

Alcohol and COVID-19: Behavioral and Biological Effects

By National Institute on Alcohol Abuse and Alcoholism (NIAAA)

During the course of the pandemic, researchers and scientists from across the biomedical spectrum have focused on the diverse health impacts of the novel coronavirus. For their part, alcohol researchers are investigating numerous ways that alcohol might affect COVID-19 risk and severity, as well as how the COVID-19 pandemic may influence alcohol consumption patterns and problems. These new studies will complement what scientists already know about alcohol's behavioral and biological effects.

Behavioral Effects During the Pandemic

Alcohol has long been known as a “social lubricant” that decreases the inhibitions people may have when interacting with others. It also impairs individuals' decision-making, threat detection, and impulse control, which may in turn impact adherence to COVID-19 prevention guidelines for physical distancing and mask wearing.

Researchers have also long known that stress can contribute to an increase in alcohol use among people who drink. Stress also increases the risk of relapse among people in recovery from alcohol use disorder (AUD). The pandemic has added new stress to many people's lives as a result of a wide range of factors, such as uncertainty about the future and feelings of isolation while physical distancing. Early evidence from surveys suggests that some people are drinking more, while others are drinking less, but of those individuals drinking more, stress was associated with increases in alcohol use. There are also signs that alcohol use increased among college students, particularly among those reporting higher levels of stress and anxiety.

The physical distancing that has been imposed during the pandemic may be particularly challenging for people who are suffering from or are vulnerable to AUD, since social isolation could serve as a source of stress that motivates drinking to cope. People in recovery from AUD are also challenged by physical distancing measures, since face-to-face therapy sessions and in-person mutual support group meetings that are often critical for successful treatment and recovery are unavailable to most people right now. As discussed below, options for one-on-one sessions through telehealth or participation in online mutual support groups are helping to address this significant treatment challenge.

Biological Effects During the Pandemic

It is possible that drinking excessively during the pandemic could interfere with the immune system, thereby increasing the risk of infection with SARS-CoV-2 (the virus that causes COVID-19) and worsening the prognosis. Alcohol misuse over the short-term—such as after an episode of binge drinking—can reduce the ability of the innate immune system, the first line of defense in the body for detecting and destroying foreign invaders, to fight infections. This impairment can make it easier to catch a cold or other virus. Long-term excessive drinking can lead to chronic systemic inflammation as well as an impaired ability to defend against infections.



In the lungs, excessive alcohol damages epithelial cells that line the lung surface and is associated with acute respiratory distress syndrome (ARDS), a potentially fatal lung condition that can require the use of a ventilator. Research prior to the pandemic suggests that alcohol misuse increases the risk of developing, and dying from, ARDS. Among patients who survive ARDS, a history of excessive alcohol use is associated with an increased duration of mechanical ventilation and prolonged length of stay in an intensive care unit (ICU). Ultimately, impaired immune system function and an increased susceptibility to respiratory illness could contribute to more severe COVID-19 symptoms and greater risk of mortality. Ongoing research will shed light on the potential role of alcohol misuse in COVID-19 susceptibility and severity.

Finding Help During the Pandemic

The recent approval of effective vaccines to prevent COVID-19 is a hopeful sign that better news about the pandemic is on the horizon. That said, adherence to public health measures such as wearing masks and social distancing will be necessary well into 2021, and face-to-face therapy sessions and in-person mutual support groups for people struggling with alcohol use problems or mental health challenges will likely remain unavailable for some time. Fortunately, telehealth appointments with clinicians and virtual mutual support group meetings have become important options during the pandemic and will continue to be a vital way to access treatment. The NIAAA Alcohol Treatment Navigator helps adults find telehealth and online support group meeting options for themselves or an adult loved one. Through this website, clinicians can access information to help their patients and clients in need of alcohol treatment.

Even as we turn the corner on the COVID-19 pandemic, understanding the short- and long-term health consequences of this pandemic will be crucial in helping us to be prepared for future public health crises.

References

- Rodriguez, L.M.; Litt, D.M.; and Stewart, S.H. Drinking to cope with the pandemic: The unique associations of COVID-19-related perceived threat and psychological distress to drinking behaviors in American men and women. *Addictive Behaviors* 110:106532, 2020. PMID: 32652385
- Lechner, W.V.; Laurene, K.R.; Patel, S.; Anderson, M.; Grega, C.; and Kenne, D.R. Changes in alcohol use as a function of psychological distress and social support following COVID-19 related University closings. *Addictive Behaviors* 110:106527, 2020. PMID: 32679435
- Fan, E.; Beitler, J.R.; Brochard, L.; Calfee, C.S.; Ferguson, N.D.; Slutsky, A.S.; and Brodie, D. COVID-19-associated acute respiratory distress syndrome: Is a different approach to management warranted? *The Lancet Respiratory Medicine* 8(8):816–821, 2020. PMID: 32645311
- Stevens, J.P.; Law, A.; Giannakoulis, J. Acute respiratory distress syndrome. *JAMA: The Journal of the American Medical Association* 319(7):732, 2018. PMID: 29466593
- Boé, D.M.; Vandivier, R.W.; Burnham, E.L.; and Moss, M. Alcohol abuse and pulmonary disease. *Journal of Leukocyte Biology* 86(5):1097–1104, 2009. PMID: 19602670
- Simou, E.; Leonardi-Bee, J.; and Britton, J. The effect of alcohol consumption on the risk of ARDS: A systematic review and meta-analysis. *Chest* 154(1):58–68, 2018. PMID: 29288645