

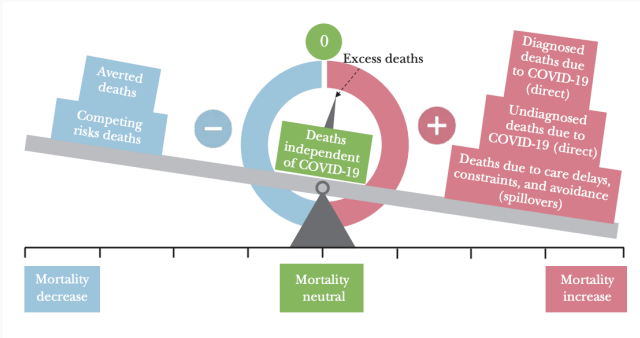
The Great Unequalizer: Initial Health Effects of COVID-19 in the United States

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Discussion by Victoria Angelova and Sam Burn

Summary

- Hispanic and Black people have much higher excess mortality than non-Hispanic White people during COVID-19 pandemic
- Excess deaths in these groups especially high at younger ages
- Disparities in COVID-related health outcomes not explained by observed differences in underlying health or socioeconomic endowments
- Decomposition suggests that observably similar Black (or Hispanic) and White individuals have different outcomes due to institutional factors
- COVID-19 has compounded pre-existing mortality differences

Framework (1): Factors Influencing Covid Mortality



Additional factors:

- Employment loss?
- Education disruption?
- Changes in cash welfare?

Framework (2): Probability of COVID Infection and Death

- Probability of infection depends on prevalence (p), number of contacts (n_i) and proportion of mitigated contacts (m_i):

$$P[\text{COVID Infection}] = 1 - (1 - p)^{n_i(1-m_i)}$$

Race and SES affect all three factors going into this equation.

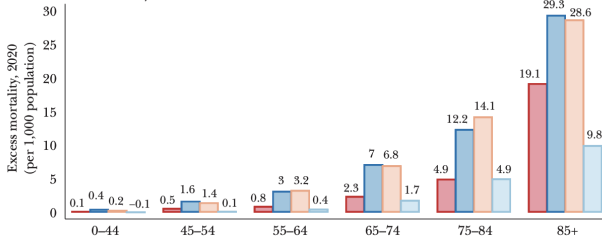
- Probability of death conditional on infection depends on access to higher quality health care facilities and distribution of preexisting conditions

Mortality Measures

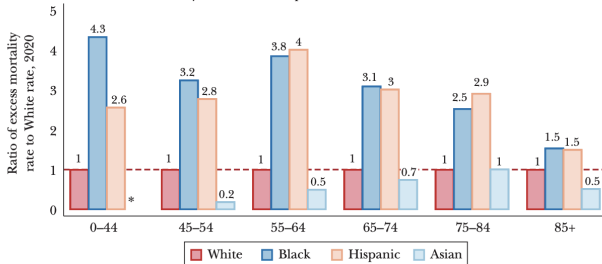
- Excess mortality: deviation from linear mortality trend
- Age-adjusted excess mortality
- Years of potential life lost
- Much poorer measurement of other health outcomes (e.g. long-term COVID effects, or missed care for chronic conditions)

Racial disparities in mortality (1)

Panel A. Excess mortality rates



Panel B. Ratio of excess mortality rates to non-Hispanic Whites

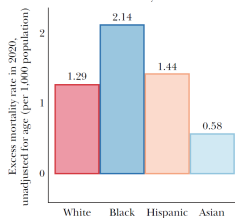


Racial disparities in mortality (2)

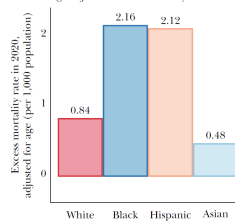
Figure 5

Measures of Racial and Ethnic Disparities in COVID-19 Pandemic Mortality

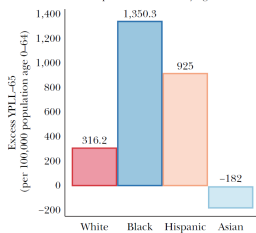
Panel A. Crude excess mortality



Panel B. Age-adjusted excess mortality



Panel C. Years of potential life lost by age 65



Decomposition of racial differences in hospitalization

$$\bar{Y}_B - \bar{Y}_W = \underbrace{(\bar{X}_B - \bar{X}_W)' \hat{\beta}_B}_{\text{endowments}} + \underbrace{\bar{X}'_B (\hat{\beta}_B - \hat{\beta}_W)}_{\text{returns to endowments}} + \underbrace{(\bar{X}_B - \bar{X}_W)' (\hat{\beta}_B - \hat{\beta}_W)}_{\text{interaction}}$$

Decomposition of Race-Based Differentials in Likelihood of Hospitalization Due to COVID-19

| | <i>Black versus White</i> | | <i>Hispanic versus White</i> | |
|-----------------------------|---------------------------|--------------------------|------------------------------|--------------------------|
| | <i>Comorbidities</i> | <i>Sociodemographics</i> | <i>Comorbidities</i> | <i>Sociodemographics</i> |
| Overall gap in sample | 0.070 | | 0.046 | |
| Endowments | 0.011 | 0.007 | 0.003 | 0.001 |
| Percent of total difference | 16.2% | 10.1% | 6.5% | 1.9% |
| Returns to endowments | 0.016 | 0.020 | 0.012 | 0.026 |
| Percent of total difference | 22.8% | 28.6% | 24.9% | 56.7% |
| Interaction | 0.009 | 0.007 | 0.002 | 0.003 |
| Percent of total difference | 12.4% | 9.9% | 4.0% | 6.1% |
| Number of observations | 371,483 | | 382,425 | |

Decomposition of racial differences in hospitalization

- Observable characteristics:
 - Comorbidities: information on hypertension, diabetes, obesity, cancer, heart disease, and chronic obstructive pulmonary disease based on diagnosis codes in claims filed
 - Sociodemographics: age, sex, average educational attainment in the enrollee's census block of residence, and census division of residence
- **Main point:** Very little of the racial + ethnic gaps explained by differences in observed health or sociodemographics

Decomposition: interpretation of coefficients

- Very few socioeconomic controls e.g. no wealth, household income, own education, occupation etc
- Omitted variables may get loaded on 'returns to endowment'
- Simplistic example. Suppose DGP is identical for Black (B) and White (W) groups:

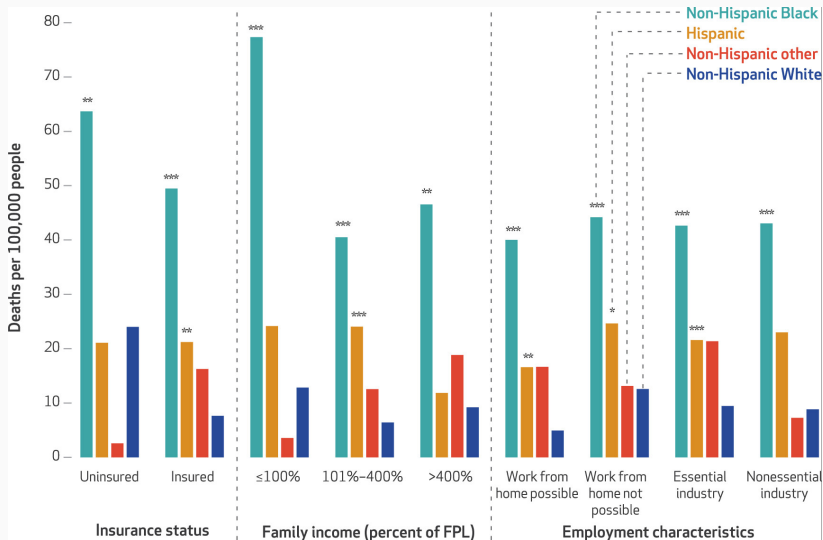
$$Y_W = \beta \text{edu} + \gamma \text{wealth} + \epsilon$$

$$Y_B = \beta \text{edu} + \gamma \text{wealth} + \epsilon$$

Only difference is that $\text{corr}(\text{edu}, \text{wealth}) > 0$ for White people and $\text{corr}(\text{edu}, \text{wealth}) = 0$ for Black people

- We observe education but not wealth. We correctly recover $\beta_B = \beta$ because there is no OVB. But we estimate $\beta_W = \beta + \gamma\delta < \beta_B$ where δ is coefficient from regressing education on wealth

Extra data from Miller, Wherry, and Mazumder (2021)



Decomposition: sample selection

- Optum data doesn't include Medicaid, uninsured or people losing employment. May tend to understate race disparities
- Small point: sample includes all people hospitalized with COVID-19 plus 5% of everyone else. This means people more likely to be hospitalized (non-Hispanic Black, Hispanic) over-represented in sample
- Will tend to downward bias estimate of relative risk ▶ Example

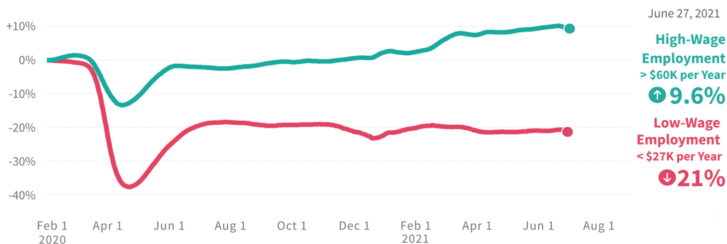
Bigger picture

- What can policy do to mitigate disparate health impacts of this pandemic?
 - Relief funding to hospitals ▶ Need+funding
 - Unemployment insurance, cash benefits
 - For future pandemics: dismantle systemic racism!
- Can we measure health + well-being effects of pandemic employment shocks, disruption to schooling?
- How can we measure longer run COVID morbidity? Hospital length of stay? Transitions to disability?
- Have racial disparities changed in successive waves of the pandemic? Has unequal roll-out of vaccines worsened disparities?
- How should we think about geography? Racial and ethnic minorities are 22% of rural population vs. 43% of urban population. Cities hit earliest and hardest.

Disparities in Economic Recovery (Chetty et al., 2021)

Recession has Ended for High-Wage Workers, Job Losses Persist for Low-Wage Workers

While employment rates have rebounded past pre-COVID-19 levels for high-wage workers, they remain significantly lower for low-wage workers.



Decomposition sample selection

- Simplistic example. Suppose there are two groups, Black (B) and white (W) $P(\text{hosp}|B) = 0.01$ and $P(\text{hosp}|W) = 0.05$, $RR = 2$
- Probability Black person gets sampled is $0.01 + 0.05 \times 0.9 \approx 0.06$ Probability for White person is ≈ 0.06
- $P(\text{hosp}|B, \text{sample}) = 0.17$ and $P(\text{hosp}|W, \text{sample}) = 0.09$, $RR \approx 1.8$

◀ Go back

Need and relief funding (Kakani et al. 2020)

Figure. Correlation Between County Measures of Health and Financial Need and Relief Funding

