

# Correlates of COVID-19 or Coronavirus Infection among individuals with Substance Abuse Disorder

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## Abstract

**Introduction:** Little is known about the novel coronavirus infection among individuals with substance abuse disorder. This review paper aims to discuss the correlates of COVID-19 also known as Corona virus infection among individuals with substance abuse disorder.

## Methods:

**Result:** Advanced age, comorbidities (type 2 diabetes mellitus, COPD, cardiovascular disease), smoking status, opioid and injection drug users, dysfunctional immune system

**Conclusion:** Individuals with Substance Abuse Disorder are associated with a higher risk of suffering from morbidity and mortality from COVID-19 infection

**Key Words:** COVID-19, Substance Abuse Disorder, Opioid, Alcohol, Addiction

## Introduction

Preliminary data reported to CDC by the 50 U.S. states and territories indicated that the potential risk factors in laboratory confirmed COVID-19 cases are chronic lung disease (inclusive of asthma, chronic obstructive pulmonary disease, and emphysema), diabetes mellitus, cardiovascular disease, chronic liver disease, immunocompromised condition, neurologic disorder, neurodevelopmental, or intellectual disability, pregnancy, current smoking status, former smoking status, or other chronic disease (CDC 2020)

As of July 15, 2020, U.S. states and territories have reported U.S. COVID-19 cases to CDC, including (5.8%)(cite reference).

Individuals with substance abuse disorder (SUD) especially those who smoke tobacco or marijuana or engage in vaping with underlying health conditions are also at risk for pulmonary infections arising from COVID-19 (NIDA, 2020). Individuals with SUD are more likely to be homeless or have lower socio-economic status with poor housing, suffer incarceration, reside in institutional facilities or overcrowded places and such poor living situations make them vulnerable for the spread of droplet infection and susceptible to COVID-19 infection. However, little is known about the sociodemographic and behavioral risk factors in individuals with SUD that predisposes them at risk for the novel coronavirus infection and complications arising from COVID-19. The goal of this review paper is to discuss the correlates of COVID-19 infection among individuals with substance abuse disorder.

**Methods:** A review of literature for published articles from online databases (PubMed, and Google scholar) was conducted from 2019-2020. Key words "COVID-19", "Coronavirus", "SARS-CoV2", "Pandemic", "Epidemic", "Addiction", "Opioid", "Alcohol", "Smoking", "Addiction Psychiatry", "Deaddiction", and "Substance

Abuse Disorder" were used. Full text articles in English language in Human subjects were included. The results yielded 68 articles. Few leading news reports related to COVID-19 and addiction have also been added where deemed appropriate. The articles and reports were reviewed one by one. Only selected articles (n=15) that were relevant to the topic and subheadings were included for this review.

## Results:

There exists a knowledge gap about the sociodemographic characteristics and correlates of COVID-19 infection among individuals with substance abuse disorder. A review of literature indicates primarily descriptive studies reporting the following probable characteristics that may predispose individuals with substance abuse disorder to COVID-19 infection.

**Older Age:** Older adults ( $\geq 65$  years) are at risk of getting severely ill from COVID-19 while the highest risk for severe illness from COVID-19 is among those aged 85 or older (CDC 2019). Approximately, 8 out of 10 COVID-19 deaths reported in the U.S. have been in adults 65 years and older (CDC 2019). Recent mortality statistics conducted during February 12 – May 18, 2020 as part of the case based surveillance conducted on 52,166 deaths from 47 states among individuals with laboratory-confirmed COVID-19 patients indicates that the case fatality rate was 42,528 (79.6%) in older adults  $\geq 65$  and increased as the age advanced [11, 245 (21.6%) among 65-74 years; 14, 148 (27.1%) among 75-84 years; and 16,135 (30.9%) among those  $\geq 85$  years old (Wortham et al. MMWR, CDC July 2020). The same study reported that males had a case fatality rate of 28,899 (55.4%) while females had a case fatality rate of 22,798 (43.7%) while other/unknown sex had 469 (0.9%).

A study comparing middle aged and elderly patients with COVID-19 infection reported that older adults are more susceptible to COVID-19 infection and are more likely to be hospitalized with a higher mortality rate (Liu et al., 2020). One possible explanation for why COVID-19 disproportionately affects older adults is that the age related physiological changes in older adults due to the changes in lung anatomy, altered muco-ciliary defense mechanism, reduction of airway clearance and lung reserve, muscle atrophy and underlying immune dysfunction could make them susceptible to COVID-19 infection (Mueller et al., 2020). Thus, older adults with substance abuse disorder need to follow preventative measures such as social distancing, wearing masks and other CDC guidelines to prevent the risk of suffering from severity of infection from COVID-19.

## Comorbidities:

Comorbidities are reported to be a significant risk factor for COVID-19 infection. Common comorbidities reported among laboratory confirmed COVID-19 patients are hypertension, obesity (BMI  $\geq 30$ ), type 2 diabetes mellitus, chronic obstructive

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pulmonary disease (COPD), cardiovascular disease, cerebrovascular disease, renal disease, autoimmune disease, immunodeficiency disease and malignancy (Richardson et al. 2020; Guan et al., 2020; Sanyaolu et al., 2020).

The most common symptoms reported are mild to moderate flu-like symptoms, fever more than 100 degrees fahrenheit, cough, chills, sore throat, headache, shortness of breath, wheezing, muscle ache, fatigue, unexplained loss of taste or smell, diarrhea, abdominal pain, chest pain, vomiting etc. (Guan et al., 2020; Sanyaolu et al., 2020; Huang C et al., 2020). Common mode of infection is through respiratory droplet or aerosol infection transmitted through coughing, sneezing, breathing, talking and close contact (Jayaweera et al., 2020; Zhang et al., 2020)

Clinical cause of death reported among documented comorbidities in hospitalized patients with COVID-19 are hypoxia, sepsis, respiratory failure, cardiovascular failure, septic shock, pulmonary embolism, pneumonia, acute respiratory distress syndrome (ARDS) and multiple organ dysfunction syndrome (MODS) (Elezkurta et al., 2020)

The exact mechanism of how comorbidities might contribute to the susceptibility and severity of COVID-19 infection among individuals with substance abuse disorder is not clearly understood. It is reported that individuals with SUD may be vulnerable due to the harmful effect of drugs on respiratory and pulmonary defense mechanisms (NIDA 2020). Thus, individuals with SUD who also have preexisting health conditions such as one or more comorbidities are at risk for COVID-19 infection.

Substance abuse: Individuals with substance abuse are at a greater.

**Bottom Note:** This work is going to present at the [3rd International Conference on Addiction Research and Therapy](#) on March 22 & 23, 2021 held in Amsterdam, The Netherlands

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