

## AUGUST UPDATE

# Statewide High-Level Analysis of Forecasted Behavioral Health Impacts from COVID-19

### Purpose

This document provides a brief overview of the potential statewide behavioral health impacts from the COVID-19 pandemic. The intent of this document is to communicate potential behavioral health impacts to response planners and organizations or individuals who are responding to or helping to mitigate the behavioral health impacts of the COVID-19 pandemic.

### Bottom Line Up Front

- The COVID-19 pandemic strongly influences behavioral health symptoms and behaviors across the state due to far-reaching medical, economic, social, and political consequences. This forecast is heavily informed by disaster research and response and the latest data and findings specific to this pandemic. Updates will be made monthly to reflect changes in baseline data.
- There are several areas of behavioral health focus for children and families moving into August and September 2021 that are related to back-to-classroom instruction for students. These include the potential for school anxiety and refusal, behavioral regression or acting “out,” and trouble with social interactions and dynamics.
- **Children and youth may be at risk for challenging behavioral health outcomes and experiences leading up to and throughout the fall months of 2021 as a function of changes to social and educational experiences.** See the [August Youth Behavioral Health Impact Situation Report<sup>a</sup>](#) for more information on behavioral health impacts to youth in Washington.
- For adults, areas of focus in August and September 2021 include navigating concerns related to COVID-19 variants, return-to-workplace issues for employees and employers, and expectations around social participation and reconnecting in the context of the ongoing pandemic.
- As more data become available about the long-term effects of COVID-19 on survivors, it is clear there are



DOH 821-103-17 August 2021  
To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email [civil.rights@doh.wa.gov](mailto:civil.rights@doh.wa.gov).

<sup>a</sup> <https://www.doh.wa.gov/Portals/1/Documents/1600/821-135-YouthBehavioralHealthSitRep-August2021.pdf>

significant behavioral health impacts associated with this virus, including cognitive difficulties and increases in anxiety and depression, even among those with a mild course of illness.<sup>1,2</sup> New social and recreational opportunities and pressures to reconnect with others in-person may contribute to increases in anxiety, a sense of feeling overwhelmed in social situations, and difficulties interacting effectively with others. The complexities added by the Delta variant's increased capacity for spread also leads to the potential impact on comfort with becoming socially engaged again.

- [New vaccine mandates in Washington<sup>b</sup>](#) for healthcare workers and state employees, in addition to educators, may contribute to a sense of relief for some and a sense of anxiety, stress or anger for others. Vaccine mandates may also serve to illustrate the seriousness of the fifth wave that is currently being experienced, and the resulting stresses on our healthcare system that has been overtaxed for some time. This fifth wave may also contribute to a sense of “re-living” previous parts of the pandemic for many, and trigger an increase in behavioral health symptoms over the next few months.

## Phase-Related Behavioral Health Considerations

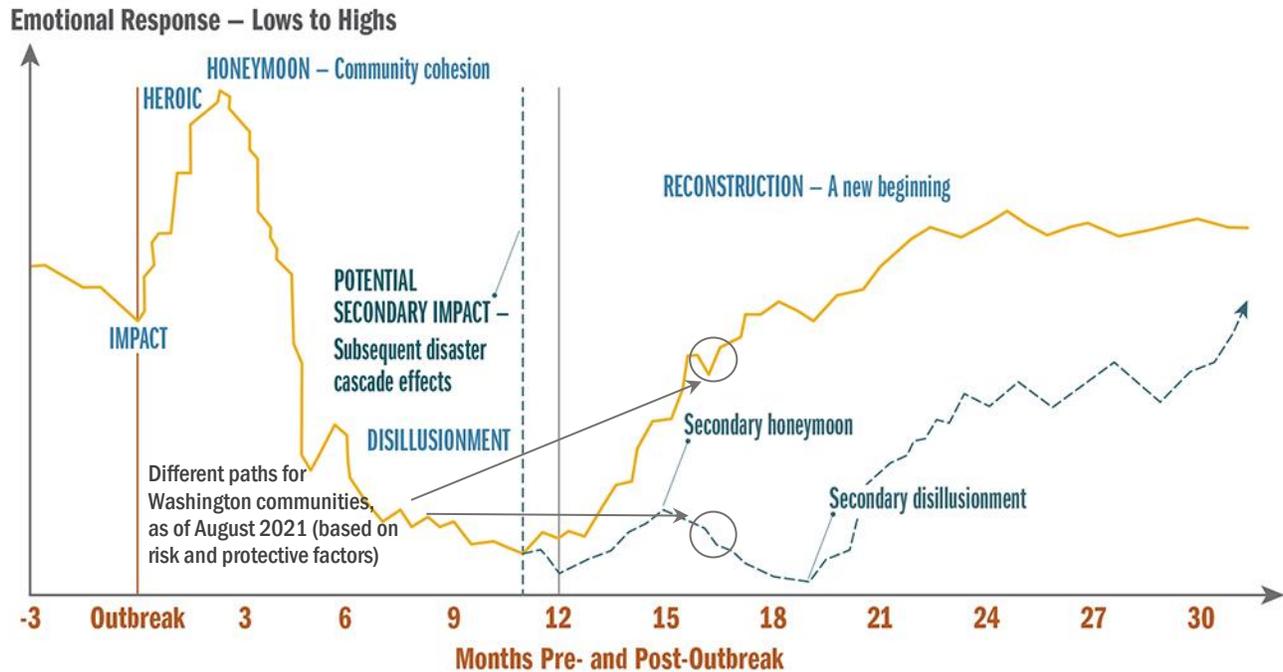
**Behavioral health symptoms will continue to present in phases.**<sup>3,4</sup> The unique characteristics of this pandemic trend towards anxiety and depression as a significant behavioral health outcome for many in Washington. These outcomes have been shown throughout the Behavioral Health Impact Situation Reports published by DOH, which are available on the [Behavioral Health Resources & Recommendations webpage<sup>c</sup>](#) under the “Situation reports” dropdown. Behavioral health symptoms of anxiety, impulsivity, reduced frustration tolerance, anger, depression, and post-traumatic stress disorder (PTSD) are likely to increase with any significant increases in infection and hospitalization rates.<sup>5,6</sup>

---

<sup>b</sup> <https://www.governor.wa.gov/sites/default/files/proclamations/21-14.1%20-%20COVID-19%20Vax%20Washington%20Amendment.pdf>

<sup>c</sup> <https://www.doh.wa.gov/Emergencies/COVID19/HealthcareProviders/BehavioralHealthResources>

## Reactions and Behavioral Health Symptoms in Disasters



**Figure 1: Phases of reactions and behavioral health symptoms in disasters.** The dotted graph line represents the response and recovery pattern that may occur if the full force of a disaster cascade is experienced by a majority of the population (i.e., the disaster cascade pathway). Protective factors are characteristics, conditions, or behaviors that reduce the effects of stressful life events. They also increase a person’s ability to avoid risks or hazards, recover, and grow stronger. Adapted from the Substance Abuse and Mental Health Services Administration (SAMHSA).<sup>7</sup>

### Phase Divergence within Washington

As we move further into recovery from the pandemic, some communities, families, and individuals in Washington will diverge more distinctly from each other in terms of behavioral health experiences. Factors, such as economic security, social marginalization, and race and ethnicity continue to play a role in the experience of both physical and behavioral health risks and symptoms throughout the pandemic.<sup>8,9,10,11</sup> Disparities throughout the last year will tend to be magnified and worsened in the next several months.

Those who have had more economic, social, educational, and occupational opportunities in the first quarter of 2021 will tend to climb more rapidly into recovery, while those who have experienced more direct primary and secondary impacts from the pandemic (e.g., illness, hospitalization, job loss, eviction) (Figure 2) will likely endure a repetition of the recovery cycle as is consistent with the disaster cascade pathway (Figure 1).

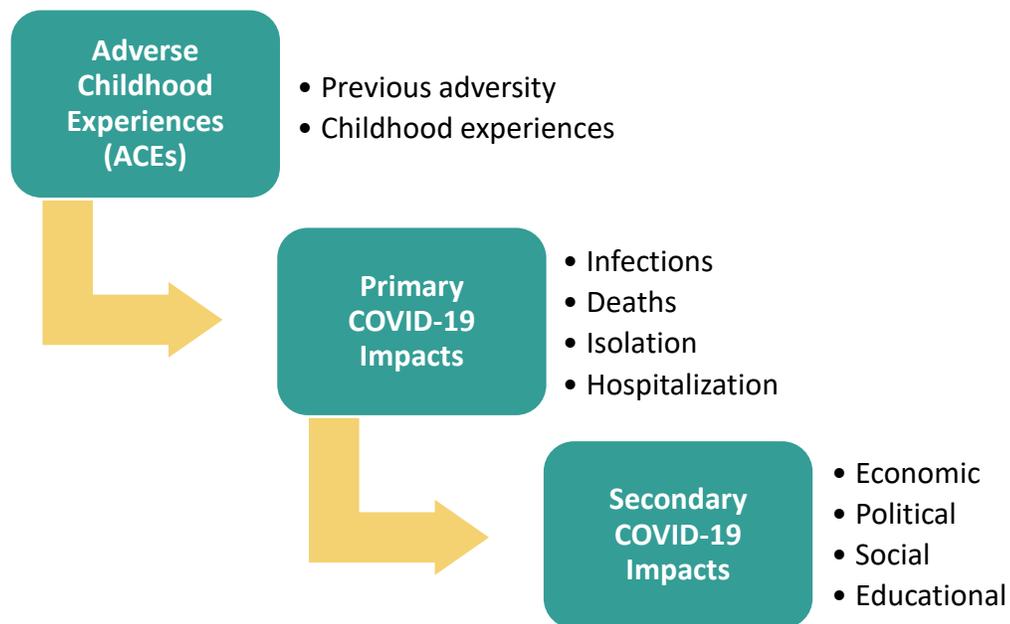
### COVID-19 Variants

The concerns about a **disaster cascade** have been previously discussed in this forecast, and it is possible that the arrival and spread of COVID-19 variants could cause such an event. The CDC

has identified four variants of concern:<sup>d</sup> Alpha (first identified in the United Kingdom), Beta (first identified in South Africa), Delta (first identified in India), and Gamma (first identified in Japan and Brazil).<sup>12,13</sup> All four of these [variants of concern have been detected in Washington](#).<sup>e</sup> For the latest information on variants in Washington, see the weekly [SARS-CoV-2 Sequencing and Variants in Washington State report](#).<sup>f</sup>

Currently, the Delta variant “seems to spread more easily and quickly than other variants”<sup>e</sup> and is believed to be the cause for the dramatic rise in cases across the United States in the last month, particularly amongst unvaccinated populations. The recent rise in infections may contribute to a disaster cascade in some regions or communities, which may prompt a secondary disaster impact (as represented by the dotted line in Figure 1). The secondary impact may be a result of the pandemic itself (infections and hospitalizations) or an indirect impact of the pandemic (economic hardship, social and political unrest, new or ongoing restrictions, etc.).

Many people may be experiencing *pandemic apathy* (an experience where general exhaustion manifests in the form of apathy about the pandemic), but it is **essential** to continue vaccination efforts and other preventive measures (like wearing masks indoors and distancing even when fully vaccinated, and following local guidelines). **Behavioral health concerns related to the many unknowns associated with the variants include the risks of additional anxiety, issues with excessive use of media to seek information and answers, and additional risks of depression for those already experiencing many negative outcomes related to the pandemic or a disaster cascade.**



<sup>d</sup> Variant of concern: A variant for which there is evidence of an increase in transmissibility, more severe disease (increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures. See the CDC *SARS-CoV-2 Variant Classifications and Definitions* page (<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>) for additional information.

<sup>e</sup> <https://www.doh.wa.gov/Emergencies/COVID19/Variants>

<sup>f</sup> <https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/data-tables/420-316-SequencingAndVariantsReport.pdf>

**Figure 2: Disaster and Trauma Cascade Potential.** The figure displays the range of factors (ACEs),<sup>§</sup> primary COVID-19 impacts, and secondary COVID-19 impacts) which may alter the *reconstruction phase* and recovery for individuals based on their experiences.

## Areas of Focus during August and September 2021

### Children and Families

The three significant issues for children and families in the fall months of 2021 are:

- 1) The return to back-to-classroom education for K-12 and many colleges across the state and the corresponding behavioral (acting out, developmental regression, etc.) and academic considerations (i.e. delays in achievement, falling behind)
- 2) An extension of the behavioral health crisis that was addressed in the Governor's [emergency proclamation](#) on March 15, 2021 and the likelihood of an acute additional wave of behavioral health needs for children and youth occurring after school begins.
- 3) Anxiety and uncertainty experienced by children and parents related to the potential for return to online vs. in-person school as a result of the increase in COVID-19 cases associated with the Delta variant. Parents may face needing to balance in-home instruction with work requirements once again. Children may potentially experience more months of an atypical academic environment and isolation from peers.

### Back-to-Classroom Considerations & Academics

Studies indicate that there can be significant long term developmental, social and academic impacts on children who miss a significant amount of school. Better-educated individuals have a much longer life expectancy even after accounting for various background factors, such as family income, patterns of family formation, and access to healthcare.<sup>14</sup> In addition to the striking mortality differences between individuals with low and high levels of education, lower levels of education is associated with health-related comorbidities, such as cognitive, social, and psychological impairment. It is also associated with less access to healthcare which can negatively affect lifetime physical and psychological health.<sup>15</sup> Washington students in grades 9 – 12 surveyed this year identified concerns about academic losses at extremely high rates. For students in high school, 67% felt they had learned less in 2020.<sup>16</sup>

Many children will be returning to in-person instruction after more than a year of school absence, and there are some with nearly two years absence. In addition, an unknown number of children will have had school experiences with less than optimal virtual instruction or family situations where parents were not available to monitor and track learning and attendance, leading to deficiencies in academic skills, social issues, and capacity to learn new things. Parents, caregivers, and educators may need to modify expectations and focus on helping children re-engage by first learning how to be a successful student again by socializing and participating with peers in a classroom context before focusing on academic success. Some children may need intensive tutoring to catch up on missed academic skills. Resources for parents, caregivers, educators, and other school staff can be found in the [COVID-19 Back-to-Classroom THINK Toolbox: Teaching with Healthcare Informed Neurological Strategies for Kids](#).

Many questions and concerns have come up related to mask wearing and the potential effects this may have from a behavioral health perspective, including the social, developmental, and

---

<sup>§</sup> Adverse childhood experience (ACE): A traumatic experience in a person's life occurring before the age of 18 that the person remembers as an adult.

emotional experiences of children. Although there is a shortage of studies that have specifically addressed mandated mask wearing and pediatric effects,<sup>17</sup> these questions have been addressed in some recent studies and reviews.<sup>17,18,19,20,21</sup> Some conclusions can be gathered from this work that help inform our sense of understanding about the impact of mask wearing for K-12 students.

Studies have found young children's adherence to masking is possible but requires effort to achieve. "Adverse experiences" reported were typically related to irritability and discomfort and also involved young children who experienced frustration over wearing the mask or being asked to wear it properly.<sup>18,19</sup> Adaptation is needed to adjust masking requirements for children with speech and language challenges and hearing impairments.<sup>19</sup> Evaluating the ongoing risks and benefits is needed to determine the best course of action.<sup>20</sup>

Other studies have evaluated the impact of mask wearing on emotional perception for children. Results have shown that children (ages 7 – 13)<sup>21</sup> were still able to make accurate inferences about the emotions of others when part of the face was covered by a mask. Although it may be more challenging for some children, masks are "unlikely to dramatically impair children's social interactions in their everyday lives."<sup>21</sup> For children ages 3 – 5, masks may impair recognition of emotional states a bit more, which is a consideration for children who already have deficits in social and emotional recognition and processing.<sup>21</sup> Adaptations for the children in this group are something that can and should be addressed by educators and caregivers.

It should also be noted that there is an important and meaningful clinical distinction between discomfort on the part of a child and a traumatic incident. To date that we are aware of, no peer-reviewed research has been published that indicates a relationship between mask wearing (for children) and the experience of psychological trauma in the context of COVID-19.

### Fall Behavioral Health Surge

Behavioral health concerns for children and youth have remained high in our state throughout the summer months, which is atypical during most years. This year, the typical "summer slump" in demand for behavioral health services in children did not happen. The number of children and teens needing behavioral health services, particularly crisis services, has remained high. Information gathered by the Northwest Healthcare Response Network has found that the average number of days for families to access behavioral health care through Washington's Mental Health Referral Service at Seattle Children's Hospital's has increased from **6.2 days in July 2020 to 19.1 days in July 2021**, indicating the difficulty accessing outpatient behavioral health care for children.<sup>22</sup> There has been a steady rate of increase in time from contact with parents to connection with services, increasing from 12.1 days in October 2020 to 11.3 days in January 2021, and to 12.8 days in April 2021. At Mary Bridge Children's Hospital, behavioral health-related chief complaints presenting to the emergency department were **71 in June of 2019, 111 in June of 2020, and 106 in June of 2021**, indicating ongoing elevated numbers of children in crisis presenting to emergency departments for behavioral health issues.<sup>22</sup>

Traditionally, most years have seasonal increases in behavioral health symptoms and the need for behavioral health services in the fall and winter. For children and youth, this tends to coincide with the increase in academic demands related to the shift from review to learning new material, in addition to the newness of being back with friends having worn off and interpersonal issues taking focus.<sup>23,24,25</sup> It is anticipated that the combination of the high acuity

experienced this spring, the lack of a “summer slump,” and the typical increase in symptoms for many children and youth in the fall months will negatively and disproportionately impact this population. This is likely to additionally tax an overstressed healthcare and educational system in the fall months after school resumes.

Many children and adolescents have struggled with increased social isolation, disruption in school, and loss of connection to teachers and peers. However, if there are concerns about safety, seek professional support and assistance. For more detailed information on this topic, see the [Behavioral Health Toolbox for Families: Supporting Children and Teens During the COVID-19 Pandemic](#).<sup>h</sup> This resource provides general information about common emotional reactions of children, teens, and families during disasters. It also has suggestions on how to help children, teens, and families recover from disasters and grow stronger. Parents and caregivers can also use the [National Parent Helpline](#)<sup>i</sup> to access telephone support (1-855-427-2736) and additional resources.

Parental stress remains elevated. Almost 30% of parents are experiencing negative mood and poor sleep quality, with a 122% increase in reported work disruption. Additionally, 86% of families are experiencing hardships, such as loss of income, job loss, increased caregiving burden, and household illness.<sup>26</sup>

## Depression and Suicide

Depression is a common response throughout the disaster recovery cycle. Many children, teens, and young adults are experiencing significant symptoms of depression during the pandemic.<sup>27</sup> Nationally, emergency department visits for suspected suicide increased dramatically in the spring of 2021, particularly among adolescent girls whose rate increased 50.6% from the rate in 2020. Among boys, those rates increased by 3.7% during the same time period.<sup>28</sup> In Washington, trends indicate that emergency department visits for suicidal ideation and attempts may be increasing, and this is data that we will continue to monitor as emergency department visits are increasing generally.

Active suicide prevention should be promoted through sharing information on recognizing [warning signs](#)<sup>j</sup> and other related resources, and checking in with colleagues, friends, family members, and neighbors. When someone is expressing thoughts of self-harm, [access to dangerous means of harm should be removed](#),<sup>k</sup> and medications, poisons, and firearms should be stored safely. Suicides consistently account for approximately 75% of all firearm-related fatalities in Washington.<sup>29</sup> [Storing firearms safely](#) and [temporarily removing them from the home](#) of an at-risk person during a crisis can save lives.

## Additional Resources:

- Anyone concerned about depression or other behavioral health symptoms should talk with their **healthcare provider**.

---

<sup>h</sup> <https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/BHG-COVID19-FamilyToolbox.pdf>

<sup>i</sup> <https://www.nationalparenthelpline.org/>

<sup>j</sup> <https://www.doh.wa.gov/YouandYourFamily/InjuryandViolencePrevention/SuicidePrevention/HelpSomeoneElse#common>

<sup>k</sup> <https://www.seattlechildrens.org/health-safety/keeping-kids-healthy/prevention/home-checklist/>

- [Washington Listens](https://www.walistsens.org/)<sup>l</sup>: Call 833-681-0211 to talk to a support specialist who will listen and help you cope with the stress of COVID-19.
- **Health Care Authority**: [Mental health crisis lines](https://www.hca.wa.gov/health-care-services-supports/behavioral-health-recovery/mental-health-crisis-lines)<sup>m</sup>
- [National Suicide Prevention Lifeline](https://suicidepreventionlifeline.org/)<sup>n</sup>: Call 800-273-8255 (English) or 1-888-628-9454 (Español).
- [Crisis Connections](https://www.crisisconnections.org/24-hour-crisis-line/)<sup>o</sup>: Call 866-427-4747.
- [Crisis Text Line](https://www.crisistextline.org/)<sup>p</sup>: Text HEAL to 741741.
- **Department of Health**: [Crisis lines for specific groups](https://www.doh.wa.gov/YouandYourFamily/InjuryandViolencePrevention/SuicidePrevention/HotlinesTextandChatResources)<sup>q</sup>
- [TeenLink](https://www.crisisconnections.org/teen-link/)<sup>r</sup>: Call or text 866-833-6546.
- [Washington Warm Line](https://www.crisisconnections.org/wa-warm-line/)<sup>s</sup>: Call 877-500-9276.
- **Washington State COVID-19 Response**: [Mental and emotional well-being webpage](https://coronavirus.wa.gov/wellbeing)<sup>t</sup>

### Social Marginalization, Racism, Discrimination, and Socioeconomic Status

There are several groups and communities that have experienced significant social marginalization throughout the pandemic. Risks related to underlying social or systemic factors are exacerbated by historical trauma and anxiety related to discrimination and prejudice.<sup>30</sup> These risks can result in higher levels of PTSD, as well as a variety of other mental health concerns, including substance use issues. There has been a significant increase in crimes against members of Asian communities related to COVID-19 as a result of misconceptions and misinformation about the source of the virus that causes COVID-19 and the tendency to seek a source of blame for the pandemic.<sup>31,32,33</sup> There have been reports of hate crimes directly associated with racism, such as harassment and discrimination, with Asian Americans being shunned, verbally abused, coughed and spat on, and physically assaulted. These experiences have significant negative impacts to behavioral health, as social isolation and perceived separation from the community escalates.<sup>33</sup>

Disasters may affect all people, but those of lower socioeconomic status are usually much more negatively impacted than other groups.<sup>34</sup> For example, individuals and families in lower socioeconomic groups are 52% more likely to lose their job or experience a significant reduction in their income than individuals in middle or upper socioeconomic group.<sup>35</sup> Individuals in lower socioeconomic groups are at higher risk for having their mental health negatively impacted due to COVID-19.<sup>35,36</sup> For example, 26% of individuals with an annual income of less than \$40,000 report experiencing a significant negative mental health impact, compared to 17% of those with an annual income between \$40,000 and \$89,000 and 14% of those with an annual income of \$90,000 or more. Individuals in lower socioeconomic groups are also at a higher risk for developing PTSD after a disaster.<sup>37,38</sup> Recently, discussion in the news media about the ending of and then extension related to eviction moratoriums at the federal, state, and local levels

---

<sup>l</sup> <https://www.walistsens.org/>

<sup>m</sup> <https://www.hca.wa.gov/health-care-services-supports/behavioral-health-recovery/mental-health-crisis-lines>

<sup>n</sup> <https://suicidepreventionlifeline.org/>

<sup>o</sup> <https://www.crisisconnections.org/24-hour-crisis-line/>

<sup>p</sup> <https://www.crisistextline.org/>

<sup>q</sup> <https://www.doh.wa.gov/YouandYourFamily/InjuryandViolencePrevention/SuicidePrevention/HotlinesTextandChatResources>

<sup>r</sup> <https://www.crisisconnections.org/teen-link/>

<sup>s</sup> <https://www.crisisconnections.org/wa-warm-line/>

<sup>t</sup> [coronavirus.wa.gov/wellbeing](https://coronavirus.wa.gov/wellbeing)

could also serve to contribute to anxiety and depression or other behavioral health symptoms for individuals and families experiencing economic hardship.

### Potential for Violence and Aggression

While the potential for violence and aggression remains a possibility, the likelihood of a large-scale event rooted in violence or extremist behavior is likely to decrease unless a disaster cascade is experienced collectively by a majority of people, which could include another large wave of COVID-19 infection. Additionally, increased restrictions on gatherings in restaurants, concerts, and sporting events, coupled with new guidelines for masking and increased division related to vaccine status and the current impact of the Delta variant, may increase risk of aggressive behavior acting “out.” The uncertainty with ongoing changes and loss of return to “normal” that was experienced briefly can lead to anxiety, frustration, and the potential for acting “out.” Factors associated with an increase in risk related to areas of human behavior, include hope and false hope,<sup>39</sup> subjective well-being,<sup>40</sup> family stress,<sup>41,42</sup> social learning,<sup>42</sup> substance use, and impulse control problems, among others. The rise in infections and the “fifth wave” could contribute to a sense of unease for many people. This could result in more aggressive and fear-oriented acting “out” behaviors that may seem uncharacteristic for many people but can be the direct result of a combination of factors that include:

- Strongly held beliefs and opinions.
- Less impulse control.
- The potential for stronger emotional reactions in the context of more regular social contact than most people have in more than a year.

### Workplace Changes

As many employers move forward with return-to-workplace plans, hybrid models, and the development of new COVID-19-related policies and expectations, many employees across the state could experience strong emotional responses that range from excitement and happiness to anxiety and fear. It may be beneficial for supervisors, managers, and leaders within organizations and businesses to address these transitions and the associated reactions about workplace unknowns and the new normal as directly and transparently as possible. When possible, safety protocol information should be clearly provided, and well-defined expectations about working hours, shifts, and locations should be set at all levels in order to alleviate anxiety and reduce the likelihood of misinterpretation.

Within teams, *Active listening*, a form of healthy communication that can support team building, is recommended as an intervention that can help address workplace issues that may arise during these transitions. It may be common for employees to experience *cognitive dissonance* during this time, which is an experience where people struggle to navigate their own inconsistent beliefs and attitudes about things like workplace relationships, as well as rules, policies, and expectations. For example, some employees may have colleagues with whom they like and get along very well, but who have different views and opinions about the end of the pandemic or return to workplace. Sometimes the discrepancies between liking other people and disagreeing with their opinions on sensitive topics may contribute to more emotional exhaustion in the context of professional engagement. Managing strong *cognitive dissonance* is likely to be an important consideration for supervisors and managers in the return-to-workplace transition over the next several months.

## Behavioral Health Outcomes Associated With COVID-19

As the number of people infected with the virus continues to increase nationally, so does the number of survivors. Concerning research, provider bulletins, anecdotal accounts, and case studies have documented specific behavioral health symptoms and diagnoses which seem to occur in those who have survived COVID-19.<sup>43,45</sup> Treatment providers and behavioral health systems should be aware of these findings, which include new instances of anxiety disorders and PTSD, risks related to a **decline in cognitive functioning**, as well as a new diagnosis identified as **post-COVID-19 psychosis**<sup>44</sup> and a syndrome recognized as **long COVID-19**.<sup>45</sup>

In addition to increased risks for a *new* psychological disorder after a positive COVID-19 diagnosis, research shows that individuals who had a pre-COVID-19 psychiatric diagnosis were associated with a much higher (65% in one study) increased risk of confirmed COVID-19 infection, compared to individuals who only had a pre-COVID-19 diagnosis of a physical health issue and no psychiatric history.<sup>46,45</sup> Additional research has also found an increased risk for first-time experiences of psychotic symptoms in individuals that tested positive for COVID-19.<sup>44</sup> The individuals who had a new onset of psychosis related to COVID-19 infections tended to have features of disorganized thinking and confusion and were less likely to experience paranoia and delusions as part of their psychosis. The individuals who developed this post-COVID-19 psychosis are also less likely to have a family history of psychosis and more likely to present with mild to moderate (i.e., less severe) symptoms of psychosis. Individuals experiencing this type of post-COVID-19 psychosis are typically recovering quickly with the use of low-dose antipsychotic medications.<sup>44</sup>

Research has identified a post-COVID-19 group that are referred to as “long-haulers” or as experiencing *long COVID-19*, in which individuals experience symptoms related to COVID-19 for more than six weeks. Many of these individuals only experienced mild respiratory symptoms and never developed pneumonia or hypoxemia (having a below-normal level of oxygen in the blood) requiring hospitalization. It is estimated that 87% of hospitalized COVID-19 patients continue to have symptoms 60 days after COVID-19 onset, and app-based symptom trackers estimate that 4.5% of patients have mild COVID-19 symptoms lasting more than 8 weeks. Accordingly, several million people in the world may already suffer from *long COVID-19*. The ten most common neurologic symptoms experienced by long-COVID are *brain fog* (81%), *headache* (68%), *numbness/tingling* (60%), *dysgeusia* (loss of taste) (59%), *anosmia* (loss of smell) (55%), *myalgia* (muscle pain) (55%), *dizziness* (47%), *pain* (43%), *blurred vision* (30%), and *tinnitus* (ringing in the ears) (29%). The most frequent non-neurologic symptoms include *fatigue* (85%), *depression/anxiety* (47%), *shortness of breath* (46%), *chest pain* (37%), *insomnia* (33%), *variation of heart rate and blood pressure* (30%), and *gastrointestinal symptoms* (29%). The constellation of long-COVID symptoms, particularly fatigue and a sense of cognitive dysfunction (e.g., memory impairment and problems with attention and concentration), in patients resembles the prominent fatigue and cognitive complaints seen in those after mild traumatic brain injury (TBI).<sup>1,45</sup>

A review of 66 studies of long-COVID survivors found that psychiatric and neuropsychiatric symptoms are an *essential* part of the syndrome, and that related factors included severity of the acute infection, duration of symptoms, and female gender. The studies highlight neuroinflammation as a potential contributor. The authors also found that there was a tendency toward symptom improvement over time.<sup>45</sup>

For adults over 65 years, there seems to be a slight increase in diagnoses of dementia in the first 14 – 90 days after a COVID-19 diagnosis.<sup>47</sup> Research indicates that individuals who have been hospitalized for COVID-19 or developed encephalopathy (any brain disease that impacts brain function) due to their illness are more likely to experience neurological complications, a psychotic disorder, mood disorder, anxiety disorder, substance use disorder, and insomnia.<sup>48</sup> Although the estimated incidence is modest in the whole COVID-19 cohort (0.67%), 1.46% of hospitalized cases and 4.72% of those who had neurological symptoms related to their COVID-19 infection received a first diagnosis of dementia within six months.

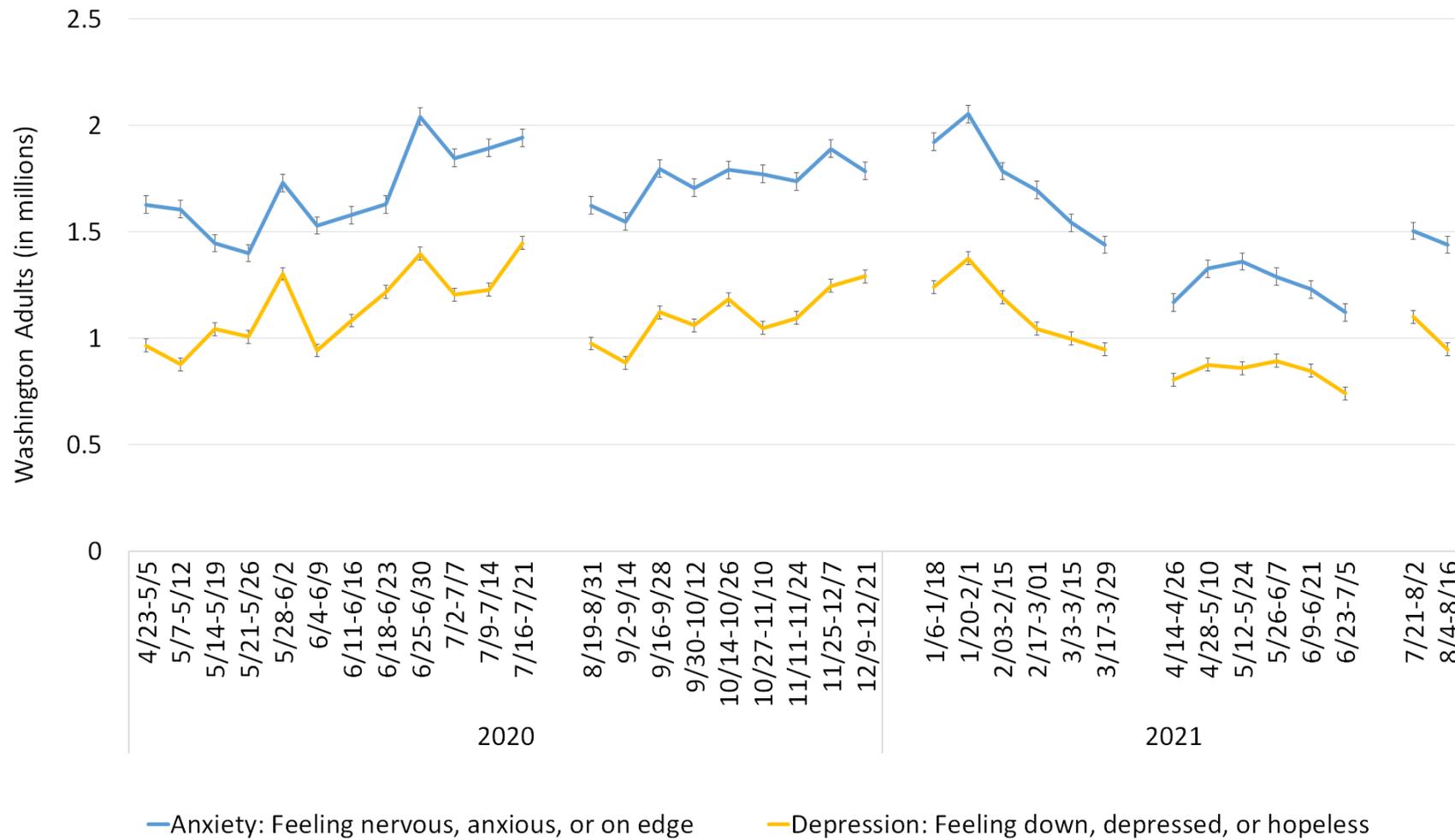
**Individuals with even mild cases of COVID-19 are at higher risk for depression and anxiety, as well as cognitive dysfunction.**<sup>45,46,47,48</sup> This research is congruent with earlier research on COVID-19 which demonstrated evidence that survivors are at increased risk for mood and anxiety disorders and dementia in the three months following infection.

## Key Things to Know

- Behavioral health supports for children, adolescents, and teens will need to be in place as we move into the fall months of 2021. The back-to-classroom transition will likely include many significant challenges for families, students, and school staff alike. For more information on specific behavioral health strategies and interventions to assist with this process, please see the [COVID-19 Back-to-Classroom THINK Toolbox: Teaching with Healthcare Informed Neurological Strategies for Kids](#)<sup>u</sup>.
- Ambiguity in workplace and social contexts will remain high throughout August and September. Feeling overwhelmed and anxious and experiencing interpersonal challenges and generalized discomfort may remain high, particularly in the context of the “fifth wave” and increases in infections due to the Delta variant.
- Weekly survey data suggest that approximately 1.4 million Washington adults are experiencing symptoms of anxiety on at least most days and a little less than a million (947,056) are experiencing symptoms of depression on at least most days (Figure 3).<sup>9</sup> It is possible that these numbers may be close to the pre-pandemic baseline for Washington adults based on where we are in the disaster recovery cycle. Those who indicated female sex at birth have an increased symptom reporting rate for anxiety (31% for females, compared to 25% for males) and depression (19% for females, compared to 18% for males). For these measures, the standard error suggests that the inaccuracy of estimates may be 8.3% above or below the numbers previously mentioned.
- Survey data collected by the U.S. Census Bureau for August 19, 2020 – August 16, 2021 show the number of adults in Washington who received counseling and the number who delayed or did not receive care (Figure 4).<sup>9</sup> Among those who responded to the survey, those ages 18 – 29 were the most likely to report they needed counseling or therapy but did not receive it (20%), and those ages 30 – 39 were the second most likely (17%). Survey respondents were not asked why they did not receive behavioral healthcare. For these measures, the standard error suggests that the inaccuracy of estimates may be around 7% above or below the numbers previously mentioned.

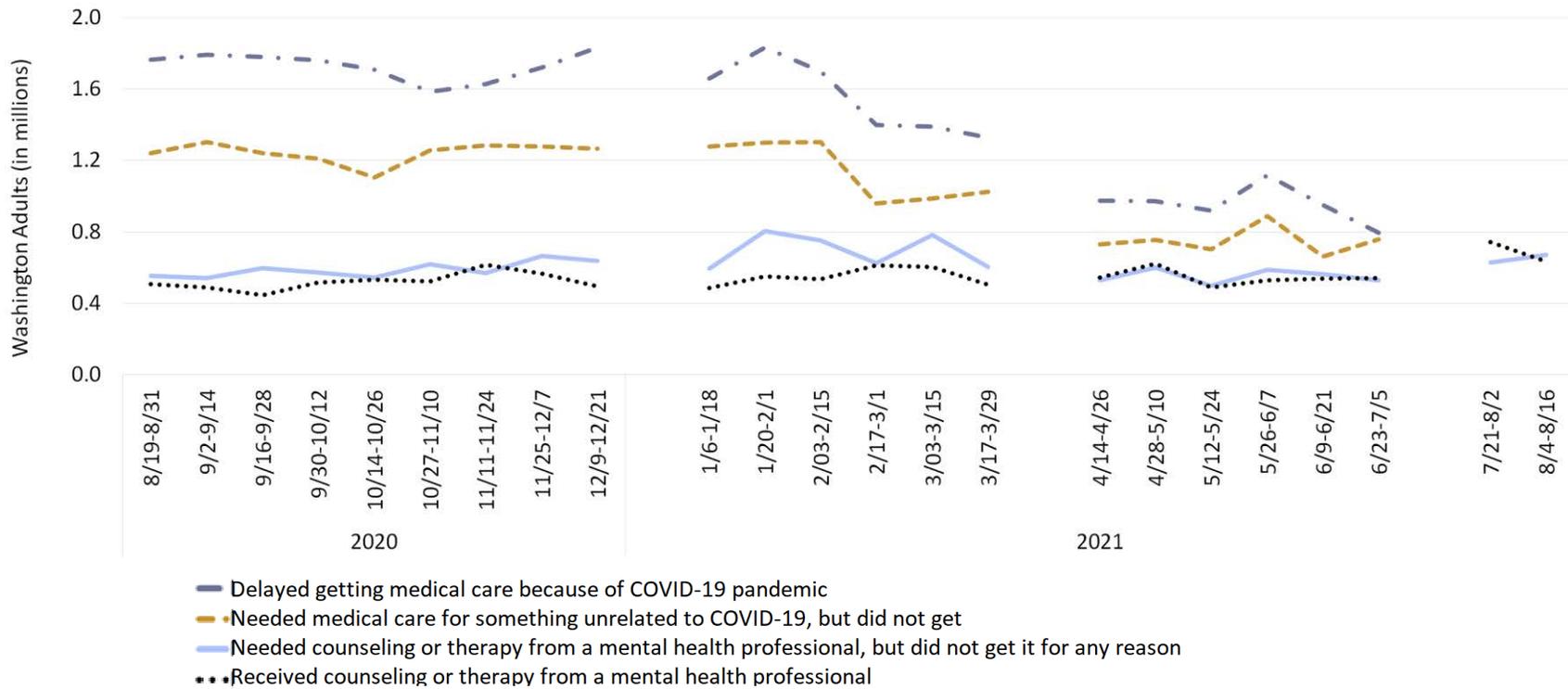
---

<sup>u</sup> <https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/821-148-BackToClassroomToolbox.pdf>



**Figure 3: Estimated Washington adults experiencing symptoms of anxiety and depression at least most days, by week: April 23, 2020 – August 2, 2021 (Source: U.S. Census Bureau)**

Note: Census data is unavailable for the periods of July 22 – August 18, 2020, December 21, 2020 – January 6, 2021, and March 30 – April 14, 2021.



**Figure 4: Estimated Washington adults who received or delayed medical care or counseling, by week: August 19, 2020 – August 2, 2021 (Source: U.S. Census Bureau)**

Note: The U.S. Census Bureau began this data collection in August 2020 and paused briefly for the period of December 23, 2020 – January 3, 2021, March 30 – April 14, 2021, and July 6 – 18, 2021.

## Acknowledgements

This document was developed by the Washington State Department of Health’s Behavioral Health Strike Team for the COVID-19 response. The strike team is a group of clinical psychologists, psychiatrists, and therapists who are professionals in disaster relief and behavioral health. Lead authors from the Behavioral Health Strike Team are Kira Mauseth, Ph.D. and Stacy Cecchet, Ph.D., ABPP. Research support for this report was provided by undergraduate psychology students at Seattle University.

## References

1. Nakamura, Z.M., et al., (2021) Neuropsychiatric Complications of COVID-19. *Curr Psychiatry Rep* 23(25) <https://doi.org/10.1007/s11920-021-01237-9>
2. Thomas, S. P. (2021). Psychosis Related to COVID-19: Reports of a Disturbing New Complication. *Issues in Mental Health Nursing*, 42(2), 1111. <https://doi.org/10.1080/01612840.2021.1873054>
3. Substance Abuse and Mental Health Services Administration. (2015). *Supplemental research bulletin - Issue 5: Traumatic stress and suicide after disasters*. SAMHSA. [https://www.samhsa.gov/sites/default/files/dtac/srb\\_sept2015.pdf](https://www.samhsa.gov/sites/default/files/dtac/srb_sept2015.pdf)
4. Centers for Disease Control and Prevention. (2018). The continuum of pandemic phases. CDC. <https://www.cdc.gov/flu/pandemic-resources/planning-preparedness/global-planning-508.html>
5. Anesi, G. L. & Manaker, S. (2020). *Coronavirus disease 2019 (COVID-19): Critical care issues*. <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-critical-care-issues>
6. Bhatraju, P. K., Ghassemieh, B. J., Nichols, M., Kim, R., Jerome, K. R., Nalla, A. K., Greninger, A. L., Pipavath, S., Wurfel, M. M., Evans, L., Kritek, P. A., West, R. E., et al. (2020). Covid-19 in Critically Ill Patients in the Seattle Region. *New England Journal of Medicine*. 10.1056/NEJMoa2004500
7. Substance Abuse and Mental Health Services Administration. (2020). *Phases of Disaster*. SAMHSA. <https://www.samhsa.gov/dtac/recovering-disasters/phases-disaster>
8. Washington State Department of Health. *Behavioral Health Impact Situation Report: Week of March 15, 2021*. 821-102-32.
9. U.S. Census Bureau. *Household Pulse Survey Data Tables*. <https://www.census.gov/programs-surveys/household-pulse-survey/data.html>
10. Centers for Disease Control and Prevention. (2021). *Health Equity Considerations and Racial and Ethnic Minority Groups*. <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>
11. Tai, D., Shah, A., Doubeni, C. A., Sia, I. G., & Wieland, M. L. (2021). The Disproportionate Impact of COVID-19 on Racial and Ethnic Minorities in the United States. *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America*, 72(4), 703–706. <https://doi.org/10.1093/cid/ciaa815>
12. Centers for Disease Control and Prevention. (2021). *New Variants of the Virus that Causes COVID-19*. <https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant.html>
13. Washington, N., Gangavarapu, K., et al. (2021). *Genomic epidemiology identifies emergence and rapid transmission of SARS-CoV-2 B.1.1.7 in the United States*. <https://www.medrxiv.org/content/10.1101/2021.02.06.21251159v1.full>
14. Hummer, R.A. & Hernandez, E.M. (2015). *The Effect of Educational Attainment on Adult Mortality in the United States*. *Popul Bull.*, 68(1): 1–16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC45622/>
15. Kwakye, I. & Kibort-Crocker, E. (March, 2021). *Facing Learning Disruption: Examining the Effects of the COVID-19 Pandemic on K-12 Students*. Washington Student Achievement Council.
16. <https://csswashington.org>
17. Eberhart, M., Orthaber, S., & Kerbl, R. (2021). The impact of face masks on children—A mini review. *Acta Paediatrica*, 110(6), 1778-1783. <https://doi.org/10.1111/apa.15784>
18. Nobrega, M., Opice, R., Lauletta, M. M., & Nobrega, C. A. (2020). How face masks can affect school performance. *International Journal of Pediatric Otorhinolaryngology*, 138, 110328. <https://doi.org/10.1016/j.ijporl.2020.110328>
19. Scharz, S., Jenetzky, E., Krafft, H., Maurer, T., Martin, D. (n.d., preprint?). Corona children studies "Co-Ki": First results of a Germany-wide registry on mouth and nose covering (mask) in children. *Research Square*. 10.21203/rs.3.rs-124394/v4 (link here: <https://assets.researchsquare.com/files/rs-124394/v2/bdeb04c9-7a3e-4bb4-997a-0dce53145ac7.pdf?c=1614364619>)
20. Ruba, A. & Pollak, S. (2020). Children's emotional inferences from masked faces: Implications for social interactions during COVID-19. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0243708> (discusses impact to social interaction in children + emotional recognition)
21. Gori, M., Schiatti, L., & Amadeo, M. (2021). Masking emotions: Face masks impair how we read emotions. *Frontier Psychology*, <https://doi.org/10.3389/fpsyg.2021.669432>
22. <https://nwhrn.org>
23. Eastwood, M., & Peacocke, J. (1976). Seasonal Patterns of Suicide, Depression and Electroconvulsive Therapy. *British Journal of Psychiatry*, 129(5), 472-475. Doi:10.1192/bjp.129.5.472

24. Ayers, J. W., Althouse, B. M., Allem, J.-p., Rosenquist, J. N., & Ford, D. E. (2-13). Seasonality in Seeking Mental Health Information on Google. *American Journal of Preventive Medicine*, 44(5) 520-525. <https://doi.org.proxy.seattleu.edu/10.1016/j.amepre/2013.01.012>
25. Sullivan, B., & Payne, T. W. (2007). Affective Disorders and Cognitive Failures: A Comparison of Seasonal and Nonseasonal Depression. *American Journal of Psychiatry*, 164(11), 1663-1667. <https://doi.org.proxy.seattleu.edu/10.1176/appi.ajp.2007.016111792>
26. Gassman-Pines, A., Oltmans Ananat, E., & Fitz-Henley, J. (2020). COVID-19 and Parent-Child Psychological Well-being. *Pediatrics*, 146(4), e2020007294. doi: 10.1542/peds.2020-007294
27. Czeisler, M. É., Lane, R. I., Petrosky, E., et al. (2020). Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep*, 69, 1049–1057. <http://dx.doi.org/10.15585/mmwr.mm6932a1>
28. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7024e1.htm>
29. Washington State Department of Health. (2019). *Annual Report: Firearm Fatality and Suicide Prevention – A Public Health Approach*. <https://www.doh.wa.gov/Portals/1/Documents/8390/346-087-SuicideFirearmPrevention.pdf>
30. Rodriguez-Seijas, C., Stohl, M., Hasin, D. S., Eaton, N. R. (2015). Transdiagnostic Factors and Mediation of the Relationship Between Perceived Racial Discrimination and Mental Disorders. *JAMA Psychiatry*, 72(7), 706–713. doi:10.1001/jamapsychiatry.2015.0148
31. Wen, J., Aston, J., Liu, X. & Ying, T. (2020) Effects of misleading media coverage on public health crisis: a case of the 2019 novel coronavirus outbreak in China. *Anatolia*, 31(2), 331-336. <https://doi.org/10.1080/13032917.2020.1730621>
32. Gover, Angela R., Harper, Shannon B., Langton, Lynn. (July 2020). *Anti-Asian Hate Crime During the COVID-19 Pandemic: Exploring the Reproduction of Inequality*. National Center for Biotechnology Information, U.S. National Library of Medicine. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7364747/>
33. Choi, Cynthia, Kulkarni, Manjusha P. (March 2020). *Asian American Pacific Islander (AAPI) Civil Rights Organizations Establishes STOP AAPI HATE Reporting Center*. Asian Pacific Planning and Policy Council (A3PCON). <http://www.asianpacificpolicyandplanningcouncil.org/asian-american-pacific-islander-aapi-civil-rights-organizations-establishes-stop-aapi-hate-reporting-center/>
34. SAMHSA. (2017, July). *Greater Impact: How Disasters Affect People of Low Socioeconomic Status*. Disaster Technical Assistance Center Supplemental Research Bulletin. [https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses\\_2.pdf](https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses_2.pdf)
35. Parker, K., Horowitz, J., Brown, A. (2020, April 21). *About Half of Lower-Income Americans Report Household Job or Wage Loss Due to COVID-19*. Pew Research Center Social and Demographic Trends
36. Chidambaram, P. (2020, August 21). *The Implications of COVID-19 for Mental Health and Substance Use*. Kaiser Family Foundation. <https://www.kff.org/health-reform/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/>
37. North, C. S., Oliver, J., & Pandya, A. (2012). Examining a comprehensive model of disaster-related posttraumatic stress disorder in systematically studied survivors of 10 disasters. *American Journal of Public Health*, 102(10), e40–e48. 10.2105/AJPH.2012.300689
38. Kessler, R. C., Galea, S., Gruber, M. J., Sampson, N. A., Ursano, R. J., & Wessely, S. (2008). Trends in mental illness and suicidality after Hurricane Katrina. *Molecular Psychiatry*, 13, 374–384.
39. Kwon, Paul. (2002). Hope, Defense Mechanisms, and Adjustment: Implications for False Hope and Defensive Hopelessness. *Journal of Personality*, 70(2), 207-231.
40. Satici, S. A. (2016). Psychological vulnerability, resilience, and subjective well-being: The mediating role of hope. *Personality and Individual Differences*, 102, 68-73. <https://doi.org/10.1016/j.paid.2016.06.057>
41. Gómez-Acosta, A., & Castro Muñoz, J. A. (2019). Family conflict, stress, and coping as predictors of violence. *Salud Mental*, 42(6), 269–274. <https://doi.org/10.17711/sm.0185-3325.2019.035>
42. Okey JL. Human Aggression: The Etiology of Individual Differences. *Journal of Humanistic Psychology*. 1992;32(1):51-64. <https://doi.org/10.1177/0022167892321005>
43. Taquet, M., Luciano, S., Geddes, J. R., & Harrison, P. J. (2021). Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62,354 COVID-19 cases in the USA. *The Lancet. Psychiatry*, 8(2), 130–140. [https://doi.org/10.1016/S2215-0366\(20\)30462-4](https://doi.org/10.1016/S2215-0366(20)30462-4)
44. Chacko, M., Job, A., Caston, F., 3rd, George, P., Yacoub, A., & Cáceda, R. (2020). COVID-19-Induced Psychosis and Suicidal Behavior: Case Report. *SN comprehensive clinical medicine*, 1–5. Advance online publication. <https://doi.org/10.1007/s42399-020-00530-7>

45. Graham E., et al., (2021). Persistent neurologic symptoms and cognitive dysfunction in non-hospitalized Covid-19 “long haulers” *Annals of clinical and translational neurology*, 8(5) 1073-1085. <https://doi.org/10.1002/acn3.51350>
46. Schou, T. M., Joca, S., Gregers W., & Bay-Richter, C. (2021) Psychiatric and neuropsychiatric sequelae of COVID-19 – a systematic review, *Brain, Behavior, and Immunity*. ISSN 0889-1591, <https://doi.org/10.1016/j.bbi.2021.07.018>.
47. A. Hampshire et al., Cognitive deficits in people who have recovered from COVID-19, *EclinicalMedicine* (2021), <https://doi.org/10.1016/j.eclinm.2021.101044>
48. Taquet, M., Geddes, J. R., Husain, M., Luciano, S., & Harrison, P. J. (2021). 6-month neurological and psychiatric outcomes in 236 379 survivors of COVID-19: a retrospective cohort study using electronic health records. *The Lancet. Psychiatry*, 8(5), 416–427. [https://doi.org/10.1016/S2215-0366\(21\)00084-5](https://doi.org/10.1016/S2215-0366(21)00084-5)