Racial and Ethnic Disparities: Essential Workers, Mental Health, and the Coronavirus Pandemic

COVID-19 and Health Outcomes Fall 2020

NBER

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Overview

1. Background

2. Data & Methods
   - Survey Data
   - Limitations
   - Methods

3. Results

4. Conclusion
As of today there has been:

- 276,000 deaths
- 14.2 million confirmed cases
- Jan. 21st, first reported case in the US
- Feb. 29, first reported death in the US
- March 13, national emergency declared
- By end of March, 30 states had stay-at-home orders
COVID-19 and the Black Community

African American share of state/city populations and COVID-19 deaths (as of Apr 06, 2020)

- **Louisiana**: 32% of population, 70% of deaths
- **Illinois**: 15% of population, 42% of deaths
- **Michigan**: 14% of population, 41% of deaths
- **North Carolina**: 22% of population, 22% of deaths

Source: CDC & statista
As of April 15th

Of the states that collected information on race & ethnicity, below are the number of states which reported an over-representation of COVID-19 deaths by race/ethnicity:

- **Asian**: 1 for 19 states
- **Black**: 18 of 23 states
- **Hispanic**: 0 of 20 states
- **Indigenous**: 1 of 12 states
- **White**: 0 for 23 states
COVID-19 and the Racial/Ethnic Disparity

Covid-19 deaths per 100,000 people in the U.S. by race or ethnicity (as of July 30, 2020)

- Black or African American: 74
- American Indian or Alaska Native: 40
- Hispanic or Latino: 40
- Asian: 31
- White: 30
- Native Hawaiian and Pacific Islander: 29
- Other: 29

Source: The COVID Tracking Project & statista
As the US charts a path forward, how will it incorporate policies that ensure racial & ethnic equality as a part of the recovery without understanding how the COVID-19 has impacted Black & Hispanic communities beyond viral exposure & mortality?
What are we interested in?

Given the racial & ethnic disparities in COVID-19 cases, mortality, & exposure we use a nationally representative survey to assess...

How reported mental health distress differ by race/ethnicity & across current employment status?
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Given the racial & ethnic disparities in COVID-19 cases, mortality, & exposure we use a nationally representative survey to assess...

How reported mental health distress differ by race/ethnicity & across current employment status?
The National Panel Study of COVID-19 (NPSC19)

The data we utilize has been collected as part of a larger survey fielded by UCLA in collaboration with UNM, ASU & UNC. Administered by:

- Matt Barreto
- Tyler Reny
- Gabriel Sanchez
Data - Wave 2

**Wave 2:** 3,338 observations

- roughly 2,000 from Wave 1
- roughly 1,000 a fresh cross section
- national household survey
- zip-codes

**Racial/Ethnic Breakdown:**

- 70% White
- 9.6% Hispanic
- 12.2% Black

⇒ Economic & health questions were added in Wave 2.
Survey Questions

- **Employment**
  1. Not in labor force (1,210 obs)
  2. Unemployed (458 obs)
  3. Employed non-essential worker (working from home) (684 obs)
  4. Employed essential non-healthcare worker (615 obs)
  5. Employed essential healthcare worker (200 obs)

- Financial: UI benefits, stimulus, income, financial stability
- **Mental Health:** depression (quasi PHQ-9), anxiety (quasi GAD-7)
- Physical Health: exercising, eating habits, substance use
- Distance Learning
- Other: age, size & composition of households
In the past 2 weeks, how often have you been bothered by the following problems?

**Outcome Variable: Mental Health Distress**

- **Anxiety (GAD-7 Inventories)**
  1. *Feeling nervous, anxious, or on edge*
  2. *Not being able to stop or control worrying*

- **Depression (PHQ-9 Inventories)**
  1. *Little interest or pleasure in doing things*
  2. *Feeling down, depressed, or hopeless*
  3. *Trouble sleeping at night*
Each of the mental health items were surveyed using a four-point scale, as follows:

1. Not at all
2. Several days
3. More than half the days
4. Nearly every day
Limitations

- Analysis is **descriptive**, not causal.

- Selection bias in terms of employee type represented
  \[\Rightarrow\] weight the data

- No baseline
  \[\Rightarrow\] take a look at BFRSS

- Worker typology is self-reported and no way to cross reference
Mental Distress Levels: Pre-COVID & COVID

Higher levels of mental health distress during COVID compared to BRFSS 2018.
Revisiting the Research Question

How does reported mental health distress differ by race/ethnicity & across current employment status?

Preview of Results

We observe a statistically significant difference in the mental health distress of Black & Hispanic respondents in some of the worker typologies relative to their White counterparts.

Results suggest elevated mental health distress:
- for all Black workers, particularly essential non-healthcare
- for Hispanic essential non-healthcare workers
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Methods

To assess mental health distress across race/ethnicity & worker typology, we employ two models.

Models

1. The probability of experiencing mental health distress across each individual inventory

2. The severity of mental health distress from the quasi GAD-7 & PHQ-9 scores.

Base Group: White & unemployed
Model 1

The logistic regression model is,

$$Pr(h_i = 1) = \Lambda (\gamma_s + \eta E_i + \rho R_i + \alpha (E_i \times R_i) + D'\omega + X'\beta)$$

(1)

where, $h_i$ is a dichotomous variable,

- 1 if any worry in the past two weeks
- 0 if no worry was reported

$E_i$ is a categorical indicator for employment & $R_i$ a race binary

Other Variables: $\gamma_s$ controls for state fixed effects, $D$ is a vector of state-level pandemic response policies, $X$ is a vector of individual level characteristics.

Note: estimates are marginal effects
We transform our measures of severity using the z-score. This approach allows us to interpret inter-group differences of symptom severity in terms of standard deviations.

The OLS model is,

\[
Z_i = \gamma_s + D\omega + \eta E_i + \rho R_i + \beta(E_i \times R_i) + X\alpha + \varepsilon_i
\]  

(2)

where, \( Z_i \), represents the transformed quasi GAD-7 or PHQ-9 scores

Note: the model is linear, we interpret the marginal effects directly
### Probability of Mental Health Distress - Model 1

<table>
<thead>
<tr>
<th>Employment status × Race &amp; Ethnicity</th>
<th>GAD-7 Inventories</th>
<th></th>
<th>PHQ-9 Inventories</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety</td>
<td>Worry</td>
<td>Depression</td>
<td>Pleasure</td>
<td>Sleep</td>
</tr>
<tr>
<td>Black: non-essential</td>
<td>0.28**</td>
<td>0.31**</td>
<td>0.05</td>
<td>0.06</td>
<td>0.28***</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.12)</td>
<td>(0.12)</td>
<td>(0.11)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Black: essential non-health</td>
<td>0.31***</td>
<td>0.52***</td>
<td>0.27**</td>
<td>0.28**</td>
<td>0.30***</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.13)</td>
<td>(0.11)</td>
<td>(0.11)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Black: essential health</td>
<td>0.43***</td>
<td>0.41***</td>
<td>0.18</td>
<td>0.34**</td>
<td>0.30***</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(0.15)</td>
<td>(0.14)</td>
<td>(0.14)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>Hispanic: non-essential</td>
<td>0.01</td>
<td>0.05</td>
<td>0.28*</td>
<td>0.26</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.11)</td>
<td>(0.15)</td>
<td>(0.16)</td>
<td>(0.18)</td>
</tr>
<tr>
<td>Hispanic: essential non-health</td>
<td>0.41***</td>
<td>0.33***</td>
<td>0.62***</td>
<td>0.55***</td>
<td>0.50***</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.15)</td>
<td>(0.17)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Hispanic: essential health</td>
<td>0.11</td>
<td>0.02</td>
<td>0.29*</td>
<td>0.39**</td>
<td>0.31*</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.13)</td>
<td>(0.16)</td>
<td>(0.18)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>No. Observations</td>
<td>2,026</td>
<td>2,045</td>
<td>2,046</td>
<td>2,049</td>
<td>2,053</td>
</tr>
</tbody>
</table>
### Elevated Mental Distress - Model 1

<table>
<thead>
<tr>
<th>Category</th>
<th>B: Description</th>
<th>H: Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential non-health care (green)</td>
<td>increased &amp; significant for all inventories (27 to 52 % points)</td>
<td>increased &amp; significant for all inventories (33 to 62 % points)</td>
</tr>
<tr>
<td>Essential health care (orange)</td>
<td>increased &amp; significant for 4 of 5 inventories (30 to 43 % points)</td>
<td>not significant</td>
</tr>
<tr>
<td>Non-essential</td>
<td>increased &amp; significant for 3 of 5 inventories (28 to 31 % points)</td>
<td>not significant</td>
</tr>
</tbody>
</table>
### Mental Health Distress - Model 2

<table>
<thead>
<tr>
<th>Employment status × Race &amp; Ethnicity</th>
<th>Depression (PHQ)</th>
<th>Anxiety (GAD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black: non-essential</td>
<td>0.68** (0.29)</td>
<td>0.78** (0.33)</td>
</tr>
<tr>
<td>Black: essential non-health</td>
<td>0.79*** (0.27)</td>
<td>0.74** (0.31)</td>
</tr>
<tr>
<td>Black: essential health</td>
<td>0.83** (0.41)</td>
<td>0.63 (0.40)</td>
</tr>
<tr>
<td>Hispanic: non-essential</td>
<td>0.44 (0.45)</td>
<td>0.22 (0.29)</td>
</tr>
<tr>
<td>Hispanic: essential non-health</td>
<td>1.13*** (0.42)</td>
<td>0.88*** (0.28)</td>
</tr>
<tr>
<td>Hispanic: essential health</td>
<td>0.41 (0.53)</td>
<td>0.17 (0.43)</td>
</tr>
</tbody>
</table>

**B**: 0.7 - 0.8 standard deviation elevated depression & anxiety

**H**: 0.9 - 1.1 standard deviation elevated depression & anxiety
Robustness

Results are robust to:

- limiting data to working age (under 65)
- across multiple measures of anxiety & depression
- including & excluding 5 states with no stay-at-home order
- control for perception of COVID-19 exposure
Conclusion

- Across all inventories, essential non-health care Black & Hispanic workers have elevated levels of mental health distress

- Strong evidence that Black & Hispanic workers face different mental health stressors than White counterparts

Especially important given,

- Black & Hispanic workers are over-represented in jobs (front-line industries) with relatively lower wages & often no employer-provided health insurance (Darity Jr et al., 2018)
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Moving Forward

Interventions & Policies

- It is essential to ensure that pre-existing barriers in seeking mental health treatment do not further exacerbate the prevailing disparities in diagnoses & treatment of mental illnesses.

- Interventions to help combat a looming mental health crises, might focus on meeting people where they are to help provide adequate mental health care.
Other COVID related work

Working Papers

- *Distance Learning & Parental Mental Health During COVID-19* (conditional acceptance at Educational Researcher)
- *How Schools Can Build Trust & Meet Expectations: Evidence from the Coronavirus Pandemic*

Other Work

- *The COVID-19 public health & economic crises leave vulnerable populations exposed* - Brookings Blog Post
- *Racial Disparities in Mental Health during COVID19* - ASHEcon Newsletter