COVID-19 Evidence Accelerator Collaborative
Lab Meeting 50
Thursday, March 17, 2022, 3:00 - 4:00 PM ET
Call Summary

Overview of Lab Meeting 50

Lab Meeting 50 highlighted the impact and relationship between COVID-19 and mental health. First, Dr. Murali Doraiswamy of the Duke University School of Medicine facilitated a Q&A with Drs. Joshua Gordon, Director of the National Institute of Mental Health (NIMH), Dr. Susan Borja, also of NIMH, and Dr. Patrizia Cavazzoni of the US Food and Drug Administration's (FDA) Center for Drug Evaluation & Research (CDER). Next, we heard from Dr. Scott Kollins of Holmusk about the challenges and opportunities of utilizing Real World Data (RWD) for understanding COVID's impact on mental health. The third presentation by Reyna Taylor of the National Council for Mental Wellbeing introduced her organization's efforts to enhance the capacity, coordination, and quality of community-based mental health care to meet increased demand for these services. Finally, Dr. Amar Bhat of the Reagan Udall Foundation for the FDA presented the data visualization of the week which highlights the demand for information on how to maintain mental well-being throughout the COVID-19 pandemic.

Conversation on COVID-19 & Mental Health
Dr. Murali Doraiswamy, Duke University School of Medicine, Dr. Joshua Gordon & Dr. Susan Borja, NIMH, and Dr. Patrizia Cavazzoni, FDA CDER

State of Mental Health Pre-COVID vs. Post-COVID

- Prior to COVID, 5.29 million were living with mental illness, 1 in 20 were living with serious mental illness (SMI), 1 in 10 children lived with serious emotional disturbance (SED), and mental illness was the leading cause of disability
- People living with SMI may have worse outcomes from COVID
- Recovering from COVID is associated with a substantial $\uparrow$ in new onset psychiatric illnesses such as major depressive disorder, generalized anxiety disorder (GAD), opioid prescriptions and overdoses, neurocognitive decline, sleep disorders, etc.
- Use of SSRI Anti-depressants (fluvoxamine) associated with $\downarrow$ risk of clinical deterioration and hospitalization from COVID-19 over 10 days
- No show rates for behavioral health visits $\downarrow$ after telemedicine was implemented (~22% no show rate pre-implementation, ~10% no show rate post-implementation)

Discussion

Q: Can you tell us what you are seeing and working on at the NIMH?
Dr. Gordon: Early in the pandemic people began describing symptoms of anxiety, increased substance use, and thoughts of suicide. These modest to moderate increases have held steady through the course of the pandemic, but there have not been increases in worst possible outcomes from mental illness such as suicide deaths. We are seeing increased utilization of mental health services. Have also seen increased deaths from opioid overdose, but it is unclear whether this is due to increased substance use disorder or due to increased presence of fentanyl in the US.

Dr. Borja: Symptoms of mental illlness tend to rise and fall with COVID cases but continue to remain elevated relative to pre-pandemic levels. Similar trend with emergency room (ER) use – data published recently showed that following a surge in cases of COVID we see an increase in ER use. Younger adults and racial and ethnic minorities have greater increases than the rest of the population.

Q: Can you share your thoughts on mental health dynamic of COVID-19 and how it has or might appear before the FDA and what the FDA is doing?

Dr. Cavazzoni: It is still unclear whether the acute, sub-acute, and chronic neuropsychiatric effects of COVID-19 infection have a different underlying mechanism than psychiatric disorders in general. If a company wanted to develop drug to treat COVID-19-related psychiatric symptoms or illness, the burden would be on the company to demonstrate there is a difference between, for example, depression related to COVID versus depression in general. Otherwise, we would expect drugs that are generally used for the disorder would also be able to be used for COVID-related psychiatric symptoms/illness. Still need to answer some questions about post-COVID chronic sequelae. Some studies seem to show the virus does affect the brain and that there can be long lasting changes, but we don't know whether that increases the risk for developing neuropsychiatric disorders.

Q: FDA loosened criteria during the pandemic to enable more immediate access to digital and online health tools, is that going to continue?

Dr. Cavazzoni: We have seen an uptake in telemedicine and tools that facilitate and enable telemedicine including digital therapeutics for psychiatric disorders. Hopefully this uptake we've seen will serve as a foundation for future development of these tools. We have a role in regulating and reviewing these therapeutics and there may be questions about how effective they are. We also know one of the biggest problems is access to mental health care – stemming from problems with availability of mental healthcare professionals to reimbursement. Modalities that make access easier and more affordable are going to be very important. We are dealing with a crisis superimposed on a long-standing crisis.

Q: President Biden recently announced a strategy to address the nation's mental health crisis, can you talk about this? And what are the indicators we should be monitoring to see where we are headed in the future?

Dr. Gordon: 1) Pres. Biden's plan focuses on youth mental health which is where we know the least about the severity and long-term impacts. 2) It promotes expansion of 2 evidence-based approaches to mental health care – integrated care and peer supports. 3) It aims to enhance training in evidence-based practices for mental health providers.

Dr. Borja: As life returns to normal, we'll expect to see many people naturally recover from symptoms of anxiety/depression. Some will not and will have chronic illness that need, and will benefit from, intervention. Indicators are challenging because we don't have great data on a large proportion of the population. We understand symptoms, but we don't know what these mean in terms of impairment, distress, diagnosis, and service needs, etc. Data on service use is impacted by many factors which makes it hard to interpret. Of the people with SMI, a good proportion don't receive services, this was true even pre-pandemic. We can anticipate there will be more need for care but given the capacity of the health care system we have a challenge to figure out how to provide services for more people and optimally target different kinds of levels of care where they make a difference. Given the lack of robust representative surveillance data on the continuum of mental health care needs and services delivered, this is difficult.

Q: Interest towards RWD and pragmatic clinical trials was accelerated during COVID-19, how can the mental health field benefit from using these tools/approaches?

Dr. Cavazzoni: What we don't know is whether we are going to see major shift in trends when it comes to prevalence of neuropsychiatric disorders or if what we are seeing represents a transient phenomenon. I see RWD as a key element in addressing these these questions. We need to follow populations for many years to answer questions about how these COVID-related psychiatric disorders present. One of the problems with psychiatric disorders is that the scales used in clinical trials are not used in clinical practice, and we can't just assume that RWD or big data will be appropriate to answer these questions. We may need to think about new endpoints for psychiatric disorders that may be more amenable to studying RWD sources. Can think about more functional endpoints as opposed to symptomatic scales, such as major events in the course of illness (e.g., loss of functions, disability) so that we can study these disorders to a greater extent using RWD.

The Use of Electronic Health Record (EHR) Data to Understand Pandemic-Related Mental Health Outcomes
Dr. Scott Kollins, Holmusk

RWD/RWE for Behavioral Health – Challenges & Opportunities
- Lower uptake in EHRs in behavioral health (only 49% of psychiatric hospitals)
- Behavioral health care delivery patterns are more private pay/fee for service, out of network provision of care, resulting in higher proportion of discontinuous data sources.
- Data and outcomes captured in routine care is variable and more likely to be unstructured compared to many other therapeutic areas.
- Holmusk combines its strengths in data (including RWD, digital data, and EHR data), analytics, and digital under one roof, compounding the power of each to transform clinical research in behavioral health.

NeuroBlu Database as of Q2 2022
- 50+ million rows of patient data, 570k+ patients, 20+ years of longitudinal data
- Structured and unstructured data fields including Clinical Global Impression Severity Score (CGI-S), Global Assessment of Functioning (GAF), diagnosis codes (ICD-9, ICD-10), prescription data, patient demographics, Mental Status Examination (MSE), patient symptoms and behaviors, clinician observed side effects from medications, social, relational, and occupational events that may affect mental health, etc.

Methods
- **Data Source:** De-identified EHR-derived data from US mental health services using MindLinc EHR system and analyzed in NeuroBlu
- **Cross-Sectional Cohort:** Patients presenting for an initial visit to a mental health specialty clinic in the year from 3/1/2019 – 2/28/2020 vs. those presenting for an initial visit in the year 3/1/2020-2/28/2021
- **Longitudinal Cohort:** Patients with >= 2 outpatient visits March 2019 – February 2020 (pre-COVID) AND >=2 outpatient visits March 2020 – February 2021 (post-COVID)

Cross-Sectional Analysis Results
- **Diagnosis of Behavioral Health Pre- vs. Post-COVID**
    - ↓ number of visits across all disease areas except schizoaffective disorders and bipolar disorder.

- o ↑ rates of diagnosis for generalized anxiety disorder (GAD), post-traumatic stress disorder (PTSD), substance use disorder (SUD), schizoaffective disorder, and bipolar disorder.
- **CGI-S Score Distribution Pre- vs. Post-COVID**
    - o Distribution of CGI-S scores recorded at initial visit altered compared to post-COVID
    - o ↓ in mean CGI-S suggesting post-COVID individuals presenting with mental health disorders have lower illness severity

Longitudinal Trends
- **Outpatient Visits Pre- vs. Post-COVID**
    - o ↓ number of outpatient visits post-COVID
    - o No clinically significant change in illness severity post-COVID
- **New Behavioral Health Diagnoses Pre- vs. Post-COVID**
    - o Of 8,800 patients, 6.45% had a new behavioral health diagnosis since the pandemic began compared to 13.5% in the year prior to the pandemic
- **Changing CGI-S Scores**
    - o 25.3% of patients showed worsening CGI-S score post-COVID, 38.1% showed no change, 36.6% showed improvement
        - ▪ Age above 66 associated with worsening CGI-S score, below 66 associated with improving CGI-S score

Key Findings
- Increasing rates of some behavioral health disorders but not others.
- Expected decrease in number of visits, but not accompanied by clinically significant change in severity pre- vs. post-COVID.
- Evident shifts in proportion of patients showing improved severity.
- Number of new diagnoses for existing patients appears to be reduced post-COVID, may be due to diagnoses stabilizing over time.

Conclusions & Future Directions
- Behavioral health EHR-derived data provide insights into functioning that can augment other sources of RWD.
- RWD/RWE has been the only way to examine and understand some of the aspects of pandemic-related mental health challenges.
- Must work together to address the limitations unique to behavioral health EHR data.
    - o Examination of temporal trends (lockdowns)
    - o Further examination of subgroups
    - o Exploration of other outcomes
    - o RWD/RWE can be used to examine effects of COVID infection itself which will be important to understanding the long-term impacts of COVID

A Community Perspective: Mental Health and Substance Use Treatment Organizations
Reyna Taylor, The National Council for Mental Wellbeing

National Council for Mental Wellbeing

- Drives policy & social change to ensure equitable access to high quality services, to build capacity of mental health and substance use treatment organizations, and to promote greater understanding of mental wellbeing as a core component of comprehensive health & healthcare.
- 3,200 mental health and substance use treatment organizations serving 10 million+ children, adults, and families

COVID-19 Impact on Our Mental Wellbeing
- During the pandemic 4 in 10 US adults reported symptoms of anxiety or depressive order, compared to 1 in 10 reporting these symptoms in 2019
- 100,000 drug overdose deaths occurred April 2020 – April 2021, a 28% increase from the same period the year before
- 1 in 3 people who survived COVID-19 are diagnosed with a neurological or psychiatric condition within 6-months of infection
- ~50% of all Black, Hispanic, Asian, Native American, and LGBTQ+ individuals report increased mental health challenges over the last year, few received treatment

COVID-19 Impact on Mental Health and Substance Use Treatment Organizations
- Continued increase in demand for services over the past 3 months for 78% of organizations
- 26% increase in demand since August 2020 (particularly for orgs. providing mental health, crisis, social support, and youth services)
- Growing waitlists for 3 in 5 organizations in the last 3 months, 17% increase since February 2021
- 97% of organizations are having difficulty recruiting and retaining employees

Certified Community Behavioral Health Centers (CCBHCs): A New Model
- **Concept:** The way to expand & improve care is to pay for the activities that make those goals possible.
- Provides a national definition for scope of services, timeliness of access, etc.
- Enables standardized data and quality reporting
- Payment rate that covers the real cost of opening access to new patients and new services, including non-billable activities like outreach and care coordination.
- Began with an 8-state demo in 2016 and has grown to 431 CCBHCs across 41 states, Guam, and Washington, D.C.

CCBHCs: Improving Access to Care
- Participating organizations are serving an average of 17% more people than prior to CCBHC implementation
- Sharply reduced wait times for services which reach a national average of 48 days
    - 50% of responding CCBHCs provide same-day access to care
    - 84% see first-time clients within one week
    - 93% see clients within 10 days

Data Visualization of the Week

Dr. Amar Bhat, Reagan Udall Foundation for the FDA

- Figure shows categories of information about COVID-19 in greatest demand in the United States.
    - 19% percent of respondents wanted information about how to maintain mental health.
    - 28% of these were 18-24 years old, 23% were in primary school, and 21% are female.
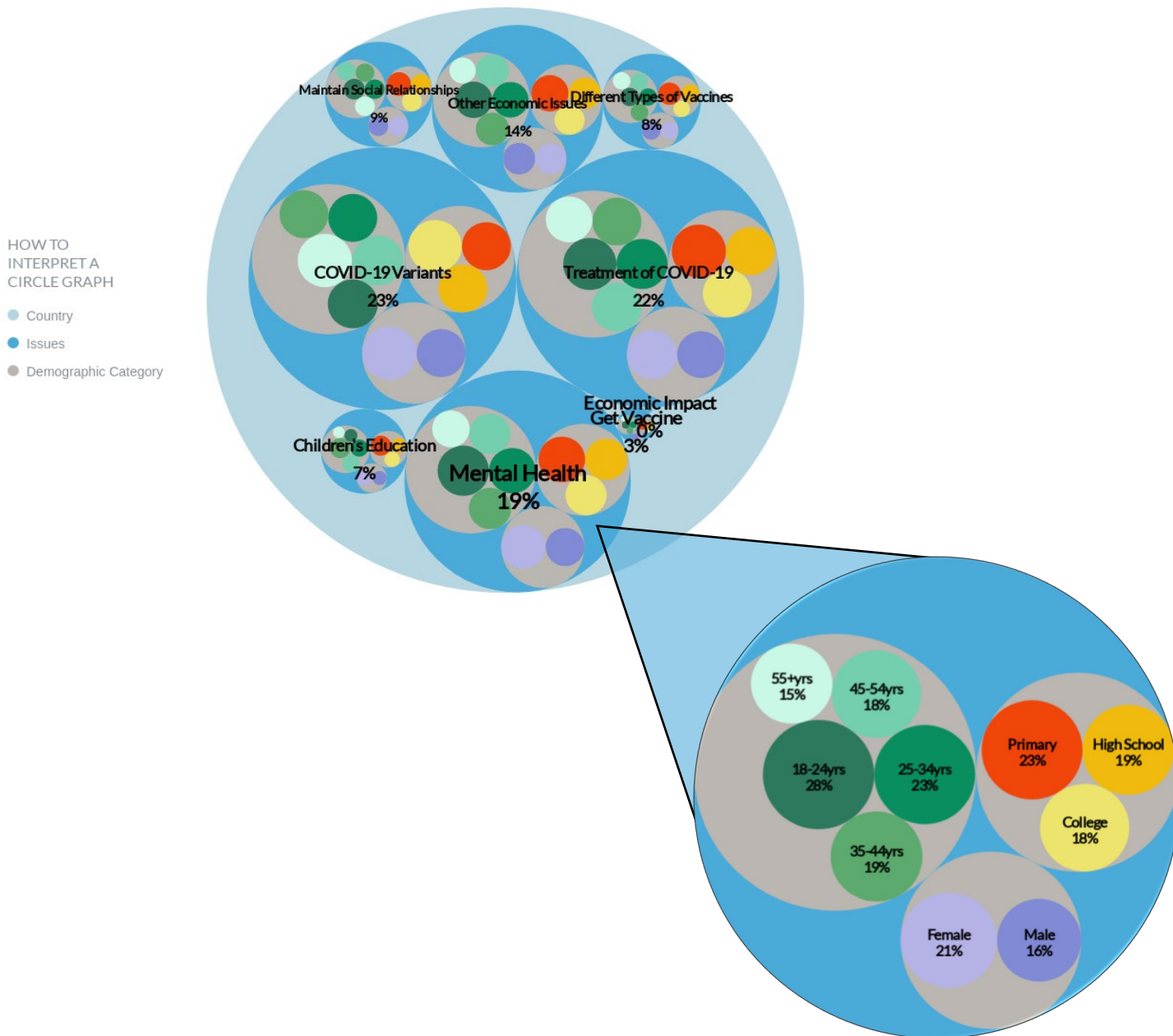
Source: Johns Hopkins Center for Communications Programs, COVID Behaviors Dashboard: Knowledge & Information