

**SAMHSA**

**Disaster Technical Assistance Center  
Supplemental Research Bulletin**

**A Preliminary Look at the Mental Health  
and Substance Use-related Effects of  
the COVID-19 Pandemic**

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The focus of the *Supplemental Research Bulletin* is to provide an overview of the current literature on a specific topic and make it easy to understand for disaster behavioral health professionals who are not otherwise exposed to the research. The product aims to assist professionals and paraprofessionals involved in all-hazards planning, disaster behavioral health response and recovery, and/or Crisis Counseling Assistance and Training Program grant activities.

## INTRODUCTION

This issue of the *Supplemental Research Bulletin* focuses on preliminary research (through November 30, 2020) on the mental health and substance use-related impacts of the coronavirus disease 2019 (COVID-19) pandemic in the United States. It covers changes in rates of mental health and substance use issues and conditions, suicide risk, and suicidal thoughts, and it identifies populations who are faring more poorly in terms of mental health and substance use. It describes effects of the pandemic on individuals with preexisting mental illness. It also features expert suggestions for practices and policy to support the mental health of the U.S. public.

Since the first U.S. diagnosis in January 2020, the COVID-19 pandemic has taken more U.S. lives than World War I, the Vietnam War, and the Korean War combined (Hennein & Lowe, 2020; American Psychological Association [APA], 2020). In addition to morbidity and mortality, the pandemic has had a major psychological impact in communities and nations around the world. As Simon et al. write in *JAMA*, “The necessary social distancing and quarantine measures . . . have significantly amplified emotional turmoil by substantially changing the social fabric by which individuals, families, communities, and nations cope with tragedy. The effect is multidimensional disruption of employment, finances, education, health care, food security, transportation, recreation, cultural and religious practices, and the ability of personal support networks and communities to come together and grieve” (2020).

It may not be surprising, then, that research on effects of the pandemic has found increased anxiety, depression, traumatic stress, and substance use across the United States. One study found that the percentage of individuals who had seriously considered suicide in the past 30 days had nearly tripled compared to before the pandemic (Czeisler et al., 2020).

Owing to the ongoing stressors and uncertainties linked to the pandemic, mental health experts have expressed concern about a potential “second wave” of rising rates of distress, mental illness, and substance use as a result of the pandemic (Simon et al., 2020; Öngür et al., 2020). It has also been noted that different types and intensities of stressors may have different effects on mental health, with stressors such as exposure to the virus and severe, even life-threatening illness differing substantially in their impacts from secondary stressors such as reduction in social contact and support due to physical distancing, loss of a job or business, or inability to pay for housing or food. When this bulletin was written, research had not yet elucidated these relationships, but future research may provide a more detailed picture.

In light of the pandemic and the threats it poses to mental as well as physical health, experts have proposed several measures to improve public mental health and well-being. Experts have also highlighted the opportunities inherent in the crisis of the pandemic, pointing out that the pressure to attend to the mental health needs of the public may spur progress toward long-needed changes to address inequities, meet public mental health and substance use treatment needs, and improve services and supports in the United States (Moutier, 2020).

This issue of the *Supplemental Research Bulletin* is based on literature and scientific publications found through the National Center for Biotechnology Information and U.S. National Library of Medicine (PubMed), APA PsycNet, and Scopus databases. All research cited in this issue was published in English, and most was conducted in the United States (with exceptions where investigations in other countries proved useful to the topic).

In addition, as noted, research in this issue is preliminary; it includes research conducted through the end of November 2020. Because of timelines required for research, including data collection, analysis, reporting, review, and publishing, many studies included in this issue focus on the effects of the pandemic in or before April or May 2020.

Also, primarily because of the need for physical distancing to minimize the spread of COVID-19, many studies in this issue are based on surveys administered online. These studies involve measurement of symptoms using scales on which individuals report their own symptoms, rather than full assessment of diagnostic criteria for mental illnesses and specific substance use disorders. While this is understandable given the constraints placed by the pandemic, it means that conclusions cannot be drawn from these studies on how prevalent specific mental illnesses or substance use disorders are in the population; the studies reflect levels of distress in the population as opposed to psychopathology (mental illness or substance use disorder). From a public health perspective, this distinction is critical, as it can inform allocation of limited resources—individuals with mental illness and substance use disorder should be provided with treatment, whereas individuals experiencing distress may benefit from other, less intensive and generally less expensive, psychosocial interventions.

## **MENTAL HEALTH IMPACTS OF THE COVID-19 PANDEMIC**

Pfefferbaum and North write that “extensive research in disaster mental health has established that emotional distress is ubiquitous in affected populations — a finding certain to be echoed in populations affected by the COVID-19 pandemic” (2020). Research highlights increases in anxiety, depression, and traumatic stress, as well as stress and loneliness, in the United States.

### **Overall Mental Health**

The APA (2020) fields an annual, nationally representative survey on stress and mental health in the United States. Administered in August, the 2020 survey included 3,409 adult and 1,026 teenage participants (ages 13–17 years). In a report on the 2020 survey, the APA (2020) writes that 19 percent of adults describe their mental health as worse than at the same time last year.

### **Stress**

The APA reports that 78 percent of adult respondents to its Stress in America™ survey in 2020 said that the COVID-19 pandemic is a significant source of stress in their lives, and about two-thirds (67 percent) of adult respondents reported increased stress during the pandemic (2020). Forty-nine percent of adult respondents also reported negative effects of increased stress, such as increased bodily tension (21 percent), being very quick to anger (20 percent), unexpected mood swings (20 percent), or screaming or yelling at a loved one (17 percent).

## Anxiety

Studies have found larger percentages of the public meeting clinical cutoff scores<sup>1</sup> for generalized anxiety disorder (GAD) than is typical in population-representative studies. For example, in a survey of 5,412 U.S. adults in late June 2020, researchers found that about 26 percent of respondents were symptomatic for GAD (i.e., they scored at or above 3 on the GAD-2 subscale of the Patient Health Questionnaire for Depression and Anxiety [PHQ-4]) (Czeisler et al., 2020). This was approximately three times the percentage of respondents scoring at or above 3 on the GAD-2 subscale in comparable survey research reported in 2019 (Czeisler et al., 2020). On the other hand, a survey of a nationally representative sample of 10,368 U.S. adults fielded in late March 2020 found a mean GAD-7 score indicating only mild anxiety, although more than 12 percent of respondents had scores indicating severe anxiety (Fitzpatrick, Drawve, et al., 2020).

In a study in the United Kingdom, researchers found that mean anxiety scores on the GAD-7 scale were significantly higher than mean GAD-7 scores found in general population studies (Rettie & Daniels, 2020). Also, the percentage of individuals in the study with GAD-7 scores above the clinical cutoff—the score indicative of a probable case of the disorder—was 24.3 percent, whereas in similar studies the percentages above this cutoff were closer to 5 percent.

## Depression

In the June 2020 survey of 5,412 U.S. adults, researchers also found that 24.3 percent of respondents were symptomatic for depressive disorder (measured using the two-item Patient Health Questionnaire [PHQ] subscale of the PHQ-4) (Czeisler et al., 2020). This percentage is roughly four times the percentage of respondents at or above the symptomatic level for depressive disorder in comparable research from 2019 (Czeisler et al., 2020).

Other research examined depression rates in the National Health and Nutrition Examination Survey (NHANES) in 2017 and 2018 and in a study called COVID-19 and Life Stressors Impact on Mental Health and Well-being (CLIMB) in March and April 2020 (Ettman et al., 2020). Both surveys were nationally representative, and both measured symptoms of depression using the nine-item PHQ (PHQ-9) and categorized symptoms according to severity, from none (with a PHQ-9 score of 0–4) to severe (a score at or above 20). Prevalence of symptoms of depression increased in every severity category (except none), and more than tripled in the full study population, from before to during the pandemic (Ettman et al., 2020).

In the survey of 10,368 U.S. adults that found only mild levels of anxiety, respondents had elevated levels of depression as assessed with a shortened form of the Center for Epidemiologic Studies Depression (CES-D) scale (Fitzpatrick, Drawve, et al., 2020). The mean score on the CES-D was higher than the clinical cutoff score for a diagnosis of depression.

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<sup>1</sup> The APA Dictionary of Psychology defines a cutoff score as “a value or criterion that is held to mark the lowest point at which a certain status or category is attained. For example, the cutoff score for passing a course is often 60%. Similarly, the cutoff score for being considered overweight is a body mass index of 25 to 29” (n.d.). A clinical cutoff score is the score on a questionnaire, survey, or similar assessment tool above (or sometimes below) which an individual is likely to meet clinical criteria for a mental illness.

In the aforementioned United Kingdom study, researchers also found mean depression scores (measured using the eight-item PHQ, or PHQ-8) that were significantly higher than scores found in similar studies (Rettie & Daniels, 2020). They also found that the percentage of respondents with PHQ-8 scores above the clinical cutoff of 10 (25.8 percent) was about three times the percentage found in a comparable study.

## **SUBSTANCE USE-RELATED IMPACTS OF THE PANDEMIC**

Researchers have found increases in substance use during the pandemic, including cases in which participants reported using substances in an attempt to cope with the pandemic. They also have reported on positive developments, such as trends in treatment of opioid use disorder (OUD) that allow greater flexibility and may continue once the pandemic ends.

### **Increases in Substance Use**

In the June survey of 5,412 U.S. adults, about 13 percent of respondents said they had begun or increased substance use to cope with stress or emotions associated with the COVID-19 pandemic (Czeisler et al., 2020). Osofsky et al. (2020) cite early reports of increases in substance use in tandem with the pandemic.

Research has also found increases specifically in alcohol use. In a short report on survey research in 2019 (before the pandemic) and 2020 (once the pandemic had begun) involving 1,540 U.S. adults, investigators note that frequency of alcohol consumption increased by 14 percent across the full sample of participants (Pollard et al., 2020). In a survey of 170 U.S. adults, 30.1 percent of respondents said their alcohol use had increased during the pandemic (Peterson et al., 2020).

### **Changes in Substance Use Disorder Treatment**

A team of investigators conducted a small study in April 2020 with 18 clinicians waived to prescribe buprenorphine as part of medication-assisted treatment (MAT) for OUD (Uscher-Pines et al., 2020). A key aim of the study was to explore the impact of the dramatic change in healthcare delivery during the pandemic, and specifically the transition many healthcare practitioners had made to telemedicine. As the researchers explain, “In a matter of weeks in March 2020, many healthcare providers began using telemedicine to treat OUD . . . . To facilitate this rapid transition, states, the U.S. Department of Health and Human Services, private payers, and the Drug Enforcement Administration all announced temporary changes to the regulation and reimbursement of telemedicine for the duration of the pandemic (Long, 2020).”

The researchers found that some clinicians were reluctant to accept new patients; those who did generally arranged an in-person intake appointment before transitioning to telemedicine. The clinicians identified benefits of telemedicine, including increased convenience for patients and reduction in fear patients would otherwise have experienced about travel to appointments and sitting in a crowded waiting room. They also noted drawbacks, such as what they perceived as reduced accountability in a remote appointment format, greater difficulty in establishing rapport with patients, and technological difficulties. Clinicians reported reductions in other treatment services that are beneficial in combination with MAT for their patients, including peer support resources such as Narcotics Anonymous, which had canceled meetings or moved them to online formats, and psychotherapy (Uscher-Pines et al., 2020).

## SUICIDE RISK AND SUICIDAL IDEATION

“With the added physical and mental health, social, and economic burdens imposed by the pandemic, many populations worldwide may experience increased suicide risk,” writes Christine Moutier, Chief Medical Officer of the American Foundation for Suicide Prevention, in *JAMA Psychiatry* (2020). She emphasizes, however, that increases in suicides are not inevitable, noting that “emerging suicide data from several countries show no evidence of an increase in suicide during the pandemic thus far.”

One cause for concern has been a historic surge in sales of firearms in the United States in March 2020, as research has indicated that access to a firearm is a risk factor for death by suicide (Moutier, 2020; Sacks & Bartels, 2020). In March 2020, nearly 2 million guns were purchased in the United States, the second highest monthly total of gun purchases since records have been kept (Sacks & Bartels, 2020). In a study involving 26.3 million first-time handgun owners in California from 2004 to 2016, researchers found that rates of suicide by any method were higher among handgun owners, with rates driven by far higher rates of suicide by firearm (Studdert et al., 2020). In addition, although handgun owners’ risk of suicide by firearm peaked shortly after they bought their first handgun, over half of suicides by firearm among handgun owners occurred more than a year after the purchase (Studdert et al., 2020).

In the Czeisler et al. (2020) study, approximately 11 percent of respondents reported that they had seriously considered suicide in the 30 days prior to the survey. In the comparison data from 2018 used in the study, 4.3 percent of respondents reported serious consideration of suicide in the previous 12 months. The percentage from 2018 to 2020 more than doubled, even though the 2020 question was based on a far shorter timeframe (Czeisler et al., 2020).

## SPECIAL POPULATIONS

Past research in disaster behavioral health has shown that some populations may be at elevated risk for mental health and substance use-related issues during and after disasters. This risk often relates to disparate levels of power in society and social capital, as groups with less power in a society may experience more, and more severe, stressors in and after a disaster and have fewer resources to mitigate and cope with those stressors. In the current pandemic, some research has found elevated rates of mental health issues among populations unified by age, gender, occupation, race, ethnicity, and other factors. In addition, one population (older adults) seems to be experiencing mental health issues to a lesser extent than others.

### Youth

Researchers have found higher rates of anxiety, depression, traumatic stress, and other issues among young adults (ages 18 to up to 35 years). While there are exceptions, young people seem to be a uniquely vulnerable population in the current pandemic.

## ANXIETY AND DEPRESSION

A team of researchers found an elevated rate of symptoms of anxiety (measured using the GAD-7, with a cutoff score of 10 or higher) in a sample of 898 adults ages 18 to 30 years who completed an online survey in April and May 2020 (Liu et al., 2020). To illustrate the elevated nature of the rate (45.4 percent), the researchers provide examples of rates from other research using the same cutoff score with the

GAD-7, including 23 percent among U.S. primary care patients, 21 percent among U.S. college students, and 17.4 percent among U.S. nonveteran community college students. The researchers also found an elevated rate of depression symptoms (assessed using the PHQ-8, with a score of 10 or higher indicating clinical symptom elevation). The rate, 43.3 percent, is many times higher than rates found in a prior study using the PHQ-8, in which 6.2 percent of 18- to 24-year-olds and 13.1 percent of 25- to 34-year-olds scored at or above the cutoff (Kroenke et al., 2009; as cited in Liu et al., 2020).

Czeisler et al. note that symptoms of anxiety disorder or depressive disorder (measured with the PHQ-4) were most commonly reported by respondents ages 18 to 24 years (at a weighted rate of 62.9 percent), with prevalence decreasing across the study population with increasing age (2020). Another research team assessed changes in symptoms of anxiety and depression (using the PHQ-4) from before to during the pandemic among 564 young adults ages 22 to 29 years and did not find a statistically significant change in anxiety symptoms, though they did find a statistically significant increase in symptoms of depression (Lee et al., 2020).

### **TRAUMATIC STRESS**

In the Czeisler et al. study, prevalence of symptoms of pandemic-related trauma- and stressor-related disorders such as acute stress disorder, posttraumatic stress disorder (PTSD), and adjustment disorder (with symptoms measured using the Impact of Event Scale [IES]-6) was highest among respondents ages 18 to 24 years. As with symptoms of anxiety disorder and depressive disorder, prevalence of symptoms of trauma- and stressor-related disorders decreased with increasing age of respondents (2020).

In addition to elevated rates of anxiety and depression symptoms among adults ages 18 to 30 years, Liu et al. also found a high rate of symptoms of PTSD—31.8 percent of their respondents had scores on the PTSD Checklist—Civilian Version (PCL-C) at or above 45. They offer examples of rates from comparable studies using the PCL-C and the same cutoff, including 22 percent of U.S. patients after hospital discharge from traumatic orthopedic injury after 1 year, and 26.3 percent after the Wenchuan, China, earthquake, also 1 year post-event (Liu et al., 2020).

### **SERIOUS PSYCHOLOGICAL DISTRESS**

In a study comparing nationally representative survey data from 2018 to data from the first wave of a nationally representative survey fielded in early April 2020, researchers found a rate of serious psychological distress among young adults ages 18 to 29 years of 24.0 percent, whereas the rate was 13.6 percent across all ages in the full sample and 3.7 percent for the same demographic in 2018 (McGinty, Presskreischer, Han, et al., 2020). The researchers measured serious psychological distress using the Kessler 6 Psychological Distress Scale, or K6, with a score of 13 or higher taken to indicate serious distress. Through a second wave of the survey in July, researchers did not find a significant change in level of distress among respondents in any age range; the rate for adults ages 18 to 29 years in July was 26.5 percent, and for the full sample was 13.0 percent (McGinty, Presskreischer, Anderson, et al., 2020).

### **HIGH LEVELS OF STRESS AND LONELINESS**

The APA reports that Generation Z adults (ages 18–23 years) had the highest past-month stress level, at 6.1 on a scale of 1 to 10, of all age groups, and that their level was significantly higher than levels for

all other age groups (2020). In addition, 63 percent of Generation Z adults said they have felt very lonely during the pandemic, and this is the highest percentage across age ranges in the report (2020). The study with 564 young adult participants also examined loneliness, using the Loneliness Scale, and found a statistically significant increase in loneliness in respondents from before to during the pandemic (Lee et al., 2020).

#### **SUBSTANCE USE AND MISUSE AND SERIOUS CONSIDERATION OF SUICIDE**

Czeisler et al. (2020) report that nearly 1 in 4 (24.7 percent) of respondents ages 18 to 24 years said that they had started or increased substance use to cope with stress or emotions linked to the pandemic. This was the largest percentage within any age demographic across respondents. They also report that 25.5 percent of young adults said they had seriously considered suicide in the 30 days preceding the survey, while 10.7 percent of all respondents had done so.

#### **Women**

In general, studies found higher levels of anxiety, depression, and traumatic stress among women than men.

#### **ANXIETY, DEPRESSION, DISTRESS, AND STRESS**

In the Fitzpatrick, Drawve, et al. study, women reported significantly more symptoms of depression (assessed through a shortened version of the CES-D) and anxiety (assessed with the GAD-7) than men (Fitzpatrick, Drawve, et al., 2020; Fitzpatrick, Harris, et al., 2020). In the survey study of 170 U.S. adults, women reported more general psychological distress and pandemic-related peritraumatic distress than men (Peterson et al., 2020). Through a survey of 1,015 U.S. adults, researchers found women were more likely to be exposed to stressors and to appraise events as significantly more stressful than men (Park et al., 2020).

#### **SUBSTANCE USE AND MISUSE**

In the above-mentioned study involving surveys of 1,540 U.S. adults before and during the pandemic, frequency of alcohol consumption increased by 17 percent among women; this exceeded the increase across the full sample of 14 percent (Pollard et al., 2020). The researchers also found that there was a significant increase (41 percent) among women in the study in days of heavy drinking. Using an instrument called the Short Inventory of Problems scale to assess adverse consequences of alcohol use over the 3 months prior to the survey, the researchers also found a 39 percent increase among women in problems associated with alcohol use.

#### **EFFECTS ON MOTHERS**

In a Canadian study, 641 women, including expectant mothers and mothers of children up to age 8 years, completed an online survey in April 2020 including assessments of anxiety (GAD-7 or Perinatal Anxiety Screening Scale, depending on the age of the mother's child) and depression (CES-D or CES-D-Revised and the Edinburgh Postnatal Depression Scale) (Cameron et al., 2020). The researchers found rates

of clinically relevant anxiety ranging from 29.59 to 36.27 percent of respondents<sup>2</sup> and rates of clinically relevant depression ranging from 33.16 to 43.37 percent of respondents. The researchers note that these rates are much higher than those found in past research on maternal depression or anxiety, citing meta-estimates of prenatal and postpartum anxiety and depression as 11.9 percent and 14.8 to 24.6 percent in other studies.

### **Health Workers and Healthcare Workers**

In a survey of 158 labor and delivery employees in a Philadelphia hospital, 62 percent of respondents reported minimal job anxiety before the pandemic (Bender et al., 2020). After the pandemic started, 54 percent reported moderate job anxiety, and the percentage reporting significant anxiety increased from 1 (pre-pandemic) to 27 percent (during the pandemic).

In a May 2020 survey of 1,132 health workers, another research team found rates of probable major depression (assessed with the PHQ-9, with a cutoff value of  $\geq 10$  for probable clinical depression) and GAD (assessed with the GAD-7, with a cutoff value of  $\geq 10$  for probable GAD) as 14.0 percent for major depression and 15.8 percent for GAD (Hennein & Lowe, 2020). The researchers also found a rate of probable PTSD of 23.1 percent (measured using the Primary Care-PTSD [PC-PTSD] screening tool, with a cutoff value of  $\geq 3$  for probable PTSD). The researchers observed that this rate is similar to a rate (27 percent) found among frontline workers in China, and substantially higher than a rate among health workers in Singapore (7.7 percent), during the pandemic.

### **Racial and Ethnic Minorities**

Racial and ethnic minorities including Blacks, Hispanics, and American Indians and Alaska Natives have experienced disproportionate COVID-19 mortality, as well as death at younger ages due to COVID-19, than non-Hispanic Whites (Bassett et al., 2020). In recent analyses of COVID-19 cases and deaths, the Centers for Disease Control and Prevention (CDC) has reported that Hispanics, non-Hispanic Blacks, and non-Hispanic American Indians and Alaska Natives are disproportionately represented among deaths of individuals under age 21 years, and among people of all ages, Hispanic, non-Hispanic Black, and American Indian and Alaska Native people were overrepresented relative to their percentages in the U.S. population (Bixler et al., 2020; Stokes et al., 2020; CDC, 2020). Osofsky et al. (2020) identify several causes of these disparities, including socioeconomic differences, preexisting conditions, and a healthcare system that does not serve racial and ethnic minorities as well as it serves White Americans. CDC (2020) highlights additional possible causes, including greater likelihood of working in an essential job that cannot be done from home; of living in a home with more people, in which physical contact is greater and COVID-19 can spread more easily; and of difficulty in accessing and/or reluctance to access health care due to historical trauma and racism, lack of health insurance coverage, lack of ability to pay for health care, and difficulties with transportation and getting time off work.

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<sup>2</sup> The rates were determined for mothers of children in specific age ranges, and so more than one rate was found.

Czeisler et al. (2020) report that Black respondents to their June 2020 survey were more likely than White or Asian respondents to report increased substance use associated with the pandemic. They also note that Black respondents were more likely to report serious consideration of suicide in the 30 days prior to the survey (15.1 percent of Black respondents had seriously considered suicide in the past 30 days, relative to 10.7 percent of respondents across the full sample).

Czeisler et al. also found that Hispanic respondents had higher prevalence of symptoms of anxiety disorder or depressive disorder, as well as COVID-19-related trauma- and stressor-related disorders, than non-Hispanic White and Asian respondents. In the study of 10,368 U.S. adults, researchers found that Hispanic respondents had significantly more symptoms of depression than non-Hispanics (Fitzpatrick, Harris, et al., 2020).

In the comparison of the first wave of nationally representative survey data from 2020 during the pandemic and similar data from 2018, researchers found a rate of serious psychological distress among Hispanic adults (18.3 percent) that was more than four times higher than the 2018 rate for Hispanic adults (4.4 percent) and higher than the rate for all adults across the study sample (13.6 percent) (McGinty, Presskreischer, Han, et al., 2020). In the second wave of the survey, 19.2 percent of Hispanic respondents reported serious psychological distress (relative to 13.0 percent of the full study sample) (McGinty, Presskreischer, Anderson, et al., 2020).

Czeisler et al. (2020) also reported higher rates of increased substance use (21.9 percent) and past-30-day serious consideration of suicide (18.6 percent) among Hispanic respondents. Rates across all respondents were 13.3 percent for increased substance use and 10.7 percent for serious consideration of suicide in the past 30 days (Czeisler et al., 2020).

### **Individuals With Lower Incomes and Less Money in Savings**

In the study examining depression rates in the 2017 and 2018 NHANES and in the CLIMB study in March and April 2020, researchers found respondents to be at greater risk of symptoms of depression during the COVID-19 pandemic if their incomes were lower or they had less than \$5,000 in savings (Ettman et al., 2020). In the comparison of data from the two waves of the nationally representative 2020 survey, among individuals with household incomes of \$35,000 or less, 19.3 percent in April and 21.2 percent in July reported symptoms of serious psychological distress, whereas across the full sample these rates were 13.6 percent in wave 1 and 13.0 percent in wave 2 of the survey (McGinty, Presskreischer, Han, et al., 2020; McGinty, Presskreischer, Anderson, et al., 2020).

### **Individuals Who Are Homeless**

Some researchers and other experts have pointed out that those most vulnerable during the COVID-19 pandemic are those with intersecting and overlapping vulnerabilities. In perhaps no population are these intersections and overlaps more apparent than among people experiencing homelessness. For example, individuals experiencing homelessness who also have substance use disorders may not be able to access their usual services and treatment, engage in physical distancing, or isolate themselves from others if they develop symptoms or test positive for COVID-19 (Kimmel, Bazzi, & Barocas, 2020). In an article about this population, researchers relate that Boston, Massachusetts, rapidly established testing programs and emergency respite and recuperation facilities for individuals experiencing homelessness who tested positive for SARS-CoV-2 but that they saw individuals with substance use disorders leaving

the facilities, where drug use was prohibited, temporarily or prematurely, presumably to obtain drugs to avoid withdrawal (Kimmel, Bazzi, & Barocas, 2020).

As noted, evidence suggests that young adults are experiencing negative mental health and substance use-related impacts of the pandemic at higher rates than individuals in middle or older adulthood. A study of 90 young adults (ages 18 to 25 years) currently experiencing homelessness or with recent experience of homelessness found that, over the 7 days preceding survey administration during the pandemic, nearly half (48 percent) had experienced hopelessness, 44 percent anxiety, 38 percent loneliness, 36 percent depression, and 34 percent sleep problems (Tucker et al., 2020). Forty-four percent reported greater difficulty in obtaining mental health services, and 32 percent reported greater difficulty in obtaining substance use services.

The recent literature also includes case reports on provision of services to individuals experiencing homelessness during the COVID-19 pandemic. In one such report, medical students recount their experience providing medical and mental health services via telehealth to individuals who were homeless and being housed by the Vermont Economic Services Division at local motels (Heflin et al., 2020). The students report that it was challenging to connect individuals who were homeless with mental health care at a time when many practitioners had less availability due to the pandemic. To address this issue, they worked to arrange mental health services through psychiatry residents on community psychiatry rotations.

A case study on work done in Connecticut in support of the health and human rights of people who use drugs (PWUD) describes the work of a coalition comprising PWUD, advocates, service providers, and academics (Heimer et al., 2020). The coalition identified several at-risk subpopulations among PWUD during the pandemic, including individuals experiencing homelessness or individuals who are marginally housed. They worked with local officials and agencies to secure more space for individuals experiencing homelessness, allow for some drug use in shelters and respite facilities, and establish sanitary facilities including portable lavatories and handwashing stations (Heimer et al., 2020).

In another case study, researchers report on efforts in Los Angeles, California, to address the challenges of pregnant women and survivors of domestic violence who are experiencing homelessness (Goodsmith et al., 2020). The researchers explain that individuals in these subpopulations face many mental health issues, noting that domestic violence is a risk factor for suicidality, depression, and PTSD, and that women experiencing homelessness, including pregnant women, are more likely to have experienced childhood abuse, sex and human trafficking, and sexual assault. They describe work done in Los Angeles County to place medically vulnerable individuals experiencing homelessness in temporary housing, including creation of additional shelters to increase capacity and provision of 15,000 hotel rooms to individuals with high-risk medical conditions through an interim housing program. They note that this work involved collaboration and advocacy—for example, to add pregnant women to the high-risk populations eligible for interim housing (Goodsmith et al., 2020).

## **Older Adults**

Some evidence suggests that older adults may be experiencing lower levels of psychosocial distress than other age groups. It is important to note that these findings are in a context in which full study populations often show signs of increased distress; it is just that increases are more moderate or rates are lower among older adults. For example, in the study in which researchers compared national survey data in 2020 to national data from 2018, they found that the rate of serious psychological distress in April 2020

among adults ages 55 years and older was 7.3 percent, relative to the rate of 13.6 percent across the full survey sample in 2020 (McGinty, Presskreischer, Han, & Barry, 2020). The serious psychological distress rate among adults ages 55 years and older was still elevated relative to rates found in 2018; in that earlier year, in the nationally representative survey, only 3.9 percent of all adult respondents reported serious psychological distress (McGinty, Presskreischer, Han, & Barry, 2020).

In its report on its latest Stress in America survey, APA (2020) reports lower levels of stress among older adults (ages 75 years and older) than among respondents of any other age range (3.3, on average, for older adults, in comparison to an average of 5.0 across all adult respondents). Nineteen percent of adults, but only 8 percent of older adults, reported worse mental health than at the same time last year. Lower percentages of older adults than adults of other age ranges reported negative health impacts of the pandemic, feeling very lonely during the pandemic, negative impacts of the pandemic on their relationships, and that they could have used more emotional support than they had received over the past 12 months. On the other hand, a slightly smaller percentage of older adults (69 percent) said they feel hopeful about the future than the percentage of the full set of respondents (71 percent) (APA, 2020).

In a study based on a late April 2020 survey of a representative sample of American adults, with the sample comprising adults ages 18 to 76 years, researchers found that older age was inversely and significantly associated with frequency of negative emotions, even when accounting for perceived health risks from COVID-19, personality traits, and demographics (Carstensen, Shavit, & Barnes, 2020). They found that older age was also significantly associated with greater frequency of positive emotions. In addition, they found that age was negatively associated with the intensity of negative emotions and positively associated with the intensity of positive emotions (Carstensen, Shavit, & Barnes, 2020). Similarly, a study based on surveys of a sample of 325 U.S. adults ages 20 to 70 years found that older adults reported higher positive affect and lower negative affect than other adults, though their trajectories of affect over time were not significantly different (Ebert, Bernstein, Carney, & Patrick, 2020).

## **IMPACTS ON INDIVIDUALS WITH PREEXISTING MENTAL ILLNESS**

Evidence suggests that people with preexisting mental illness may be at greater physical risk during the pandemic. They may also be experiencing the pandemic differently from those without mental illness in terms of symptoms, stress, and coping.

### **Greater Risk of Becoming Sick With or Dying of COVID-19**

A commentary early in the pandemic identifies several reasons that individuals with serious mental illness (SMI) may be at higher risk than the general public in terms of morbidity and mortality related to the pandemic (Druss, 2020). Risk factors include high rates of smoking, unstable housing and homelessness, insufficient sick leave and insurance coverage, and small social networks.

In keeping with this idea, in research involving electronic health record data, investigators found that individuals with a diagnosis of a psychiatric disorder in the year before the pandemic had a 65 percent increased risk of getting sick with COVID-19 in relation to a cohort matched for physical risk factors for COVID-19 but lacking a psychiatric diagnosis (Taquet et al., 2020). The data the researchers used in this study came from 69.8 million patients, including 62,354 diagnosed with COVID-19. Another study involving review of medical records for 1,685 patients hospitalized for COVID-19 in the northeastern

United States found that those with a psychiatric diagnosis had a significantly greater risk of death, even after researchers controlled for demographics, medical comorbidities, and hospital location (Li et al., 2020).

### **Mental Health Effects of the Pandemic on People With Preexisting Mental Illness**

In an online survey of 6,854 adults in Canada and the United States, respondents with anxiety-related disorders (in this study, these included GAD, PTSD, social anxiety disorder, panic disorder, and obsessive-compulsive disorder, among other mental illnesses) reported significantly higher pandemic-related stress than respondents with mood disorders (such as major depressive disorder [MDD] and bipolar disorder) or with no mental disorder (Asmundson et al., 2020). To assess COVID-19 pandemic-related stress, researchers used a newly developed instrument called COVID Stress Scales (CSS), which includes 36 items in five scales: danger and contamination fears, fears about socioeconomic consequences, xenophobia, compulsive checking and reassurance seeking, and traumatic stress symptoms (Asmundson et al., 2020).

A small study involving 73 older adults (ages 61 years and older) with MDD found that their scores on the Patient-Reported Outcomes Measurement Information System (PROMIS) anxiety scale and the PHQ-9 during the pandemic were significantly lower than at baseline for another study they were part of (the participants were part of a study on treatment strategies for older adults with treatment-resistant depression) (Hamm et al., 2020). In addition, participants' scores did not increase from just before the pandemic to during the pandemic. However, in qualitative interviews that were also part of this study, the researchers add, "many participants did describe themselves as more depressed (n = 32) or more anxious (n = 33)" (Hamm et al., 2020). The research team did not find an increase in suicidal thoughts among participants in their study relative to the period immediately before the pandemic. The study was conducted early in the pandemic; the researchers also reported that participants expected their mental health would worsen as physical distancing continued (Hamm et al., 2020).

Both articles made observations about coping efficacy. Asmundson et al. (2020) report that there were no significant differences in the perceived effectiveness of coping strategies used by respondents with anxiety-related disorders, respondents with mood disorders, and respondents with no mental disorder, except that respondents with anxiety-related disorders assessed meeting with a doctor or counselor via the internet as more helpful than respondents with no mental disorder. Hamm et al. (2020) write that many of the older adults who participated in interviews mentioned using coping strategies during the pandemic that they also used to deal with their depression.

### **MENTAL HEALTH IMPACTS OF GETTING SICK WITH COVID-19**

As noted in the introduction to this bulletin, the experience of COVID-19 illness may affect people very differently from secondary stressors such as financial problems or reduced social contacts and support, with the former type of exposure expected to have more severe consequences for mental health. In line with this idea, in the earlier-mentioned study involving electronic health record data from nearly 70 million patients, including 62,354 with a COVID-19 diagnosis, investigators found that individuals with a diagnosis of COVID-19 were more likely than individuals with diagnoses of several other illnesses and conditions (including influenza, another respiratory tract infection, and skin infection) to have a first

psychiatric diagnosis in the 14 to 90 days after the COVID-19 diagnosis (Taquet et al., 2020). The most common first diagnosis was of an anxiety disorder (with the probability of diagnosis within 90 days being 4.7 percent), with the most common anxiety disorder diagnoses being adjustment disorder, GAD, PTSD, and panic disorder.<sup>3</sup> The second most common first diagnosis was of a mood disorder (with a 2 percent probability of diagnosis within 90 days). The researchers found a low probability (0.1 percent) of a new diagnosis of a psychotic disorder in the 14 to 90 days after a COVID-19 diagnosis.

## **INTERVENTIONS AND APPROACHES TO SUPPORT MENTAL HEALTH DURING AND AFTER THE PANDEMIC**

Several of the articles mentioned in this bulletin offer suggestions for how to support public mental health, help reduce maladaptive substance use, and prevent suicide during and after the COVID-19 pandemic. Suggestions relate to risk communication, screening and assessment, approaches for the public and specific populations, telehealth, partnerships, and policies and funding.

### **Risk Communication**

The World Health Organization (WHO) has defined risk communication as “the exchange of real-time information, advice and opinions between experts and people facing threats to their health, economic or social well-being” (Abrams & Greenhawt, 2020). In an article on the topic, Abrams and Greenhawt note that “the importance of risk management and effective risk communication cannot be overstated,” explaining that how people perceive and respond to risk affects public health outcomes. Public health outcomes in turn affect mental health outcomes, because if fewer people experience illness or death, a smaller proportion of the population will experience stressors linked to a pandemic or other public health emergency. In addition, effective risk management and communication can help reduce the stressors individuals experience by providing information, addressing concerns, and fostering a sense of self-efficacy and control.

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<sup>3</sup> Throughout this bulletin, we discuss research in which PTSD is mentioned in relation to the COVID-19 pandemic. In the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5), the primary reference manual in the United States for diagnosis, treatment, and research involving individuals with mental illness and substance use disorders, the first criterion for a diagnosis of PTSD is experience of a traumatic event (American Psychiatric Association, 2013). In its description of PTSD, the DSM-5 notes that “a life-threatening illness or debilitating medical condition is not necessarily considered a traumatic event. Medical incidents that qualify as traumatic events involve sudden, catastrophic events (e.g., waking during surgery, anaphylactic shock).” While people may experience sudden or catastrophic events associated with COVID-19 illness, everyone who gets sick with COVID-19 does not experience such events. As such, studies reporting data on PTSD with COVID-19 illness as the index trauma are in violation of current American diagnostic criteria. These studies do provide information about levels of distress, as several symptoms of PTSD involve distress (e.g., “recurrent, involuntary, and intrusive distressing memories of the traumatic event(s)”) or are themselves distress symptoms (e.g., “intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)”). Like other authors whose work is cited in this bulletin, Taquet et al. do not identify the index trauma for the new PTSD diagnoses in their study.

In a recent report, an expert panel identifies 10 evidence-based risk communication strategies to support adoption of behaviors to reduce the spread of COVID-19 (National Academies of Science, Engineering, and Medicine [NASEM], 2020). Following are some highlights:

- **Use clear, consistent, and transparent messaging.** The authors of the report note that officials should “concede uncertainty, proactively and transparently. Information communicated in plain and simple language needs to reflect that evidence is evolving so recipients can make informed choices and be prepared for changes in the evidence as the science advances (Fischhoff and Davis, 2014). For example, messages could use the phrase, ‘Based on what we know today . . .’” (NASEM, 2020). In another article, researchers write that “To effectively promote key COVID-19 preventive behaviors (i.e., wash hands, physically distance, wear a mask), we need to communicate with the public not only what to do but also why, and to communicate clearly, consistently, repeatedly (i.e., high exposure), and with credible, nonpolitical sources (Covello, 2003; Noar, 2006)” (Noar & Austin, 2020).
- **Avoid undue attention to the frequency of socially undesirable behaviors.** The authors relate that research has shown that communications that highlight cases in which people are not behaving according to public health guidelines actually increase focus on those behaviors and give the mistaken impression that the behaviors are more common than they are. They suggest instead focusing on and featuring the larger proportion of the population that is behaving according to public health guidelines.
- **Foster a sense of efficacy and avoid fatalism.** The authors note that people must feel that the actions they take can have a positive impact on public health in order to take these actions.
- **Use messengers trusted by the target audience.** In another article, researchers suggest that clinicians may be able to play such a role, countering misinformation within their existing relationships with their patients (Chou et al., 2021).
- **Tailor the framing of the message to the audience.** The authors write that the population could be segmented for messaging purposes based on level of misinformation, level of risk, and where they obtain information, among other factors. In another article, Noar and Austin (2020) point out that motivating factors will differ by population, and so different messaging will be needed.
- **Highlight the growing prevalence of behavior change within the target audience when it occurs.** For example, communicators can point out the growing proportion of the U.S. population wearing masks at all times in public.
- **Avoid repeating misinformation, even to debunk it.** The authors explain that “efforts to debunk information can have the unintended effect of reinforcing false beliefs” (NASEM, 2020).

Some researchers have encouraged risk communication that acknowledges and takes into account the emotions that target audiences are experiencing (Chou & Budenz, 2020; Chou et al., 2021). In communications encouraging people experiencing heightened negative emotion to get vaccinated against COVID-19, researchers recommend “framing vaccination as a concrete, actionable strategy to reduce COVID-19 risk” (Chou & Budenz, 2020). They also recommend activating positive emotions in the public through messaging that emphasizes getting vaccinated as an altruistic act with benefits for the community, as well as through messaging that highlights that vaccination may enable more in-person contact with family and community connections.

## Screening and Assessment

Some experts in disaster behavioral health recommend development of new screening tools specific to the current pandemic. For example, Czeisler et al. (2020) suggest that screening instruments specific to the COVID-19 pandemic be developed to allow for early identification of COVID-19-related symptoms of trauma- and stressor-related disorders.

In addition, a team of researchers has already developed the earlier-mentioned CSS, an instrument specifically for the current pandemic (Asmundson et al., 2020). They report that the scales have performed well on measures of reliability and validity, and that the correlation of scales suggests the existence of a COVID Stress Syndrome involving the elements measured with the CSS (Taylor et al., 2020; Asmundson et al., 2020).

Pfefferbaum and North (2020) recommend psychosocial assessment and monitoring during the pandemic, including inquiries about stressors associated with the pandemic; secondary stressors such as economic losses; psychosocial impacts of pandemics and other disasters such as depression, anxiety, insomnia, increases in substance use, and domestic violence; and preexisting vulnerabilities. Responses to these questions should guide referrals of some for formal evaluation and mental health care, and others to supportive interventions (Pfefferbaum & North, 2020).

Pfefferbaum and North (2020) also recommend ongoing monitoring and assessment for suicidal ideation, and, if an individual has suicidal ideation, that he or she be referred for immediate consultation with a mental health professional or emergency psychiatric hospitalization. Sacks and Bartels (2020) recommend inquiries about gun ownership, as well as an understanding among those conducting assessment that first-time gun ownership in combination with other risk factors may indicate urgent need for assessment and risk mitigation (Studdert et al., 2020).

## Approaches for the Public

Pfefferbaum and North suggest that the public be provided with information about common reactions to events like the COVID-19 pandemic. Several experts suggest educating the public about coping strategies. Hamm et al. (2020) suggest educating the public about the coping strategies that their older adult interviewees cited as helpful in dealing with MDD and the pandemic, such as maintaining a regular schedule and mindfulness. Pfefferbaum and North suggest that healthcare professionals offer suggestions for stress management and coping. In light of physical distancing practices and orders, several also suggest educating the public about ways to maintain relationships during the pandemic (Osofsky et al., 2020; Hamm et al., 2020).

## Approaches for Health Workers and Healthcare Workers

Based on their study involving 1,132 health workers, Hennein and Lowe (2020) recommend adaptation of existing peer support interventions for health workers to help them manage the stressors they are facing at work during the pandemic. Several experts suggest support for healthcare workers including screening, assessment, and monitoring; acknowledgement of challenges they are facing; allowing time for adequate rest; offering and adapting peer support systems and programs; and ensuring access to mental health care without negative career impacts (Simon et al., 2020; Moutier, 2020; Pfefferbaum & North, 2020).

## Telehealth

Experts have highlighted the impressive efficiency with which mental healthcare practitioners have transitioned to provision of services via telehealth, including telephone and remote meeting technologies (Öngür et al., 2020; Uscher-Pines et al., 2020). They have also proposed ways to ensure that barriers are addressed in and after the pandemic.

Because concerns about telehealth have been identified among individuals with SMI about establishing rapport with a mental healthcare practitioner, privacy, safety, security, and technological limitations, Kahl and Correll (2020) suggest providing patients with information about telemedicine and the opportunities it allows. They and others also note the importance of making reimbursement for telehealth services sufficient to support ongoing use of this method of treatment and patient care in and after the pandemic (Kahl and Correll, 2020; Öngür et al., 2020).

Individuals in need of mental health care via telehealth may not have access to a computer in a private location with the level of internet connectivity needed for remote appointments (Öngür et al., 2020). Osofsky et al. relate an example of a partnership in New Orleans, Louisiana, that may address these concerns and serve as a model for others: “The Department of Psychiatry faculty, in collaboration with the Mayor of New Orleans, the city health department, police department, fire department, and emergency medical services, are initiating no-cost confidential virtual support and clinical services. The services will be provided for those agencies, city employees, and others requesting services using home-based telehealth and telephone for those without internet connectivity for adults, children, and family members” (Osofsky et al., 2020).

## Partnerships

Also emphasized is the importance of partnerships in meeting mental health needs during the pandemic. Pfefferbaum and North (2020) write that “ideally, the integration of mental health considerations into COVID-19 care will be addressed at the organizational level through state and local planning; mechanisms for identifying, referring, and treating severe psychosocial consequences; and ensuring the capacity for consulting with specialists.”

Some highlight the need for partnerships as part of suicide prevention. Sacks and Bartels (2020) recommend that those involved in suicide prevention partner with gun shop owners to coordinate dissemination of information about suicide prevention at the point of sale. Moutier suggests that mental and public health experts work with the community of gun owners in the United States in educational efforts to prevent suicide.

## Policy and Funding

In addition to the suggestions about ensuring ongoing reimbursement for telehealth services, experts offer other policy- and funding-related suggestions for during and after the pandemic. In its report on the 2020 Stress in America survey results, the APA recommends facilitating access to mental health services during and after the pandemic, particularly for young people ages 13 to 23 years, in part through funding to support mental health services provided in schools after the pandemic (2020). Moutier (2020) recommends federal investments in and after the pandemic in mental health and addiction services with an emphasis on increasing access to mental health care. She and Sacks and Bartels (2020) also recommend greater federal investment in support for research on lethal means such as firearms and the role they play in suicide. Several also suggest federal economic support of the U.S. public to reduce the financial stress many are experiencing during the pandemic (Czeisler et al., 2020; Moutier et al., 2020).

## CONCLUSION

The COVID-19 pandemic involves disruption of employment, finances, educational systems, health care, and other core areas of community life. While individuals and organizations have responded quickly and with ingenuity, including a broad-scale transition to providing more mental health services via telehealth, there have been impacts on the U.S. population. Mental health impacts include increased rates and levels of anxiety, depression, traumatic stress, and serious psychological distress. Substance use has increased. Research has found that some segments of the U.S. population are struggling more with mental health and substance use issues during the pandemic, including youth, women, health workers and healthcare workers, and racial and ethnic minorities. Older adults in general seem to be faring better than the rest of the population, though it is unclear whether this difference will hold over time. While individuals with preexisting mental illness may be at greater risk of COVID-19 morbidity and mortality, evidence regarding mental health effects is mixed, with individuals with SMI in some cases showing resilience and enhanced coping skills. Getting COVID-19 may increase the likelihood of development of a new psychiatric disorder. Experts have made many suggestions to support the U.S. public during and after the pandemic in areas including risk communication, screening and assessment, public education, support for health and healthcare workers, telehealth, partnerships, and policy and funding.

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