



Original Research

Impacts on anxiety symptoms and alcohol consumption among people with disabilities and family caregivers in Latin America and the Caribbean during the first wave of the COVID-19 pandemic

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ARTICLE INFO

Article history:

Received 29 December 2021

Received in revised form

6 June 2022

Accepted 23 June 2022

Available online 30 June 2022

Keywords:

Alcohol

Anxiety

COVID-19 pandemic

ABSTRACT

Objectives: The aim of this study was to analyse associations between the COVID-19 pandemic, alcohol consumption and anxiety symptoms among people with self-reported disabilities and family caregivers in Latin America and the Caribbean.

Study design: Cross-sectional study with secondary data analysis of the 'Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean', a Web-based cross-sectional survey conducted by the Pan American Health Organisation between March and June 2020.

Methods: Descriptive analyses were conducted on the individual, social environment characteristics, COVID-19 infection, quarantine compliance, anxiety symptoms (measured by Generalized Anxiety Disorder Scale [GAD-7]) and change in frequency of heavy episodic drinking during the pandemic. Multinomial logistic regression was used to analyse associations among individuals with self-reported disabilities with anxiety symptoms and change in frequency of heavy episodic drinking during the pandemic.

Results: Family caregivers were more compliant with COVID-19 restrictive measures than individuals with and without disabilities. The majority of participants with disabilities did not change their drinking patterns during the pandemic (64.3%); however, 28.1% reported increased consumption. People with disabilities were 2.17 times more likely to have severe anxiety symptoms than no anxiety symptoms between March and June 2020 in Latin America and the Caribbean.

Conclusions: This study observed a higher prevalence of the maintenance of heavy episodic drinking behaviour during the early phase of the pandemic in people with disabilities and family caregivers than in people without self-reported disabilities in Latin America and the Caribbean. People with disabilities showed more severe anxiety symptoms than those without disabilities, highlighting the need to develop inclusive health and quality-of-life policies to mitigate the effects of the pandemic in this vulnerable population.

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Introduction

The emergence of a new variant of the coronavirus, SARS-CoV-2, has resulted in a global pandemic, altering habits and customs in all populations.¹ Although the COVID-19 pandemic poses a threat to

all, some population groups are at increased risk, including people with disabilities.² Individuals with disabilities experience the so-called 'triple jeopardy' of COVID-19 (i.e. more severe outcomes, limited access to health care and rehabilitation, and social barriers stemming from measures to isolate and mitigate the transmission of SARS-CoV-2).³ For example, the hearing impaired face great difficulties communicating because of the required use of face masks, making lip reading impossible;⁴ the visually impaired rely on touch for their daily activities, exposing them to more sources of contamination;^{2,5} those with cognitive disabilities may have difficulties in understanding the pandemic, hindering care and

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protocols against SARS-CoV-2 infection;^{2,6} and many kinds of disabilities are at a particularly high risk of decreased psychosocial well-being during the pandemic.⁷

The most severe COVID-19 outcomes, including death, are more prevalent in people with disabilities because this population already manifests several comorbidities that are risk factors for severe COVID-19, such as cardiac malformations, respiratory diseases, obesity and innate metabolic problems.^{2,8–10} Evidence shows that Down syndrome is one of the most important clinical risk factors for severe COVID-19 outcomes, even 14 days after the complete vaccination schedule (a 12.7-times increase).¹⁰

The impact of COVID-19 on people with disabilities is so important that the World Health Organisation (WHO) proposed the 'Disability considerations during the COVID-19 outbreak' in March 2020.² The report raised considerations and measures to ensure access to health, water, sanitation services and adequate public health information for this vulnerable population during the COVID-19 outbreak, because of their higher risk of severe outcomes. A rapid review of the impacts of the pandemic on people with physical disabilities highlighted the difficult access to health services and the lack of contextual research, urging the scientific community and policymakers to conduct studies to decide on health access and public health measures in future health crises for people with disabilities.¹¹

Health, socio-economic and social participation disparities evidenced during the COVID-19 lockdown suggest a lack of inclusive responses for people with disabilities, exacerbating prepandemic inequalities and potentiating structural disadvantages.¹² Low- and middle-income countries, such as Brazil, are home to about 80% of the poorest and most socially vulnerable people with disabilities in the world.¹² Moreover, people with disabilities show a higher prevalence of mental health disorders than people without disabilities, and these disorders are highly aggravated by psychosocial stressors, such as public health emergencies, natural disasters and social vulnerabilities, including poverty.^{13–17}

The COVID-19 pandemic increased stress levels for people with disabilities who may resort to misguided coping strategies, such as substance use (e.g. alcohol, tobacco and other drugs).^{18,19} Alcohol is a prominent coping strategy for stress caused by the pandemic. However, studies have shown the association of alcohol consumption with increased anxiety, depression and sleep alteration; thus, worsening the initial stressful situation.²⁰

Owing to all the alcohol-related issues seen at the beginning of the pandemic in 2020, the Pan American Health Organisation (PAHO) conducted the 'Alcohol Use survey during the COVID-19 pandemic in Latin America and the Caribbean'.¹⁹ Results showed that during the pandemic, 32% of participants reported at least one occurrence of heavy episodic drinking;¹⁹ quarantine as a result of the pandemic appears to impact drinking behaviour and anxiety symptoms,²¹ with an increased frequency of self-reported heavy episodic drinking among males.^{22,23}

As people with disabilities show a higher prevalence of mental health disorders than people without disabilities, and family caregivers experience greater stress and reduced employment and income during the pandemic, this study hypothesised that the drinking behaviour of these individuals also changed during the early phase of the pandemic. This study hypothesised that stress and isolation have functioned as significant triggers for alcohol use among these population groups. Thus, this study seeks to analyse associations between the pandemic, alcohol consumption and anxiety symptoms among people with self-reported disabilities and family caregivers in Latin America and the Caribbean between March and June 2020. In addition, this study aims to assess a possible change in the frequency of heavy episodic drinking and anxiety symptoms among people with disabilities and family

caregivers in Latin America and the Caribbean during the first wave of the COVID-19 pandemic.

Methods

Study design and setting

This study used secondary data analysis of the 'Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean', a Web-based cross-sectional survey conducted by PAHO.¹⁹ The survey covered 33 countries and two territories in Latin America and the Caribbean. An online questionnaire was anonymously answered by participants between 22 May and 30 June 2020. Eligibility was defined as individuals aged ≥ 18 years, living in one of the 35 Latin American or Caribbean countries or territories, who remained in their country since 15 March 2020. Electronic consent was provided by participants before questionnaire completion, and they were informed that they could withdraw from the survey at any moment without providing any justification. This study was approved by the Ethics Review Committee of PAHO.

Self-reported disability

The self-reported disability variable was collected via a single question: 'Do you or any child or adult you live with have a physical, mental or intellectual/developmental disability?' (Yes, I do; Yes, a child or adult; No).

Characteristics of the individual, social environment and health

The following variables were analysed: self-reported socio-demographic characteristics (sex, age [18–29, 30–39, 40–49, 50–59 and ≥ 60 years]); region (Andean [Bolivia, Colombia, Ecuador, Peru, Venezuela], Mesoamerican [Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama], Southern Cone [Argentina, Brazil, Chile, Paraguay, Uruguay], Non-Latin Caribbean [Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Curaçao, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago]); education attainment (under high school, high school diploma or above); employment (unemployed, employed, student or retired); ethnicity (White, Black, Indigenous and mixed/other/not sure); marital status (married/with a partner, divorced/separated/widowed and never married); COVID-19 infection; quarantine compliance; anxiety symptoms; and change in frequency of heavy episodic drinking during the pandemic.

The income variable was extracted from the following question: 'What was the total monthly household income you and other members of your household received in the year ending 31 December 2019? Please include income from all sources such as savings, pension, disability benefits, social security, rent, informal work and insurance as well as wages'. Results were reported in number of minimum monthly wages. The minimum wage was the measure used for all countries, as the amount established by the government as the minimum salary paid for one month of full-time work. All countries in the Latin America/Caribbean use this measurement, so the total monthly income from the household (all members together) in number of minimum monthly wages was requested. Then, income bands were classified into those receiving less than 1 minimum salary wage, 1–4 wages, 5–10 wages, 11–20 wages and >20 wages.

The engagement of participants in social distancing as a consequence of the COVID-19 pandemic was assessed by data related to the quarantine compliance, based on the WHO's

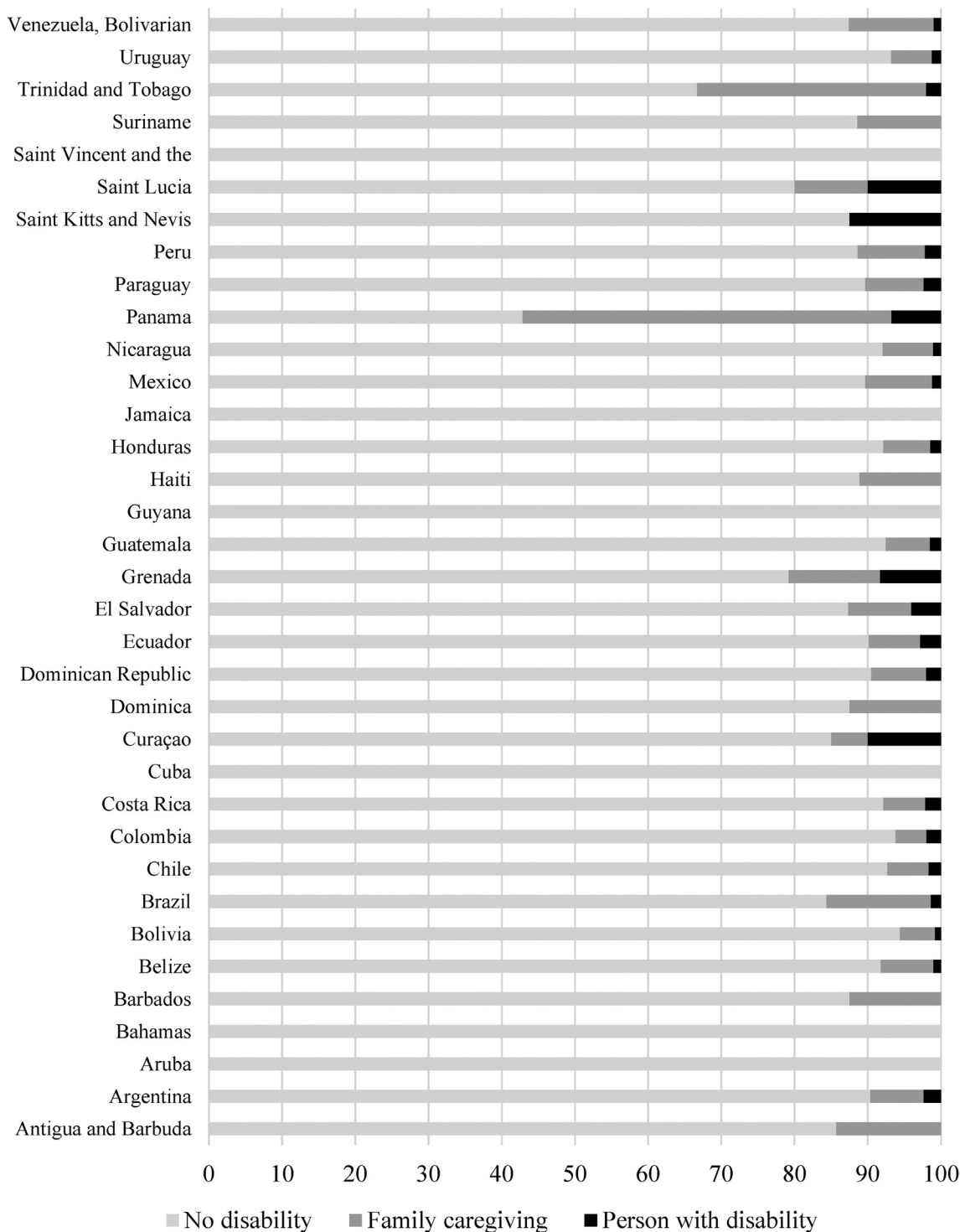


Fig. 1. Distribution of self-reported disability during the pandemic. Data from the ‘Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean’ survey from the PAHO, 2020.

preventive measures against the spread of COVID-19.²¹ For the affirmative category, we included those who answered one or more of the following statements: working/studying from home, asked to stay in isolation at home after travelling overseas, staying in isolation at home, quarantined to a hotel room and isolated people within home. For the negative category, we included those who responded that they had not taken any precautionary measure and those who only answered ‘avoiding public transport and social

gatherings’ or ‘home-schooling children/keeping pre-school children home from daycare’.

Anxiety symptoms were assessed via the seven-item Generalised Anxiety Disorder Scale (GAD-7).²⁴ Participants were asked to rate the severity of seven anxiety symptoms they experienced over the 2 weeks before answering the questionnaire. The GAD-7 score is calculated by assigning scores of 0, 1, 2 and 3, corresponding to the ‘not at all’, ‘several days’, ‘more than half the days’ and ‘nearly

Table 1
Individual and social environment characteristics during the pandemic according to self-reported disability.^c

Characteristic	No disability (%) [88.2% (n = 10,873)]	Family caregivers (%) [10.1% (n = 1242)]	People with disabilities (%) [1.7% (n = 213)]	P-value ^b
Region ^a				<0.001
Andean	22.8	15.1	25.4	
Southern Cone	41.1	51.3	37.6	
Mesoamerican	33	29.3	32.4	
Non-Latin Caribbean	3.1	4.4	4.7	
Sex				<0.001
Male	35.1	26.8	26.7	
Female	64.9	73.2	73.3	
Age in years (mean)				<0.001
18–29	30.1	24.2	29.6	
30–39	29.9	25	29.6	
40–49	20.5	23.1	16.4	
50–59	12.9	16.8	16	
≥60	6.7	11	8.5	
Education attainment				0.091
Under high school	2	1.5	3.9	
High school or above	98	98.5	96.1	
Income				<0.001
<1 wage	16.4	12.8	25.1	
1–4 wages	32.8	25.9	38.3	
5–10 wages	23	23.1	16.4	
11–20 wages	14.8	16.5	9.3	
>20 wages	13.1	21.7	10.9	
Employment				<0.001
Unemployed	13	13.4	14.1	
Employed	74.7	71.8	63.9	
Student	8.9	10.6	11.7	
Retired	3.4	4.3	10.3	
Ethnicity				<0.001
White	40.7	51.1	37.5	
Black	4.2	4.1	4.9	
Indigenous	1.5	1.6	0.5	
Mixed/Other/Not sure	53.6	43.2	57.1	
Marital status				0.342
Married/With a partner	53.6	53.4	46.3	
Divorced/Separated/Widowed	12.7	13.6	14.3	
Never married	33.7	33	39.4	

Data from the ‘Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean’, survey from the PAHO, 2020 (n = 12,328).

^a Andean (Bolivia, Colombia, Ecuador, Peru, Venezuela); Mesoamerica (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama); Southern Cone (Argentina, Brazil, Chile, Paraguay, Uruguay); and Non-Latin Caribbean (Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Curaçao, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago).

^b Chi-squared test for categorical variables.

^c From March to June 2020, during the pandemic.

every day’ response categories, respectively. Scores were then added for the seven questions. GAD-7 total score for the seven items ranges from 0 to 21. Scores of 5, 10 and 15 represent cut-off points for mild, moderate and severe anxiety, respectively.

The self-reported change in heavy episodic drinking during the COVID-19 pandemic in 2020, as defined by Valente et al.,²² was analysed and classified as: no change, increased and decreased.

Statistical analyses

Descriptive analyses were conducted on the individual, social environment characteristics, COVID-19 infection, quarantine compliance, anxiety symptoms and change in frequency of heavy episodic drinking during the pandemic. Comparisons were conducted using Pearson's Chi-squared (χ^2) test. All *P*-values <0.05 were considered to be statistically significant. A multinomial logistic regression was used to analyse associations among self-reported disability according to anxiety symptoms by GAD-7 and change in frequency of heavy episodic drinking during the pandemic. Associations with a *P*-value <0.2 in the univariate analyses were incorporated into the multinomial logistic regression via forward selection. The magnitude of the associations was estimated using odds ratios and their respective 95% confidence intervals.

Results

Fig. 1 shows the distribution of the 12,328 participants according to self-reported disability and countries surveyed. Among participants, 10.1% reported being family caregivers and 1.7% reported having a disability. Regarding socio-economic characteristics, there was a higher prevalence of Southern Cone residents in all three population groups (i.e. ‘No disability’, ‘Family caregiver’ and ‘People with disabilities’). Regarding gender, female participants were more prevalent in all three population groups, although the percentage in the ‘No disability’ group was less than the ‘caregiver’ and ‘People with disabilities’ groups. The most frequent age group of participants was the 30–39 years age group, although this age group was less prevalent in the ‘family caregivers’ population. The majority of participants worked were of Mixed/Other/Not Sure ethnicity and received 1–4 wages per household. Family caregivers were the most frequent earners of >20 wages per household (Table 1).

Regarding quarantine compliance, family caregivers were more compliant with COVID-19 restrictive measures than people with and without disabilities. The majority of participants with disabilities did not change their drinking patterns during the pandemic (64.3%); however, 28.1% reported increased alcohol consumption,

which is a higher percentage than reported by family caregivers and those without disabilities (Table 2).

In the multivariate multinomial logistic regression, according to anxiety symptoms (with 'no anxiety symptoms' as the reference), people with disabilities were positively associated with moderate and severe anxiety symptoms in the unadjusted model. After adjustment for quarantine compliance, sex, age, income, employment and marital status, the association remained for severe anxiety symptoms. In this case, people with disabilities were 2.17 times more likely to have severe anxiety symptoms than no anxiety symptoms (Table 3). Regarding the change in heavy episodic drinking, the multinomial logistic regression (with 'no change' as the reference) showed a negative association with increased consumption among family caregivers, in the unadjusted model, which was not maintained after adjustment (Table 4).

Discussion

To the best of the authors' knowledge, this is the first study to evaluate anxiety symptoms and change in the frequency of alcohol consumption during the pandemic using self-reports from people with disabilities and family caregivers. Regarding quarantine, family caregivers were more compliant than people with and without disabilities. The majority of participants with disabilities did not change their drinking patterns during the pandemic (64.3%); however, 28.1% reported increased alcohol consumption, which is a higher percentage than reported by family caregivers and those without disabilities. People with disabilities were 2.17 times more likely to have severe anxiety symptoms than no anxiety symptoms between March and June 2020 in Latin America and the Caribbean. Moreover, people with disabilities showed the lowest income and labour market insertion.

Results show that family caregivers complied more often with quarantine measures than other population groups in this study. It is important to note a higher prevalence of older and unemployed adults were seen in the family caregivers and people with disabilities groups. It has been shown that family caregivers report the loss of a child with disability as one of the most painful experiences for their families. In this context and with the additional fear of

contamination by COVID-19, aggravated by frustration, boredom, insufficient medical care and inadequate information,² this may explain the higher prevalence of compliance with quarantine measures and social isolation in this population group. Moreover, decreased access to treatment for patients with mental health disorders, difficulty in obtaining medication, economic problems, unemployment, bankruptcy, mourning and general uncertainty about the future in low- and middle-income countries add to the lack of infrastructure and the loss of social rights resulting from the pandemic crisis, which may have increased with the requirement for social isolation.^{12,13}

A study conducted in Australia²⁵ showed that 75% of family members and/or caregivers reported that the pandemic affected their well-being, hindering mental and physical health and worsening financial problems. According to the authors, confinement and balancing work, family and children with specific needs led to a 'triple jeopardy' situation. However, the authors also observed positive coping strategies, such as establishing domestic routines, behavioural strategies to support the development of their children or practicing exercises, meditation and social support,² which is in line with the results of the present study. Among the people surveyed by the PAHO, family caregiving was a protective factor against an increasing frequency of heavy episodic drinking.

Other consolidated evidence shows that families and informal caregivers suffered disproportionate burden and stress in addition to reduced employment and income, exacerbating socio-economic disparities.¹³ In the UK, there was a five-fold increase in severe anxiety and a two-fold increase in major depression rates among parents caring children with intellectual disabilities.²⁶ In this context, alcohol emerges as an inadequate self-medication in coping with emotional overload.

Over the years and in various social groups, alcohol has been shown to be not only a recreational substance but also a pharmacological strategy to reduce anxiety and depression.²⁸ However, if used repeatedly, alcohol aggravates anxious episodes, triggering the development of severe anxiety and alcohol dependence.²⁸ Results of the current study show the maintenance of heavy episodic drinking, reinforcing that, in general, alcohol consumption patterns remained unchanged in many population groups, which is in line

Table 2
COVID-19, quarantine compliance, anxiety symptoms and change in frequency of heavy episodic drinking during the pandemic according to self-reported disability.^b

Characteristic	No disability (%) [88.2% (n = 10,873)]	Family caregivers (%) [10.1% (n = 1242)]	People with disabilities (%) [1.7% (n = 213)]	P-value ^c
COVID-19				0.671
Positive	18	18.1	17.8	
Negative	8.9	9.3	6.1	
Not tested	73.1	72.6	76.1	
Quarantine compliance ^a				<0.001
No	29	19.5	30.7	
Yes	71	80.5	69.3	
GAD-7				0.005
No	37.1	36.9	28.6	
Mild	36.5	35.2	33.8	
Moderate	14.7	16.5	18.8	
Severe	11.8	11.4	18.8	
Any use of alcohol during pandemic (yes)	66.3	63.8	51.2	<0.001
Change in frequency of heavy episodic drinking during pandemic				0.043
No change	61.2	65.2	64.3	
Increased	27.5	24	28.1	
Decreased	11.4	10.9	7.6	

Data from the 'Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean', survey from the PAHO, 2020 (n = 12,328).

^a Constructed using questions on precautionary measures. For the affirmative category, we included those who answered one or more of the following statements: Employed/studying from home, asked to stay isolated at home after travelling overseas, isolated at home, quarantined to a hotel room, and isolated people within homes. For the negative category, we included those who responded that they had taken no precautionary measure and who only answered 'avoiding public transport and social gatherings' or 'home-schooling children/keeping pre-school children home from daycare'.

^b From March to June 2020, during the pandemic.

^c Chi-squared test for categorical variables.

Table 3
Association between self-reported disability and anxiety symptoms by Generalised Anxiety Disorder Scale (GAD-7) during the pandemic.^{a,b}

Population group	Anxiety level											
	Mild				Moderate				Severe			
	UnOR (95% CI)	P -value	AdOR (95% CI)	P -value	UnOR (95% CI)	P-value	AdOR (95% CI)	P -value	UnOR (95% CI)	P -value	AdOR (95% CI)	P -value
No disability												
Family caregivers	0.97 (0.84–1.11)	0.674	0.93 (0.79–1.10)	0.456	1.13 (0.94–1.34)	0.172	1.12 (0.90–1.39)	0.286	0.97 (0.80–1.19)	0.815	0.99 (0.77–1.27)	0.987
People with disabilities	1.20 (0.85–1.69)	0.297	1.29 (0.84–1.96)	0.218	1.65 (1.10–2.47)	0.014	1.11 (0.63–1.94)	0.707	2.06 (1.37–3.07)	0.000	2.17 (1.32–3.55)	0.002

AdOR, adjusted odds ratio; CI, confidence interval; UnOR, unadjusted odds ratio.

Data from the 'Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean', survey from the PAHO, 2020 (n = 12,328).

^a From March to June 2020, during the pandemic.

^b Multinomial logistic regression with 'No anxiety symptoms' as reference. Model adjusted by: Quarantine compliance, Sex, Age, Income, Employment and Marital Status.

Table 4
Association between self-reported disability and self-reported change in Heavy Episodic Drinking during the pandemic.^{a,b}

Population group	Change in heavy episodic drinking							
	Increased				Decreased			
	UnOR (95% CI)	P-value	AdOR (95% CI)	P-value	UnOR (95% CI)	P-value	AdOR (95% CI)	P-value
No disability								
Family caregivers	0.82 (0.73–0.94)	0.008	0.88 (0.74–1.04)	0.153	0.89 (0.73–1.09)	0.293	0.93 (0.74–1.17)	0.553
People with disabilities	0.97 (0.70–1.35)	0.871	0.95 (0.64–1.39)	0.795	0.63 (0.36–1.10)	0.109	0.72 (0.38–1.37)	0.324

AdOR, adjusted odds ratio; CI, confidence interval; UnOR, unadjusted odds ratio.

Data from the 'Alcohol Use during the COVID-19 pandemic in Latin America and the Caribbean', survey from the PAHO, 2020 (n = 12,328).

^a From March to June 2020, during the pandemic.

^b Multinomial logistic regression with 'no change heavy episodic drinking' as reference. Model adjusted by: Quarantine compliance, Sex, Age, Income, Employment and Marital Status.

with several other studies with data from the pandemic in 2020.^{29,30}

Results should be analysed carefully as there are some limitations to the present study. This study was conducted between March and June 2020, at the beginning of the pandemic and at the time when the most strict lockdown rules were in place; thus, results may not represent changes in behaviour that occurred in subsequent months. In addition, self-reporting of disability is a weak instrument because it may be impacted by information bias and the study did not request type of disability information from participants. Self-reported data are subject to recall bias, especially for questions about past behaviour and alcohol consumption, with participants possibly underestimating heavy episodic drinking measures. In addition, it is important to consider that the title of the research survey (i.e. 'Alcohol use during the COVID-19 pandemic in Latin America and the Caribbean') may have potentially introduced a bias in the study, reducing the probability of participation of individuals who do not drink alcohol. Finally, the study participants were recruited online and it may misrepresent the general populations, favouring individuals with access to the internet and electronic equipment.

Conclusions

As hypothesised, this study observed a higher prevalence of the maintenance of heavy episodic drinking behaviour during the early phase of the pandemic in people with disabilities and family caregivers than in people without self-reported disabilities in Latin America and the Caribbean. The majority of participants with disabilities did not change their drinking patterns during the pandemic (64.3%); however, 28.1% reported increased consumption. People with disabilities showed more severe anxiety symptoms than those

without disabilities, highlighting the need to develop inclusive health and quality-of-life policies to mitigate the effects of the pandemic in this 'triple jeopardy'² population.

Author statements

Ethical approval

This study was approved by the Ethics Review Committee of Pan American Health Organisation.

Funding

The study received regular Pan American Health Organization (PAHO) funds to implement technical cooperation activities (PI: Dr Monteiro).

Competing interests

None declared.

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