Washington State Department of Health

July 23, 2020

Publication 821-106

July 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 continues to strongly influence behavioral health symptoms and behaviors across the state due to its far-reaching medical, economic, social, and political consequences. This forecast is heavily informed by disaster research and response and the latest national and international data and findings specific to this pandemic. Updates will be made monthly to reflect changes in baseline data.
- Ongoing behavioral health impacts in Washington will likely be seen in phases (see Figure 1 and Figure 2), peaking around 6–9 months after the initial outbreak.[1,2] This will likely coincide with a potential second wave of infections, in a pattern consistent with previous pandemics.
- Washington is currently experiencing a slow extension of the first wave of the pandemic as represented by a continuous and steady increase in COVID-19 cases following the phased reopening that began in June 2020.
- For the majority of people across the state, the behavioral health outcomes from COVID-19 throughout the summer months of 2020 are related to experiences of social isolation, rather than exposure, illness, or threat to physical health. However, this may change as positive infections continue to increase, increasing medical risks for greater numbers of people.[3]
- Experiences of social isolation are associated with increased behavioral health problems, such as depression, anxiety, mood disorders, psychological distress, post-traumatic stress disorder (PTSD), insomnia, fear, stigmatization, low self-esteem, and lack of self-control.[3]

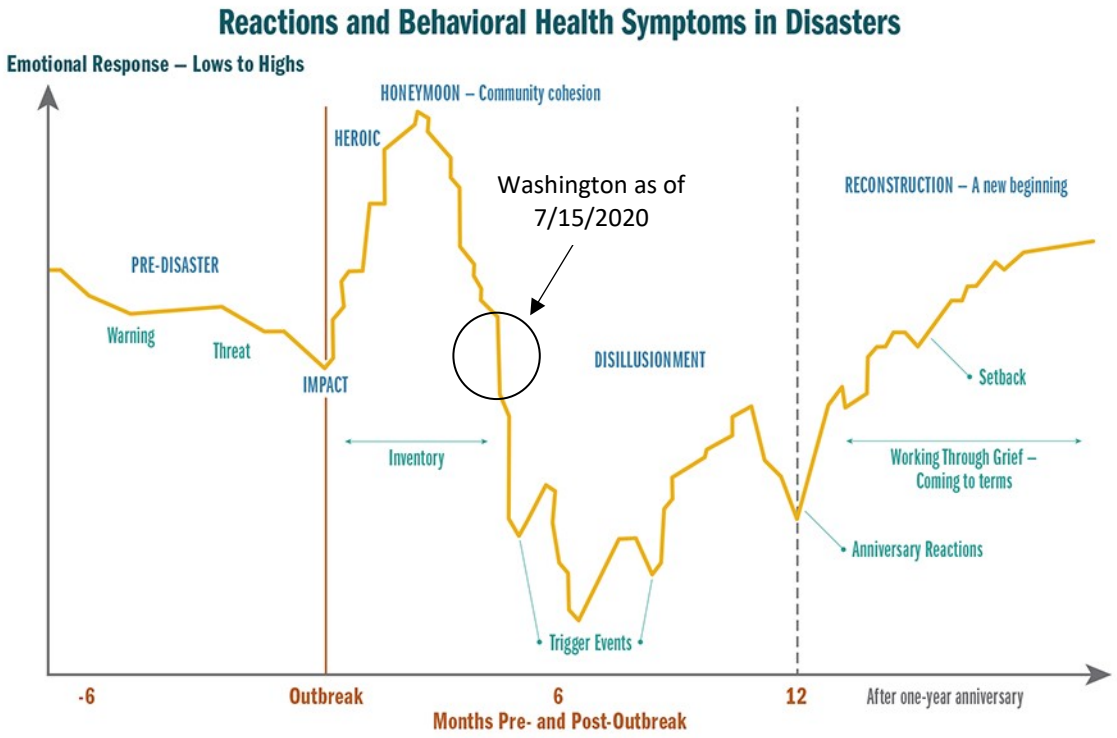

Figure 1: Phases of reactions and behavioral health symptoms in disasters.
Adapted from the Substance Abuse and Mental Health Services Administration (SAMHSA) [4]

Phase-Related Behavioral Health Considerations

Behavioral health symptoms will likely present in phases.[1,2] For each phase in the disaster response and recovery cycle, there are known corresponding behavioral health symptoms and experiences for many people in the affected community. As the COVID-19 pandemic is a natural disaster impacting us on a national level, **every individual and community is affected in some way.** The unique characteristics of this pandemic are trending towards depression as a significant behavioral health outcome in Washington. This may change dramatically if there is a drastic increase in the number of infections between July and September, an additional large-scale wave of illness in the fall, or both. In both cases, increased symptoms of anxiety and post-traumatic stress disorder (PTSD) will likely result.[5,6]

Certain populations, such as ethnic and racial minorities, disadvantaged groups, those of lower socioeconomic status, and essential workers, are experiencing disproportionately high behavioral health impacts.[7,8,9,10,11] Healthcare workers, law enforcement officers, educators, and people recovering from critical care may experience greater behavioral health impacts. The COVID-19 Behavioral Health Group Impact Reference Guide (DOH publication number 821-104) provides detailed information on how people in specific occupations and social roles are uniquely impacted.

From Honeymoon to Disillusionment

Moving from the *honeymoon phase* into the *disillusionment phase* can be uncomfortable and challenging for communities. Individuals often realize the limitations of disaster assistance and support. Individuals and communities may feel abandoned as the gap between community needs and available resources widens. We often see big emotional and behavioral changes in this phase, most commonly in the form of acting "out" or acting "in." Acting "out" includes increased aggression, hostility, irritability, substance use, and risky behaviors. Because of this, law enforcement may see a disproportionate increase in violent crimes. Individuals acting "in" often experience more sadness, depression, isolation, withdrawal, and numbness. Sadness and grief or loss are experienced by many individuals in this phase, and law enforcement officers may see a higher number of calls related to suicide during this time.

If there are additional waves of illness with significant social and economic disruption, one of the large-scale outcomes will likely include a *trauma cascade*. This is a situation in which each additional wave of illness results in parts of the disaster recovery cycle being repeated. People may have a reduced ability to emotionally recover from the disaster due to additional or ongoing impacts on their lives.[1,12,13]

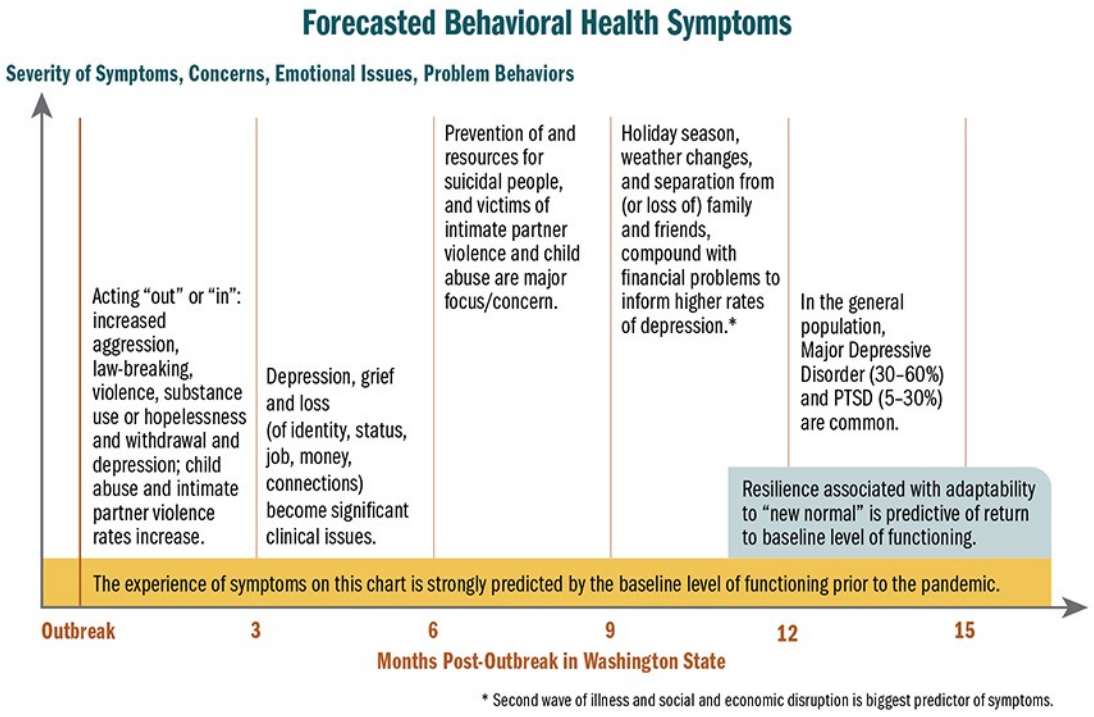

Figure 2: Forecasted behavioral health symptoms.

Specific Areas of Focus for July and August 2020

Substance Use

Many individuals and communities are experiencing a significant lack of control over their personal and environmental circumstances in the current stage (5–6 months post-impact) of the pandemic. When individuals feel loss of control along with associated stress, worry, and fear, it is very common for those feelings to be expressed outwardly in the form of frustration and anger. These feelings are frequently managed with substance use. Further, mixed messaging at the federal level, messaging from states, and varying degrees of media coverage related to COVID-19 risks and potential outcomes have created a high baseline level of uncertainty within many communities. For many people in Washington, it is likely that the summer months of 2020 will include a significant sense of frustration and higher rates of substance use than might otherwise typically be present. Less than 0.5% of these will be acute new alcohol use cases; **the majority will be an exacerbation of pre-existing problematic behavior**.[14] Given the extended timeline of unknowns, restrictions associated with this pandemic, and additional stressors associated with the potential for multiple waves and subsequent disruption, substance use will likely surpass typical post-disaster levels.

Violence and Aggression

Hot weather is often correlated with an increase in physical violence and aggression.[15] Coupled with the potential for problematic substance use, which tends to reduce impulse control, an increase in the number of physical assaults and property crimes is expected, including arson associated with aggression in the summer months as the weather gets warmer.

As individuals move from the *honeymoon phase* to the *disillusionment phase*, they often experience several extreme stressors and significant negative events, such as fear of getting sick or loss of loved ones,[13,16] unemployment,[12,16] or property loss.[12,16,17] Individuals often feel powerlessness and a loss of control as a result of these acute experiences.[16,17] This leads individuals to direct their feelings (anger, frustration, sadness, fear, anxiety) either towards themselves by acting "in" or towards others by acting "out."[16,17,18] Both self-harm and interpersonal violence increase significantly after disasters.[16] This refers to how people are expressing themselves and their emotions in the context of a disaster response timeline, <u>not</u> expressions due to underlying causes or larger-scale social issues, which may also be drivers of behavior.

There is evidence that nationally, people's behaviors and emotions are intensified by the experience of COVID-19. They are acting in ways they normally would not in circumstances without the stressors and impacts of the pandemic, which can **intensify** and **magnify** existing feelings of distress, anger, fear, and aggression. There have been significant increases in handgun sales. In Washington, the number of federal background checks for handgun sales was 45% higher in March–June 2020 than the number for the corresponding period in 2019.[19] This may present more risk for gun violence, including suicide.[20] **We are likely to see the most acting "out" behavior related to the COVID-19 pandemic over the summer months of 2020.**

Violence against women increases after every type of disaster or emergency.[21] Rates of intimate partner violence and child abuse have increased significantly in Washington. Weekly surveys of Washington law enforcement agencies indicate that domestic violence offenses remain elevated at levels 16% higher than those in 2019.[22] However, these data only represent 25–30% of law enforcement agencies any given week. Based on data from previous disasters, it is likely that – even among reporting agencies – the true number of domestic violence cases is significantly higher.

Social Connection, Travel, and Resilience Building

The development of *psychological resilience* (adaptability and flexibility, connection, purpose, and hope) in the summer months should be strongly encouraged. New opportunities to spend time outdoors with an increase in warm and pleasant weather should be leveraged. State health guidelines outline considerations for safe travel, and local health departments may also have guidelines. Encouraging people to engage in **healthy outdoor activities as a way of active coping is highly recommended when group size is limited, safe physical distancing can be maintained, and face coverings are worn appropriately**.

Reconnecting with loved ones and family members from whom many people have been separated should also be encouraged when these encounters can be done outdoors, at a safe physical distance, and with appropriate safety measures in place (e.g., hand washing and face coverings).

Community resilience is the capacity of individuals and households within a community to absorb, endure, and recover from the impacts of a disaster. Approximately 50% of Washington residents have one or two risk factors that can threaten resilience, including unemployment, being a single parent, lower socioeconomic brackets, or pre-existing medical conditions.[23] Resilience can be actively developed both on individual and community levels. Creative social connection, as part of resilience, can also be encouraged and developed. It can be amplified to increase social connection. This helps reduce behavioral health symptoms and encourages development of active coping skills for the population at large.

The typical long-term response to disaster is **resilience**, rather than disorder.[1,24] Resilience is something that can be intentionally taught, practiced, and developed for people across all age groups. Resilience can be increased by:[25]

- Becoming **adaptive** and psychologically **flexible.**
- Focusing on developing social **connections**, big or small.
- Reorienting and developing a sense of **purpose.**
- Focusing on **hope.**

Community support groups, lay volunteers, law enforcement, first responders, and social organizations and clubs are resources that can be developed to help reduce behavioral health symptoms for the general population. These should be leveraged to take pressure off of depleted or unavailable professional medical and therapeutic resources throughout 2020.

Specific Areas of Focus for Transition into September 2020

Medical and specialty providers, organizations, and facilities should attempt to develop resources and staffing to address behavioral health impacts of the pandemic. Support strategies need to be tailored based on the current phase of the incident and the target population.

There are a number of factors and considerations to consider as we transition into the fall months that will impact behavioral health:

- School openings and potential closures will likely cause added stress to families, particularly to parents working full-time without childcare and single parents.
- A second wave of illness and infection will likely cause significant increases in anxiety, depression, feelings of despair and hopelessness, as well as anger and frustration.
- Ending of local (county and city) eviction moratoriums may result in unstable housing and housing crises for people who have experienced unexpected decreases in income or unemployment.
- Ending of federal support programs (e.g., Payroll Protection Act, supply distribution) may cause communities to realize that there are substantial gaps between their needs and available resources.
- An eventual return to baseline levels of functioning for many people should occur around 12–14 months after the initial outbreak. **This is assuming that the potential second wave of the pandemic is stabilized by that time in terms of both social and economic disruptions, and a sense of the new normal is underway.**
- Although three different scenarios for the COVID-19 pandemic were laid out in past forecasts for the fall months, national trends suggest that scenario 3, "slow burn," is unlikely to occur. Scenario 1, "peaks and valleys," is still possible, but scenario 2, "fall peak," is most likely to occur (see Figure 3).[26] The corresponding behavioral health symptom projections for scenarios 1 and 2 are overlaid in Figure 3.
- In Washington, the highest risk of suicide will likely occur between October and December 2020. This is consistent with known cycles of disaster response patterns. Seasonal affective disorder worsens mental health challenges at this time of year due to increased hours of darkness and inclement weather. Winter holidays can also worsen mental health challenges for many people, as they are often an emotionally and financially difficult time of year.
- Given the current sociopolitical climate, election season will also likely have a strong impact on the behavioral health of Washingtonians.[27]

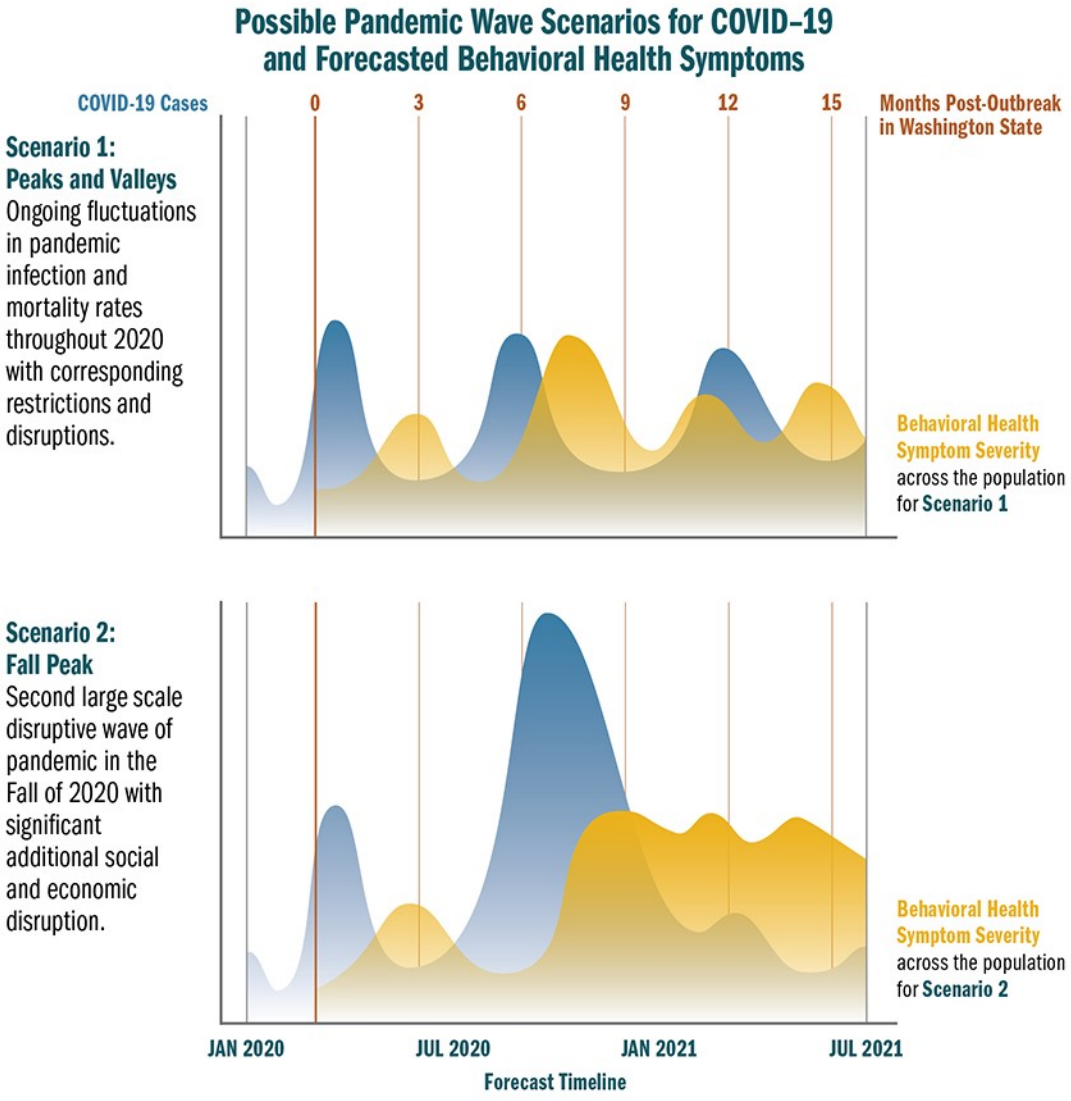

Figure 3: Possible pandemic wave scenarios for COVID-19 and forecasted behavioral health symptoms.

Key Things to Know

- Approximately 650,000 Washingtonians were receiving treatment for behavioral health needs prior to the COVID-19 outbreak.[28]
- Approximately 700,000 Washingtonians have mental health concerns, but were **not** receiving services prior to the outbreak.[28]
- While only 4–6% of people typically develop symptoms of PTSD after a disaster (equivalent to 380,000 individuals in Washington), **this number can vary quite a bit depending on the type of disaster. It is often higher among first responders and medical personnel if the**

disaster is more chronic, widespread, children are hurt or injured, and burnout is likely.[29,30]

- Rates of PTSD have been much higher (10–35%) in some places more directly impacted by a critical incident.[31] Although rates of PTSD may not reach such critical levels in Washington, it is anticipated that **rates of depression are likely to be much higher (potentially 30–60% of the general population, which is equivalent to 2.25 million to 4.5 million people in Washington[31]) due to the chronic and ongoing social and economic disruption in people's lives as a result of the COVID-19 pandemic.** This is a much higher rate than typical after a natural disaster where there is a single impact point in time.
- If we are to experience an additional fall peak of illness as a function of this pandemic, significant behavioral health reactions or functional impairments may be experienced by approximately 45% of the population.[32,33]
- The most common symptoms of trauma in children and teens in the context of disaster recovery include eating too much or too little, difficulty sleeping, having bad dreams or nightmares, sleeping too much or too little, changes in behavior, and difficulty learning and remembering new things. It is also very common for children and youth of all ages to experience some regression, such as acting like they did as a younger child.[34]
- Suicide and drug overdose rates are both highly influenced by unemployment.[7,35,36,37] For every 1% increase in the unemployment rate, there is a corresponding 1.6% increase in the suicide rate[35] and an increase of one drug overdose death per 300,000 people.[36] In Washington, approximately 1,231 people die from suicide and 1,173 people die from drug overdose annually.
    - The unemployment rate in Washington was 15.1% in May 2020,[38] nearly 11 percentage points higher than May 2019. If sustained, this could result in an additional 211 deaths annually by suicide and an additional 272 deaths annually by drug overdose.
- In the context of post-disaster recovery, individuals often utilize substances as a way to relieve psychological suffering. As such, disasters are linked to increased use of tobacco, marijuana, and alcohol.[39]
    - Prior to COVID-19, approximately 24% of individuals with mood disorders reported using alcohol or drugs to relieve symptoms, 10% of individuals with an anxiety disorder reported self-medicating with alcohol, 3% of individuals with an anxiety disorder reported self-medicating with alcohol and drugs, and 21% of individuals with PTSD reported using alcohol and other drugs to relieve their psychological symptoms.[39] **Due to the extended nature of a pandemic, it is likely that self-medication and use of substances of all types will increase significantly over the next 6–9 months.**
        - As compared to June 2019, marijuana tax collections for June 2020 were up 31%.[40] There has also been a corresponding rise in alcohol-related emergency department visits in 2020.[41]

- Given these increases, healthcare providers should suggest both healthy alternatives for coping and sources of support. A Behavioral Health Resources & Recommendations webpage for providers is now available on the DOH website.

- Based on population data for Washington and known cycles of common psychological responses to disasters, as well as the latest outcome data specific to COVID-19, **we can reasonably expect that approximately three million Washingtonians will experience clinically significant behavioral health symptoms over the next two to five months. Symptoms of depression will likely be the most common, followed by anxiety and acute stress.** These symptoms will likely be strong enough to cause significant distress or impairment for most people in this group.
  - Weekly survey data suggest that over 1.7 million Washington adults are experiencing symptoms of anxiety on at least most days, and over 1.2 million are experiencing symptoms of depression on at least most days. These represent increases of 160,000 and 110,000 people, respectively, since May (Figure 4).[42]

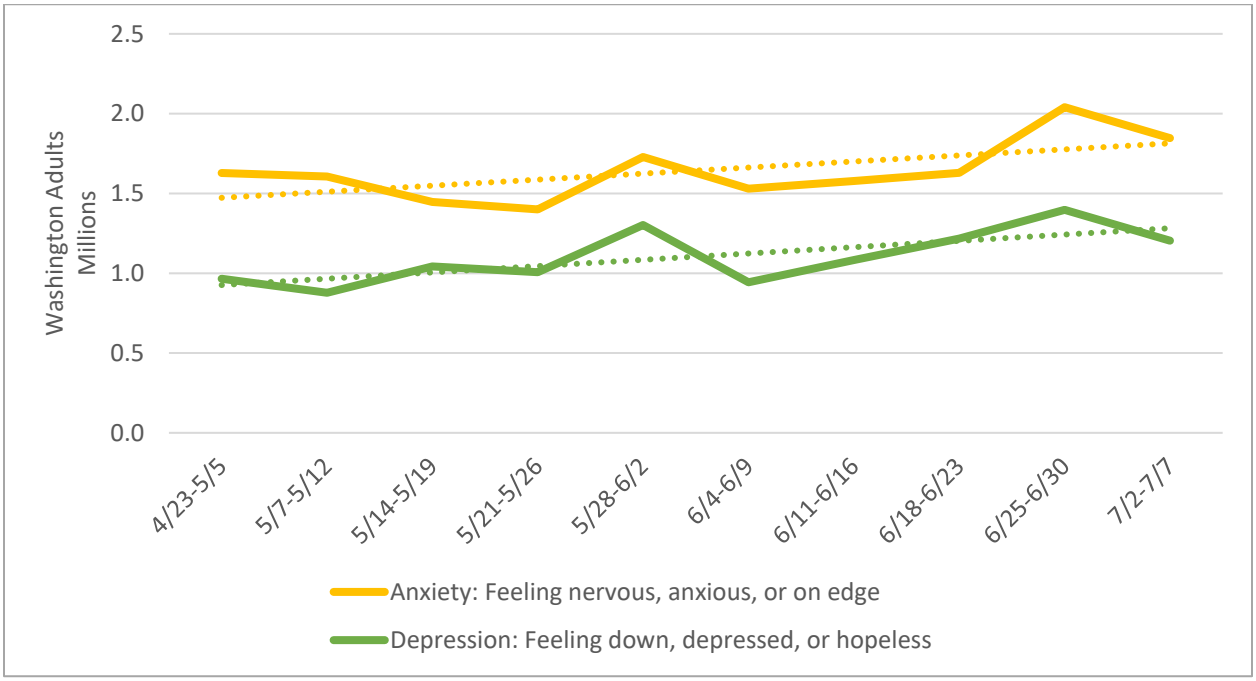

Figure 4: Estimated Washington adults experiencing symptoms of anxiety and depression at least most days, by week: April 23–July 7 (Source: U.S. Census Bureau)

- It is important to note that these numbers likely do not reflect the total number of individuals that will be able to seek and access services. Capacity building should include creative and flexible service provision, particularly within rural communities and underserved populations, with specific mindfulness around cost of services, access to technology (e.g., for telehealth), availability of services, and stigma related to behavioral health.
- An eventual return to pre-pandemic baseline levels of functioning by February or March 2021 is anticipated for many people. However, this is dependent on the level of disruption caused by a potential second pandemic wave in in the fall of 2020 or winter of 2021.[1,2]

Background Data and Analysis

National Prevalence Rates

Mental illness, behavioral health diagnoses, and demographics[43,44]

- Generalized anxiety disorder = approximately 1.0% of adolescents, 2.7% adults
- Panic attacks = 11.2% of adults
- Panic disorder = approximately 2–3% of adolescents and adults
- Mood disorders = approximately 9.7% of adults
- Depression = 10–20% of adults[45]
- Post-traumatic stress disorder (PTSD): 3.6% of adults[43]

National prevalence rates for substance-related disorders[43,44,46]

- Nicotine dependence = 11.0% of adults
- Alcohol use disorder = approximately 4.6% of adolescents, 8.5% of adults
- Cannabis use disorder = approximately 2.3% of adolescents, 5% of young adults, and 0.8% of adults
- Opioid use disorder = approximately 0.6% of adolescents, 1.1% of young adults, and 0.8% of adults

Washington Data

- Population: Approximately 7.6 million
- Percentages with baseline serious mental illness
    - Adults 18 and over = 5.3%[28] (or 400,044 people)
    - Young adults from 18–25 = 6.2%[28] (or 29,014 people)
- Percentage of adults 18 and over with any mental illness who received treatment: 45.6% (approximately 650,000 people or 8% of the total population of Washington)[28]
- Depression = 12.7% in Washington, 41.1% of whom received mental health services[28]
- Death rates[47]
    - Annual suicide rate = approximately 16.2 per 100,000
    - Annual drug overdose death rate = approximately 15.4 per 100,000

Acknowledgements

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References

1. Substance Abuse and Mental Health Services Administration. (2015, August). Supplemental research bulletin - Issue 5: Traumatic stress and suicide after disasters. SAMHSA. https://www.samhsa.gov/sites/default/files/dtac/srb_sept2015.pdf
2. Centers for Disease Control and Prevention. (2018, December 6). The continuum of pandemic phases. CDC. https://www.cdc.gov/flu/pandemic-resources/planning-preparedness/global-planning-508.html
3. Hossain, M. M., Sultana, A., & Purohit, N. (2020). Mental health outcomes of quarantine and isolation for infection prevention: A systematic umbrella review of the global evidence. Retrieved from: https://ssrn.com/abstract=3561265
4. SAMHSA (2020). Phases of Disaster. Retrieved from: https://www.samhsa.gov/dtac/recovering-disasters/phases-disaster.
5. Anesi, G.L. & Manaker, S. (2020) Coronavirus disease 2019 (COVID-19): Critical care issues. Retrieved from: https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-critical-care-issues?source=related_link
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. doi: 10.1056/NEJMoa2004500 Retrieved from: https://www.nejm.org/doi/pdf/10.1056/NEJMoa2004500?articleTools=true
7. Parker, K., Horowitz Menasce, J., & Brown, A. (2020) Pew Research Center, April 2020, "About Half of Lower-Income Americans Report Household Job or Wage Loss Due to COVID-19. Retrieved from: https://www.pewsocialtrends.org/2020/04/21/about-half-of-lower-income-americans-report-household-job-or-wage-loss-due-to-covid-19/
8. Panchal, N., Kamal, R., Orgera, K., Cox, C., Garfield, R., Hamel, L., Muñana, C., & Chidambaram, P. (2020) The Implications of COVID-19 for Mental Health and Substance Use. Kaiser Family Foundation. Retrieved from: https://www.kff.org/health-reform/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use
9. Liem, A., Wang, C., Wariyanti, Y., Latkin, C. A., & Hall, B. J. (2020). The neglected health of international migrant workers in the COVID-19 epidemic. The Lancet Psychiatry, 7(4), e20.
10. Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:458–464. DOI: http://dx.doi.org/10.15585/mmwr.mm6915e3
11. Wood G. (2020, May 27). What's Behind the COVID-19 Racial Disparity? The Atlantic. Retrieved from: https://www.theatlantic.com/ideas/archive/2020/05/we-dont-know-whats-behind-covid-19-racial-disparity/612106/
12. Miller, J.L. & Pescaroli, G. (2018). Psychosocial Capacity Building in Response to Cascading Disasters: A Culturally Informed Approach, International Journal of Disaster Risk Reduction. Retrieved from: https://doi.org/10.1016/j.ijdrr.2018.04.018

13. Pescaroli, G. & Alexander, D. (2015). A definition of cascading disasters and cascading effects: going beyond the “toppling dominos” metaphor. Global Risk Forum, Planet@Risk 3 (1), 58–67.
14. North, Carol S,M.D., M.P.E., Ringwalt, C. L., DrP.H., Downs, D., M.S.W., Derzon, J., PhD., & Galvin, D., PhD. (2011). Postdisaster course of alcohol use disorders in systematically studied survivors of 10 disasters. Archives of General Psychiatry, 68(2), 173.
15. Cohn, E. G., & Rotton, J. (2005). The curve is still out there: A reply to Bushman, Wang, and Anderson's (2005) "Is the curve relating temperature to aggression linear or curvilinear?" *Journal of Personality and Social Psychology, 89*(1), 67–70. https://doi.org/10.1037/0022-3514.89.1.67
16. Rezaeian, M. (2013). The association between natural disasters and violence: A systematic review of the literature and a call for more epidemiological studies. Journal of Research in Medical Sciences, 18(12): 1103–1107
17. World Health Organization. (2005). Violence and Disasters. Department of Injuries and Violence Prevention. Geneva, Switzerland. Retrieved from: https://www.who.int/violence_injury_prevention/publications/violence/violence_disasters.pdf.
18. Lu TH. Earthquake and suicide: Bringing context back into disaster epidemiological studies. Int J Epidemiol. 2004;33:1406–9.
19. Federal Bureau of Investigation. NICS [National Instant Criminal Background Check System] Firearm Checks: Month/Year by State/Type. Retrieved from: https://www.fbi.gov/file-repository/nics_firearm_checks_-_month_year_by_state_type.pdf/view
20. Anglemyer, A., Horvath, T., Rutherford, G. The accessibility of firearms and risk for suicide and homicide victimization among household members: a systematic review and meta-analysis [published correction appears in Ann Intern Med. 2014 May 6;160(9):658-9]. Ann Intern Med. 2014;160(2):101-110. doi:10.7326/M13-1301
21. World Health Organization. (2020). COVID-19 and violence against women: what the health sector/system can do. World Health Organization. Retrieved from: https://www.who.int/reproductivehealth/publications/vaw-covid-19/en/
22. 2019-2020 Comparison of Criminal Offense Reports for the Weeks of April 6-12, April 13-19, April 20-26, April 27-May 3, May 4-10, May 11-17, May 18-24, May 25-31, June 1-7, June 8-14, June 15-21, June 22-28, and June 29-July 5. Washington Association of Sheriffs and Police Chiefs. Obtained directly via email correspondence.
23. U.S. Census Bureau. (2020). Community Resilience Estimate June 17, 2020. Retrieved from:https://www2.census.gov/data/experimental-data-products/community-resilience-estimates/2020/technical-document.pdf
24. Bonanno, G. A. (2004). Loss, Trauma, and Human Resilience: Have We Underestimated the Human Capacity to Thrive After Extremely Aversive Events? American Psychologist, 59(1), 20–28. https://doi.org/10.1037/0003-066X.59.1.20
25. Hobfoll, S. E., Watson, P. J., Bell, C. C., Bryant, R., Brymer, M. J., Friedman, M. J., Ursano, R. J. (2007). Five essential elements of immediate and mid-term mass trauma intervention: Empirical evidence. Psychiatry Interpersonal & Biological Processes, 70(4), 283-315.

26. Moore, K.A., Lipstich, D. P., Barry, J.M., and Osterholm, M.T. (2020) COVID-19: The CIDRAP Viewpoint Part 1: The Future of the COVID-19 Pandemic: Lessons Learned from Pandemic Influenza
27. Friends, relatives, sanity, and health: The costs of politics. Smith KB, Hibbing MV, Hibbing JR (2019) Friends, relatives, sanity, and health: The costs of politics. PLOS ONE 14(9): e0221870. https://doi.org/10.1371/journal.pone.0221870
28. Substance Abuse and Mental Health Services Administration. Behavioral Health Barometer: Washington, Volume 5: Indicators as measured through the 2017 National Survey on Drug Use and Health and the National Survey of Substance Abuse Treatment Services. HHS Publication No. SMA-19-Baro-17-WA. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2019.
29. Fran H., Norris, Matthew J., Friedman & Patricia J., Watson (2002) 60,000 Disaster Victims Speak: Part II. Summary and Implications of the Disaster Mental Health Research, Psychiatry, 65:3, 240-260, DOI: 10.1521/psyc.65.3.240.20169
30. Makwana N. (2019). Disaster and its impact on mental health: A narrative review. Journal of family medicine and primary care, 8(10), 3090–3095. https://doi.org/10.4103/jfmpc.jfmpc_893_19
31. Bonanno, G.A., Galea, S., Bucciarielli, A., & Vlahov, D. (2006). Psychological Resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. Psychological Science, 17(3): 181-6.
32. Bonanno, G.A., Brewin, C. R. Kaniasty, K. & LaGreca, A.M. (2010). Weighing the Costs of Disaster: Consequences, Risks, and Resilience in Individuals, Families, and Communities. https://doi.org/10.1177/1529100610387086
33. Cerdá, M., Bordelois, P. M., Galea, S., Norris, F., Tracy, M., & Koenen, K. C. (2013). The course of posttraumatic stress symptoms and functional impairment following a disaster: what is the lasting influence of acute versus ongoing traumatic events and stressors? Social psychiatry and psychiatric epidemiology, 48(3), 385–395. https://doi.org/10.1007/s00127-012-0560-3
34. Shaw, J. A., Espinel, Z., & Shultz, J. M. (2012). Care of children exposed to the traumatic effects of disaster. Arlington, VA: American Psychiatric Publishing.
35. Phillips, Julie A. "Suicide and the Great Recession of 2007–2009: The Role of Economic Factors in the 50 U.S. States." Social Science & Medicine. 116 (2014): 22-31.
36. Brown, E., & Wehby, G. L. (2019). Economic conditions and drug and opioid overdose deaths. Medical Care Research and Review, 76(4), 462–477. https://doi.org/10.1177/1077558717722592 20
37. Meadows Mental Health Policy Institute (2020). COVID-19 Response Briefing: Mental Health and Substance Use Disorder Impacts of a COVID-19 Economic Recession. Retrieved from: https://www.texasstateofmind.org/uploads/whitepapers/COVID-MHSUDImpacts.pdf
38. Facts and Figures Report – June 2020. Washington State Employment Security Department. Retrieved from: https://esd.wa.gov/labormarketinfo/facts-and-figures-report.

39. Alexander, A. C., & Ward, K. D. (2018). Understanding post-disaster substance use and psychological distress using concepts from the self-medication hypothesis and social cognitive theory. Journal of psychoactive drugs, 50(2), 177-186.
40. FY2020 and FY2019 Revenue Collected. Washington State Liquor and Cannabis Board. Obtained directly via email correspondence.
41. Center for Disease Control and Prevention. National Syndromic Surveillance Program. Indexed 'CDC Alcohol v1' query for counts of weekly alcohol-related emergency department visits in Washington State. Retrieved from ESSENCE platform on July 15, 2020.
42. U.S. Census Bureau. Household Pulse Survey Data Tables. Retrieved from: https://www.census.gov/programs-surveys/household-pulse-survey/data.html
43. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA: American Psychiatric Association, 2013
44. Harvard Medical School, 2007. National Comorbidity Survey (NCS). (2017, August 21). Retrieved from https://www.hcp.med.harvard.edu/ncs/index.php. Data Table 2: 12-month prevalence DSM-IV/WMH-CIDI disorders by sex and cohort.
45. Hasin DS, Sarvet AL, Meyers JL, et al. Epidemiology of Adult DSM-5 Major Depressive Disorder and Its Specifiers in the United States. JAMA Psychiatry. 2018;75(4):336–346. doi:10.1001/jamapsychiatry.2017.4602
46. Center for Disease Control and Prevention. 2018 Annual Surveillance Report of Drug-Related Risks and Outcomes. Retrieved from: https://www.cdc.gov/drugoverdose/pdf/pubs/2018-cdc-drug-surveillance-report.pdf
47. Washington State Department of Health, Center for Health Statistics, Death Certificate Data, 1990–2018, Community Health Assessment Tool (CHAT), October 2019.