *PLOS ONE*, 7(4): 1–13.

Currie, Janet. 2009. "Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development." *Journal of Economic Literature*, 47(1): 87–122.

Cutler, David M., Adriana Lleras-Muney, and Tom Vogl. 2011. "Socioeconomic Status and Health: Dimensions and Mechanisms." In *The Oxford Handbook of Health Economics*. , ed. Sherry Glied and Peter C. Smith, 0. Oxford University Press.

Doza, Adit, Gail A Jensen, and Wassim Tarraf. 2021. "Racial/Ethnic Differences in Mortality in Late Midlife: Have They Narrowed in Recent Years?" *The Journals of Gerontology: Series B*, 76(7): 1475–1487.

Duggan, Mark, Melissa S. Kearney, and Stephanie Rennane. 2015. "The Supplemental Security Income Program." *Economics of Means-Tested Transfer Programs in the United States, Volume 2*, 1–58. University of Chicago Press.

Dwyer-Lindgren, Laura, Parkes Kendrick, Yekaterina O Kelly, Dillon O Sylte, Chris Schmidt, Brigette F Blacker, Farah Daoud, Amal A Abdi, Mathew Baumann, Farah Mouhanna, Ethan Kahn, Simon I Hay, George A Mensah, Anna M Nápoles, Eliseo J Pérez-Stable, Meredith Shiels, Neal Freedman, Elizabeth Arias, Stephanie A George, David M Murray, John WR Phillips, Michael L Spittel, Christopher JL Murray, and Ali H Mokdad. 2022. "Life expectancy by county, race, and ethnicity in the USA, 2000–19: a systematic analysis of health disparities." *The Lancet*, 400(10345): 25–38.

Dwyer-Lindgren, Laura, Parkes Kendrick, Yekaterina O Kelly, Mathew M Baumann, Kelly Compton, Brigette F Blacker, Farah Daoud, Zhuochen Li, Farah Mouhanna, Hasan Nassereldine, Chris Schmidt, Dillon O Sylte, Simon I Hay, George A Mensah, Anna M Nápoles, Eliseo J Pérez-Stable, Christopher J L Murray, and Ali H Mokdad. 2023. "Cause-specific mortality by county, race, and ethnicity in the USA, 2000–19: a systematic analysis of health disparities." *The Lancet*, 402(10407): 1065–1082.

Figueroa, Jose F., Jessica Phelan, E. John Orav, Vikram Patel, and Ashish K. Jha. 2020. "Association of Mental Health Disorders With Health Care Spending in the Medicare Population." *JAMA Network Open*, 3(3): e201210.

Foote, Christopher L., Ellen Meara, Jonathan S. Skinner, and Luke R. Stewart. 2025. "Explaining the Widening Divides in US Midlife Mortality: Is There a Smoking Gun?"

Fowle, Matthew, Jamie Chang, and Katherine Saxton. 2024. ""Racial mortality inversion": Black-white disparities in mortality among people experiencing homelessness in the United States." *SSM - Population Health*, 27: 101688.

Giefer, Katherine. 2023. "Supplemental Security Income (SSI): 2021." U.S Census Bureau P70FS-189.

Goodman, N., M. Morris, and K. Boston. 2017. "Financial Inequality: Disability, Race, and Poverty in America." National Disability Institute.

Hutchinson, Rebecca Newlin, and Sonya Shin. 2014. "Systematic Review of Health Disparities for Cardiovascular Diseases and Associated Factors among American Indian and Alaska Native Populations." *PLOS ONE*, 9(1): e80973.

Hébert, Anne H., and Alison L. Hill. 2024. "Impact of opioid overdoses on US life expectancy and years of life lost, by demographic group and stimulant co-involvement: a mortality data analysis from 2019 to 2022." *The Lancet Regional Health – Americas*, 36.

Kaestner, Robert, Anuj Gangopadhyaya, and Cuiping Schiman. 2025. "Racial Disparities in Mortality by Sex, Age, and Cause of Death." National Bureau of Economic Research Working Paper 33905.

Karna, Uditi, Min Sok Lee, John A. List, Andrew Simon, and Haruka Uchida. 2025. "Measuring racial educational disparities over time amongst top achievers." *Nature*, 639: 976–984.

Lee, David S. 2009. "Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects." *The Review of Economic Studies*, 76(3): 1071–1102.

Lee, Ji Won R., Frederick L. Brancati, and Hsin-Chieh Yeh. 2011. "Trends in the Prevalence of Type 2 Diabetes in Asians Versus Whites: Results from the United States National Health Interview Survey, 1997–2008." *Diabetes Care*, 34(2): 353–357.

Li, Gina, and Victoria Udalova. 2025. "Evaluating the Completeness of Mortality Information in Medicaid Records." *Health Services Research*, n/a(n/a).

Luo, Juhua, Michael Hendryx, and Fengge Wang. 2021. "Mortality disparities between Black and White Americans mediated by income and health behaviors." *SSM - Population Health*, 17: 101019.

McKenzie, David. 2024. "Lee Bounds in Practice."

Miller, Sarah, Laura R. Wherry, and Bhashkar Mazumder. 2021. "Estimated Mortality Increases During The COVID-19 Pandemic By Socioeconomic Status, Race, And Ethnicity." *Health Affairs*, 40(8): 1252–1260. Publisher: Health Affairs.

Morenoff, Jeffrey D., James S. House, Ben B. Hansen, David R. Williams, George A. Kaplan, and Haslyn E. Hunte. 2007. "Understanding social disparities in hypertension prevalence,

awareness, treatment, and control: The role of neighborhood context." *Social Science & Medicine*, 65(9): 1853–1866. Placing Health in Context.

Ndugga, Nambi, Latoya Hill, and Samantha Artiga. 2024. "Key Data on Health and Health Care by Race and Ethnicity."

Novosad, Paul, Charlie Rafkin, and Sam Asher. 2022. "Mortality Change among Less Educated Americans." *American Economic Journal: Applied Economics*, 14(4): 1–34.

Rupp, Kalman, and Gerald Riley. 2016. "State Medicaid Eligibility and Enrollment Policies and Rates of Medicaid Participation among Disabled Supplemental Security Income Recipients." *Social Security Bulletin*, 76(3).

Schpero, William L., K. John McConnell, Greta Bushnell, Alina Denham, Patience M. Dow, Shashi N. Kapadia, Stephan R. Lindner, Hillary Samples, Lindsay Shea, Kelsey Watson, and Sarah H. Gordon. 2025. "The T-MSIS Analytic Files (TAF) Analysis Reporting Checklist: A Guide for Research Using Medicaid Claims Data." *JAMA Health Forum*, 6(10): e253622.

Schwandt, Hannes, Janet Currie, Marlies Bär, James Banks, Paola Bertoli, Aline Bütikofer, Sarah Cattan, Beatrice Zong-Ying Chao, Claudia Costa, Libertad González, Veronica Grembi, Kristiina Huttunen, René Karadakic, Lucy Kraftman, Sonya Krutikova, Stefano Lombardi, Peter Redler, Carlos Riumallo-Herl, Ana Rodríguez-González, Kjell G. Salvanes, Paula Santana, Josselin Thuilliez, Eddy van Doorslaer, Tom Van Ourti, Joachim K. Winter, Bram Wouterse, and Amelie Wuppermann. 2021. "Inequality in mortality between Black and White Americans by age, place, and cause and in comparison to Europe, 1990 to 2018." *Proceedings of the National Academy of Sciences*, 118(40): e2104684118.

Sequist, Thomas D., Theresa Cullen, and Kelly J. Acton. 2011. "Indian Health Service Innovations Have Helped Reduce Health Disparities Affecting American Indian And Alaska Native People." *Health Affairs*, 30(10): 1965–1973. Publisher: Health Affairs.

Steinweg, Amy. 2023. "Non-Hispanic Black Adults Have Higher Rates of Disability Due to Arthritis, Diabetes, Hypertension Than Non-Hispanic White Adults." US Census Bureau. Section: Government.

Town, Machell, Paul Eke, Guixiang Zhao, Craig W. Thomas, Jason Hsia, Carol Pierannunzi, and Karen Hacker. 2024. "Racial and Ethnic Differences in Social Determinants of

Health and Health-Related Social Needs Among Adults — Behavioral Risk Factor Surveillance System, United States, 2022." *Morbidity and Mortality Weekly Report*, 73(9): 204–209.

Williams, David R., and Pamela Braboy Jackson. 2005. "Social Sources Of Racial Disparities In Health." *Health Affairs*, 24(2): 325–334.

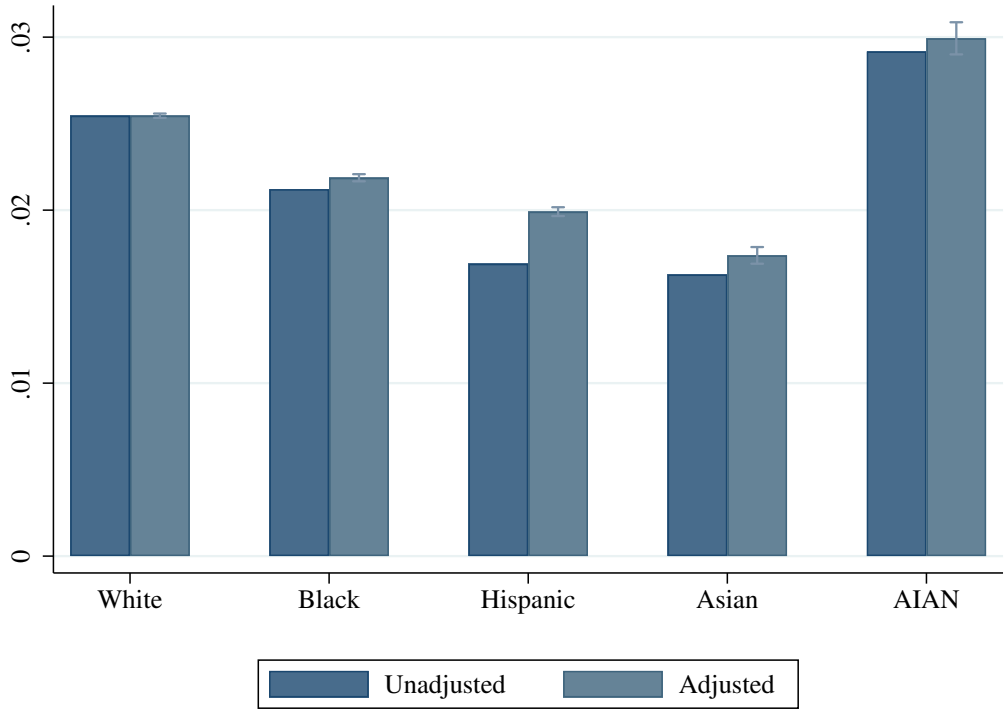
Tables & Figures

Table 1: SSI Recipient Characteristics

	White	Black	Hispanic	Asian	AIAN
Panel A. Working-Age SSI Recipients, CPS 2017 – 2021					
College Educated (%)	7.3	5.3	4.4	12	5.1
Employed, Any (%)	6.9	5.4	4.4	7.0	7.2
Full-Time (%)	18	33	36	24	11
Total Income ($)	14,922	13,682	13,191	15,017	13,365
Below FPL (%)	37	47	37	20	47
Married (%)	25	14	22	32	28
W/ Children (%)	23	23	30	32	30
Owns Home (%)	54	30	38	51	50
Any Health Insurance (%)	99	99	98	98	99
Medicaid (%)	91	95	93	92	92
Medicare (%)	35	31	27	24	28
Private Health Coverage (%)	17	11	14	19	10
Poor Self-Reported Health (%)	23	20	21	14	27
Low Income Smoking, State-Year (%)	29	19	9.3	5.5	33
Num. Respondents	5,181	2,933	1,715	228	307
Panel B. Working-Age SSI Recipients, TAF 2017 – 2021					
Avg Age	46	45	44	46	46
Female (%)	53	54	52	50	51
Urban County (%)	48	69	82	94	36
6Q Disability (%)	50	47	61	76	37
Dual Medicaid-Medicare (%)	39	34	34	30	32
Chronic Condition (%)	40	41	40	45	44
Despair Condition (%)	49	48	49	48	52
SUD (%)	21	18	15	7.3	23
Other Chronic & Disabling Condition (%)	30	26	31	30	32
Deceased (%)	2.55	2.12	1.69	1.63	2.92
# SSI Recipients	2317842	1495175	593720	98793	53530
# States	36	34	36	30	26
# Years	5	5	5	5	5
# Recipient-Years	6281120	4214076	1856300	324573	138014

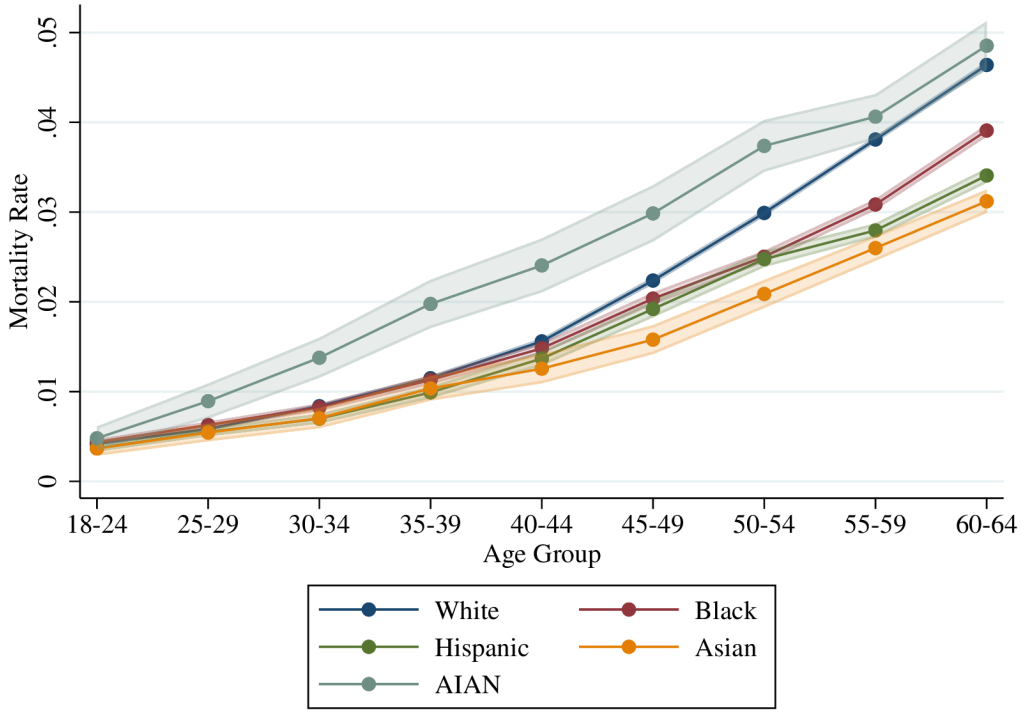
This table depicts summary statistics for working-age SSI recipients by race/ethnicity using the CPS ASEC 2017-2021 and TAF 2017-2021. Races are non-Hispanic unless otherwise specified.

Figure 1: Mortality Rates among SSI Recipients by Race/Ethnicity



This figure depicts unadjusted and adjusted average mortality rates among SSI recipients by race/ethnicity. Data are from TAF 2017-2021. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Adjusted averages include controls for disability (6Q or other), age fixed effects, sex, dual Medicare enrollment, urban county, and state*year fixed effects.

Figure 2: Adjusted Mortality Rates by Age Group among SSI Recipients



This figure depicts adjusted average mortality rates among SSI recipients by 5-year age groups, comparing across races/ethnicities. Data are from TAF 2017-2021. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Averages are adjusted by age, sex, disability (6Q), dual Medicare enrollment, urban county, and state*year FE.

Table 2: Disparities in Mortality by Race/Ethnicity

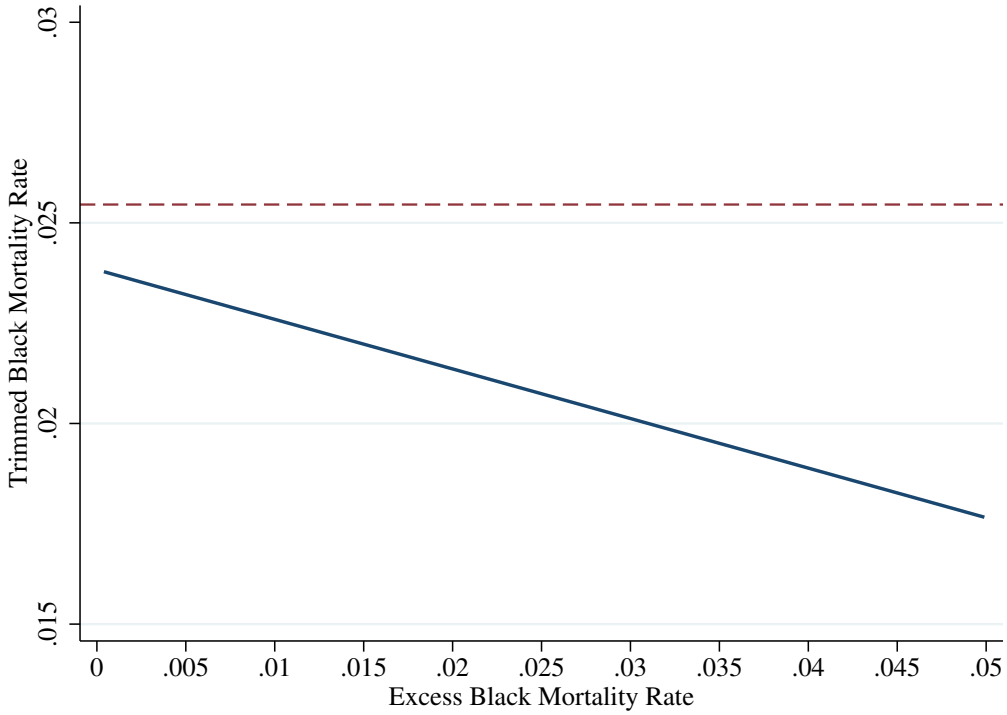
	(1)	(2)	(3)	(4)	(5)	(6)
Black	-0.00359***	-0.00431***	-0.00374***	-0.00340***	-0.00363***	-0.00339***
	(0.000103)	(0.000102)	(0.000102)	(0.000102)	(0.000107)	(0.000123)
Hispanic	-0.00555***	-0.00505***	-0.00488***	-0.00483***	-0.00486***	-0.00446***
	(0.000128)	(0.000126)	(0.000126)	(0.000126)	(0.000130)	(0.000164)
Asian	-0.00807***	-0.00552***	-0.00492***	-0.00432***	-0.00420***	-0.00374***
	(0.000241)	(0.000237)	(0.000237)	(0.000238)	(0.000241)	(0.000267)
American Indian or Alaska Native	0.00447***	0.00281***	0.00236***	0.00216***	0.00226***	0.00227***
	(0.000465)	(0.000456)	(0.000455)	(0.000455)	(0.000476)	(0.000476)
Observations	12814083	12814083	12814083	12814083	12814083	12814083
Adjusted R^2	0.011	0.047	0.049	0.051	0.051	0.051
White Mean	0.025	0.025	0.025	0.025	0.025	0.025
Chronic Conditions		Y	Y	Y	Y	Y
Despair Conditions			Y	Y	Y	Y
Other Chronic & Disabling Conditions				Y	Y	Y
County FE					Y	Y
State-Year-Race Smoking						Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table depicts a regression of mortality on race dummies, demographic characteristics, and certain health conditions. Column (1) presents results with demographic controls. Column (2) presents results with demographic controls and chronic conditions (CC). Column (3) includes demographic controls, CC, despair conditions (DC), and Column (4) adds other chronic and disabling conditions. Column (5) reports (4)'s specification but with county fixed effects. Column (6) adds state-year-race smoking rates. Data are from TAF 2017-2021. Health conditions are lagged by one year. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Demographic characteristics include age fixed effects, sex, disability (6Q category), dual Medicare enrollment, urban county indicator, and state*year fixed effects. State-year-race smoking rates are obtained from CPS Tobacco supplement for 2015, 2018, 2019, and 2022.

Figure 3: Lee Bounding Exercise - Black SSI Mortality under Selection



This figure depicts the results from a Lee bounding exercise on Black mortality among SSI recipients. The y-axis displays what the observed mortality rate among working-age Black SSI recipients would be for a given mortality rate among a sample of "selected" Black SSI recipients. The share of Black SSI recipients in the "excess" sample (8.3%) is calculated as the difference between SSI take-up between White and Black low-income, unmarried PWD in ACS (3.4%) divided by the overall Black SSI take-up rate (41%).

Supplemental Appendix

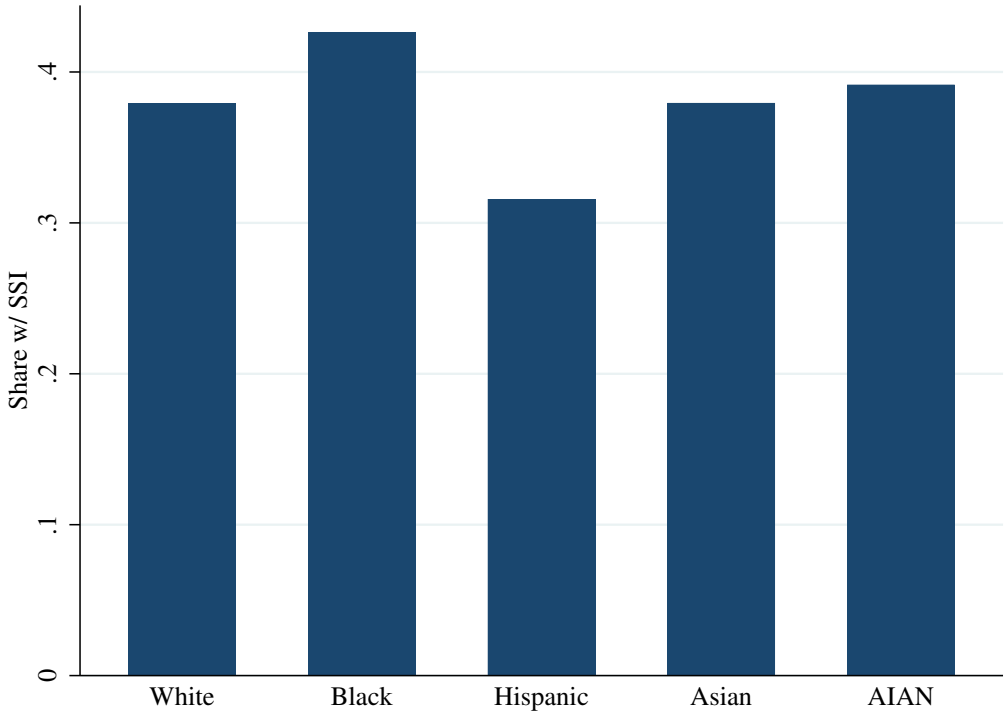
A Additional Tables & Figures

Table A1: Summary Statistics of Working-Age CPS Respondents, 2017-2021

	White	Black	Hispanic	Asian	AIAN
College Educated (%)	38	24	17	57	17
Employed, Any (%)	75	66	70	70	59
Full-Time (%)	75	76	75	79	75
Total Income ($)	55381	36023	32581	56904	33348
Below FPL (%)	8.2	18	15	8.8	21
Married (%)	57	32	48	61	39
W/ Children (%)	43	37	48	46	42
Owns Home (%)	74	47	51	62	58
Any Health Insurance (%)	92	86	77	91	89
Medicaid (%)	13	26	27	15	27
Medicare (%)	4.3	7.1	3.1	1.9	6.1
Private Health Coverage (%)	85	71	74	85	56
Poor Self-Reported Health (%)	2.5	3.7	2.2	1.3	5.4
Low Income Smoking, State-Year (%)	29	18	8.6	4.9	31
Num. Respondents	298467	59047	102909	34695	6358

This table reports summary statistics for working-age respondents in the CPS 2017-2021. Characteristics include demographic, socioeconomic, and health characteristics by race/ethnicity. Data are from CPS ASEC 2017-2021. Races are non-Hispanic unless otherwise specified.

Figure A1: SSI Take-up among Low Income Respondents w/ Disabilities, ACS 2017-2021



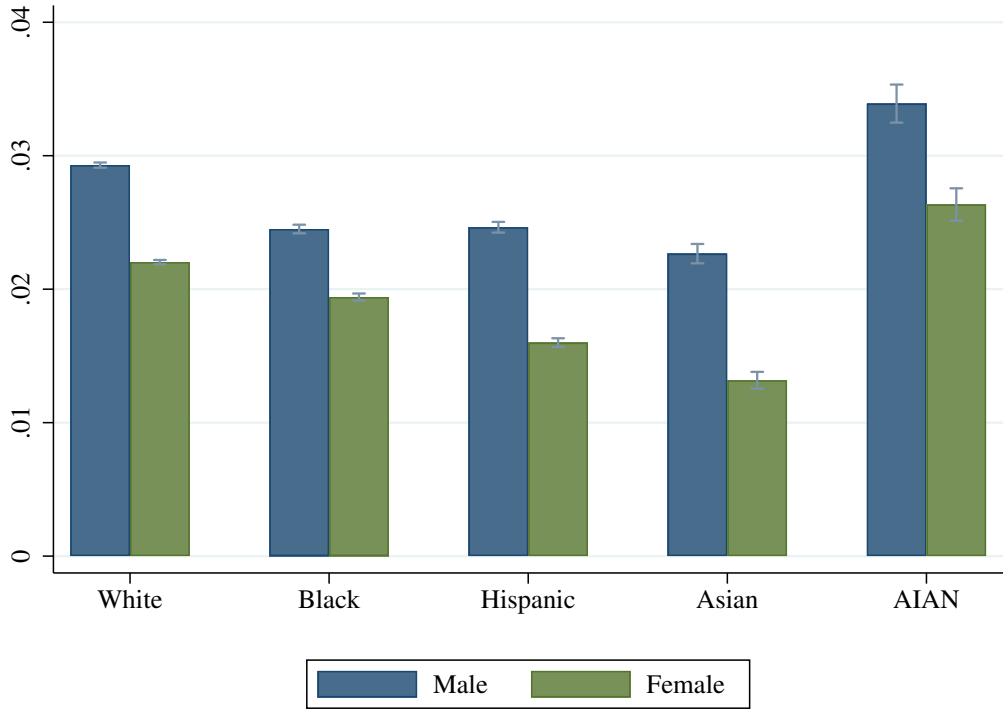
This figure depicts the average SSI take-up rate among low income, unmarried working-age respondents with disabilities. Data are from ACS 2017-2021 for specific state-years with adequate TAF data quality. Races are non-Hispanic unless otherwise specified.

Table A2: Prevalence of Most Common Conditions among SSI Recipients by Race/Ethnicity

	White	Black	Hispanic	Asian	AIAN
Chronic Conditions					
Chronic Kidney Disease	8.7	10.4	10.4	10.6	13.1
COPD	11.6	7.3	6.3	4.6	9.3
Asthma	5.3	7.3	7.1	4.9	6.6
Pneumonia	3.7	3.3	3.3	2.7	5
Stroke	1.8	2.3	1.9	2.1	2.1
Atrial Fibrillation	1.5	1.2	1	1.2	1.3
Hypertension	21	27.1	20.8	23.6	23.2
Heart Failure	3.5	4.6	3.1	2.8	3.9
Ischemic Heart Disease	4.9	4.2	4	3.8	4.6
Acquired Hypothyroidism	5.8	2.5	4.7	4.8	4.3
Diabetes	11.5	13.1	14.8	17.1	18.2
Anemia	6.4	9.5	7.9	7.8	8.8
Hyperlipidemia	13.4	11.4	13.7	20.7	10.9
Arthritis	10.9	9.6	9.3	7.1	12.5
Cataracts	2.4	2.4	2.7	4.2	3.2
Glaucoma	1.3	2.5	2.3	3.3	2.2
"Despair" Conditions and SUD					
Liver Disease	3.9	2.4	4.5	3.6	5.6
Chronic Pain	38.7	38.7	38	33.1	43.3
Obesity	8.7	9.9	11.1	5.1	8.8
Anxiety	17.8	9.6	13.5	9.1	14.8
Depression	19.1	13.3	17	13.7	16.8
Bipolar Disorder	8.6	5.5	6.7	3.8	6.6
Other Mood Disorders	14.7	10.6	13.8	11.9	13.6
Personality Disorders	2.6	1.5	2	1.6	2.1
PTSD	4.9	2.9	3.5	3.5	5.5
Psychotic Disorders	7	9.3	9.6	13.5	7.9
SUD	20.9	18.1	14.6	7.3	23.4
Other Chronic & Disabling Conditions					
ADHD	3.3	2.1	2.7	1.6	2.5
Autism	2.3	1.1	2.5	4	1.1
Epilepsy	4.3	3.5	4.5	4.2	4.7
Fibromyalgia	12.8	10.1	9.8	5.9	13.9
Intellectual Disabilities	4.5	3.2	6.6	9.4	3.7
Migraine and Chronic Headache	3.8	2.8	3.2	2.2	3.3
Mobility Impairment	1.7	2.3	2.2	2.6	2.6
Peripheral Vascular Disease	2.3	2.2	2.3	1.5	2.5
Ulcers	1.8	1.6	1.7	1	3.2

This figure table depicts the average condition incidence of the most common conditions in our sample of working-age SSI recipients by race/ethnicity. Data are from TAF 2017-2021. Conditions are lagged by one year. Races are non-Hispanic unless otherwise specified.

Figure A2: Mortality Rates among SSI Recipients by Race/Ethnicity & Sex



This figure depicts adjusted average mortality rates among SSI recipients by race/ethnicity and sex. Data are from TAF 2017-2021. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Adjusted averages include controls for disability (6Q or other), age fixed effects, sex, dual Medicare enrollment, and state*year fixed effects.

Table A3: Disparities in Mortality by Race/Ethnicity —States with Sufficiently High-Quality Race Data

	(1)	(2)	(3)	(4)	(5)	(6)
Black	-0.00398***	-0.00463***	-0.00403***	-0.00364***	-0.00378***	-0.00365***
	(0.000128)	(0.000126)	(0.000127)	(0.000127)	(0.000132)	(0.000150)
Hispanic	-0.00484***	-0.00444***	-0.00422***	-0.00416***	-0.00413***	-0.00393***
	(0.000154)	(0.000151)	(0.000151)	(0.000151)	(0.000156)	(0.000190)
Asian	-0.00837***	-0.00556***	-0.00485***	-0.00424***	-0.00408***	-0.00386***
	(0.000262)	(0.000258)	(0.000259)	(0.000260)	(0.000263)	(0.000291)
American Indian or Alaska Native	0.00258***	0.00126*	0.000852	0.000843	0.000944	0.00100
	(0.000595)	(0.000585)	(0.000583)	(0.000583)	(0.000613)	(0.000614)
Observations	8333654	8333654	8333654	8333654	8333654	8333654
Adjusted R^2	0.009	0.046	0.048	0.050	0.050	0.050
White Mean	0.025	0.025	0.025	0.025	0.025	0.025
Chronic Conditions		Y	Y	Y	Y	Y
Despair Conditions			Y	Y	Y	Y
Other Chronic & Disabling Conditions				Y	Y	Y
County FE					Y	Y
State-Year-Race Smoking						Y

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table depicts a regression of mortality on race dummies, demographic characteristics, and certain health conditions after restricting to states with low or medium concern race/ethnicity data quality according to the DQ Atlas. Column (1) presents results with demographic controls. Column (2) presents results with demographic controls and chronic conditions (CC). Column (3) includes demographic controls, CC, despair conditions (DC), and Column (4) adds other chronic and disabling conditions. Column (5) reports (4)'s specification but with county fixed effects. Column (6) adds state-year-race smoking rates. Data are from TAF 2017-2021. Health conditions are lagged by one year. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Demographic characteristics include age fixed effects, sex, disability (6Q category), dual Medicare enrollment, urban county indicator, and state*year fixed effects. State-year-race smoking rates are obtained from CPS Tobacco supplement for 2015, 2018, 2019, and 2022.

Table A4: Disparities in Mortality by Race/Ethnicity —Logit Regression

	(1)	(2)	(3)	(4)	(5)
Black	-0.00334***	-0.00407***	-0.00355***	-0.00349***	-0.00323***
	(0.000101)	(0.000101)	(0.000102)	(0.000102)	(0.000115)
Hispanic	-0.00591***	-0.00552***	-0.00532***	-0.00526***	-0.00486***
	(0.000150)	(0.000148)	(0.000148)	(0.000148)	(0.000170)
Asian	-0.00850***	-0.00633***	-0.00527***	-0.00465***	-0.00419***
	(0.000317)	(0.000309)	(0.000309)	(0.000309)	(0.000323)
American Indian or Alaska Native	0.00392***	0.00245***	0.00205***	0.00198***	0.00198***
	(0.000371)	(0.000368)	(0.000369)	(0.000368)	(0.000369)
Observations	12814083	12814083	12814083	12814083	12814083
White Mean	0.025	0.025	0.025	0.025	0.025
Chronic Conditions		Y	Y	Y	Y
Despair Conditions			Y	Y	Y
Other Chronic & Disabling Conditions				Y	Y
State-Year-Race Smoking					Y

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table depicts a logit regression of mortality on race dummies, demographic characteristics, and certain health conditions. Column (1) presents results with demographic controls. Column (2) presents results with demographic controls and chronic conditions (CC). Column (3) includes demographic controls, CC, despair conditions (DC), and Column (4) adds other chronic and disabling conditions. Column (5) adds state-year-race smoking rates. Data are from TAF 2017-2021. Health conditions are lagged by one year. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Demographic characteristics include age fixed effects, sex, disability (6Q category), dual Medicare enrollment, urban county indicator, and state*year fixed effects. State-year-race smoking rates are obtained from CPS Tobacco supplement for 2015, 2018, 2019, and 2022.

Table A5: Disparities in Mortality by Race/Ethnicity —All States

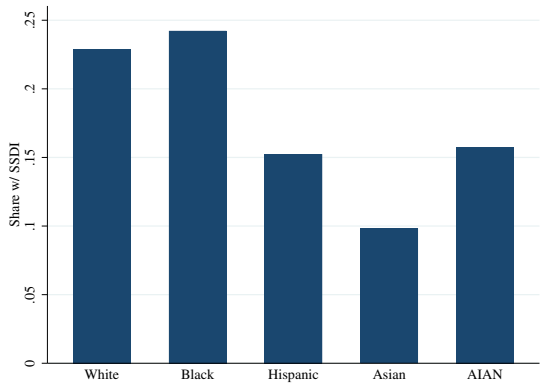
	(1)	(2)	(3)	(4)	(5)	(6)
Black	-0.00381***	-0.00454***	-0.00405***	-0.00369***	-0.00369***	-0.00356***
	(0.0000780)	(0.0000772)	(0.0000775)	(0.0000776)	(0.0000813)	(0.0000970)
Hispanic	-0.00515***	-0.00439***	-0.00428***	-0.00416***	-0.00413***	-0.00391***
	(0.0000954)	(0.0000938)	(0.0000939)	(0.0000939)	(0.0000986)	(0.000132)
Asian	-0.00836***	-0.00591***	-0.00534***	-0.00479***	-0.00458***	-0.00433***
	(0.000192)	(0.000189)	(0.000190)	(0.000190)	(0.000193)	(0.000218)
American Indian or Alaska Native	0.00364***	0.00220***	0.00175***	0.00162***	0.00166***	0.00163***
	(0.000323)	(0.000317)	(0.000316)	(0.000316)	(0.000327)	(0.000327)
Observations	21607551	21607551	21607551	21607551	21607551	21607551
Adjusted R^2	0.011	0.044	0.046	0.048	0.048	0.048
White Mean	0.024	0.024	0.024	0.024	0.024	0.024
Chronic Conditions		Y	Y	Y	Y	Y
Despair Conditions			Y	Y	Y	Y
Other Chronic & Disabling Conditions				Y	Y	Y
County FE					Y	Y
State-Year-Race Smoking						Y

Standard errors in parentheses

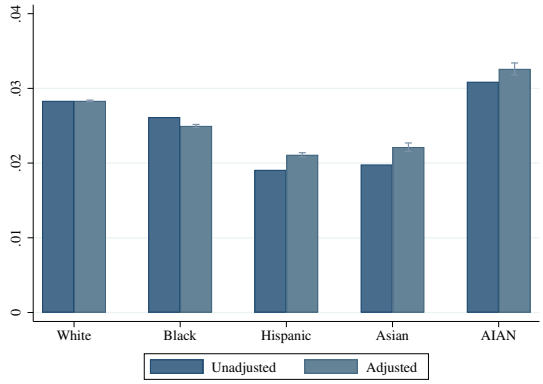
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table depicts a regression of mortality on race dummies, demographic characteristics, and certain health conditions without restricting to states with high-quality death records according to Li and Udalova (2025). Column (1) presents results with demographic controls. Column (2) presents results with demographic controls and chronic conditions (CC). Column (3) includes demographic controls, CC, despair conditions (DC), and Column (4) adds other chronic and disabling conditions. Column (5) adds state-year-race smoking rates. Data are from TAF 2017-2021. Health conditions are lagged by one year. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSI recipients aged 18-64 years. Demographic characteristics include age fixed effects, sex, disability (6Q category), dual Medicare enrollment, urban county indicator, and state*year fixed effects. State-year-race smoking rates are obtained from CPS Tobacco supplement for 2015, 2018, 2019, and 2022.

Figure A3: Take-up & Mortality Rates among SSDI Recipients by Race/Ethnicity



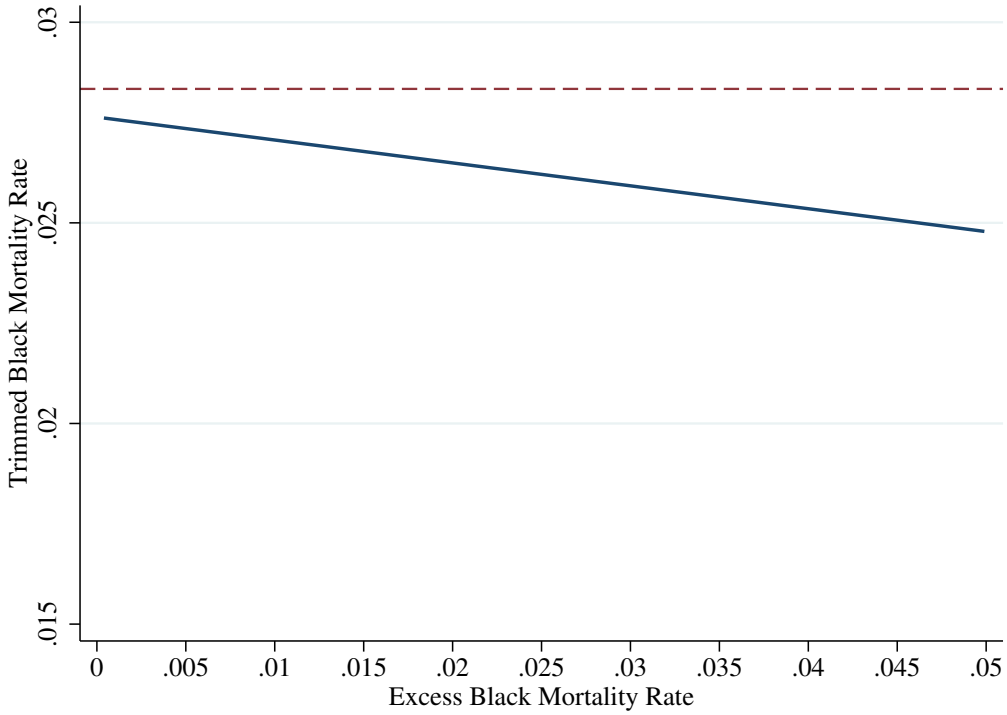
(a) Take-up



(b) Mortality

Panel A depicts SSDI take-up rates among a low-income sample with disabilities in the CPS ASEC 2017-2021. Panel B depicts unadjusted and adjusted average mortality rates among SSDI recipients enrolled in Medicare and/or Medicaid by race/ethnicity. Data are from TAF & MBSF 2017-2021. Races are non-Hispanic unless otherwise specified. We restrict the sample to SSDI recipients aged 18-64 years. Adjusted averages include controls for age fixed effects, sex, dual Medicare enrollment, and state*year fixed effects.

Figure A4: Lee Bounding Exercise - Black SSDI Mortality under Selection



This figure depicts the results from a Lee bounding exercise on Black mortality among SSDI recipients. The y-axis displays what the observed mortality rate among working-age Black SSDI recipients would be for a given mortality rate among a sample of "selected" Black SSDI recipients. The share of Black SSDI recipients in the "excess" sample (9.1%) is calculated as the difference between SSDI take-up between White and Black low income PWD in CPS (2.3%) divided by the overall Black take-up rate (25%).

B TAF Reporting Checklist & Sample Construction

B.1 Data & Sample Description

We use the 100% Demographic & Eligibility (DE) File, Inpatient (IP) File, Other Services (OT) File, Pharmacy (RX) File, and Long-term Care (LT) File. We use Release 2 for TAF 2017-2018 files, and Release 1 for TAF 2019-2021 files. We use TAF 2016 (Release 2) to construct lagged clinical profiles and enrollment history for beneficiaries enrolled in 2017.

To identify SSI recipients, we use 3 variables (month 12) provided in the TAF DE File and Disability & Needs Supplement: ELGBLTY_GRP_CD_12, SSI_IND_12, and SSI_STUS_CD_12. ELGBLTY_GRP_CD_12 equal to 11 or 13 details Medicaid eligibility through SSI receipt in 1634 and SSI criteria states, and 12 through disability in a 209b state. States further report SSI_IND_12 and SSI_STUS_CD_12 to identify SSI recipients in the TAF. We code a Medicaid beneficiary as a SSI recipient if they are represented in any of the 3 variables in any of the 12 months of the reported year. We do this to ensure we identify SSI recipients that qualify for Medicaid through pathways outside of SSI receipt (Centers for Medicare & Medicaid Services, 2025*a*).

We restrict our sample to SSI recipients aged 18-64 years who had a Medicaid enrollment span of any length in the prior reporting year. We do not restrict tby benefit type (full scope, comprehensive,

or restricted). Beneficiaries enrolled in both fee-for-service (FFS) or Medicaid managed care (MMC) plans are included in our sample. We similarly include both full and partial dual Medicare-Medicaid enrollees.

Table B1: Chronic, Despair, and Other Chronic & Disabling Conditions—Conditions List

Category	Health Conditions	Source(s)
Chronic Conditions	Chronic Kidney Disease, Asthma, Chronic Obstructive Pulmonary disorder (COPD), Pneumonia, Acute Myocardial Infarction, Atrial Fibrillation, Hypertension, Heart Failure, Ischemic Heart Disease, Stroke, Anemia, Acquired Hypothyroidism, Diabetes, Hyperlipidemia, Breast Cancer, Colorectal Cancer, Endometrial Cancer, Lung Cancer, Prostate Cancer, Urologic Cancer, Alzheimer's, Senile Dementia and Related Disorders, Parkinson's, Depression, Osteoporosis, Hip/Pelvis Fractures, Arthritis, Cataracts, Glaucoma, and Benign Prostatic Hyperplasia.	Centers for Medicare & Medicaid Services (2025*b*)
"Despair" Conditions	Depression, Anxiety disorders, Bipolar disorder, Mood disorders, Personality disorders, PTSD, Psychotic Disorders, Chronic Liver Disease, Chronic Pain, Obesity	Borchgrevink et al. (2022); Figueroa et al. (2020); Centers for Medicare & Medicaid Services (2025*b*)
Substance Abuse Disorders	Alcohol, Tobacco, Opioid, Cannabis, Caffeine, Hallucinogen, Inhalant, Sedative, or Other Specified Addiction.	Baller et al. (2021); Centers for Medicare & Medicaid Services (2025*b*)
Other Chronic & Disabling Conditions	ADHD, Autism Spectrum Disorders, Cerebral Palsy, Cystic Fibrosis and other Metabolic Developmental Disorders, Epilepsy, Fibromyalgia, HIV/AIDS, Intellectual Disabilities and Related Conditions, Learning Disabilities, Leukemias and Lymphomas, Migraine and Other Chronic Headache, Mobility Impairments, Multiple Sclerosis and Transverse Myelitis, Muscular Dystrophy, Other Developmental Delays, Peripheral Vascular Disease (PVD), Pressure Ulcers and Chronic Ulcers, Blindness and Visual Impairment, Deafness and Hearing impairment, Sickle Cell Disease, Spina Bifida and Other Congenital Anomalies of the Nervous System, Spinal Cord Injury, Traumatic Brain Injury, Hepatitis A, Hepatitis B, Hepatitis C, and Hepatitis E.	Centers for Medicare & Medicaid Services (2025*b*)

This table describes our categorizations of various health conditions, as well as sources for the ICD-10 codes used to identify each condition.

B.2 TAF Reporting Checklist

Table B2: The T-MSIS Analytic Files (TAF) Analysis Reporting Checklist

Category	Description	Location(s) Where Items Reported
Data		
Files, Years, Release Versions, and Data Extract	• Indicate which TAF files were used in the analysis (e.g., Demographic and Eligibility File, Inpatient File, Other Services File) • Indicate which years of TAF data were included in the analysis • Indicate which file versions were included in the analysis (e.g., preliminary, release 1, release 2) • Indicate whether the study drew from 100% TAF files or pre-specified extracts	p.4, p.33
Analytic Sample		
Eligibility Criteria	• If applicable, describe what eligibility category codes were used to identify the study sample and whether they were used in combination with any other variables (e.g., age, receipt of specific medical services)	p.4-5, p.33
Enrollment Span	• If applicable, indicate the minimum period of enrollment required for an enrollee to be included in the study sample and how the enrollment period was defined	p.4, p.33
Scope of Benefits	• If applicable, indicate whether the analysis included enrollees with full scope, comprehensive, or restricted benefits	p.4, p.33
Encounter Data	• Indicate whether the analysis excluded either fee-for-service or managed care enrollees; if managed care enrollees were excluded, define the criteria used to do so • Indicate which types of claims records (e.g., fee-for-service claims, service tracking claims, capitation payments; see variable CLM_TYPE_CD) were included in the analysis	p.4, p.6, p.33
Dual Eligibility	• Describe whether individuals dually enrolled in Medicare and Medicaid were included in or excluded from the study sample and, if applicable, how dual eligibility was defined	p.5-6, p.33
State and Territory Exclusions		
Criteria	• Indicate which states and/or territories were included (or excluded) from the analysis on the basis of data quality concerns • Indicate the criteria by which state exclusions were made, including measures, data sources, and thresholds	p.4-5, p.12
State Variation Table	• Consider including a state-level table (which may appear in an appendix) summarizing the number of observations, means, medians, and missingness for key study measures	Table 1 Panel B, Table B3
Special Considerations		
Spending	• Indicate which types of claims records (e.g., fee-for-service claims, service tracking claims, capitation payments; see variable CLM_TYPE_CD) were included to measure spending • If including service-specific spending for managed care encounters, indicate how spending was imputed (payments from plans to health care facilities and professionals on encounter records are generally redacted)	N/A
Using TAF with Predecessor MAX Data	• Indicate if the analysis included data from the MAX files and, if so, for what years and which states • If applicable, include an exhibit examining trends in key measures by state over time and particularly during any transition from MAX to TAF	N/A

This table depicts page numbers detailing TAF sample information as recommended in Schpero et al. (2025).

Table B3: State Variation in Analysis Sample

State	Years	High Race/Ethnicity Data Quality
AL	2017, 2018, 2019, 2020, 2021	
AZ	2017, 2018, 2019, 2020, 2021	
CA	2017, 2018, 2019, 2020, 2021	Yes
CO	2020, 2021	
DE	2018, 2019, 2020, 2021	Yes
FL	2017, 2018, 2019, 2020, 2021	Yes
GA	2017, 2018, 2019, 2020, 2021	Yes
HI	2017, 2018, 2019, 2020, 2021	
IA	2017, 2018, 2019, 2020, 2021	
ID	2017, 2018, 2019, 2020, 2021	Yes
IL	2020, 2021	Yes
IN	2018, 2019, 2020	Yes
KS	2017, 2018, 2019, 2020, 2021	
KY	2019, 2019, 2020, 2021	Yes
LA	2017, 2018, 2019, 2020, 2021	
MA	2020, 2021	
ME	2018, 2019, 2020, 2021	Yes
MI	2017, 2018, 2019	
MN	2017	Yes
MO	2017, 2018, 2019, 2020, 2021	
MS	2020, 2021	
MT	2017, 2020, 2021	
NC	2017, 2018, 2019, 2020	Yes
ND	2020, 2021	Yes
NE	2017, 2018, 2019, 2020, 2021	
NH	2020, 2021	Yes
NJ	2017, 2018, 2019, 2020, 2021	Yes
NM	2017, 2020, 2021	Yes
NY	2020, 2021	
OH	2020	Yes
OR	2021	
RI	2017, 2018, 2019	
SC	2020	
SD	2020	Yes
TN	2020, 2021	
TX	2017, 2018, 2019	
UT	2020	
VA	2017, 2018, 2019, 2020, 2021	Yes
VT	2020, 2021	Yes
WA	2017, 2018, 2019	
WI	2020, 2021	Yes
WV	2020, 2021	

This table lists which states and years are included in our final analytical sample. The third column indicates whether each state reports sufficiently high quality race/ethnicity reporting in all sample years to be included in Table A3.