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COVID-19 Forum: Transformation of Our World and Mental Health Promotion

THE INCIDENCE OF ALCOHOL USE DISORDERS DURING THE COVID-19 PANDEMIC

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SUMMARY

Background: *The COVID-19 pandemic has introduced a myriad of challenges to healthcare systems and public health policies across the globe. Individuals with alcohol use disorders are at peaked risk due to mental, socio-demographic, and economic factors leading to hindered mental health service access, misinformation and adherence.*

Methods: *Keywords including "alcohol use", "death", "hand sanitizer", "overdose" and "COVID-19" were used to obtain 8 media reports for case analysis. A review of 34 manually extracted records were also conducted using PubMed, MEDLINE, Scopus, and the Embase database with no time and language restrictions.*

Results: *A total of 2,517 individuals with alcohol overdose across the United States, India, Canada, and Iran were presented. The majority of cases were male, ages 21-65. Common contributors were linked to socio-economic changes, disruption to mental health services, and physical isolation.*

Conclusion: *While original studies are essential to evaluate the etiologies of alcohol use and misuse during pandemics, the dissemination of misinformation must be curbed by directing vulnerable individuals towards accurate information and access to mental health services.*

Key words: *alcohol use disorder - COVID-19 – misinformation – stigma - socioeconomic status*

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INTRODUCTION

The COVID-19 pandemic has introduced major challenges to healthcare systems and public health policies worldwide. Individuals with alcohol use disorders (AUD) are at risk due to various factors attributed to mental, socio-demographic, and economic conditions. Traditional difficulties regarding access to mental health services and adherence have worsened during this period, aggravating the situation. Alcohol is a psychoactive substance with dependence-producing properties that has been used in many cultures for centuries (World Health Organization 2018). Globally, over 2 billion people, (or around three in ten individuals) drink alcohol, resulting in 3 million deaths annually. This represents approximately 5.3% of all deaths (World Health Organization 2011, 2018). Females and males account for 2.2% and 7.1% respectively of the global burden of disease, with 5.1% due to the harmful use of alcohol. The 2018 National Survey on Drug Use and Health (NSDUH) found that 26,000 women and 62,000 men die from alcohol-related causes annually, identifying AUD as the third leading cause of death in the United States (National Institute on Alcohol Abuse and Alcoholism 2020). Alcohol has played a role in both recreational and for some, to relieve stress/insomnia, due to its inhibition of the nervous system (Chodkiewicz et al. 2020). However, when used in excess, alcohol can cause a myriad of physical and mental health issues. Especially in relation to addiction, global estimates suggest that approximately 107 million people suffer from AUD (Hannah & Max 2019).

The unprecedented lock down measures due to the spread of the COVID-19 pandemic enacted in many countries has resulted in nationwide lockdowns and social isolation, not experienced in recent history. A major challenge in these difficult times is addressing those who suffer from AUDs, as the consequences of quarantining, working from home, and coping with high stress and anxiety can lead to increased alcohol consumption and worsening outcomes (Wardell et al. 2020). In late March of 2020, alcohol sales in-store in the United States were reportedly increased by 54% as compared to the same time period last year, and online sales were increased by about 500% in late April (American Heart Association 2020). Similarly, in the United Kingdom, in-store alcohol sales increased by 31.4% in March (The Lancet Gastroenterology Hepatology 2020). In a poll of 2,200 adults in the U.S. in early April, 16% of adults stated that they were drinking more alcohol during the pandemic, with young adults

reporting increased intake (American Heart Association 2020). However, while media attention and public health initiative in AUD are focused on younger individuals, AUD among the elderly is often underdiagnosed and overlooked. A study identified that 10% (n=3954) of the elderly patients-ages 60 years and older-in primary care settings had evidence of current AUD but no such documentation existed in their medical records, raising the suspicion of therapeutic nihilism by healthcare workers (Callahan & Tierney 1995). On the other hand, the potential health benefits of alcohol have gained prominence in the last few decades. A Rotterdam study assessed light-to-moderate alcohol consumption in younger age groups and followed participants for an average of 6 years. Upon light-to-moderate alcohol consumption among 5395 participants, it was found that there was a 42% risk reduction in the incidence of any dementia in individuals aged 55 years and above, and a 71% risk reduction in vascular dementia (Ruitenberg et al. 2002).

SIGNIFICANCE OF ALCOHOL USE DISORDERS

It is particularly challenging to apply limitations to alcohol intake, given gender and age predilections, in addition to varying underlying diseases and sensitivity to the effects of alcohol (O'Connell et al. 2003). Various questionnaires are used to screen for AUD as well as biological screening measures including γ-glutamyltransferase (Ewing 1984, Saunders et al. 1993, Bernadt et al. 1982). The screening instruments and diagnostic criteria specified in diagnostic classification systems focus on ongoing AUD in individuals with limited ability to ascertain important patterns of alcohol consumption throughout different circumstances in the individuals` lives. Combined with the varying diagnostic criteria of AUD in previous diagnostic manuals, as much as 26.5% of adults aged 18 years and older engaged in binge drinking behaviors in 2018 in the last month whereas 6.6% disclosed being engaged in heavy alcohol use, reported by the NSDUH (National Institute on Alcohol Abuse and Alcoholism 2020). The cut-off for heavy alcohol use defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) is binge drinking on ≥ 5 days in the last month (National Institute on Alcohol Abuse and Alcoholism 2020). However, AUD and associated harm usually follows a linear pattern and cannot be determined using a specific cut-off. The United States takes both daily and weekly consumption into consideration that encompasses weekend binge-drinking when identifying low-risk or at-risk alcohol-related harm (Dawson 2011). Challenges of quantifying alcohol consumption due to underreporting in healthcare settings have hindered adequate diagnosis of AUD across different inpatient settings with recurring red flags including male gender, social isolation, and being isolated, separated, or divorced (Dawson 2011).

AUD is a chronic relapsing brain disease associated with the lack of ability to control alcohol use despite a myriad of social, professional, and health challenges and consequences with severity ranging from mild to severe. Earlier identified as two different disorders, alcohol abuse, and alcohol dependence, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), the American Psychiatric Association (APA) integrated the two disorders to AUD in DSM-V as mild, moderate, severe classes (American Psychiatric Association 2013, Saha et al. 2006). The removal of "abuse" in AUD from DSM-V has served to reduce the negative connotations and stigma associated with such terminology (Kelly et al. 2015). The following study explores 8 reports of AUD during the COVID-19 pandemic to extrapolate associated factors contributing to such behaviors in these cases.

METHODS

Using key terms including "alcohol use", "death", "hand sanitizer", "overdose" and "COVID-19, case reports were obtained from the Google search engine. Of 19 media reports initially obtained, only 8 from reputable international outlets were included in the analysis. Findings of the case analyses were tabulated according to the following variables: date of overdose, location, race/ethnicity, sample size, gender, age group, cause of overdose, and reporting source (Table 1). In addition, a review of 34 manually extracted records was conducted using the following databases: PubMed, MEDLINE, Scopus, and Embase. There was no restriction to time or language and select articles were summarized. The key areas of this review include misinformation, mental health aggravation, changes in socioeconomic status (SES), and lack of adequate responses at population-levels.

CASE ANALYSES

The total number of individuals who overdosed on alcohol reported in the studies were 2,517 across the United States, India, Canada, and Iran. Of the reports specified, the majority of the individuals were male and the age group was within 21-65 years. In the United States, 531 individuals died due to alcohol overdose with contributors including socioeconomic status changes, mental health disruption, and physical isolation from January till May 2020. While opioids were cited as the primary cause, all addictions including alcohol were identified in these individuals. In another report in the US, consumption of alcohol-based sanitizers leading to acute methanol poisoning was identified in 6 individuals, of whom 3 suffered from permanent vision loss between May till June 2020. In Canada, 911 individuals died due to alcohol overdose in 2020, until July. Factors associated with the sharp rise in alcohol overdose leading to death with demographic contributors including minority ethnic groups as well as physical isolation.

Table 1. Characteristics of the included cases

No	Date of overdose	Country	N	Gender	Age group	Cause of overdose	Comment	Reporting source
1	July 2020	India	10	Male (100%)	Not specified	All users were consuming a mixture of hand sanitizers, water, and soft drinks due to the unavailability of alcohol at local shops during physical isolation due to the COVID-19 lockdown. Reported individuals were alcohol- dependent and started consuming the mixture 10 days before they had died.	Death post-consumption of tainted alcohol is commonplace in India due to various home-brewed liquor cheap options as compared to official products. These concoctions typically contain methanol, a highly toxic form of alcohol, which may lead to blindness or death.	https://www.bbc.com/news/world-asia-india-53614343
2	May to June 2020	United States	7	Not specified	21 to 65	All individuals drank hand sanitizer containing methanol, linked to alcoholism causes.	Three individuals died, one became permanently blind, and three people were in critical condition after ingesting hand sanitizer with toxic chemicals.	https://edition.cnn.com/2020/06/27/us/new-mexico-hand-sanitizer-deaths-trnd/index.html
3	February to April 2020	Iran	700	Not specified	Not specified	Death was due to drinking toxic methanol as rumors spread that it cures COVID-19.	A 10-fold increase in alcohol poisoning was noted in Iran in the past year, amid the coronavirus pandemic. The Iranian health ministry stated that 5,011 people were poisoned from methanol alcohol, and around 90 people lost their eyesight or suffered eye damage due to alcohol poisoning. Methanol cannot be sensed in drinks and may lead to delayed brain or organ damage. Symptoms range from nausea, chest pain, hyperventilation, blindness, or coma.	https://www.aljazeera.com/news/2020/04/iran-700-dead-drinking-alcohol-cure-coronavirus-200427163529629.html
4	January to July 2020	Canada	911	Male (80%)	Not specified	COVID-19 pandemic and loneliness due to restriction of access to harm reduction services. The first driver to a high number of deaths was Fentanyl among all demographics. Opioids, cocaine, methamphetamine, and amphetamine were found among all who died of overdue during the pandemic.	A 93% increase in deaths among indigenous people was noted due to an illicit overdose from January to May. Indigenous people makeup 3.4% of the entire population in B.C., but accounted for 16% of the overdoses during the given time period. The rate was 5 times higher as compared to other residents. The first case of community transmission was noted in British Columbia on March 5, 2020. All documented deaths are due to overdose.	https://www.cbc.ca/news/canada/british-columbia/bc-overdose-numbers-july-2020-1.5698795

Table 1. Continues

No	Date of overdose	Country	N	Gender	Age group	Cause of overdose	Comment	Reporting source
5	January to May 2020	United States	531	Not specified	Not specified	Reported deaths were due to isolation, financial stress, or anxiety of illness. While opioids were a leading cause of death, all addictions were reported unanimously.	A 22% increase in deaths was noted from January to May 2020, as compared to the same five-month period in 2019.	https://www.nbcconnecticut.com/news/local/governor-to-hold-news-conference-on-addiction-overdoses/2324688/
6	February to March 2020	Iran	480	Not specified	Not specified	The misinformation of COVID-19 resulted in methanol consumption due to the belief that it was protective against COVID-19.	There have been mixed messages about the use of alcohol-based sanitizers, where some may incorrectly believe that high-proof alcohol could kill the coronavirus.	https://www.ctvnews.ca/health/nearly-500-people-dead-in-iran-after-drinking-methanol-to-fight-off-covid-19-1.4870674
7	April 2020	India	1	Male	35 years old	The individual drank an alcohol-based hand sanitizer and mixed it with water due to the lack of availability of alcohol locally.	There was a shortage of liquor due to the lockdown.	https://www.newindianexpress.com/states/tamil-nadu/2020/apr/11/coimbatore-man-dies-after-drinking-hand-sanitizer-as-alternative-for-alcohol-2128755.html
8	March 2020	Iran	30	Not specified	Not specified	The majority of the citizens who were reportedly dead drank substituted toxic methanol for ethanol and used bleach to mask the color. Rumors spread suggesting that spraying chlorine in alcohol could present the coronavirus from entering the body.	The state news agency reported that more people (N=30) died from alcohol overdose as compared to those that died from the coronavirus at the time (N=18).	https://www.usatoday.com/story/news/world/2020/03/10/44-dead-iran-drinking-toxic-alcohol-fake-coronavirus-cure/5009761002/

In India, a male died due to methanol consumption as a result of the lack of access to ethanol due to the COVID-19 imposed lockdown regulations in April 2020 during the initial stages of the pandemic. Another report in India in July 2020, identified 10 individuals who died due to methanol consumption, all of whom were male. The group of individuals was consuming a mix of hand sanitizers, water, and soft drinks due to the lack of availability of ethanol due to the COVID-19 imposed lockdown regulations. In Iran, 700 individuals died due to acute methanol poisoning due to the misinformation that it would cure COVID-19 between February and April 2020. A similar report of 480 individuals dying after consuming methanol between February and April 2020 was identified in Iran as well. In March 2020, a report of 30 individuals substituting ethanol for methanol and mixing it with bleach was also identified, in another area in Iran. The individuals assumed that mixing bleach in methanol would protect them from COVID-19 infection. The findings are summarized in Table 1.

DISCUSSION

To our best understanding, this is the first study exploring the links of the COVID-19 pandemic to alcohol use disorders with case analyses. The coronavirus disease (2019) (COVID-19) has brought to the forefront of various untold challenges to wide social and healthcare structures worldwide. Based on the exploration of vulnerable populations in the cases above, people who smoke, vape, use opioids, are misinformed and have AUD present with direct challenges to mental health and associated complications. Due to the impediments of care delivery in these groups, people with AUD may find it more troublesome to receive care. While the risk for severe COVID-19 and death is higher in the older age group, it is also present in those who are immune-compromised or have underlying respiratory disease. The latter includes chronic smokers (cannabis or tobacco) and persons with AUD. The risks of the ongoing pandemic to people with an already-existing AUD are indirect. These arise from factors such as misinformation impinging on the fear and panic of COVID-19 cures on social media. Quarantine has increased the burden of alcohol use and abuse due to the lack of observers who can reverse negative health behaviors likely to result in fatalities. People with AUD are already marginalized and underserved by health services in the U.S. and worldwide, adding to the existing stigma.

While scientific deliberation confirms that an addiction disorder arises in part due to alterations in the brain circuitry, healthcare workers may believe that alcohol addiction is due to the weak character and poor choices of the individual (Substance Abuse and Mental Health Services Administration 2016, Nyblade et al. 2019). With limited capacity in hospitals, AUD is a huge point of contention as it is being deprioritized amid the pandemic. It is pertinent that all healthcare workers do not discriminate against patients with AUD despite their ethnic, social, and economic backgrounds. The World Health Organization (WHO) stated that the "infodemic" pertaining to COVID-19 led to the stirring of rumors, theories, and cultural stigma contributing to injuries and deaths pertaining to alcohol misuse (World Health Organization 2020a). Reports indicate that mental health phone calls have exponentially increased to 800% whereas suicide rates have increased by 1000% (Valentic 2020). While reports have shown a rise in alcohol consumption during economic crises such as the 2007-2009 great recession, outcomes vary according to the financial status of the individuals (Bor et al. 2013). However, the COVID-19 pandemic transcends the events or crises witnessed as the multi-faceted pandemic impacts societal, political, geographical, economic, religious, cultural, and medical dimensions, thereby impacting every aspect of one's life (Jakovljevic et al. 2020).

Populations vulnerable to AUD are also those who are at risk of being heavily impacted by disruptions to care. Efforts to integrate AUD treatment with healthcare providers may help ensure the safety of these subpopulations. A multi-model approach linking social services and housing programs is necessary given the unstable employment prospects to avoid further adverse outcomes including loss of housing, jobs, and food insecurity. Given the immediate need to curb the ongoing rise in the AUD burden, emergency pathways through health insurance waivers, and social services are required. The COVID-19 pandemic began at a time when the burden of AUD was alarmingly high in the United States, with nearly 14.4 million adults and 401,000 adolescents having AUDs in 2018 (SAMHSA 2018). Communities across the world have faced disruptions to normal routines and adjustments to daily life as measures to curtail virus transmission went into effect; combined with an atmosphere of uncertainty about what the future will bring and if this will continue to be a new normal, stress and tension have been rampant. As many transitioned to working from home instead of in a regular workplace, anxieties surrounding this sudden and dramatic change became an additional stressor.

Another factor to consider is the isolation and disconnection from others brought about by necessary social distancing measures, exacerbating feelings of loneliness and anxiety for those who lived alone (Wardell et al. 2020, Campbell 2020). Rising numbers of unemployment due to the pandemic resulted in many people experiencing income loss, which is associated with increased alcohol use (Wardell et al. 2020). Most of the population found themselves suddenly cut off from their places of worship, regular counseling services, and recreational spaces, places that are typically used for coping with stress and that serve as a support system; these spaces and resources may be closed or have limited access for longer durations in this situation than with past crises (Campbell 2020). In a

survey conducted in Poland that looked at alcohol use in physicians who were quarantined, an increase in moderate and heavy drinking was observed, and 60 out of 117 responding physicians stated that their alcohol consumption had increased (Silczuk 2020). Overall, the most common reasons given had to do with anxiety and stress regarding health and also feeling helpless and worried about the future (Silczuk 2020).

Acute methanol poisoning due to alcohol-based hand sanitizer consumption

Understandably, elevated levels of fear combined with the rapid spread of misinformation via social media platforms created a very dangerous myth that drinking high-strength ethyl alcohol i.e. ethanol could kill or mitigate the COVID-19 virus (World Health Organization 2020b). In addition, in the U.S., circulating misinformation regarding the protective effects of disinfectants as a possible treatment contributed to adverse health behaviors. In multiple countries, the reporting of consumption of alcohol-based hand sanitizers began to crop up; Fifteen cases of methanol poisoning due to the consumption of alcohol-based hand sanitizers were seen in Arizona and New Mexico in the United States in June, including four fatalities (Yip et al. 2020). Individuals who have an underlying history of alcohol use disorder may be encouraged to consume alcohol-based sanitizers with fatal outcomes due to the lack of interchangeability between methanol and ethanol for consumption (Yip et al. 2020). A 44-year old male was diagnosed with methanol poisoning after complaining of sudden-onset visual impairment after consuming an unknown amount of alcohol-based hand sanitizer. The patient suffered severe morbidity after acute methanol poisoning and was diagnosed with irreversible near-total vision loss (Yip et al. 2020). In India, an article reported 9 people who died from consuming alcohol-based hand sanitizer as a replacement for alcohol in the midst of strict lockdowns and restriction of access to actual alcohol (Deutsche Welle 2020). In Iran, methanol poisoning from illicit forms of alcohol (such as homemade or bootleg solutions) has been a public health concern for years, but the problem was exacerbated during the pandemic with heightened fear and misinformation, as well as increased access to alcohol-based hand sanitizer - there was a significant increase in methanol-related mortality in the early stages of the pandemic (Shokoohi et al. 2020).

Contributors to alcohol use and abuse in the COVID-19 pandemic

Changes in the socioeconomic status (SES) are associated with increased alcohol consumption, intoxication, and consequences as observed previously in severe economic crises. Losing a job or a house is observed to have negative alcohol-related consequences (Collins 2016). Racial Ethnic characteristics also contribute to the increased alcohol dependence and abuse with Blacks and Hispanics more likely than Whites to be directly impacted with economic loss (Zemore et al. 2013). Additional contributors that are not easily ascertained such as social support systems also contribute to alcohol abuse when experiencing SES changes (Murphy et al. 2014).

A survey conducted in China assessed 1074 people using the pre-validated Beck Anxiety Inventory (BAI), Beck Depression Inventory-II (BDI-II), Alcohol Use Disorder Identification Test (AUDIT), and Warwick Edinburgh Mental Wellbeing Scale (WEMWBS). Of the 1074 participants, mild, moderate, and severe anxiety was self-reported by 10.1% (n=108), 6.0% (n=64), and 12.9% (n=139) respondents, which was associated with the physical isolation during the COVID-19 pandemic. Nearly a third of the participants (37.1%, n=398) reported depression of which 9.1% (n=98) was severe (Ahmed et al. 2020). Additionally, heavy alcohol consumption was found in 29.1% (n=313) participants with a significantly higher burden in Hubei province as compared to other provinces. Gender contributions were prominent with males having a six times higher likelihood of alcohol abuse during the pandemic (Ahmed et al. 2020). Higher burden of anxiety, depression, and lower mental well-being in individuals aged 21-30 could be associated with the demonstration of the vulnerability during the COVID-19 pandemic (Ahmed et al. 2020). The findings do not corroborate with previous literature reporting that the burden of anxiety- related problems is nearly double that of men (McLean et al. 2011).

Multiple entities, including the WHO, Center for Disease Control and Prevention (CDC), and the National Institute on Alcohol Abuse and Alcoholism (NIAAA), have released statements and informative communications regarding alcohol use, excessive drinking, and the relation to COVID-19, especially in terms of potential increased susceptibility, with the hopes of combating misinformation (World Health Organization 2020c, Macmillan 2020). Regardless of these public health guidelines and measures, people still continue to misuse alcohol leading to health concerns. Identification of vulnerable groups requires a robust analysis of individual- level factors including social support, sociodemographic features, and psychological contributors (Collins 2016). To reduce the negative consequences of alcohol misuse, ensuring access to mental health services and counseling platforms for vulnerable groups are of the essence.

Trends of Alcohol Use and Outcomes in Infectious Disease Outbreaks

During and after prior infectious disease outbreaks and other public health crises, including the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 and the Middle East Respiratory Syndrome (MERS) outbreak in 2015, studies showed significant ramifications for mental health in both the general population as

well as health workers, with impacts that lasted for years (García-álvarez et al. 2020). A study that looked at the mental health of first responders three years after the SARS outbreak in Beijing found that those who had quarantined or had exposure to SARS patients in the workplace had significant associations with alcohol abuse or dependence later on (Wu et al. 2008). Similarly, the early phase of the H1N1 pandemic also reported deaths due to heavy alcohol consumption. However, discrepancies were observed on the role of alcohol as a contributor to mortality during the acute infectious stages (Cui et al. 2010, Greenbaum et al. 2014). While excessive consumption of alcohol was not associated with mortality, there were reports which linked heavy use of alcohol with higher rates of mortality (Mukhopadhyay et al. 2010, Pabst et al. 2011). A murine model of influenza viruses, however, identified the contributory role of chronic ethanol consumption over 8 weeks to promote T-cell induced enhancement of the pulmonary lesion severity (Meyerholz et al. 2008). Nevertheless, the association of chronic alcohol consumption and immunity may require further epidemiological exploration (Wiwanitkit et al. 2016).

The Ebola outbreak in Uganda in 2000 was accompanied by two parallel processes, one being infection control and another being social responses (Kinsman 2012). Misinformation contributed to the psychological health of the impacted communities, especially the patients and front-line healthcare workers (HCWs) (Kinsman 2012). Similarly, HCWs were reportedly "alarmed and panicked" in Maridi Hospital in Sudan during the second Ebola outbreak in 1976. With 61 of the 154 nursing staff at the hospital having contracted Ebola of whom 33 had died, the ensuing adverse mental health outcomes were expected (Team R 1978). Many HCWs quit their jobs when approximately 25% of the 315 Ebola cases constituted them in Kikwit, Zaire, during the 1995 Ebola epidemic (Khan et al. 1999). Other social implications were the stigma associated with HCWs as carriers of the Ebola virus and reports of HCWs being stoned were also identified (Guimard et al. 1995). The aftermath of previous outbreaks and the subsequent impact on people's mental health and overall well-being were observed for years following the events (García-Álvarez et al. 2020).

The COVID-19 pandemic is unprecedented in terms of scope, consequential measures, and the number of people affected and as such, the long-term effects on mental health and substance abuse disorders remain to be seen; the results could reverberate through communities for a long time. Studies suggest that COVID-19 related stressors and mental distress are steadily related to alcohol misuse; a study that looked at 754 adult participants in the U.S. assessed the number of typical and peak drinks as well as the frequency of drinking and heavy drinking episodes in relation to stress and anxiety caused by COVID-19, evaluated via a survey (Rodriguez et al. 2020). They found that psychological distress due to COVID-19 was significantly related to higher numbers of maximum drinks imbibed, drinks imbibed on a typical occasion, and the number of drinking days (Rodriguez et al. 2020). Predictions suggest that alcohol over-consumption could increase in the coming months and the incidence of alcohol use disorder could increase, especially with the non-availability of specific approved treatment for SARS-CoV-2 (Wardell et al. 2020, Clay et al. 2020).

CONCLUSION

Social isolation could be a major risk factor for alcohol misuse. While social distancing measures are important due to the ongoing pandemic situation, promoting virtual online meetings could be beneficial against isolation. Moreover, efforts to promote telemedicine could be made especially for those currently undergoing treatment for AUD. A global response to promote mental health is warranted. The limitations in our study such as limited available published data cannot be overlooked. Larger studies are necessary in order to evaluate the association of alcohol misuse and COVID-19, mainly focusing on if the complexities of quarantine and social isolation have contributed to AUD.

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