

Review Article

Effect of alcoholism against the SARS-Cov2-Covid-19 VIRUS

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Article Information:

Received: 05 March 2026 | Revised: 07 April 2026 | Accepted: 04 May 2026 | Published: June 04, 2026

Cite this article:

Sánchez Lorenzo NG, Torres Sabino MG, Vargas Cabrera Y, Reynoso Vázquez J, Flores Chávez OR, López Zermeño MC, Hernández Esparza LC, Negrete Rivera P, Izquierdo Vega JA, Serna Martínez MÁ, Pérez Becker D, Ruvalcaba Ledezma JC. Effect of alcoholism against the SARS-Cov2-Covid-19 VIRUS *Public Health Open Journal*. 11(1):560–564. <https://doi.org/10.17140/PHOJ.11.01.560>

Abstract

Alcoholism, a condition characterized by excessive and prolonged alcohol consumption, has numerous adverse health effects, which are exacerbated in the context of the SARS-CoV-2 pandemic. The relationship between alcohol consumption and susceptibility to COVID-19 is complex and multifaceted. First, alcohol weakens the immune system, reducing the body's ability to fight infections, which increases the risk of contracting severe respiratory illnesses such as COVID-19. Furthermore, chronic alcohol consumption can lead to underlying medical conditions, such as liver and cardiovascular diseases, which are known risk factors for developing severe COVID-19 complications. The behavior of people with alcoholism also contributes to a higher risk of exposure to the virus. People who abuse alcohol may have reduced adherence to preventive measures, such as social distancing and mask use, thus increasing the likelihood of infection. Likewise, alcohol consumption in public places or at social gatherings increases the probability of virus transmission. During the pandemic, stress and anxiety have led to increased alcohol consumption in some populations, exacerbating mental and physical health problems. This increase can create a vicious cycle where alcohol consumption and the risk of COVID-19 infection negatively reinforce each other.

Keywords: alcoholism, Effect of alcoholism, covid-19 virus, pandemic, impact.

Introduction

While alcohol can be consumed socially and in moderation, during the early stages of the pandemic, social media posts spread misinformation claiming that alcohol consumption could strengthen the immune system and protect against the virus [1]. This misinformation likely contributed to an increase in alcohol consumption. However, alcohol is a harmful substance that negatively impacts most of the body's organs, increasing the risk of health damage with each consumption [2]. Chronic consumption affects all components of the immune system [3]. Ethanol can strongly interact at different levels, affecting both innate immunity (phagocytosis, natural killer cells, complement) and, above all, adaptive immunity [4]. Numerous studies have shown that alcohol consumption causes a severe decrease in lymphocytes in both the short and long term [5], affecting the body's ability to fight disease by suppressing white blood cell function and triggering a chronic inflammatory response [6], with alterations observed in IgA and IgM immunoglobulins [7]. The WHO states that every drink consumed increases the risk of harm. Excessive alcohol consumption also increases the risk of developing acute respiratory distress syndrome [8]. It also affects cognition, perception of reality, and decision-making, which can lead to risky behaviors, such as failure to maintain physical distancing, noncompliance with hygiene guidelines, and increased social interactions thereby facilitating the spread of the virus [9].

General Objective

To analyze and evaluate the impact of alcohol consumption on individuals who use it as a protective measure against the SARS-CoV-2 virus (COVID-19).

Materials and Methods

A review study was conducted using the international PubMed database and CrossRef Metadata Search to analyze 14 articles published during the pandemic and research related to the effects of alcohol on the immune system. The following keywords and combinations were used: COVID-19, alcohol, immunity, alcohol consumption, and immune system; data from the National Health and Nutrition Surveys (Ensanut) for the years 2018 and 2020 were also used to determine the prevalence of current and excessive alcohol consumption among adolescents and adults during that period.

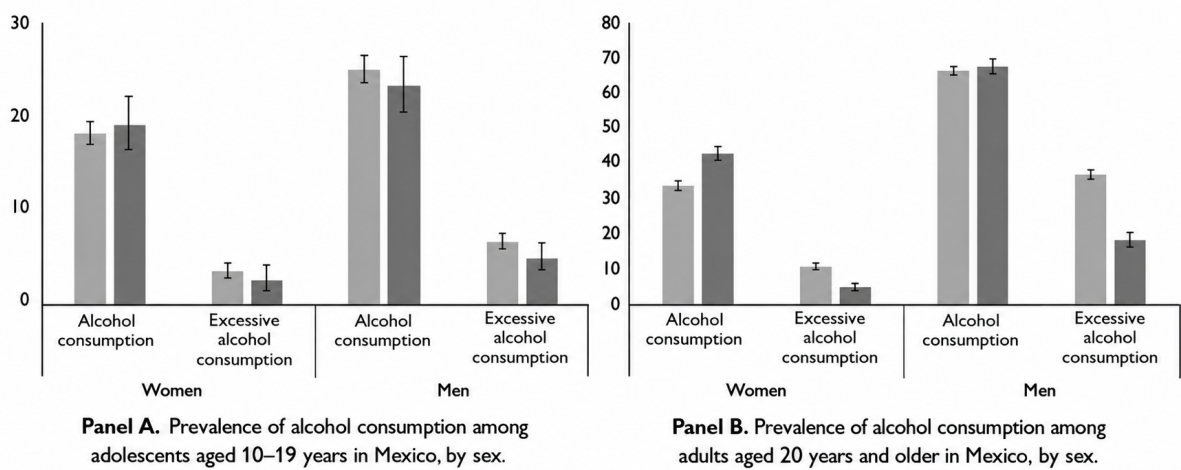
Results

A comprehensive analysis of 10 scientific studies on alcohol consumption during the pandemic revealed a sig-

nificant increase in alcohol intake, particularly among people with a pre-existing predisposition to alcohol abuse. Although some individuals reduced their consumption for financial reasons, a considerable portion of the population continued to consume large amounts of alcohol. The studies also highlighted that those who maintained or increased their alcohol consumption were at higher risk of contracting COVID-19, developing more severe symptoms of the disease, and experiencing multiple risks and negative effects on their health and immune system. Below are statistics illustrating the impact of alcohol consumption during the COVID-19 pandemic. These data provide a detailed overview of how the pandemic has influenced patterns of alcohol consumption. In Mexico, the prevalence of alcohol consumption among adolescents in 2018 and 2020 did not change significantly and remained above 20%: 21.7% in 2018 and 21.3% in 2020. In the analysis stratified by sex, no significant changes were observed between the two measurements, with rates of 18.3% and 19.2% among females in 2018 and 2020, respectively, and 25.1% and 23.4% among males (Figure 1, Panel A). No significant changes were observed in excessive alcohol consumption, which stood at 2.7% among women and 4.9% among men in 2020 (Figure 1, Panel A). Among adults, a significant increase in the prevalence of alcohol consumption was observed between 2018 and 2020. When stratified by sex, a significant increase in the prevalence of consumption was observed among women, rising from 33.5% in 2018 to 42.5% in 2020 (Figure 1, Panel B). The prevalence of consumption among men did not change significantly between the comparison years: 65.9% and 67.1% for 2018 and 2020, respectively (Figure 1, Panel B). Regarding patterns of excessive alcohol consumption, a significant decrease of approximately 50% was observed among both women (11.1% in 2018 and 5.5% in 2020) and men (from 36.7% to 18.3% for 2018 and 2020, respectively) (Figure 1, Panel B).

The Pan American Health Organization (PAHO) has made a technical tool available to countries that allows them to determine the percentage of the population with an underlying condition that could put them at risk of developing severe COVID-19. Table 1 shows the comorbidities on which this information is based, drawn from PAHO's own work and guidelines published by other organizations such as the WHO [11], in this table, alcoholism ranks tenth among the most common comorbidities.

On the other hand, the comprehensive report on COVID-19 from the Ministry of Health (the latest version available, with data as of February and published in March 2022) includes the distribution of comorbidities among



Source: Article “Changes in Alcohol and Tobacco Consumption Patterns Before and During the COVID-19 Pandemic. ENSANUT 2018 and 2020.” Available at: https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0036-36342022000200137

Table 1. Underlying health conditions associated with severe COVID-19

Comorbidity	
1. Cardiovascular disease	8. HIV/AIDS
2. Chronic kidney disease	9. Tuberculosis (active)
3. Chronic respiratory disease	10. Alcoholism
4. Chronic liver disease	11. Sickle cell disease
5. Diabetes	12. Smoking
6. Cancers with direct immunosuppression	13. Hypertension
7. Cancers with possible direct immunosuppression due to treatment	14. Severe obesity (body mass index greater than or equal to 40)

Source: Author’s elaboration using information from PAHO’s “COVID-19 and Comorbidities in the Americas,” published on February 10, 2021, Washington, D.C. Available at <https://iris.paho.org/handle/10665.2/53253> (accessed May 2022)

deceased individuals aged 60 and older. Figure 1 shows that alcoholism ranks tenth among the comorbidities associated with the highest number of deaths among older adults (11).

Discussion

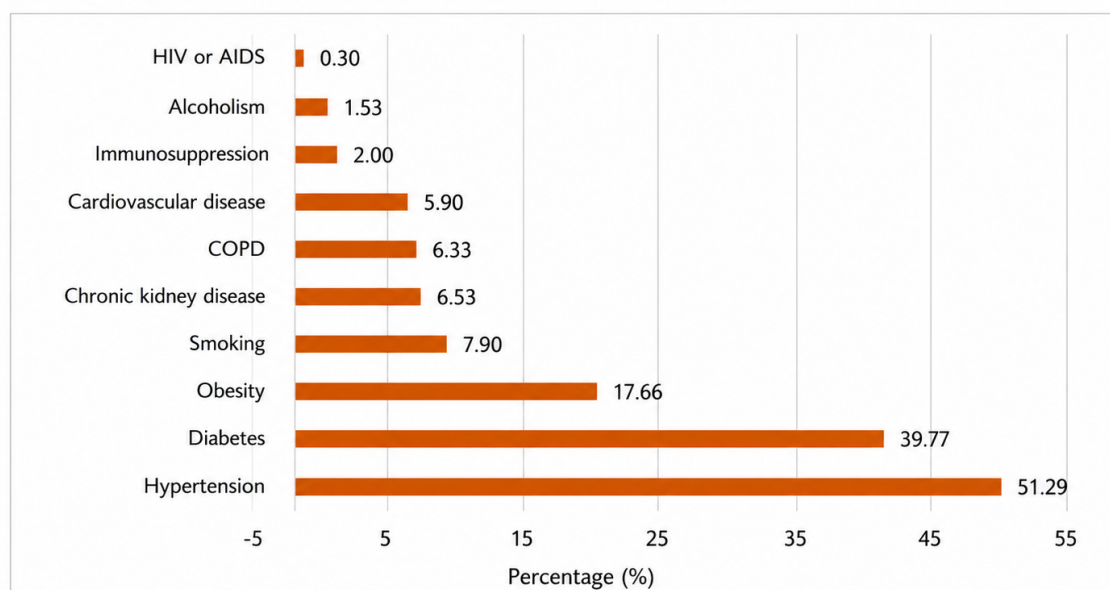
Alcohol consumption during the COVID-19 pandemic raises significant concerns due to its potential impact on public health and individual well-being. In addition to the traditional risks associated with excessive alcohol consumption, such as damage to the immune system and increased vulnerability to infections, alcohol-induced behavior can interfere with the adoption of preventive measures to reduce the spread of the virus [8] [9] [10] [11]. Limited access to alcohol due to government restrictions can have both positive and negative consequences, but it is crucial to address alcohol consumption from a public health perspective and promote awareness of the risks associated with its excessive use [8]. Furthermore, it is essential to ensure access to mental health services and treatment for

those experiencing alcohol-related problems during the pandemic. Ultimately, a comprehensive approach is needed to address the challenges posed by alcohol consumption during this unprecedented time [10] [11].

Conclusions

Alcoholism not only poses a threat to the physical and mental health of those who suffer from it, but it can also heighten the risks associated with COVID-19. From weakening the immune system to increasing susceptibility to respiratory infections and serious complications, the harmful effects of alcohol can exacerbate the impacts of the pandemic. Furthermore, drug interactions and additional mental health challenges further aggravate this situation. It is crucial to recognize the importance of seeking help to overcome alcoholism and taking preventive measures to protect oneself and others from the virus. Ultimately, addressing alcoholism not only benefits individual health but also contributes to the collective fight against the spread and devastating effects of COVID-19 [8] [10]. The frequency of

Figure 1. Distribution of accumulated confirmed disabilities in older adults by frequency of comorbidity (%)



Source: Own elaboration based on information from the Ministry of Health, "Comprehensive Report on COVID in Mexico", number 03-2022, February 9, 2022. Available at: https://coronavirus.gob.mx/wp-content/uploads/2022/02/Info-03-22-Int_COVID-19_16feb22.pdf (accessed: May 2022).

alcohol consumption was observed among young people and those with higher levels of education, but a risk associated with alcohol consumption was also identified [12]. Risk from alcohol consumption with negative consequences when contracting COVID-19 [12] [13] [14].

Acknowledgements: To my former students* who, during my Public Health classes, worked diligently on research projects that are now reflected in publications such as this one in the Bachelor of Medicine and Surgery program at the [UAEH] Autonomous University of the State of Hidalgo, Mexico.

Conflict of interest: The authors declare that there is no conflict of interest regarding the publication of this article.

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