COVID-19 Evidence Accelerator Collaborative

Lab Meeting #23

Thursday, November 19, 2020, 3 - 4:00 pm ET

Call Summary

Lab Meeting 23 Overview

The topic of the November 19th lab meeting was COVID-19 & mental health. During the first third of the meeting Dr. Amy Abernethy of the Food and Drug Administration and Dr. Jeffrey Lieberman of Columbia University had an engaging discussion about potential long-term impacts of COVID-19 on psychiatric health. The next twenty minutes of the lab meeting included two presentations by Murali Doraiswamy (Duke University School of Medicine) and Gregory E. Simon (Kaiser Permanente) on the use of real-world data for understanding COVID-19's impact on the brain and population-level need for mental health services. Finally, Joshua Gordon from the National Institute for Mental Health gave an overview NIMH's ongoing research aimed at understanding how mental health is impacted by various pandemic-related disruptions.

Conversation with Dr. Jeffrey Lieberman & Dr. Amy Abernethy

Amy Abernethy, Food and Drug Administration
Jeffrey Lieberman, Columbia University

Please Note: These questions & answers are paraphrased

Dr. Amy Abernethy: What were your thoughts watching this pandemic unfold?

Dr. Jeffrey Lieberman: There is a focus now on vaccines & treatments for COVID-19, but there is also consensus that there will be a psychiatric sequela in the aftermath of the pandemic. The question is whether we will be prepared for it. Estimating the impact and preparing to deal with it are challenging because quantitative epidemiology & disaster psychology are relatively new phenomena. Recent disasters we have to learn from are circumscribed temporally & geographically – such as Hurricane Sandy and 9/11. Global events such as World War II and the Spanish Flu are hard to learn from because the methodology & data are not robust. We do know from these historical events that when large groups of people are subject to stressors &

dislocations for a sustained period of time, there will be differential mental health impacts. There is a need to understand the magnitude of the issue, without catastrophizing, and prepare for it.

Dr. Abernethy: What are some of the illnesses we might see become more of a challenge in the aftermath of the pandemic?

Dr. Lieberman: You can think of this in terms of risk groups. There will be groups with differential vulnerability for mental health issues based on proximity to the stressors of the pandemic. For example, those who were in the ICU with COVID, lost a family member, or worked on the front lines may be higher risk, while the "worried well" – those with no extreme exposure or trauma from the pandemic – will likely adapt to the stressors with mental health first aid, stress management, and listening to public health guidance. Those with constitutional vulnerability to mental illness may also be at higher risk. There are also risks of increased substance use, domestic & criminal violence, and suicide. Other vulnerable groups such as the elderly and children may also be at higher risk. Children at key stages of development will be impacted by how their environment adapted to the stressors of the pandemic. We can try to estimate the population impact, it is worth stratifying by different risk groups to identify targeted strategies for pre-empting and mitigating the impacts.

COVID-19 & Mental Health: Emerging Real-World Data

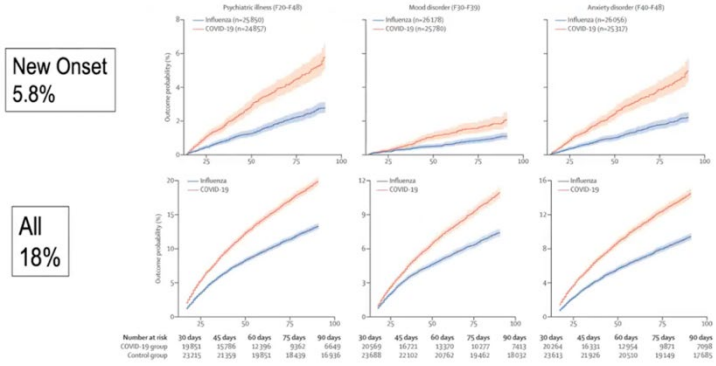
Murali Doraiswamy, Duke University School of Medicine & Duke Institute for Brain Sciences

Questions Regarding Mental Health & COVID-19

- What are the direct neuropsychiatric effects of COVID-19?
- What are (and will be) the broader mental health effects of the pandemic?
- How can we optimize delivery of mental healthcare – particularly through use of digital & remote tools?

Risk of Psychiatric Illness After COVID-19

- 5.8% of COVID-19 patients without a history of psychiatric illness had a new onset of psychiatric diagnosis within 90-days of their COVID-19 diagnosis. This was double the rate observed in the 6 matched case-control cohorts.



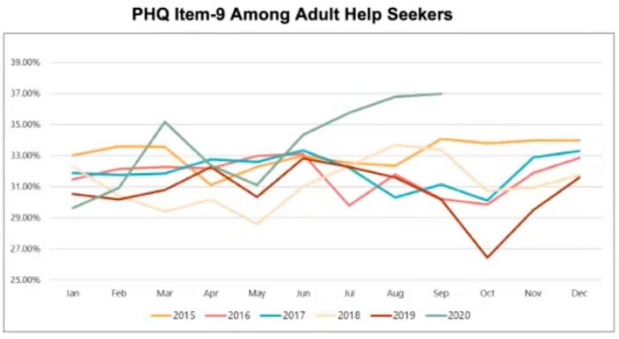
TriNetX network of 54 organizations, 44,779 with COVID

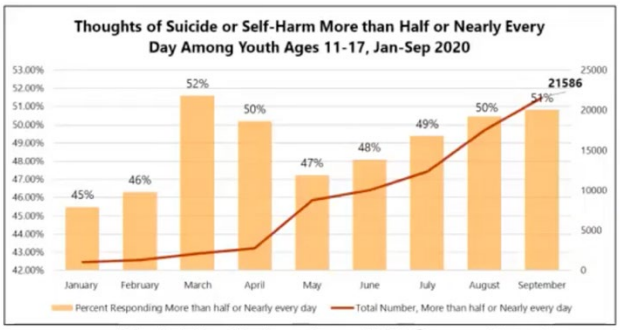
Taquet M, et al. The Lancet Psychiatry 2020

- 18% of COVID-19 patients were diagnosed with a psychiatric illness (recurrent or new onset) within 90-days of their COVID-19 diagnosis.
- These diagnoses were primarily anxiety & mood disorders.
- The study also showed those with a history of psychiatric illness had a 65% greater risk for contracting COVID-19.

Trends in Suicide During the Pandemic

- Initial modeling suggested the rate of suicides increased 1-45% during the pandemic, with a 30% increase among youth.
- Later research showed there was no significant change in rates of suicide compared to the same period in 2019.
- Research in Japan & Norway found an initial decrease in suicide rates; however, recent data shows in Japan in August there was a 7% increase in suicides.
- Subgroups that were disproportionately impacted by both COVID-19 & suicide included the elderly & physicians.
- The figures to the right show the increase in suicidal ideation among adults and youth ages 11-17 over the course of the pandemic.





Mental Health America - 2021 Survey Report

Direct Effects of COVID-19 on the Brain

- COVID-19's impact on the brain have implications for the "Long-haulers". This group reports brain fog, short-term memory loss, fatigue, and hallucinations, even after recovery from COVID.
- Data from two early pilot studies show the lasting impact COVID-19 has on the brain:
    - Study 1:
        - Brain scans taken 90-days after COVID-19 diagnosis show diffusivity was reduced in COVID-19 patients compared to the control group.
        - Grey matter volumes were increased in COVID-19 patients compared to the control groups.
        - These metrics may help explain the brain fog, memory loss, & other neurologic symptoms reported by recovered COVID-19 patients.
    - Study 2:

- COVID patients had elevated Plasma GFAp & Plasma NfL compared to controls. Elevated levels of these markers in the blood generally indicate brain injury.
- Raises the question as to whether these markers can be used to identify patients that will experience longer-term neurological symptoms.

Psychiatric Medications & COVID-19

- There are a number of classes of psychiatric medications being tested to see if they can help treat COVID-19. Known to have anti-inflammatory and, potentially, anti-platelet effects.
- In two studies, anti-depressants were shown to decrease a patient's risk of intubation & death and decrease clinical deterioration.

Optimizing Digital Mental Health Interventions

- Remote care is crucial, but the drop-out rate for virtual/ remote interventions is historically high.
- Project Talia Study - Real World Data study to enhance the efficacy of digital mental health interventions.
    - Patients enrolled in 14-week Cognitive Behavioral Therapy intervention had varying engagement levels.
    - The cluster with the lowest engagement had the smallest benefit.
    - These patients also had varying preferences regarding CBT. Researchers took these data and tried to inform the intervention to make it more engaging for them.

<u>Insights from the Mental Health Research Network</u>

Gregory E. Simon, Kaiser Permanente, Mental Health Research Network

Mental Health Research Network

- 14 research centers embedded in large integrated health systems
- 22 million members/patients in 17 states
- Harmonized data resources following HCSRN/PCORnet/Sentinel common data model
- Core infrastructure supported by NIMH with additional project-specific funding from NIMH, FDA, & PCORI

Questions Regarding Mental Health & COVID-19

- What are the direct neuropsychiatric effects of COVID-19?
- How do we understand the broader mental health impacts of the pandemic – collateral damage related to unemployment, isolation, etc.?

- Pandemic-related disruption of mental health care delivery – particularly for vulnerable populations.

Real-World Data Streams

- To measure the population-level need for mental health care data is collected on encounter diagnoses, utilization categories, medication orders & fills, routinely collected patient reported outcome (PRO) data, vital statistics (esp. suicide mortality).

Monitoring mental health at the population level

- Normally we track the use of services to identify trends in the need for mental health care services; however, 2020 is not a normal year, there have been dramatic changes in healthcare use.
- Any changes in service reflect the sum of changes in need, changes in availability, changes in care-seeking behavior.
    - Decreased depression diagnoses (Feb-March 2020) are likely artifact. Possibly decreased but likely also related to change in availability & utilization of services.
    - The spike in March of anti-depressant medication dispensing does not necessarily reflect an increase in treatment/diagnosis of depression, rather it may reflect that people were stocking up on their prescriptions to avoid going out during shutdowns.
    - Compared to 2019, since March there has been less emergency department visits for mental health crises; however, this is likely not because there are less mental health crises.
    - Routine collection of PROs had a big disruption at the start of the pandemic, recovered as health systems adapted to remote/virtual care.
    - Suicide mortality is a "hard outcome" because suicide occurs out of the hospital, national death index data is delayed up to 18 months, etc.
- These data were less likely impacted by pandemic-related disruptions and can therefore be trusted to study:
    - Disparities in access: Does limited access and shift to "virtual" care disadvantage certain groups of patients?
    - Disruptions in necessary care: Do we see discontinuities in care for people receiving ongoing care for more severe conditions?

<u>Ongoing Work at NIMH</u>

Joshua A. Gordon, National Institute on Mental Health

- Investing a lot into research looking at the mental health impacts of the pandemic:
    - COVID-19 itself
    - Social distancing/isolation

    - Economic effects
- Using this research to inform targeted interventions that can address each of these three impacts.
- Also supplementing ongoing interventions in the context of the pandemic – for example, looking at digital vs. in-person care.