COVID-19 and Mental Health

Joshua Gordon, M.D., Ph.D.
Director, NIMH

53rd Advisory Committee on Research on Women’s Health (ACRWH)
April 14, 2021
Agenda

• Overview

• What We Know From Prior Disasters/Traumatic Events

• COVID-19 and Mental Health

• Responding to the COVID-19 Pandemic
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COVID-19 Pandemic

TOTAL CASES
30,038,363
+62,184 New Cases

7-DAY CASE RATE PER 100,000
127.4

TOTAL DEATHS
546,144
+871 New Deaths

CDC | Updated: Mar 28 2021 12:26PM

Cases in Past 7 Days
(per 100,000)

https://covid.cdc.gov/covid-data-tracker
Top Ten Leading Disease/Disorder Categories Contributing to all U.S. DALYs (2019)

Data Courtesy of IHME, GHDx

- Cardiovascular diseases: 15.6%
- Neoplasms: 15.0%
- Mental and substance use disorders: 13.2%
- Musculoskeletal disorders: 12.5%
- Chronic respiratory diseases: 6.3%
- Diabetes and kidney diseases: 6.1%
- Neurological disorders: 5.3%
- Other non-communicable diseases: 4.6%
- Unintentional injuries: 3.9%
- Digestive diseases: 3.3%
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• Responding to the COVID-19 Pandemic
Lessons Learned: Previous Disasters/Traumatic Events

- Most who are exposed to trauma experience initial symptoms
- For most, symptoms improve with time
- Significant minority may have long-term or chronic experiences with mental illness
- Social inequities and health disparities increase trauma exposure as well as subsequent mental health vulnerability and care

*Note: x-axis indicates number of PTSD symptoms reported on the PSS-L. Y-axis represents time from 10 days to roughly 420 days. Trajectories represent estimated marginal means.*
Risks for Poor Outcomes

• Nature and severity of exposure
  • Exposed directly to death or injuries
  • Trauma type

• Individual differences
  • History of trauma or mental illness
  • Ongoing stressors, including occupational and financial strain
  • Substance use/abuse
  • Female
  • Non-white

• Environment
  • Few social supports

There is no single variable that determines individual outcomes
Supporting Long-Term Recovery

• Meet immediate needs
• Practice healthy coping strategies
• Treat new or worsening illness
• Find ways to help others
  • Promotes sense of efficacy
  • Promotes connectedness

Disasters May Exacerbate Disparities in Mental Health System Reach and Access

• Mental health in disaster context is challenge
  • 8 months after Hurricane Katrina

<table>
<thead>
<tr>
<th></th>
<th>Respondents With Preexisting Disorders</th>
<th>Respondents With New-Onset Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Orleans Metropolitan Area Residents</td>
<td>Alabama, Louisiana, and Mississippi Residents</td>
</tr>
<tr>
<td>Received posthurricane treatment</td>
<td>60.1%</td>
<td>45.9%</td>
</tr>
<tr>
<td>Did not receive posthurricane treatment</td>
<td>39.9%</td>
<td>54.1%</td>
</tr>
<tr>
<td>Reasons for not obtaining treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low perceived need</td>
<td>6.9%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Enabling factors</td>
<td>84.0%</td>
<td>74.0%</td>
</tr>
<tr>
<td>Predisposing factors</td>
<td>4.2%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

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• What We Know From Prior Disasters/Traumatic Events

• COVID-19 and Mental Health
  • General Population
  • Vulnerable Populations

• Responding to the COVID-19 Pandemic
COVID-19 Impacts on Mental Health

Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report

Weekly / Vol. 69 / No. 32

August 14, 2020

Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020

Mark E. Czeisler1,2; Rashon I. Lane MA3; Emiko Petrosky, MD3; Joshua F. Wiley, PhD1; Aleta Christensen, MPH3; Rashid Njai, PhD3; Matthew D. Weaver, PhD1,4,5; Rebecca Robbins, PhD4,5; Elise R. Facer-Childs, PhD1; Laura K. Barger, PhD4,5; Charles A. Czeisler, MD, PhD1,4,5; Mark E. Howard, MBBS, PhD1,2,6; Shantha M.W. Rariaratanam, PhD4,5

During late June, 40% of U.S. adults reported struggling with mental health or substance use.

- Anxiety/depression symptoms: 31%
- Trauma/stressor-related disorder symptoms: 26%
- Started or increased substance use: 13%
- Seriously considered suicide: 11%

*Based on a survey of U.S. adults aged ≥18 years during June 24–30, 2020

†In the 30 days prior to survey
COVID-19 Impacts on Mental Health

Vahratian et al., *CDC Morbidity and Mortality Weekly Report*, 2021

![Graph showing the percentage of symptoms of an anxiety or depressive disorder, an anxiety disorder, and a depressive disorder over time from August 19-31, 2020, to January 20-21, 2021.](image-url)
COVID-19 Impacts on Mental Health

- Took prescription medication or received counseling or therapy
- Needed but did not receive counseling or therapy

Data collection period:
- Aug 19–31
- Sep 2–14
- Sep 16–28
- Sep 30–Oct 12
- Oct 14–26
- Oct 28–Nov 9
- Nov 11–23
- Nov 25–Dec 7
- Dec 9–21
- Jan 6–18
- Jan 20–Feb 1

Percentage
- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 60
- 70
- 80
- 90
- 100

Vahatian et al., CDC Morbidity and Mortality Weekly Report, 2021
Greater Financial Concern Partly Explains Link Between Job Insecurity and Anxiety During Pandemic

Model explains 74.6% of the variance

Adapted from Wilson et al., *Journal of Occupational and Environmental Medicine*, 2020
CDC Suicide Rate Quarterly Data 2020 Q2

Age-adjusted death rates for Suicide:
United States, 2018-Quarter 3, 2020

- 3-month period
- 12 months ending with quarter

Deaths per 100,000

Quarter

https://www.cdc.gov/nchs_nvss/vsrr/mortality-dashboard.htm#
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• Responding to the COVID-19 Pandemic
Mental Health Symptoms in Vulnerable Populations

• Pre-pandemic:
  • Striking disparities in the prevalence and outcomes of mental illnesses

• During the pandemic:
  • Women, particularly during pregnancy
  • People with pre-existing mental health and substance use problems, including youth
  • Health disparities populations
  • Health care workforce

https://www.samhsa.gov/behavioral-health-equity/black-african-american
The Impact of the Coronavirus Lockdown on Mental Health: Evidence from the US

Cambridge-INET Institute

Cambridge-INET Working Paper Series No: 2020/21
Cambridge Working Papers in Economics: 2037
Pregnancy and Intimate Partner Violence Increase Risk for Mental Health Problems

The impact of the COVID-19 pandemic on women’s mental health

Marcela Almeida¹,² • Angela D. Shrestha³ • Danijela Stojanac³ • Laura J. Miller⁴,⁵

Received: 9 June 2020 / Accepted: 4 November 2020
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Addressing Perinatal Mental Health During COVID-19

COVID-19: BEYOND TOMORROW

Meeting Maternal Mental Health Needs During the COVID-19 Pandemic

Alison Hermann, MD¹; Elizabeth M. Fitelson, MD²; Veerle Bergink, MD, PhD³,⁴
COVID-19 Mother and Baby Outcomes (COMBO) Brain Behavior Functioning Study

- Principal Investigators: Dani Dumitriu, M.D., Ph.D., Catherine Monk, Ph.D., and Rachel Marsh, Ph.D.
  - Columbia University (R01MH126531)
Increased Risk of COVID-19 Infection for People With Recent Mental Disorders

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Outcome</th>
<th>AOR (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td>COVID-19</td>
<td>7.31 (6.78-7.87)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>COVID-19</td>
<td>7.69 (7.05-8.40)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>COVID-19</td>
<td>10.43 (10.10-10.76)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>COVID-19</td>
<td>9.89 (8.68-11.26)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Disparity of Risk of COVID-19 Infection Among Minorities with Mental Disorders

<table>
<thead>
<tr>
<th>Case</th>
<th>Control</th>
<th>AOR (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>2.03 (1.73-2.39)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Senior</td>
<td>Adult</td>
<td>0.19 (0.10-0.38)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>2.00 (1.64-2.43)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>1.34 (1.14-1.58)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Senior</td>
<td>Adult</td>
<td>0.87 (0.69-1.08)</td>
<td>0.239</td>
</tr>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>2.23 (1.90-2.61)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>1.29 (1.22-1.37)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Senior</td>
<td>Adult</td>
<td>0.95 (0.90-1.00)</td>
<td>0.101</td>
</tr>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>3.78 (3.58-3.98)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Male</td>
<td>1.53 (1.21-1.94)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Senior</td>
<td>Adult</td>
<td>1.74 (1.33-2.28)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>2.33 (1.84-2.97)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Higher Mortality among Those with Serious Mental Illness

Table 4. Odds and Rates of 45-Day Case Fatality by Recent Psychiatric Diagnosis

<table>
<thead>
<tr>
<th>SARS-CoV-2-Positive</th>
<th>Mortality or hospice, No. (%)</th>
<th>OR (95% CI)</th>
<th>Demographically adjusteda</th>
<th>Fully adjustedb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Unadjusted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All patients (n = 7003)</td>
<td>822 (11.7)</td>
<td>2.84 (1.47-5.52)</td>
<td>3.13 (1.50-6.54)</td>
<td>2.67 (1.26-5.69)</td>
</tr>
<tr>
<td>Schizophrenia spectrum (n = 46)</td>
<td>12 (26.1)</td>
<td>2.19 (1.69-2.84)</td>
<td>1.52 (1.13-2.03)</td>
<td>1.27 (0.94-1.73)</td>
</tr>
<tr>
<td>Mood disorders (n = 374)</td>
<td>80 (21.4)</td>
<td>1.14 (0.77-1.70)</td>
<td>1.24 (0.80-1.93)</td>
<td>1.21 (0.77-1.90)</td>
</tr>
<tr>
<td>Anxiety disorders (n = 234)</td>
<td>29 (12.4)</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Referencec (n = 6349)</td>
<td>701 (11.0)</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Abbreviations: OR, odds ratio; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

a The demographically adjusted OR included age, race, and sex.

b The fully adjusted model included demographic variables in addition to smoking status, hypertension, heart failure, myocardial infarction, diabetes, chronic kidney disease, chronic obstructive pulmonary disease, and cancer.

c The reference group excluded patients without any history of a schizophrenia spectrum, mood, or anxiety disorder diagnosis or other psychiatric diagnoses listed in eTable 1 of the Supplement.
Home Environment May Protect Child Mental Health During COVID-19 Pandemic

Since the beginning of the COVID-19 Pandemic has this behavior increased, decreased or stayed the same?

- Temper Tantrums
- Fights w/ Kids
- Argues w/ Adults
- Spiteful
- Disobedience

Percent

Decrease | Same | Increase
# Home Environment May Protect Child Mental Health During COVID-19 Pandemic

## Table 3

Linear regressions testing associations between family routines and child mental health.

<table>
<thead>
<tr>
<th></th>
<th>Child Depressive Symptoms</th>
<th></th>
<th></th>
<th>Child Externalizing Symptoms</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1a</td>
<td>Model 1b</td>
<td>Model 1c</td>
<td>Model 2a</td>
<td>Model 2b</td>
<td>Model 2c</td>
</tr>
<tr>
<td></td>
<td><strong>B</strong></td>
<td><strong>SE B</strong></td>
<td><strong>β</strong></td>
<td><strong>B</strong></td>
<td><strong>SE B</strong></td>
<td><strong>β</strong></td>
</tr>
<tr>
<td>Family Routines</td>
<td>-.16</td>
<td>.06</td>
<td>-.22**</td>
<td>-.12</td>
<td>.05</td>
<td>-.17*</td>
</tr>
<tr>
<td>Child Agerowhead</td>
<td>-.02</td>
<td>.19</td>
<td>-.01</td>
<td>.04</td>
<td>.18</td>
<td>-.02</td>
</tr>
<tr>
<td>Child Sex</td>
<td>.07</td>
<td>.34</td>
<td>.02</td>
<td>-.01</td>
<td>.33</td>
<td>.00</td>
</tr>
<tr>
<td>Dual Parent Household</td>
<td>-.71</td>
<td>.49</td>
<td>-.12</td>
<td>-.73</td>
<td>.46</td>
<td>-.12</td>
</tr>
<tr>
<td>Household Income</td>
<td>.00</td>
<td>.00</td>
<td>.13</td>
<td>.00</td>
<td>.00</td>
<td>.09</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>.27</td>
<td>.13</td>
<td>.17*</td>
<td>.15</td>
<td>.13</td>
<td>.09</td>
</tr>
<tr>
<td>Maternal Depressive Symptoms</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.32</td>
<td>.07</td>
<td>.34**</td>
</tr>
<tr>
<td>Maternal Perceived Stress</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**p < .01, *p < .05.
Racial Differences in Suicide Mortality Trends During the Pandemic

Cumulative difference in suicide mortality rates

March 5, 2020, first COVID-19 cases reported in Maryland
May 7, reopening begins in Maryland

Differences in cumulative deaths by suicide in 2020 vs the mean in 2017 to 2019

Time since January 1, 2020, d

NIH National Institute of Mental Health
Mental Distress Varies by Ethnicity and Gender

Acronym BAME defined as Black, Asian and minority ethnic
Racial and Ethnic Disparities in Reports of Stress and Worry During COVID-19 Pandemic

McKnight et al., Morbidity and Mortality Weekly Report, 2021
Increased Reports of Psychological Symptoms among Frontline Healthcare Workers

Shechter et al., General Hospital Psychiatry, 2020
Racial Patterns in National Suicide Rates (1999-2019)

<table>
<thead>
<tr>
<th>Race/Group</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian or Alaska Native</td>
<td>13.6</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>7.1</td>
</tr>
<tr>
<td>Black or African American</td>
<td>13.9</td>
</tr>
<tr>
<td>White</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Data from National Vital Statistics System
# Maryland Suicide Rates in 2020 Compared to Previous Three Years

<table>
<thead>
<tr>
<th>Period</th>
<th>Total</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>% change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jan 1 – Mar 4 (Beginning of year to emergency declaration)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>92</td>
<td>84</td>
<td>95</td>
<td>5.2</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>16</td>
<td>20</td>
<td>18</td>
<td>14</td>
<td>-22.2</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>75</td>
<td>65</td>
<td>61</td>
<td>70</td>
<td>6.6</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td><strong>Mar 5 – May 7 (Emergency declaration to opening of public spaces)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>94</td>
<td>92</td>
<td>71</td>
<td>-25.5</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>8</td>
<td>14</td>
<td>12</td>
<td>22</td>
<td>94.1</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>89</td>
<td>74</td>
<td>72</td>
<td>43</td>
<td>-45.1</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td><strong>May 8 – Jul 7 (Opening of public spaces to study end)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>119</td>
<td>73</td>
<td>70</td>
<td>-26.6</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>18</td>
<td>18</td>
<td>17</td>
<td>14</td>
<td>-20.8</td>
<td>.69</td>
<td></td>
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<tr>
<td>White</td>
<td>72</td>
<td>88</td>
<td>46</td>
<td>48</td>
<td>-30.1</td>
<td>.03</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bray et al., *JAMA Psychiatry*, 2020
Connecticut Suicide Rates in 2020 Compared to Previous Six Years

Mitchell and Li, Psychiatry Research, 2021
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• COVID-19 and Mental Health

• Responding to the COVID-19 Pandemic
Telehealth Expansion

• Prior to pandemic, telehealth had been expanding and states with commercial payer laws saw tremendous variability

• Federal and state legislation and regulation quickly changed to improve access
Total Emergency Department Visits Decreased After COVID-19 Mitigation Measures Take Effect

The “15 Days to Slow the Spread” national proclamation was instituted on March 16, 2020.
Differences in Telehealth Modalities May Indicate Barriers for Low-Income Patients

Uscher-Pines et al., *JAMA*, 2021
Identifying Risk and Promoting Resilience

• All people affected by pandemic, even those who have not been infected
  • Those with mental illness have higher risk of COVID-19 infection
  • General public still at increased risk of mental illness, particularly vulnerable populations (e.g., racial/ethnic minorities, front line workers, those with preexisting mental illness, unemployed, and food and/or housing insecure)

• Promoting resilience
  • Hope for the future
  • Sense of control
  • Meeting immediate needs
  • Practicing healthy coping habits
NIMH COVID-19 Research

• Mental Health Impact of COVID-19 Pandemic on NIMH Research Participants and Volunteers (PI: Chung)
• Mental Health Impact of COVID-19 Pandemic on Health Care Workers (PIs: Zarate/Park)
• Impact on Anxiety and Motivation of COVID-19 and Predictors of Individual Responses (PIs: Grillon/Ernst)
NIMH COVID-19 Funding Opportunities

• Featured NIMH-sponsored Notices of Special Interest (NOSIs)
  • Availability of Administrative Supplements and Urgent Competitive Revisions for Mental Health Research on the 2019 Novel Coronavirus (NOT-MH-20-047)
  • Administrative Supplements and Urgent Competitive Revisions for NIH Grants to Add or Expand Research Focused on Maternal Health, Structural Racism and Discrimination, and COVID-19 (NOT-OD-21-071) - related to Implementing a Maternal health and PRegnancy Outcomes Vision for Everyone (IMPROVE)

• NIMH is participating in additional FOAs:
  • NIMHD NOSI: Impact of COVID-19 on Minority Health and Health Disparities (NOT-MD-20-019)
  • NIA NOSI: Admin and Revision Supplements on COVID-19 (NOT-AG-20-022)
  • NIMHD NOSI: Research to Address Vaccine Hesitancy, Uptake, and Implementation among Populations that Experience Health Disparities (NOT-MD-21-008)
  • NIMHD NOSI: Simulation Modeling and Systems Science to Address Health Disparities (NOT-MD-20-025)

https://covid19.nih.gov/funding/open-funding-opportunities
Social, Behavioral & Economic Impacts Research

Over 60 WG Members

- Social, Behavioral, and Economic Impacts of COVID-19 initiative engaged NIH members with representation from 21 ICOs

FY20 Funded 52 Supplements

- 28 Longitudinal Studies
- 15 Digital Health Studies
- 9 Community Health Studies

Diverse Population

- Many health disparity populations (e.g., racial and ethnic minorities, less privileged SES, rural residents)
- Vulnerable populations included community older adults, frontline workers, children

Impactful Research

Research focus areas included but not limited to:
- Alcohol, substance abuse, mental health outcomes
- Public health mitigation impact and adherence
- Chronic health conditions
NIMH envisions a world in which mental illnesses are prevented and cured.

To transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure.