



Substance Use in Healthcare Professionals During the COVID-19 Pandemic in Latin America: A Systematic Review and a Call for Reports

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ABSTRACT

BACKGROUND: The COVID-19 pandemic has generated a remarkable change in the behaviour of Healthcare workers (HCWs) around the world. However, there is a lack of evidence on substance use among HCWs in Latin America. Therefore, this study aimed to determine the current frequency of substance use among Latin American among HCWs.

METHODS: We searched 8 databases (PubMed, Scopus, ScientDirect, Web of Science, Cochrane, Scielo, LILACS and Latindex), 4 public prepublication servers (SocArXiv, medRxiv, bioRxiv and Preprints) and Google scholar from 1/9/2019 to 11/1/2021. We determined the frequency of each study based on original studies, scientific letters, and clinical trials in English, Spanish and Portuguese.

RESULTS: A total of 17 175 study articles were identified from electronic databases and preprints, and 2 cross-sectional studies conducted in 2020 were included in the qualitative analysis. Both studies included HCWs but did not perform a differential analysis. The first was developed by the Pan-American Health Organization and included interviewees from 35 countries, while the second was conducted with 1145 Brazilian participants. Both studies showed increases in substance use during the pandemic, with alcohol being the most commonly used substance (30%), but PAHO's study reported a 13.8% increase in self-reported heavy-episodic drinking, with differences among genders (males, 15.4%), age groups (highest increase in the 40-49 age group, 16.5%) and area of residence (urban with 14%). The second study showed that 21 32% of participants reported initiating psychoactive substance use, 29.3% added some substance to their initial use and 4% of them had to replace the substance, mainly due to difficulty of access. Other substances of abuse that showed significant increases were tobacco (0.5%) and marijuana (0.3%).

CONCLUSION: Overall, despite the analysis of the 2 studies, the results provided are not a conclusive description of the frequency of substance use by HCWs in Latin America during the COVID-19 pandemic. Further research is required to understand the impact of the pandemic on drug abuse in the region.

PROTOCOL REGISTRATION: The protocol has been registered on 30 November 2021 on the International Prospective Register of Systematic Reviews (PROSPERO) with ID: CRD420212919700.

KEYWORDS: Substance abuse, COVID-19, health professionals, alcohol, cannabis, Latin America

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Introduction

Since the emergence of COVID-19 as a global threat, governments around the world have implemented and strengthened their health systems.¹ Pandemic containment activities have included increasing public spending, prioritising COVID-19, and strengthening health systems in terms of diagnosis, treatment, and monitoring, and developing research and technological innovation.²⁻⁴

Healthcare professionals (HCWs) have been the main actors during the lockdown as the lives of many patients

depended on their daily actions and their extreme responsibility for care.⁵ The difficulties posed by the COVID-19 lockdown have not only resulted in a poor response with high mortality rates, but they have also influenced HCWs' mental health, with increasing levels of anxiety, depression, fear and stress.⁶⁻¹⁰

Substance abuse in HCWs have emerged as consequences of the impact of COVID-19.¹¹ Due to intense work, fatigue, trauma, sleep deprivation and deprivation of social relationships, many HCWs have modified their lifestyles, leading to



substance abuse.¹² Although the current evidence is unclear, it is possible that many regions covered by violence and drug trafficking, such as Latin America, may have a larger population accessing these practices.¹³ This scenario may be aggravated during the pandemic as alcohol sales have increased.¹⁴ Substance abuse and alcoholism are 2 phenomena that affect all dimensions of HCWs' quality of life,^{15,16} leading to reduced assertiveness on patient management and reduced quality of care.

During the COVID-19 epidemic, we conducted a systematic review to determine the frequency of substance use among Latin American HCWs.

Methods

Registration

The protocol of this systematic review has been registered on the International Prospective Register of Systematic Reviews (PROSPERO) with ID: CRD420212919700.

Study design, data sources and search strategy

This review follows the reporting guidelines specified in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement.¹⁷ We searched 8 databases (PubMed/MEDLINE, Scopus, ScienDirect, Web of Science, Cochrane, Scielo, LILACS and Latindex), 4 public prepublication servers (SocArXiv, medRxiv, bioRxiv and Preprints) and Google scholar from 1/9/2019 to 1/11/2021.

The database search strategy was carried out using Boolean descriptors with a combination of keywords and subject headings. We identified publications using the terms (((Substance Use OR Drug Use Disorders) OR (Alcohol Dependence OR Alcoholism OR Alcohol Addiction)) AND (Healthcare Providers OR Healthcare Worker)) AND (COVID-19 OR SARS-CoV-2)) AND (Latin America))) and the corresponding Spanish and Portuguese translations. The handsearch was performed on the reference lists of included studies between November 2nd and November 9th, 2021, when studies meeting the inclusion criteria were identified.

Inclusion and exclusion criteria

The included studies included met the following criteria: (i) HCWs from any Latin American country; (ii) original studies (prospective or retrospective), clinical trials, narrative reviews, case-control studies, perspectives and scientific letters; (iii) articles in English, Portuguese and Spanish; and (iv) studies, directly and indirectly, examining substance use or substance use disorder during the pandemic. Reflection articles, position papers, systematic reviews, meta-analyses and editorial letters (correspondence) were excluded. In addition, studies were not considered if their sample was not restricted to HCWs from Latin America with documented substance use and if they

examined these characteristics before the COVID-19 emergency status (since the declaration of emergency or since case report zero) in each country.

Screening study, data extraction and analysis

Abstracts were independently screened by 2 authors (JMS and AJQ) and excluded if they did not meet the inclusion criteria. Under the defined protocol, the 2 authors also reviewed the full text for inclusion in the final analysis. The 2 authors solved disagreements by consensus at each stage of the review.

Data extraction, quality assessment and data analysis

For data extraction, a template developed by the team based on CASPe (Critical Appraisal Skills Programme) was used to capture the desired information from systematic reviews.¹⁸ The risk of bias was assessed for each study using the Cochrane risk of bias tool,¹⁹ with studies that did not report estimated rates of substance use being considered at high risk of confounding. Two authors (JMS and HCP) independently conducted the risk of bias assessment. Also, disagreements were resolved by consensus. MS-Excel 2013 (Microsoft Corp., Redmond, Washington) were used for data management and SPSS version 23.0 (IBM, Armonk) for descriptive statistical analysis.

Results

Search results

The database search yielded 17175 records, removing 3101 duplicates. examfull-text articles and excluded 197, resulting in a total of 2 articles included for qualitative synthesis (Figure 1). The 2 independent reviewers had 'substantial agreement' in both phases of study selection according to a kappa statistic (kappa = .72 for abstract screening and kappa = .79 for full-text review) (Figure 2).²⁰

Characteristics of the studies

The 2 studies indirectly assessed substance use from 2 different perspectives. The study by Valente et al,²¹ is a study conducted by the Pan American Health Organization (PAHO) that included participants surveyed from 35 Latin American or Caribbean countries and who had not travelled outside of their country since March 15. They used the 'Alcohol Use during the COVID-19 Pandemic in Latin America and the Caribbean' questionnaire that assessed sociodemographic characteristics, quarantine features, episodic alcohol use and anxiety symptoms. The study by Weber et al,²² has been conducted on 1145 Brazilian participants, applying a survey designed to study demographic, mental health and substance abuse characteristics. Both studies were cross-sectional and carried out in 2020. Although both studies assessed substance

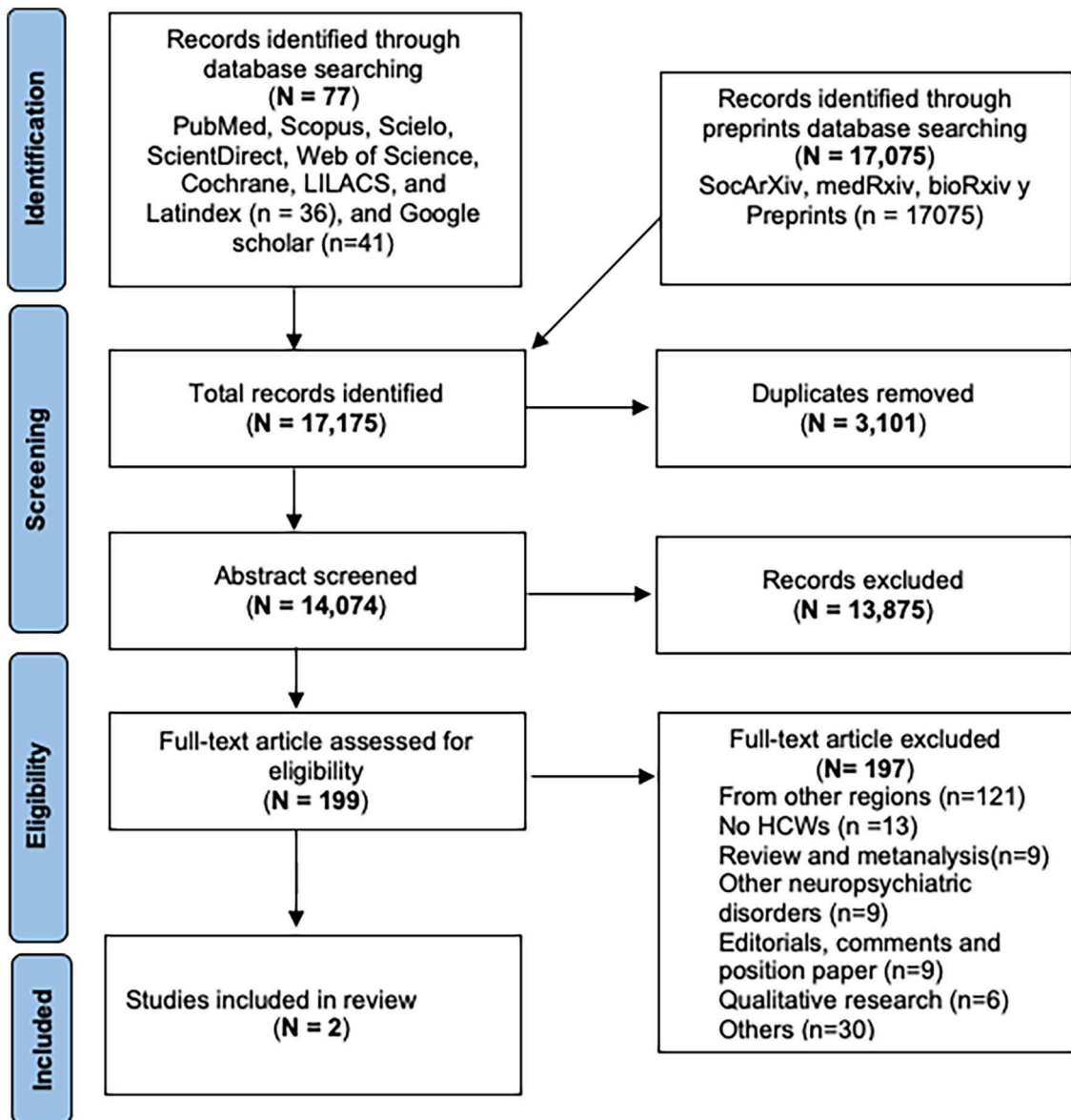


Figure 1. PRISMA flow chart diagram describing selected studies for systematic review of substance abuse in healthcare professionals during the COVID-19 pandemic in Latin America.

		Risk of bias					
		D1	D2	D3	D4	D5	Overall
Study	Valente (20)						
	Weber (21)						

D1: D1
D2: D2
D3: D3
D4: D4
D5: D5

Judgement
 Unclear
 Low

Figure 2. Bias assessment of included studies.

use in the general population, they have included HCWs as part of the subgroup of workers. Although the studies have not directly estimated substance use among HCW's their

results can be interpreted for all population groups evaluated, including HCWs. Table 1 shows the characteristics of the studies included in this study.

Table 1. Summary of the characteristics of the included studies.

STUDY/REF	YEAR	SAMPLE	COUNTRIES	STUDY TYPE	SURVEY	QUESTIONNAIRE	ITEMS	SHARED BY
Valente (20)	2020	9554	LAC	Cross-sectional	Online and face-to-face	Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean	55	PAHO's communication platforms***
Weber (21)	2020	1145	Brazil*	Cross-sectional	Online	Own**	34	WhatsApp, Facebook and Instagram

Abbreviation: LAC, Latin American or Caribbean countries or territories; Ref, reference.

*98.7% from Brazil. **Managed via GoogleForm. ***Facebook, Twitter, the Pan American Network for Alcohol and Public Health (PANNAPH), Healthy Caribbean Coalition, Healthy Coalition of Latin America and PAHO staff.

Table 2. Baseline of substance use changes in Latin America Healthcare workers. The results demonstrate that there have been changes in alcohol consumption where most of the HCWs have ceased alcohol consumption. However, the Valente study reported a significant 13.8% increase in heavy episodic drinking in the general population (n=9554). Data in N (%).

SUBSTANCE		STUDY/REFERENCE	
		VALENTE (20)	WEBER (21)
Alcohol	Stopped	3189 (33.38)	146 (12.8)
	Increased	1318 (13.8)	15 (1.3)
	<i>P</i> -value	<.001	<.001
Tobacco	Stopped	–	46 (4.0)
	Increased	–	6 (0.5)
	<i>P</i> -value	–	<.001
Marijuana	Stopped	–	30 (2.6)
	Increased	–	4 (0.3)
	<i>P</i> -value	–	<.001

Substance use

Both studies showed increases in substance use during the pandemic, with alcohol being the most commonly used substance (Table 2). Both studies assessed alcohol use. However, the study by Valente et al,²¹ only assessed heavy episodic drinking. This study showed a 13.8% increase in self-reported heavy episodic drinking during the COVID-19 pandemic, and also reported significant differences between genders (increase in males and females of 15.4% to 12.8%, respectively), age groups (highest increase in the 40-49 age group, 16.5%) and area of residence (urban with 14%). The multivariate analysis of Valente et al²¹ showed a positive association between self-reported heavy episodic drinking with high income (more than 11 wages; aOR [adjusted Odd Ratio] 1.64, 95% CI 1.35; 1.99), being a man (aOR 1.29, 95% CI 1.13; 1.49) and higher levels of self-reported quarantine practices (aOR 1.10, 95% CI 1.04); and was inversely associated with not working (aOR 0.78, 95% CI 0.64; 0.96), and living with children (aOR 0.91, 95% CI 0.84; 0.99).

During the pandemic, according to Weber et al,²² 32% of participants reported initiating psychoactive substance use, 29.3% added some substance to their initial use, 4% of them had to replace the substance, mainly due to difficulty of access and 52.3% did not plan to stop substance use. Interestingly, 1.3% of respondents ($P < .001$) reported self-initiated initiation of alcoholic beverage use during COVID-19. Other substances of abuse that showed significant increases were tobacco (0.5%) and marijuana (0.3%), and the use of LSD, MDMA or MD during the pandemic showed a significant reduction ($P = .008$).

They also showed that the frequency of use and the number of doses of psychoactive substances changed negatively after the pandemic. Increased substance use was more common among participants who consumed more than 3 times a week and among those who consumed 6 or more doses per day. Participants highlighted that they do not believe that substance use is out of their control (75.8%), and they do not think it is hard to be without any of these substances (59.4%).

Discussion

This systematic review showed that few studies responded to the main objective. Only 2 studies sum up the available published literature on the frequency of substance abuse in HCWs in Latin America during the COVID-19 pandemic, showed that around a third continued or increased substance use. The publications reveal an area of research that requires a detailed study in HCWs, given the social impact of the current pandemic, the confinement measures, and the health response to SARS-CoV-2, as the studies presented provided a general overview of substance use without focussing their analysis on HCW outcomes.

The results of the qualitative review demonstrated significant changes in substance use in HCWs, with alcohol use being the most commonly used substance (Increase of heavy episodic drinking in 13.8% and start of alcoholic beverage consumption in 1.3%).^{21,22} These results are endorsed by the findings of Martinez-Velez et al,²³ in Mexico and Brotto et al,²⁴ in Canada, which showed an increase in substance use during the pandemic, being alcohol the principal substance. The rise of alcohol sales during the pandemic¹⁴ and the vulnerability of

HCWs⁶⁻⁹ may be factors that have influenced access to and consumption of alcohol. Thus, alcohol abuse may impact the development of COVID-19, affecting the immune response and disease progression.^{12,25} These complications could drastically affect the health threshold of HCWs as they are exposed to stressful environments, risk of contagion, neuropsychological conditions, and high occupational demands and exhibit increased vulnerability.

It has been suggested that confinement measures can lead to aggravated substance abuse in various age groups.²⁶ Latin American populations have suffered profoundly from the SARS-CoV-2 outbreaks, heading the world in infection and mortality rates by weeks worldwide.²⁷ Several countries in the Americas region have had extensive quarantines that have generated economic problems, mental health illness and high mortality rates due to a lack of health response to the demand for daily infections. This epidemiological, social, and economic landscape is a mosaic where substance use can strengthen due to COVID-19 and threatens a progressive increase in substance abuse. According to the latest United Nations Office on Drugs and Crime (UNODC) report in a general non-pandemic scenario, low- and middle-income countries are most at risk of increasing substance abuse by 2030 by 43% to 10%, respectively.²⁸

On the other hand, previous studies have conducted extensive population-based assessments of substance use and have demonstrated changes in substance use during the lockdown but have not reported the frequency of use in HCWs and whether these were included in the analysis.^{23,29,30} That could be due to a low frequency of research framing the study of substance abuse in HCWs, as a recent review found only 3 studies on substance abuse during COVID-19, and none of these was conducted in Latin America.³¹ These facts may explain the low amount and limitations of the available scientific evidence on substance use in HCWs during the COVID-19 pandemic.

Similarly, mental health interventions have not prioritised substance abuse and alcoholism in HCWs during the COVID-19 pandemic.³² Also, national and international investments in technological innovation has not prioritised substance abuse research in Latin America, even though millions of dollars have been invested in the development of rapid response projects.^{4,33,34} As long as health stakeholders, political leaders and clinical practice managers do not highlight substance abuse as part of the scientific priorities in every Latin American country, HCWs will be threatened by substance use without control and prevention measures.

Other frequently used substances were tobacco and cannabis, which showed increases during the pandemic in line with other studies.^{35,36} In Latin America and the Caribbean, the UNODC report detailed that between 2010 and 2019, cannabis and cocaine were the major substances of abuse.²⁸ It is

necessary to understand the link between cocaine and marijuana use and HCWs, because certain characteristics may lead to more frequent use of these substances, depending on the profession and medical speciality.

In addition, cannabis use is associated with poor quality of life, which is worsened when more psychoactive substances (such as cocaine and alcohol) are added.³⁷ The results of this study indicate that substance use and doses have increased and may affect the quality of life of HCWs in Latin America who exhibit vulnerabilities during the pandemic.³⁸

This study has limitations. First, the results did not directly assess substance use in HCWs, so they cannot be entirely consistent. Second, according to the presentation of the 2 included studies, assessment by profession, speciality, working time and countries could not be conducted. Further studies are required to understand substance use in each subgroup. Third, to our knowledge, this is the first study on substance use in HCWs during the COVID-19 pandemic, so we did not obtain numerous studies for an appropriate meta-analysis to better understand the phenomenon. Finally, although we included meta-search engines and preprints that improved the number of studies evaluated,³⁹ it is possible that grey literature was not included. This may represent a small part of the evidence that could improve the results of this review.

Conclusion

The literature available so far provides an inconclusive portrait of the frequency of substance use in Latin American HCWs during the COVID-19 pandemic. The studies included in the analysis showed indirect evidence on the dose, type and frequency of substance use. However, the low number of studies focussing on this topic reveals an area in need of research and the possibility to bridging the gap on problematic substance use and related harms by targeted studies.

Author Contributions

JMS originally designed a systematic review and meta-analysis. JMS, AJQ, NZ, EAB and ILLB equally contributed to study searching and selections, quality assessment, data extraction and analysis. JMS, NZ, KCF, BC and HCP contributed to writing the manuscript and all authors read and approved the final manuscript.

Availability of Data and Material

All relevant data are within this paper. If further data are needed, it could be accessed from the first author upon request via e-mail: jeel.moya@gmail.com or jeel.moya@uwiener.edu.pe

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