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
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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 state/city's population, 70% of COVID-19 deaths
- **Illinois**: 15% of state/city's population, 42% of COVID-19 deaths
- **Michigan**: 14% of state/city's population, 41% of COVID-19 deaths
- **North Carolina**: 22% of state/city's population, 22% of COVID-19 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
Motivation

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
**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
  ➞ weight the data
- No baseline
  ➞ take a look at BFRSS
- Worker typology is self-reported and no way to cross reference
Mental Distress Levels: Pre-COVID & COVID

Mental Health Distress: Cross Survey and Race Comparison

Average Quasi PHQ-9: Depression

Average Quasi GAD-7: Anxiety

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

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

### Essential non-health care (green)
- **B**: increased & significant for all inventories (27 to 52 % points)
- **H**: increased & significant for all inventories (33 to 62 % points)

### Essential health care (orange)
- **B**: increased & significant for 4 of 5 inventories (30 to 43 % points)
- **H**: not significant

### Non-essential
- **B**: increased & significant for 3 of 5 inventories (28 to 31 % points)
- **H**: not significant
## Mental Health Distress - Model 2

| Employment status × Race & Ethnicity | Depression (PHQ) | Anxiety (GAD) |
|-------------------------------------|------------------|---------------|
| Black: non-essential                | 0.68**           | 0.78**        |
|                                     | (0.29)           | (0.33)        |
| Black: essential non-health         | 0.79***          | 0.74**        |
|                                     | (0.27)           | (0.31)        |
| Black: essential health             | 0.83**           | 0.63          |
|                                     | (0.41)           | (0.40)        |
| Hispanic: non-essential             | 0.44             | 0.22          |
|                                     | (0.45)           | (0.29)        |
| Hispanic: essential non-health      | 1.13***          | 0.88***       |
|                                     | (0.42)           | (0.28)        |
| Hispanic: essential health          | 0.41             | 0.17          |
|                                     | (0.53)           | (0.43)        |

**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)
Conclusion

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

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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.
Thank You!

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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