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ORIGINAL ARTICLE

Remote Screening for Alcohol, Smoking, and Substance Involvement by Sex, Age, Lockdown Condition, and Psychological Care-Seeking in the Primary Care Setting during the COVID-19 Pandemic in México

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Abstract
The COVID-19 pandemic has created a psychoactive substance use crisis in many countries, including México. Remote valid tools to identify high-risk groups in need for treatment are a prerequisite for cost-effective interventions in primary care settings. To determine the validity and correlates of the remote applications of the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) with sex, age, and psychological care-seeking, offered remotely in primary settings, during the COVID-19 pandemic in Mexico, a total sample of 19,109 Mexicans, with an average age of 34.38 years ($SD = 12.28$, *range* = 18–80), 65.8% of whom were women ($n = 12{,}578$), 29.6% in lockdown (5,660), 39.8% in partial lockdown (7,611), 30.60% not in lockdown (5,838), and 14.75% of whom were seeking psychological care ($n = 2{,}819$), completed ASSIST through a programmed Web application. The dimensionality of the scale to verify construct validity evidence was achieved through a confirmatory factor analysis model (CFA). We represented the distribution of subjects by sex, age, lockdown condition, and psychological care-seeking, based on their lifetime consumption in 2021. We also compared the total distribution by consumption risk level and recommended type of intervention, psychological care-seeking, and age. The tool included ten dimensions (one for each substance, such as tobacco use), confirmed through the CFA. In general, our findings indicated that men reported high lifetime psychoactive substance use and risky drug use levels. A high percentage of 18 to 19-year-old women reported lifetime tobacco and alcohol use. Additionally, a high number of all-age women reported lifetime sedative and opioid use. Also, a high proportion of partially lockdown participants reported lifetime drug use. Moreover, a high percentage of subjects seeking psychological care were at a moderate and high risk of drug use, which required brief or intensive treatment. Our findings indicate that it was possible to validate the factor structure of the programmed ASSIST for remote use. More men than women reported high lifetime psychoactive substance use and risky levels because of their consumption. At the same time, younger women reported similar and even higher lifetime tobacco, alcohol, and cocaine use than same-age men. More all-age women reported lifetime use of sedatives than all-age men. More all-age partially lockdown participants reported lifetime use of drugs. In general, subjects at greater risk and those requiring psychological care are more likely to seek care. Community and primary care screening will make it possible to

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implement effective early interventions to reduce the substance use risks associated with health emergencies. Future studies are required to determine the diagnosis of substance use disorders to evaluate the cut-off points in the screening test to discriminate between the presence and absence of symptoms and evaluate the effect of remote psychological care.

Keywords Alcohol · Smoking · ASSIST · Psychological-care-seeking · COVID-19

Introduction

By November 12, 2022, over 180.8 million people had been diagnosed with COVID-19, and 2.9 million had died, equivalent to a 1.58% mortality rate in America alone (PAHO, 2022). Moreover, the Global Drugs Report, published by the United Nations Office on Drugs and Crime (GDR-UNODC, 2021), has indicated that 275 million people worldwide used psychoactive substances between May 2020 and June 2021. Thirty-six million people may subsequently develop drug use disorders and do not always seek psychological care (GDR-UNODC, 2021).

Accordingly, drug use may be experiencing a global increase. Forty-two percent of 77 countries have reported an increase in the use of drugs such as cannabis or nonprescription medical drugs (GDR-UNODC, 2021). In 2022, Mellos and Paparrigopoulos referred to increased alcohol, cannabis, and nicotine use trends during the COVID-19 pandemic. However, Bommelé et al. (2020) and Adinolfi et al. (2022) suggested that some people use more drugs while others use less. Layman et al. (2022) reported reductions in the prevalence of substance use among youth, suggesting monitoring and continued surveillance in the subsequent years and predicting an increase in drug consumption. The GDR-UNODC therefore predicts that there will be an 11% rise in the number people using drugs worldwide by 2030.

On one side, the rise in drug abuse is associated with a fourfold increase in drug availability and accessibility through the black market (Mellos and Paparrigopoulos (2022), which occurred between 2011 and 2020, even though control systems limit the spread of drug use (GDR-UNODC, 2021). On the other side, Layman et al. (2022) suggested that the decrease in drug use is due to the lockdown during the COVID-19 pandemic. They explained that substance consumption occurs outside the home environment and within the context of the peer group. Substance use is highly dependent on the availability and access to drugs and other substances. Therefore, the COVID-19 pandemic and lockdown conditions are related to the variability and diversity of the distribution channels of psychoactive substances reaching some people while limiting drug access to other communities.

In Mexico, the Mental Health, and Substance Abuse Observer System (MHSAMOS, 2021) has reported that 43.2% of men and 32.3% of women used drugs in 2021. During the COVID-19 pandemic, 32.5% of the population reported alcohol consumption, 24.6% tobacco use, and 14.6% cannabis use with a higher prevalence in men than women. Moreover, 16% of men and 9% of women reported cocaine use, and 16.4% of men and 9.6% of women reported using opioids during the pandemic (MHSAMOS, 2021).

Regarding intake, 18.7%, 19.8%, and 3.1% of the Mexican population have reported greater use of tobacco, alcohol, and other drugs, respectively (MHSAMOS, 2021). The reasons for this drug use were stress, anxiety, and lockdown during the COVID-19 pandemic rather than curiosity about experiencing the effects of using drugs. According to Layman et al. (2022), people experiencing increased stress and mental health problems are more vulnerable to using drugs as a coping mechanism during the COVID-19 pandemic. Bommelé et al. (2020) reported that tobacco use varies because of boredom, restrictions in movement, and concern about becoming severely ill. Moreover, Adinolfi et al. (2022) reported said

alcohol consumption has also varied by sex, age, lockdown, COVID-19 status, violence, and comorbidity. Specific factors associated with fewer variations in the frequency of substance use before and during the COVID-19 pandemic were being male, having a different occupation from being a homemaker, and being single (Adinolfi et al., 2022). Therefore, monitoring not just alcohol but also other psychoactive substances use is essential for designing public policies to prevent and treat drug use disorders (Layman et al., 2022).

In the context of drug use studies during the COVID-19 pandemic, innovations have been implemented and prevention services adapted to increase treatment availability. Academics have developed a WebApp using a Technological Information System (TIS; Morales-Chainé et al., 2022) based on national and international guidelines for remote psychological care (APA-GPT, 2013). The context of TIS has been one where few people have sought evidence-based psychological care. It means authors have developed a tool to reduce the gap for based-evidence treatment. However, MHSAMOS (2021) reported that 62.7% of the subjects interviewed failed to seek treatment or even consider that they needed help because of their drug use. As a result, 17.5% have not sought psychological care despite needing it and just 7.7% have sought professional care for their psychoactive substance use.

Screening for psychoactive drug use in primary care helps narrow the gap in timely treatment initiation. TIS has been helping with the early detection of lifetime drug use and risk levels during frequent drug use. The World Health Organization (ASSIST-WHO, 2010) developed the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) to achieve early screening in community settings. Prior to the COVID-19 pandemic, Tiburcio et al. (2016) assessed the psychometric properties of ASSIST while identifying at-risk cases due to substance use in a sample of 1,176 undergraduate students in Mexico. The authors reported reliability coefficients for tobacco (alpha = 0.83), alcohol (alpha = 0.76), and cannabis (alpha = 0.73). They found significant correlations between alcohol and the Alcohol Use Disorders Identification Test (AUDIT; $r = 0.72$), a good balance of sensitivity and specificity in the alcohol subscale (83.8% and 80%, respectively), and the largest area under the curve (ROC = 81.9%) and established a cutoff score of 8 points. Moreover, Adinolfi et al. (2022) used the ASSIST to assess the associations between quarantine, the use of psychoactive substances, and symptoms of depression and anxiety. They described how the ASSIST helped to identify the associated factors to less frequency of drug use.

Since drug use varied widely during the COVID-19 pandemic, the aim of the study was to determine the validity of the remote application and correlates of the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) with sex, age, lockdown condition, and psychological care-seeking, offered remotely in primary settings, during the COVID-19 pandemic in Mexico. We expected to distinguish the level of drug use risks related to sociodemographic characteristics and to find high levels in men, early age groups, not lockdown conditions, and psychological care-seekers. This exploration led to the dissemination of evidence-based interventions for drug use disorders in primary care and community settings.

Method

Design

In this correlational study, through a cross-sectional design, subjects were invited to enter a programmed platform, WebApp, between December 13, 2020, and August 31, 2021. The link was available on the Mexican Health Ministry Website (announced on the radio, television, and the Internet).

Subjects were asked to read the following instructions: *The risk of suffering from COVID-19 is an unprecedented social condition that affects us all. The current COVID-19 pandemic is a situation in which we must understand our feelings. As a result, we should find out what to do about it and where to find professional evidence-based help whenever required. We therefore invite you to answer the following questionnaire. You will receive feedback on your answers, and counseling to help you cope with your emotions, thoughts, and behaviors due to the current health contingency. Your participation is voluntary, and all the information you provide will be treated confidentially. Your information management will comply with the Mexican privacy policies for personal data treatment.*

Subjects

We received questionnaires from 19,109 subjects, from December 14, 2020, to August 31, 2021. Regarding the study sample, we invited the subjects to participate through a public announcement on the official Health Ministry website and the institutional website of the leading public University in Mexico. They had to log into the system with their email to identify participation. Thus, subjects were invited to participate through press announcements and conferences on several media. The inclusion criteria were to accomplish the legal age and reside in Mexico. The exclusion criteria must be under 17 years old or a healthcare provider. We also considered the criteria for internet E-surveys such as data protection, development, testing, contact mode, advertising the survey, mandatory, voluntary, completion rate, cookies used, IP check, log file analysis, registration, and atypical timestamp considerations (Eysenbach, 2004). Therefore, since the technological system does not allow unresponsive rates, 100% of the subjects were volunteers who completed the questionnaire. As a result of this quota data collection, the sample was not homogeneous. Thus, the average age of the subjects was 34.38 years ($SD = 12.28$; *range* = 18–85), 65.82% were women (12,578), 29.6% were in lockdown (5,660), 39.8% were in partial lockdown (7,611), and 30.60% were not in lockdown (5,838). Moreover, 19.37% were aged between 20 and 24 (3,702), and 14.75% were seeking remote psychological care (2,819). Table 1 shows the distribution of the sample by sex, age, and psychological care-seeking.

Subjects agreed to answer the survey in accordance with the privacy policies established in the General Protection of Personal Information in the Possession of Obligated Parties Act (Spanish Acronym LGPDPPSO, 2017) and the General Office of the Community Care Guidelines of the National Autonomous University of Mexico (Spanish Acronym DGACO-UNAM). Data were asymmetrically encrypted in the WebApp. The database was held in the official university domain, with security locks to protect the information and guarantee their management in keeping with the subjects' informed consent.

In the informed consent form, researchers told subjects that confidentiality would be maintained by calculating general averages. Subjects were informed that their data would be used for epidemiological research and that they had the right to decline the use of their information and drop out at any point in the study. Immediate feedback was supplied in the form of psychoeducational tools (infographics, videos, and Moodle ® courses on COVID-19, self-care, relaxation techniques, problem-solving, and socioemotional management skills). Phone numbers were provided to obtain remote psychological care from the Health Ministry and the UNAM Services. Finally, the benefits of accessing the WebApp or calling for help with dealing with mental health conditions were described. A data section, in which subjects could give their phone number or email so that they could be contacted, was included to enable

Table 1 Subjects distributed by sex, age, and psychological care-seeking groups

	Not psychological care-seeking						Psychological care-seeking						Total			
	Men		Women		Subtotal		Men		Women		Subtotal		Men		Women		Subtotal	
Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
18 – 19	444	37.53	739	62.47	1183	7.26	56	22.67	191	77.33	247	8.76	500	34.97	930	65.04	1430	7.48
20 – 24	990	33.09	2002	66.91	2992	18.37	195	27.46	515	72.54	710	25.19	1185	32.01	2517	67.99	3702	**19.37**
25 – 29	824	33.91	1606	66.09	2430	14.92	149	31.04	331	68.96	480	17.03	973	33.44	1937	66.56	2910	15.23
30 – 34	827	35.31	1515	64.69	2342	14.38	95	28.61	237	71.39	332	11.78	922	34.48	1752	65.52	2674	13.99
35 – 39	717	34.44	1365	65.56	2082	12.78	79	29.92	185	70.08	264	9.37	796	33.93	1550	66.07	2346	12.28
40 – 44	583	35.46	1061	64.54	1644	10.09	68	29.57	162	70.43	230	8.16	651	34.74	1223	65.26	1874	9.81
45 – 49	495	34.86	925	65.14	1420	8.72	55	26.44	153	73.56	208	7.38	550	33.78	1078	66.22	1628	8.52
50 – 54	344	34.89	642	65.11	986	6.05	42	32.31	88	67.69	130	4.61	386	34.59	730	65.41	1116	5.84
55 or over	507	41.87	704	58.13	1211	7.43	61	27.98	157	72.02	218	7.73	568	39.75	861	60.25	1429	7.48
Total	5731	35.18	10559	64.82	16290	85.25	800	28.38	2019	71.62	2819	**14.75**	6531	34.18	12578	**65.82**	19109	100.00

The table shows the number and percentage of men and women and whether they were seeking psychological care in five-year cohorts

them to request remote psychological care. The protocol was approved by the UNAM Psychology Faculty Ethics Committee on Applied Research on October 16, 2020.

Instruments

The WebApp was programmed through Linux®, PHP®, HTML®, CSS®, and JavaScript® software. First, we included the sociodemographic section asking about sex, age, lockdown condition, and remote psychological care-seeking (Morales-Chainé et al., 2022). We included categorical responses for subjects to identify as men or women, lockdown condition (totally, partially [working or going to the supermarket] or not at all lockdown), and indicate whether they were seeking psychological care. Thus, we programmed the ASSIST in the WebApp (The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST-WHO), 2010; Tiburcio et al., 2016).

The ASSIST section enabled us to determine the risk level for ten groups of psychoactive substances: tobacco (cigarettes, chewing tobacco, and cigars), alcoholic beverages (beer, wine, spirits), cannabis (marijuana, pot, grass, and hash), cocaine (coke, crack), amphetamine-type stimulants (speed, meth, and ecstasy), inhalants (nitrous, glue, petrol, paint, and thinner), sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, and midazolam), hallucinogens (LSD, acid, mushrooms, trips, and ketamine), opioids (heroin, morphine, methadone, buprenorphine, and codeine), and other drugs.

ASSIST consists of eight questions that screen for substance use: (1) lifetime use; (2) use in the past three months; (3) having a strong desire to use the drug in question; (4) health, social, legal, or financial problems; (5) failing to do what is expected because of the use of the drug in question; (6) other expressions of concern about the use of the drug in question; (7) attempts to reduce use of the drug in question; and (8) injecting any drug (non-medical use only). The first item has dichotomous options: yes (1) or no (0). Items two to five have a five-option-response: never, once or twice, monthly, weekly, and daily or almost daily. The score for each substance is calculated by adding the answers to questions two to seven. Neither question five on tobacco nor questions one or eight is used to calculate the score.

ASSIST has shown good validity and reliability coefficients for tobacco ($\alpha = 0.83$), alcohol ($\alpha = 0.76$), and cannabis ($\alpha = 0.73$; Tiburcio et al, 2016). Confirmatory factor analysis (CFA) found a good factor structure for tobacco ($X^2[3] = 37{,}792$, $p = 0.28631$; $RMSEA = 0.016$; $CFI = 0.999$; $CI90\%\ RMSEA = 0.000–0.057$). CFA also indicated a good factor structure for alcohol ($X^2[7] = 39{,}479$, $p = 0.78576$; $RMSEA = 0.000$; $CFI = 1.000$; $CI90\%\ RMSEA = 0.000–0.025$).

In this study, our WebApp was linked to a feedback algorithm, referring to brief counseling (a score of 0–10 for alcohol or 0–3 for other drugs), intervention (10 to 26 for alcohol and 3 to 26 for other drugs), or more intensive treatment (up to 27 for all substances), following WHO guidelines (2010). In addition, the WebApp was programmed to display a section in which subjects were advised to seek psychological care. To obtain the service, subjects had to sign in, share their phone number or email, and select their preferred schedule to be contacted by an addiction psychology specialist.

Data Analysis

The statistical procedure involved several analytical steps. We examined the dimensionality of ASSIST to provide construct validity evidence. We used a 10-factor confirmatory factor

analysis model (CFA) incorporating maximum likelihood to continuous variable data as an estimation method (Elhai & Palmieri, 2011). We considered tobacco, alcohol, cannabis, cocaine, stimulants, inhalants, sedatives, hallucinogens, opioids, and others as factors. We adjusted dimensional models to each factor of interest. The overall fit of the models was assessed using the chi-square goodness of fit test. Since the chi-square goodness of fit test is over-sensitive to large sample sizes, more emphasis was given to the CFI, TLI, RMSEA, and SRMR fit indices. Models with CFI and TLI with values over 0.90 and RMSEA and SRMR with values under 0.08 and 0.06, respectively, were considered indicators of adequate data fit (Browne & Cudeck, 1993; West et al., 2012). The second step involved examining the reliability of the scale using the Cronbach's Alpha test.

The third step entailed analyzing the distribution of subjects in relation to lifetime substance use by sex, age, and lockdown condition. The fourth step also required calculating each risk-substance score and recodifying each mean value into a discrete variable, recommended by the The Alcohol Smoking and Substance Involvement Screening Test (ASSIST-WHO) (2010): low (0–10 for alcohol and 0–3 for other drugs—brief counseling), moderate (11 to 26 for alcohol and 4 to 26 for other drugs—brief intervention), or high (up to 27 for all substances—more intensive treatment). We therefore compared the distribution of subjects by risk level and psychological care-seeking. The chi-square test was calculated, considering p values under 0.05, to describe the statistical difference between groups. All analyses were conducted in RSTUDIO® 1.4.1106 and IBM® SPSS 25.0 software.

Findings

Confirmatory Factor Analysis

Results from the ten-factor model and for each dimension model are shown in Table 2. In general, the data fit for the whole sample was adequate, with an $X^2(1{,}583) = 50{,}863.65$, $p < 0.001$, a $RMSEA = 0.040$, a $SRMR = 0.032$, a $CFI = 0.920$, and a $TLI = 0.913$, after 491 iterations. Table 2 also shows Cronbach's coefficients for the total sample and the ASSIST dimensions. As can be seen, reliability values fluctuated between 0.80 for the alcohol dimension and 0.91 for stimulants.

The different degrees of freedom values (*df*) observed in Table 2 refer to the modification indices (MI) in the CFA, indicating that it was necessary to add a correlation between some items and obtain a structure factor model with a good fit. First, we correlated items (2) *…how often have you used…* and (3) *… had a strong desire or urge to use* with the tobacco, alcohol, cannabis, stimulants, inhalants, sedatives, hallucinogens, and other drug dimensions. Second, we correlated items (4) *… how often has your use led to health, social, legal, or financial problems?* and (5) *… have you failed to do what was normally expected of you because of your use…* with the cannabis, sedatives and opioids, and other drug dimensions. Third, we correlated items (6) *… has a friend or relative or anyone else ever expressed concern about your use…* and (7) *… have you ever tried to cut down on using* with the cocaine, stimulants, inhalants, and hallucinogens dimensions.

The MI also suggested adding a correlation between items: (5) *… have you failed to do what was normally expected of you…* and (7) *…you ever tried to cut down on using… but failed*?, between (2) *… how often have you used substances…* and (4) *… has your use led to health … or financial problems?*, and between (3) *…have you had a strong desire or*

Table 2 ASSIST ten-factor model and by-dimension fit indices, chi-square results, and Cronbach's alpha coefficients

	X^2	*df*	$p \leq$	*RMSEA*	*SRMR*	*CFI*	*TLI*	*Cronbach´alph*
Tobacco	301.051	4	0.001	0.062	0.014	0.994	0.985	0.85
Alcohol	506.945	8	0.001	0.057	0.020	0.986	0.973	0.80
Cannabis	294.768	7	0.001	0.046	0.015	0.994	0.987	0.84
Cocaine	926.589	8	0.001	0.078	0.014	0.988	0.977	0.89
Stimulants	242.728	5	0.001	0.050	0.009	0.997	0.991	0.91
Inhalants	436.077	5	0.001	0.067	0.016	0.991	0.974	0.81
Sedatives	600.599	7	0.001	0.067	0.021	0.988	0.974	0.85
Hallucinogens	857.115	7	0.001	0.080	0.028	0.979	0.955	0.81
Opiods	292.090	5	0.001	0.055	0.012	0.996	0.987	0.88
Others	733.908	6	0.001	0.080	0.021	0.986	0.965	0.85
Overall CFA	50863.651	1583	0.001	0.040	0.032	0.920	0.913	0.86

This table shows chi-square values by degrees of freedom below 0.0001. It also represents values of fitted indexes for the CFA models by dimension. All Cronbach's alphas were obtained for coefficients over 0.80

urge to… and (5) *… have you failed to do what was normally expected of you because of your use of… ?* for the opioid dimension.

Moreover, the MI indicated adding a correlation between items: (2) *…how often have you used substances…* and (7) *… have you ever tried to cut down … but failed?* and between (3) *…have you had a strong desire or urge to…* and (7) *… have you ever tried to cut down on using… but failed?* for the stimulant dimension.

The MI indicated adding a correlation between items: (3) *… have you had a strong desire or urge to…* and (4) *… has your use led to health…or financial problems?* and (2) *… how often have you used substances* and (6) *Has a friend … ever expressed concern about your use* for the inhalants dimension.

Finally, the MI indicated adding a correlation between items: (2) *… have you used substances* and (7) *… have you ever tried to cut down… but failed?* for the other drugs dimension.

Essentially, the adequate fit model showed factor loadings > 0.40 for all the ASSIST dimensions (see Appendix A).

Lifetime Use of Psychoactive Substances

The percentage of subjects who reported lifetime psychoactive substance use by age, sex, and lockdown condition in the total sample is shown in Tables 3 and 4. Worldwide, as can be seen in Tables 3 and 4, 43.06% of subjects reported lifetime use of tobacco, 72.34% of alcohol, 19.52% of cannabis, and 9.59% of sedatives.

Table 3 shows that, according to the chi-square test, more almost-all-age groups men than women used tobacco, alcohol, cannabis, and cocaine (X^2 [1] > 3.58, $p < 0.05$). However, similar proportions of 18 to 19-year-old men and women reported lifetime tobacco, alcohol, and cocaine use. Interestingly, a high proportion of 18–34 and over-45-year-old women reported sedative use. At the same time, a high number of men aged 25 to 44 reported stimulant use, a high number of men aged 20 to 39, 45 to 49, and 55 or over reported inhalant use, and a high number of men aged between 20 and 44 or over 55 reported the use of hallucinogens.

Table 3 Distribution of lifetime psychoactive substance use by age and sex, in the total sample

Scales	Age	Total						Scales	Total					
		Men		Women		Total			Men		Women		Total	
		n	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%
Tobacco	18 – 19	156	31.20	292	31.40	448	31.33	Inhalants	3	0.60	9	0.97	12	0.84
	20 – 24	602	**50.80**	1004	39.89	1606	43.38		24	**2.03**	20	0.79	44	1.19
	25 – 29	541	**55.60**	841	43.42	1382	47.49		26	**2.67**	26	1.34	52	**1.79**
	30 – 34	516	**55.97**	758	43.26	1274	47.64		21	**2.28**	20	1.14	41	1.53
	35 – 39	472	**59.30**	660	42.58	1132	**48.25**		15	**1.88**	4	0.26	19	0.81
	40 – 44	347	**53.30**	469	38.35	816	43.54		5	0.77	2	0.16	7	0.37
	45 – 49	268	**48.73**	368	34.14	636	39.07		5	**0.91**	0	0.00	5	0.31
	50 – 54	158	**40.93**	220	30.14	378	33.87		3	0.78	1	0.14	4	0.36
	55 o more	266	**46.83**	291	33.80	557	38.98		6	**1.06**	1	0.12	7	0.49
	Total	3326	**50.93**	4903	38.98	8229	**43.06**		108	**1.65**	83	0.66	191	**1.00**
Alcohol	18 – 19	301	60.20	567	60.97	868	60.70	Sedatives	16	3.20	69	**7.42**	85	5.94
	20 – 24	910	**76.79**	1860	73.90	2770	74.82		80	6.75	219	**8.70**	299	8.08
	25 – 29	786	**80.78**	1489	76.87	2275	78.18		81	8.32	226	**11.67**	307	10.55
	30 – 34	765	**82.97**	1347	76.88	2112	**78.98**		68	7.38	173	**9.87**	241	9.01
	35 – 39	649	**81.53**	1146	73.94	1795	76.51		79	9.92	160	10.32	239	10.19
	40 – 44	506	**77.73**	825	67.46	1331	71.02		67	10.29	122	9.98	189	10.09
	45 – 49	419	**76.18**	663	61.50	1082	66.46		48	8.73	133	**12.34**	181	**11.12**
	50 – 54	274	**70.98**	407	55.75	681	61.02		34	8.81	81	11.10	115	10.30
	55 o more	439	**77.29**	471	54.70	910	63.68		57	10.04	120	**13.94**	177	12.39
	Total	5049	**77.31**	8775	69.76	13824	**72.34**		530	8.12	1303	**10.36**	1833	**9.59**

Table 3 (continued)

Scales	Age	Total						Scales	Total					
		Men		Women		Total			Men		Women		Total	
		n	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%
Cannabis	18 – 19	103	**20.60**	151	16.24	254	17.76	Hallucinogens	22	4.40	27	2.90	49	3.43
	20 – 24	368	**31.05**	572	22.73	940	25.39		91	**7.68**	109	4.33	200	5.40
	25 – 29	336	**34.53**	485	25.04	821	**28.21**		77	**7.91**	86	4.44	163	**5.60**
	30 – 34	274	**29.72**	406	23.17	680	25.43		63	**6.83**	58	3.31	121	4.53
	35 – 39	221	**27.76**	222	14.32	443	18.88		49	**6.16**	36	2.32	85	3.62
	40 – 44	112	**17.20**	136	11.12	248	13.23		26	**3.99**	22	1.80	48	2.56
	45 – 49	82	**14.91**	86	7.98	168	10.32		12	2.18	13	1.21	25	1.54
	50 – 54	39	**10.10**	41	5.62	80	7.17		1	0.26	9	**1.23**	10	0.90
	55 o more	63	**11.09**	33	3.83	96	6.72		43	**7.57**	1	0.12	44	3.08
	Total	1598	**24.47**	2132	16.95	3730	**19.52**		384	**5.88**	361	2.87	745	**3.90**
Cocaine	18 – 19	15	3.00	16	1.72	31	2.17	Opioids	2	0.40	3	0.32	5	0.35
	20 – 24	66	**5.57**	81	3.22	147	3.97		9	0.76	9	0.36	18	**0.49**
	25 – 29	88	**9.04**	88	4.54	176	**6.05**		8	0.82	6	0.31	14	0.48
	30 – 34	75	**8.13**	63	3.60	138	5.16		4	0.43	7	0.40	11	0.41
	35 – 39	78	**9.80**	43	2.77	121	5.16		2	0.25	3	0.19	5	0.21
	40 – 44	64	**9.83**	30	2.45	94	5.02		3	0.46	3	0.25	6	0.32
	45 – 49	49	**8.91**	15	1.39	64	3.93		2	0.36	3	0.28	5	0.31
	50 – 54	13	**3.37**	10	1.37	23	2.06		0	0.00	1	0.14	1	0.09
	55 o more	15	**2.64**	2	0.23	17	1.19		1	0.18	0	0.00	1	0.07
	Total	463	**7.09**	348	2.77	811	**4.24**		31	0.47	35	0.28	66	**0.35**

Table 3 (continued)

Scales	Age	Total						Scales	Total					
		Men		Women		Total			Men		Women		Total	
		n	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%
Stimulants	18 – 19	3	0.60	8	0.86	11	0.77	Other	11	2.20	28	3.01	39	2.73
	20 – 24	24	2.03	35	1.39	59	1.59		43	3.63	75	2.98	118	3.19
	25 – 29	42	**4.32**	46	2.37	88	3.02		35	3.60	57	2.94	92	3.16
	30 – 34	40	**4.34**	44	2.51	84	**3.14**		28	3.04	44	2.51	72	2.69
	35 – 39	32	**4.02**	28	1.81	60	2.56		37	4.65	47	3.03	84	**3.58**
	40 – 44	22	**3.38**	20	1.64	42	2.24		25	3.84	42	3.43	67	**3.58**
	45 – 49	12	2.18	15	1.39	27	1.66		19	3.45	34	3.15	53	3.26
	50 – 54	2	0.52	6	0.82	8	0.72		7	1.81	17	2.33	24	2.15
	55 o more	5	0.88	5	0.58	10	0.70		10	1.76	14	1.63	24	1.68
	Total	182	**2.79**	207	1.65	389	**2.04**		215	3.29	358	2.85	573	**3.00**

This table shows the number and percentage of subjects, who reported lifetime substance use by drug. It also presents the number and percentage of men and women by lifetime drug use. Bold numbers show a significant difference in the X^2 test with one degree of freedom for groups compared by sex and a $p < 0.05$.

Table 4 Distribution of lifetime psychoactive substance use by age and lockdown condition, in the total sample

Scales	Age	Total								Scales	Total							
		Lockdown		Partially		Not Lockdown		Total			Lockdown		Partially		Not Lockdown		Total	
		n	%	*n*	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%	*n*	%
Tobacco	18 – 19	**237**	**52.90**	**153**	**34.15**	**58**	**12.95**	**448**	**31.33**	Inhalants	8	66.70	3	25.00	1	8.30	12	0.84
	20 – 24	**630**	**39.20**	**684**	**42.60**	**292**	**18.20**	**1606**	**43.38**		12	27.30	22	50.00	10	22.70	44	1.19
	25 – 29	341	24.70	645	46.70	396	28.70	1382	47.49		11	21.20	19	36.50	22	42.30	52	1.79
	30 – 34	**277**	**21.70**	**614**	**48.20**	**383**	**30.10**	**1274**	**47.64**		11	26.80	14	34.10	16	39.00	41	1.53
	35 – 39	**231**	**20.40**	**528**	**46.60**	**373**	**33.00**	**1132**	**48.25**		2	10.50	12	63.20	5	26.30	19	0.81
	40 – 44	**145**	**17.80**	**394**	**48.30**	**277**	**33.90**	**816**	**43.54**		2	28.60	2	28.60	3	42.90	7	0.37
	45 – 49	119	18.70	270	42.50	247	38.80	636	39.07		0	0.00	3	60.00	2	40.00	5	0.31
	50 – 54	68	18.00	157	41.50	153	40.50	378	33.87		1	25.00	1	25.00	2	50.00	4	0.36
	55 o more	**123**	**22.10**	**207**	**37.20**	**227**	**40.80**	**557**	**38.98**		0	0.00	4	57.10	3	42.90	7	0.49
	Total	**2171**	**26.40**	**3652**	**44.40**	**2406**	**29.20**	**8229**	**43.06**		47	24.60	80	41.90	64	33.50	191	1.00
Alcohol	18 – 19	**469**	**57.10**	**261**	**30.10**	**111**	**12.80**	**868**	**60.70**	Sedatives	**44**	**51.80**	**36**	**42.40**	**5**	**5.90**	**85**	**5.94**
	20 – 24	**1187**	**42.90**	**1088**	**39.30**	**495**	**17.90**	**2770**	**74.82**		125	41.80	126	42.10	48	16.10	299	8.08
	25 – 29	**584**	**25.70**	**1081**	**47.50**	**610**	**26.80**	**2275**	**78.18**		**89**	**29.00**	**152**	**49.50**	**66**	**21.50**	**307**	**10.55**
	30 – 34	**499**	**23.60**	**1012**	**47.90**	**601**	**28.50**	**2112**	**78.98**		**70**	**29.00**	**120**	**49.80**	**51**	**21.20**	**241**	**9.01**
	35 – 39	**385**	**21.40**	**826**	**46.00**	**584**	**32.50**	**1795**	**76.51**		52	21.80	119	49.80	68	28.50	239	10.19
	40 – 44	**280**	**21.00**	**612**	**46.00**	**439**	**33.00**	**1331**	**71.02**		**43**	**22.80**	**99**	**52.40**	**47**	**24.90**	**189**	**10.09**
	45 – 49	203	18.80	462	42.70	417	38.50	1082	66.46		39	21.50	73	40.30	69	38.10	181	11.12
	50 – 54	**114**	**16.70**	**280**	**41.10**	**287**	**42.10**	**681**	**61.02**		17	14.80	50	43.50	48	41.70	115	10.30
	55 o more	**175**	**19.20**	**331**	**36.40**	**404**	**44.40**	**910**	**63.68**		45	25.40	61	34.50	71	40.10	177	12.39
	Total	**3923**	**28.40**	**5953**	**43.10**	**3948**	**28.60**	**13824**	**72.34**		**524**	**28.60**	**836**	**45.60**	**473**	**25.80**	**1833**	**9.59**

Table 4 (continued)

Scales	Age	Total								Scales	Total							
		Lockdown		Partially		Not Lockdown		Total			Lockdown		Partially		Not Lockdown		Total	
		n	%	*n*	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%	*n*	%
Cannabis	18 – 19	**139**	**54.70**	**88**	**34.60**	**27**	**10.60**	**254**	**17.76**	Hallucinogens	29	59.20	18	36.70	2	4.10	49	3.43
	20 – 24	**367**	**39.00**	**419**	**44.60**	**154**	**16.40**	**940**	**25.39**		**68**	**34.00**	**96**	**48.00**	**36**	**18.00**	**200**	**5.40**
	25 – 29	**216**	**26.30**	**412**	**50.20**	**193**	**23.50**	**821**	**28.21**		47	28.80	80	49.10	36	22.10	163	5.60
	30 – 34	**162**	**23.80**	**350**	**21.50**	**168**	**24.70**	**680**	**25.43**		**32**	**26.40**	**67**	**55.40**	**22**	**18.20**	**121**	**4.53**
	35 – 39	**100**	**22.60**	**233**	**52.60**	**110**	**24.80**	**443**	**18.88**		**18**	**21.20**	**48**	**56.50**	**19**	**22.40**	**85**	**3.62**
	40 – 44	**56**	**22.60**	**126**	**50.80**	**66**	**26.60**	**248**	**13.23**		**15**	**31.30**	**25**	**52.10**	**8**	**16.70**	**48**	**2.56**
	45 – 49	**42**	**25.00**	**79**	**47.00**	**47**	**28.00**	**168**	**10.32**		4	16.00	15	60.00	6	24.00	25	1.54
	50 – 54	**15**	**18.80**	**41**	**51.20**	**24**	**30.00**	**80**	**7.17**		2	20.00	6	60.00	2	20.00	10	0.90
	55 o more	**21**	**21.90**	**43**	**44.80**	**32**	**33.30**	**96**	**6.72**		**1**	**2.30**	**24**	**54.50**	**19**	**43.20**	**44**	**3.08**
	Total	**1118**	**30.00**	**1791**	**48.00**	**821**	**22.00**	**3730**	**19.52**		**216**	**29.00**	**379**	**50.90**	**150**	**20.10**	**745**	**3.90**

Table 4 (continued)

Scales	Age	Total								Scales	Total							
		Lockdown		Partially		Not Lockdown		Total			Lockdown		Partially		Not Lockdown		Total	
		n	%	*n*	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%	*n*	%
Cocaine	18 – 19	16	51.60	12	38.70	3	9.70	31	2.17	Opioids	3	60.00	2	40.00	0	0.00	5	0.35
	20 – 24	**42**	**28.60**	**67**	**45.60**	**38**	**25.90**	**147**	**3.97**		7	38.90	5	27.80	6	33.30	18	0.49
	25 – 29	40	22.70	82	46.60	54	30.70	176	6.05		7	50.00	6	42.90	1	7.10	14	0.48
	30 – 34	39	28.30	61	44.20	38	27.50	138	5.16		3	27.30	5	45.50	3	27.30	11	0.41
	35 – 39	22	18.20	57	47.10	42	34.70	121	5.16		2	40.00	3	60.00	0	0.00	5	0.21
	40 – 44	15	16.00	50	53.20	29	30.90	94	5.02		2	33.30	2	33.30	2	33.30	6	0.32
	45 – 49	**5**	**7.80**	**42**	**65.60**	**17**	**26.60**	**64**	**3.93**		1	20.00	3	60.00	1	20.00	5	0.31
	50 – 54	3	13.00	13	56.50	7	30.40	23	2.06		1	100.00	0	0.00	0	0.00	1	0.09
	55 o more	2	11.80	7	41.20	8	47.10	17	1.19		0	0.00	0	0.00	1	100.00	1	0.07
	Total	**184**	**22.70**	**391**	**48.20**	**236**	**29.10**	**811**	**4.24**		26	39.40	26	39.40	14	21.20	66	0.35

Table 4 (continued)

Scales	Age	Total								Scales	Total							
		Lockdown		Partially		Not Lockdown		Total			Lockdown		Partially		Not Lockdown		Total	
		n	%	*n*	%	*n*	%	*n*	%		*n*	%	*n*	%	*n*	%	*n*	%
Stimulants	18 – 19	4	36.40	4	36.40	3	27.30	11	0.77	Other	26	66.70	11	28.20	2	5.10	39	2.73
	20 – 24	**16**	**27.10**	**28**	**47.50**	**15**	**25.40**	**59**	**1.59**		58	49.20	38	32.20	22	18.60	118	3.19
	25 – 29	20	22.70	41	46.60	27	30.70	88	3.02		29	31.50	44	47.80	19	20.70	92	3.16
	30 – 34	23	27.40	42	50.00	19	22.60	84	3.14		19	26.40	39	54.20	14	19.40	72	2.69
	35 – 39	12	20.00	30	50.00	18	30.00	60	2.56		13	15.50	38	45.20	33	39.30	84	3.58
	40 – 44	9	21.40	24	57.10	9	21.40	42	2.24		17	25.40	24	35.80	26	38.80	67	3.58
	45 – 49	6	22.20	13	48.10	8	29.60	27	1.66		**9**	**17.00**	**32**	**60.40**	**12**	**22.60**	**53**	**3.26**
	50 – 54	3	37.50	3	37.50	2	25.00	8	0.72		8	33.30	11	45.80	5	20.80	24	2.15
	55 o more	0	0.00	6	60.00	4	40.00	10	0.70		5	20.80	11	45.80	8	33.30	24	1.68
	Total	**93**	**23.90**	**191**	**49.10**	**105**	**27.00**	**389**	**2.04**		**184**	**32.10**	**248**	**53.30**	**141**	**24.60**	**573**	**3.00**

This table shows the number and percentage of subjects, who reported lifetime substance use by drug. It also presents the number and percentage of participants by lockdown condition and lifetime drug use. Bold numbers show a significant difference in the X^2 test with two degree of freedom for groups compared by lockdown condition and a $p < 0.05$

Furthermore, more almost-all-age participants, partially in lockdown, used tobacco, alcohol, cannabis, cocaine, stimulants, sedatives, hallucinogens, and other drugs than the rest of the groups (according to chi-square test, X^2 [2] > 10.94, $p < 0.05$; see Table 4). However, similar proportions of almost-all-age lockdown conditions groups reported lifetime inhalants and opioid use.

Substance Use Risk Levels

Figure 1 shows the distribution of subjects by psychological care-seeking, risk level, and type of intervention required (The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST-WHO), 2010). The chi-square test indicated the different distribution of subjects for all substances (X^2 [2] > 8.14, $p < 0.05$), except for opioids. The number of not-at-risk subjects not seeking psychological care was proportionally higher (no intervention required) than that of subjects needing care who were seeking help. For example, 2.20% of subjects seeking psychological care proved to be at a higher risk because of their tobacco use, while 1.19% of subjects who did not seek help required intensive care treatment. Likewise, 29.12% of subjects seeking psychological care required brief intervention as opposed to 22.35% of subjects who did not seek help yet had a similar risk level because of their tobacco use. More subjects seeking help also needed brief or intensive treatment than those who did not seek psychological care. In other words, a high proportion of subjects proved to be at moderate to high risk because of their alcohol, cannabis, or cocaine use when they were seeking psychological care.

Figure 1 also shows that the proportion of subjects requiring and seeking psychological care because of their use of stimulants, inhalants, sedatives, hallucinogens, opioids, and other drugs was less than 2.77%. Appendix B shows the proportions of subjects seeking psychological care by age group and subjects in the total sample, for consultations.

Discussion

This study provided data on screening for substance abuse risk through the programmed Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) on an electronic device, by sex, age, lockdown condition, and psychological care-seeking, offered remotely in primary settings during the COVID-19 pandemic. Our findings indicated that it was possible to validate the factor structure of the Alcohol, Smoking, and Substance Involvement Screening Test through the CFA, using the chi-square, and *CFI*, *TLI*, *RMSEA*, and *SRMR* good index procedure (Browne & Cudeck, 1993; West et al., 2012). The self-applied ASSIST programmed to be used remotely during the COVID-19 pandemic, just as Adinolfi et al. (2022) found, also yielded robust Cronbach's alpha coefficients. The factor structure of the ASSIST resulted in some items correlating because of the modification indices (MI). Consequently, our findings are consistent with those reported by Tiburcio et al (2016); they validated ten latent variables: risks from tobacco, alcohol, cannabis, cocaine, stimulants, inhalants, sedatives, hallucinogens, opioids, and other drug use.

Validating ASSIST with our sample yielded key facts. First, our findings suggest high proportions of subjects reporting lifetime use of tobacco, alcohol, cannabis, and cocaine. Mellos and Paparrigopoulos (2022) have already signed an increase in alcohol consumption among people with severe alcohol use and an increase in cannabis, nicotine, and cocaine use. So several social and demographic factors might explain the high frequency

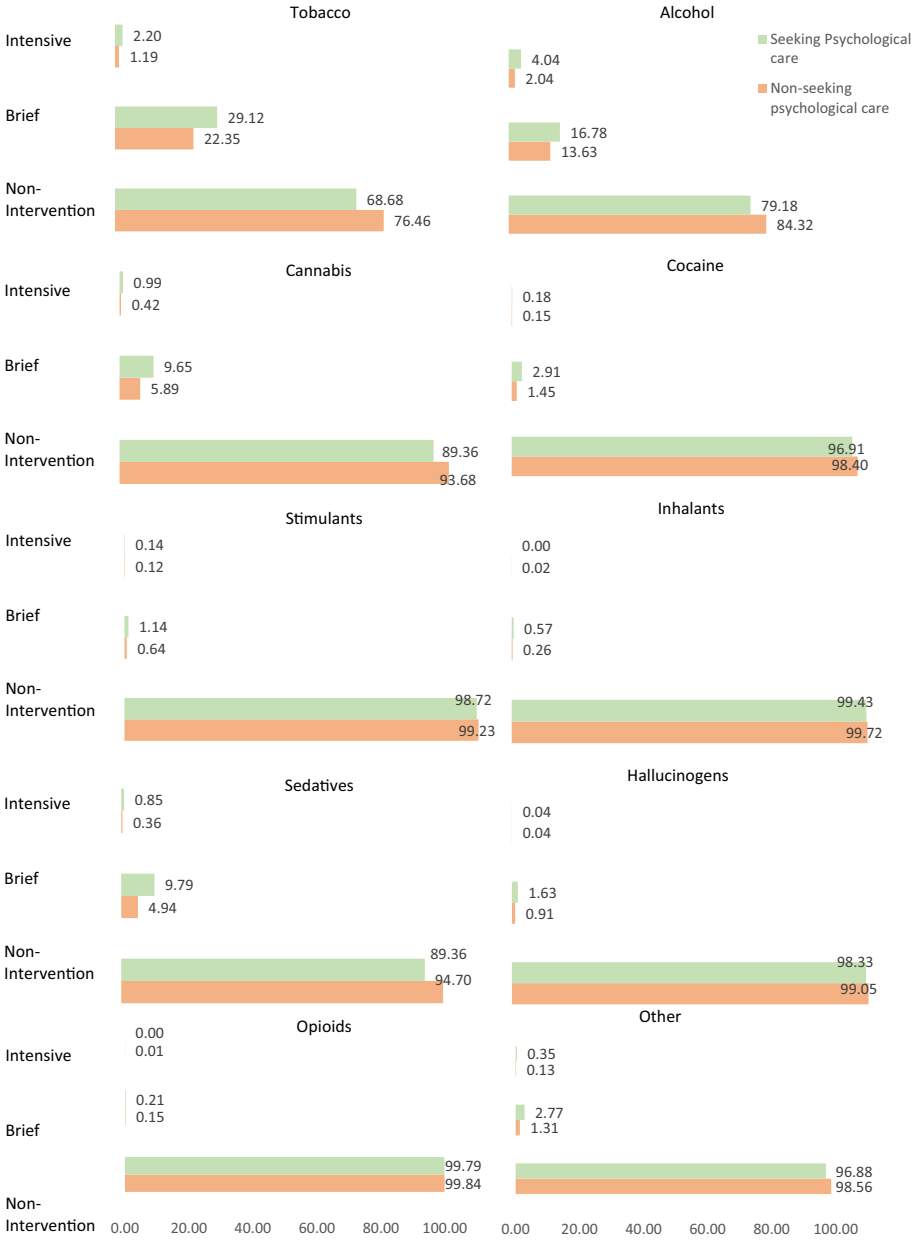

Fig. 1 Percentage of subjects seeking psychological care by risk level and type of intervention required for all psychoactive substances. Significant differences by X^2 test, with two degrees of freedom for comparison groups, were $p < 0.05$ for all psychoactive substances, except opioids

of participants using drugs. Mellos and Paparrigopoulos (2022) explained that those with high consumption levels had higher harmful emotionality mechanisms. Layman et al. (2022) suggested an impact of environmental factors which contribute to the odds of drug

use among the population. Then, a high number of participants reporting lifetime drug use is consistent with the GDR-UNODC (2021) and Adinolfi et al. (2022) reference to the tendency to use drugs during the COVID-19 pandemic.

Thus, the percentage of subjects reporting lifetime psychoactive drug use was high for tobacco (43.06%), alcohol (72.34%), cannabis (19.52%), cocaine (4.24%), sedatives (9.59%), hallucinogens (3.90%), and other drugs (3.00%) in our sample during 2021. These were higher proportions than those reported by Mental Health and Substance Abuse Observer System (MHSAMOS) (2021), Layman et al. (2022), or Mellos and Paparrigopoulos (2022) but down to those reported by Adinolfi et al. (2022). In these reviews, researchers reported variability in the use of practically all psychoactive substances during the COVID-19 pandemic. Layman et al. (2022) reported reductions in use across alcohol, cannabis, tobacco, and other drugs during the pandemic, while Mellos and Paparrigopoulos (2022) reported an increase in people using those drugs. Layman et al. (2022) suggested that drug use variability might result from availability and stress factors. They suggested that people who live in challenging home situations or in resource-limited areas are more likely to be negatively affected by environmental changes and may turn to substance use as a coping mechanism. Additional factors related to increased or decreased drug use are restricted access to worksites, entertainment services, and mandates for physical distancing. Mellos and Paparrigopoulos (2022) referred that intermittent drug availability and trafficking difficulties have led users to search for other substances, increase experimentation and make online purchases high. Therefore, such varied findings suggest studying the factors that increase or decrease drug consumption and the spread of drug use because of the high availability and accessibility during the COVID-19 pandemic.

Besides, our findings also suggest that more men than women over 20 reported lifetime use of tobacco, alcohol, and cocaine, while more men than women over 18 reported cannabis use. These findings are consistent with those reported by Mental Health and Substance Abuse Observer System (MHSAMOS) (2021) but also with some detailed data reported by Adinolfi et al. (2022) regarding lifetime use, where men showed higher percentages of use related to all drugs. Layman et al. (2022) also suggested high use by men while addressing how drug use most often takes place outside the home environment and is dependent on availability and access to substances.

Our findings, nevertheless, indicate that a similar number of 18 to 19-year-old men and women reported lifetime tobacco, alcohol, and cocaine use. Moreover, more women than men aged 18 to 34 and over 45 reported lifetime sedative use. In that regard, Adinolfi et al. (2022) suggested that men show less variation compared to women. Thus, Layman et al. (2022) suggested that young people and women might show high vulnerability because of social determinants. They suggested that feelings of loneliness because of long-term social isolation and limited opportunities to interact with others, prevalent during COVID-19 in young people and women, might explain our findings about such drug use variability. Layman et al. (2022) suggested that it is essential to monitor the adverse psychological effects of the pandemic on the population, including the significant increase in the prevalence of clinical depression, suicidal ideation, and anxiety, all of which have the potential to contribute to an increased prevalence in substances use. The tendency in women to try tobacco, alcohol, cocaine, and sedatives at least once in their lifetime points to the need to also monitor the counseling, and brief and intensive treatment provided due to the current vulnerability of women. Furthermore, these results suggest that it is essential to consider factors related to stress, anxiety, COVID-19 conditions, violence, and comorbidity, which Layman et al. (2022), Mellos et al. (2022) suggest are related to the use of psychoactive substances such as alcohol, particularly affecting young people and women.

Nonetheless, our results also suggested that partial lockdown was associated with increased participants using drugs in their lifetime. Bommelé et al. (2020) suggested that restrictions during COVID-19 might explain such variability. Lockdown was related to low proportions of participants reporting lifetime drug use. Adinolfi et al. (2022) reported that it might be related to the events making it impossible to get and use drugs. Both studies also suggested that high proportions of participants using drugs in their lifetime are expected when people are partially or not at all lockdowns like in our study. Layman et al. (2022) suggested that the availability when people have the possibility of getting out is associated with the increased use of drugs. Thus, the high proportions of subjects using drugs in their lifetime while being partially or not locked down might result from stress conditions and from the access to psychoactive substances.

While some people are exposed to drug use, others might have been protected by the lockdown. Bommelé et al. (2020) suggested that while some people reported smoking less due to the COVID-19 pandemic, others reported smoking more. They reported such variability of the smoking tendencies, for example, related to boredom or restrictions in movement, stimulating increasing drug use. Bommelé et al. (2020) also suggested that the threat of contracting COVID-19 or becoming severely ill might motivates to quit drug use to improve physical health. Moreover, Layman et al. (2022) suggested that people experiencing increased stress and mental health problems might cope with the risk of using drugs. Therefore, future longitudinal studies must clarify the role of motivation or protective factors in helping to prevent drug use disorders. Some factors to explore might be those about the permissiveness inside home. Some family members show permissive attitudes and behaviors encouraging drug use (Layman et al., 2022). Thus, family dysfunction and domestic violence could predispose the onset of substance use and other violent behavior. Then, it is required to monitor the prevalence of substance use in the post-pandemic years.

In such sense, in third place, our findings suggest that a low proportion of subjects need brief or intensive treatment for their substance abuse risk or psychological care. There were fewer subjects needing psychological care who failed to seek it than those who requested help. Mental Health and Substance Abuse Observer System (MHSAMOS) (2021) reported that 62.7% of subjects failed to seek treatment for drug consumption. Our findings suggest the 23.54% of our sample that consumed tobacco, the 15.67% that used alcohol, the 5.93% that used cannabis, and the 4.98% using sedatives failed to seek the psychological care they required. Our findings are consistent with those of Mental Health and Substance Abuse Observer System (MHSAMOS) (2021), which found that 17.5% of those needing help failed to request it.

However, through our WebApp, we found that 31.32% of subjects with at-risk tobacco use, 20.82% of those with at-risk alcohol use, 10.64% of those with at-risk cannabis use, and 9.87% of those with at-risk sedative use were seeking psychological care. These findings were slightly higher than the 7.7% reported by Mental Health and Substance Abuse Observer System (MHSAMOS) (2021).

Consequently, the WebApp (Morales-Chainé et al., 2022) appears to provide an opportunity to obtain professional care when there is a risk derived from the use of legal and illegal drugs. The use of the WebApp has helped reduce the gap in evidence-based treatment for subjects who may be suffering from drug use disorders. The availability of treatment is another way to reduce drug use when people are ready to seek treatment (Layman et al., 2022).

Substance use risk was identified in community and primary health care scenarios in this study through the CFA of ASSIST, during the COVID-19 pandemic, thereby reducing the treatment gap. Tiburcio et al. (2016) and Adinolfi et al. (2022) have already reported the good balance of sensitivity and specificity in the test. Nevertheless, future studies should describe the diagnosis of substance use disorders through ASSIST, evaluating the cut-off

points in the screening test. Future research should also explore the ability of ASSIST to discriminate between the presence and absence of a substance use disorder.

Nevertheless, our findings may be considered an effective attempt to screen for substance use in community and primary care settings, which could lead to effectively implementing early interventions to reduce the substance use risks associated with the current pandemic. Early treatment prevents mental health illness and promotes healthy development, reducing the risk of life-goal failure and chronic disease (Layman et al., 2022).

Conclusions

The factor structure of the programmed ASSIST can be used remotely. More men than women reported high lifetime psychoactive substance use and risk levels because of their use. Partially-or-not-at-all lockdown seemed to be a condition with high-subject proportions using drugs in a lifetime. However, younger women reported similar and even more lifetime use of tobacco, alcohol, and cocaine than same-age men. More all-age women reported lifetime use of sedatives than all-age men. Vulnerability, while being young or women, availability factors, and not being in lockdown may explain the high levels of use and risk of drug consumption. Also, stress and social factors during the COVID-19 pandemic might explain drug use variability in the community. In addition, subjects at greater risk and needing psychological care are more likely to seek care. Furthermore, community and primary care screening strategies could lead to implementing effective early interventions to reduce the substance use risks associated with health emergencies.

Limitations

The first limitation of the present study is that we did not use a diagnostic tool for drug use disorders. Moreover, it is not longitudinal. Consequently, future research should monitor the time lapse between the occurrence of stressful events and process of development of a drug use disorder, as well as other mental health risks, anxiety, and/or depression, through measurement tools such as the one used in this study.

In addition, a WebApp may lead to the risk of bias. Morales-Chainé et al. (2022) have already conducted a measurement invariance analysis of their electronic tools (such as PCL-C, anxiety, and depression). Future studies should therefore consider the measurement invariance of ASSIST, while comparing groups (for example, by sex), to show the bias in the questions that could be a result of other factors such as cultural or educational ones. Identifying the source of bias would increase the accuracy of ASSIST and halt the evolution of other mental illnesses. Future studies should monitor and address the consistency of the diagnosis, evaluating the effect of remote psychological help.

In addition, we should consider a strategy to increase the representativeness of our sample, to address the heterogeneity characterizing ours in the study. We were unable to achieve these conditions given that subjects participated voluntarily. A controlled study should therefore consider staggered sampling to generalize conclusions about psychoactive substance use and their relationship with sociodemographic characteristics. Moreover, subsequent studies should consider social determinants during the COVID-19 pandemic, such as unemployment, intra-familial violence, and the acceptance of drug use to understand how they contribute to the early onset of a drug use disorder (APA, 2013).

Appendix A

Standardized and non-standardized factor loadings according to the ASSIST dimensions, with model fit indices and chi-square analysis

Items	Standardized factor loadings	Non-Standardized factor loadings	Items	Standardized factor loadings	Non-Stand-ardized factor loadings
Tobacco			**Inhalants**		
			2f	0.594	1.000
2a	0.822	1.000	3f	0.769	1.481
3a	0.816	1.023	4f	0.805	1.411
4a	0.626	0.519	5f	0.853	1.749
6a	0.723	0.688	6f	0.465	0.926
7a	0.657	0.874	7f	0.443	1.500
Alcohol			**Sedatives**		
2b	0.521	1.000	2g	0.758	1.000
3b	0.572	1.342	3g	0.760	1.013
4b	0.747	1.292	4g	0.602	0.493
5b	0.725	1.362	5g	0.660	0.695
6b	0.661	1.176	6g	0.614	0.512
7b	0.506	1.218	7g	0.691	0.894
Cannabis			**Hallucinogens**		
2c	0.727	1.000	2h	0.621	1.000
3c	0.746	1.019	3h	0.659	1.288
4c	0.655	0.567	4h	0.784	1.099
5c	0.698	0.731	5h	0.783	1.330
6c	0.663	0.645	6h	0.492	0.811
7c	0.551	0.766	7h	0.458	0.969
Cocaine			**Opioids**		
2d	0.890	1.000	2i	0.758	1.000
3d	0.859	1.065	3i	0.864	1.385
4d	0.907	0.721	4i	0.723	1.081
5d	0.797	1.028	5i	0.921	1.714
6d	0.624	0.757	6i	0.587	0.911
7d	0.614	1.045	7i	0.669	1.322
Stimulants			**Others**		
2e	0.779	1.000	2j	0.676	1.000
3e	0.814	1.086	3j	0.741	0.963
4e	0.876	1.016	4j	0.671	0.565
5e	0.850	1.189	5j	0.668	0.673
6e	0.669	0.839	6j	0.705	0.686
7e	0.611	0.962	7j	0.687	0.965
Model fit	$X^2(1,583)=50,863.65$, $p< 0.001$, RMSEA=0.040, SRMR=0.032, CFI=0.920,TLI=0.913				

Appendix B

Proportions of subjects seeking psychological care by age group and of the total sample

Scales		Non-seeking psychological care								Seeking Psychological care								Total							
		Total								Total								Total							
		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total	
	Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Tobacco	18 – 19	996	84.19	185	15.64	2	0.17	1183	7.26	169	68.42	77	**31.17**	1	0.40	247	8.76	1165	81.47	262	18.32	3	0.21	1430	7.48
	20 – 24	2278	76.14	694	23.20	20	0.67	2992	18.37	461	64.93	236	**33.24**	13	**1.83**	710	25.19	2739	73.99	930	25.12	33	0.89	3702	19.37
	25 – 29	1774	73.00	620	25.51	36	1.48	2430	14.92	307	63.96	161	**33.54**	12	**2.50**	480	17.03	2081	71.51	781	26.84	48	1.65	2910	15.23
	30 – 34	1696	72.42	608	25.96	38	1.62	2342	14.38	218	65.66	104	**31.33**	10	**3.01**	332	11.78	1914	71.58	712	26.63	48	1.80	2674	13.99
	35 – 39	1533	73.63	513	24.64	36	1.73	2082	12.78	165	62.50	89	**33.71**	10	**3.79**	264	9.37	1698	72.38	602	25.66	46	1.96	2346	12.28
	40 – 44	1252	76.16	373	22.69	19	1.16	1644	10.09	165	71.74	55	23.91	10	**4.35**	230	8.16	1417	75.61	428	22.84	29	1.55	1874	9.81
	45 – 49	1117	78.66	283	19.93	20	1.41	1420	8.72	169	81.25	36	17.31	3	1.44	208	7.38	1286	78.99	319	19.59	23	1.41	1628	8.52
	50 – 54	810	82.15	164	16.63	12	1.22	986	6.05	108	83.08	22	16.92	0	0.00	130	4.61	918	82.26	186	16.67	12	1.08	1116	5.84
	55 o more	999	82.49	201	16.60	11	0.91	1211	7.43	174	79.82	41	**18.81**	3	**1.38**	218	7.73	1173	82.09	242	16.93	14	0.98	1429	7.48
	Total	12455	76.46	3641	22.35	194	1.19	16290	100.00	1936	68.68	821	**29.12**	62	**2.20**	2819	100.00	14391	75.31	4462	23.35	256	1.34	19109	100.00
Alcohol	18 – 19	1012	85.55	162	13.69	9	0.76	1183	7.26	190	76.92	50	**20.24**	7	**2.83**	247	8.76	1202	84.06	212	14.83	16	1.12	1430	7.48
	20 – 24	2455	82.05	470	15.71	67	2.24	2992	18.37	541	76.20	147	**20.70**	22	**3.10**	710	25.19	2996	80.93	617	16.67	89	2.40	3702	19.37
	25 – 29	1917	78.89	436	17.94	77	3.17	2430	14.92	352	73.33	90	18.75	38	**7.92**	480	17.03	2269	77.97	526	18.08	115	3.95	2910	15.23
	30 – 34	1920	81.98	369	15.76	53	2.26	2342	14.38	263	79.22	57	17.17	12	**3.61**	332	11.78	2183	81.64	426	15.93	65	2.43	2674	13.99
	35 – 39	1743	83.72	284	13.64	55	2.64	2082	12.78	195	73.86	53	**20.08**	16	**6.06**	264	9.37	1938	82.61	337	14.36	71	3.03	2346	12.28
	40 – 44	1408	85.64	200	12.17	36	2.19	1644	10.09	193	83.91	29	12.61	8	**3.48**	230	8.16	1601	85.43	229	12.22	44	2.35	1874	9.81
	45 – 49	1266	89.15	136	9.58	18	1.27	1420	8.72	180	86.54	22	**10.58**	6	**2.88**	208	7.38	1446	88.82	158	9.71	24	1.47	1628	8.52
	50 – 54	897	90.97	77	7.81	12	1.22	986	6.05	117	90.00	10	7.69	3	**2.31**	130	4.61	1014	90.86	87	7.80	15	1.34	1116	5.84
	55 o more	1118	92.32	87	7.18	6	0.50	1211	7.43	201	92.20	15	6.88	2	0.92	218	7.73	1319	92.30	102	7.14	8	0.56	1429	7.48
	Total	13736	84.32	2221	13.63	333	2.04	16290	100.00	2232	79.18	473	**16.78**	114	**4.04**	2819	100.00	15968	83.56	2694	14.10	447	2.34	19109	100.00

Scales		Non-seeking psychological care								Seeking Psychological care								Total							
		Total								Total								Total							
		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total	
	Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Cannabis	18 – 19	1082	91.46	97	8.20	4	0.34	1183	7.26	210	85.02	34	**13.77**	3	**1.21**	247	8.76	1292	90.35	131	9.16	7	0.49	1430	7.48
	20 – 24	2711	90.61	260	8.69	21	0.70	2992	18.37	608	85.63	96	**13.52**	6	0.85	710	25.19	3319	89.65	356	9.62	27	0.73	3702	19.37
	25 – 29	2201	90.58	212	8.72	17	0.70	2430	14.92	406	84.58	64	**13.33**	10	**2.08**	480	17.03	2607	89.59	276	9.48	27	0.93	2910	15.23
	30 – 34	2159	92.19	168	7.17	15	0.64	2342	14.38	292	87.95	37	**11.14**	3	0.90	332	11.78	2451	91.66	205	7.67	18	0.67	2674	13.99
	35 – 39	1976	94.91	101	4.85	5	0.24	2082	12.78	242	91.67	18	**6.82**	4	**1.52**	264	9.37	2218	94.54	119	5.07	9	0.38	2346	12.28
	40 – 44	1584	96.35	57	3.47	3	0.18	1644	10.09	216	93.91	14	**6.09**	0	0.00	230	8.16	1800	96.05	71	3.79	3	0.16	1874	9.81
	45 – 49	1383	97.39	34	2.39	3	0.21	1420	8.72	202	97.12	4	1.92	2	0.96	208	7.38	1585	97.36	38	2.33	5	0.31	1628	8.52
	50 – 54	970	98.38	15	1.52	1	0.10	986	6.05	128	98.46	2	1.54	0	0.00	130	4.61	1098	98.39	17	1.52	1	0.09	1116	5.84
	55 o more	1195	98.68	16	1.32	0	0.00	1211	7.43	215	98.62	3	1.38	0	0.00	218	7.73	1410	98.67	19	1.33	0	0.00	1429	7.48
	Total	15261	93.68	960	5.89	69	0.42	16290	100.00	2519	89.36	272	**9.65**	28	0.99	2819	100.00	17780	93.05	1232	6.45	97	0.51	19109	100.00
Cocaine	18 – 19	1172	99.07	10	0.85	1	0.08	1183	7.26	240	97.17	6	**2.43**	1	0.40	247	8.76	1412	98.74	16	1.12	2	0.14	1430	7.48
	20 – 24	2928	97.86	59	1.97	5	0.17	2992	18.37	689	97.04	20	**2.82**	1	0.14	710	25.19	3617	97.70	79	2.13	6	0.16	3702	19.37
	25 – 29	2374	97.70	48	1.98	8	0.33	2430	14.92	455	94.79	24	**5.00**	1	0.21	480	17.03	2829	97.22	72	2.47	9	0.31	2910	15.23
	30 – 34	2301	98.25	38	1.62	3	0.13	2342	14.38	321	96.69	10	**3.01**	1	0.30	332	11.78	2622	98.06	48	1.80	4	0.15	2674	13.99
	35 – 39	2052	98.56	27	1.30	3	0.14	2082	12.78	254	96.21	9	**3.41**	1	0.38	264	9.37	2306	98.29	36	1.53	4	0.17	2346	12.28
	40 – 44	1616	98.30	26	1.58	2	0.12	1644	10.09	223	96.96	7	**3.04**	0	0.00	230	8.16	1839	98.13	33	1.76	2	0.11	1874	9.81
	45 – 49	1402	98.73	17	1.20	1	0.07	1420	8.72	205	98.56	3	1.44	0	0.00	208	7.38	1607	98.71	20	1.23	1	0.06	1628	8.52
	50 – 54	980	99.39	5	0.51	1	0.10	986	6.05	128	98.46	2	**1.54**	0	0.00	130	4.61	1108	99.28	7	0.63	1	0.09	1116	5.84
	55 o more	1205	99.50	6	0.50	0	0.00	1211	7.43	217	99.54	1	0.46	0	0.00	218	7.73	1422	99.51	7	0.49	0	0.00	1429	7.48
	Total	16030	98.40	236	1.45	24	0.15	16290	100.00	2732	96.91	82	**2.91**	5	0.18	2819	100.00	18762	98.18	318	1.66	29	0.15	19109	100.00

Scales		Non-seeking psychological care								Seeking Psychological care								Total							
		Total								Total								Total							
		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total	
	Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Stimulants	18 – 19	1181	99.83	2	0.17	0	0.00	1183	7.26	244	98.79	3	**1.21**	0	0.00	247	8.76	1425	99.65	5	0.35	0	0.00	1430	7.48
	20 – 24	2970	99.26	19	0.64	3	0.10	2992	18.37	700	98.59	9	**1.27**	1	0.14	710	25.19	3670	99.14	28	0.76	4	0.11	3702	19.37
	25 – 29	2399	98.72	23	0.95	8	0.33	2430	14.92	472	98.33	6	**1.25**	2	0.42	480	17.03	2841	97.63	29	1.00	10	0.34	2910	15.23
	30 – 34	2312	98.72	27	1.15	3	0.13	2342	14.38	326	98.19	5	**1.51**	1	0.30	332	11.78	2638	98.65	32	1.20	4	0.15	2674	13.99
	35 – 39	2068	99.33	11	0.53	3	0.14	2082	12.78	260	98.48	5	**1.89**	0	0.00	264	9.37	2328	99.23	15	0.64	3	0.13	2346	12.28
	40 – 44	1632	99.27	9	0.55	3	0.18	1644	10.09	226	98.26	4	**1.74**	0	0.00	230	8.16	1858	99.15	13	0.69	3	0.16	1874	9.81
	45 – 49	1412	99.44	8	0.56	0	0.00	1420	8.72	208	100.00	0	0.00	0	0.00	208	7.38	1620	99.51	8	0.49	0	0.00	1628	8.52
	50 – 54	983	99.70	3	0.30	0	0.00	986	6.05	130	100.00	0	0.00	0	0.00	130	4.61	1113	99.73	3	0.27	0	0.00	1116	5.84
	55 o more	1208	99.75	3	0.25	0	0.00	1211	7.43	217	99.54	1	**0.46**	0	0.00	218	7.73	1425	99.72	4	0.28	0	0.00	1429	7.48
	Total	16165	99.23	105	0.64	20	0.12	16290	100.00	2783	98.72	32	**1.14**	4	0.14	2819	100.00	18948	99.16	137	0.72	24	0.13	19109	100.00
Inhalants	18 – 19	1180	99.75	3	0.25	0	0.00	1183	7.26	247	100.00	0	0.00	0	0.00	247	8.76	1427	99.79	3	0.21	0	0.00	1430	7.48
	20 – 24	2982	99.67	9	0.30	1	0.03	2992	18.37	705	99.30	5	0.70	0	0.00	710	25.19	3687	99.59	14	0.38	1	0.03	3702	19.37
	25 – 29	2418	99.51	11	0.45	1	0.04	2430	14.92	473	98.54	7	1.46	0	0.00	480	17.03	2891	99.35	18	0.62	1	0.03	2910	15.23
	30 – 34	2337	99.79	5	0.21	0	0.00	2342	14.38	329	99.10	3	0.90	0	0.00	332	11.78	2666	99.70	8	0.30	0	0.00	2674	13.99
	35 – 39	2075	99.66	7	0.34	0	0.00	2082	12.78	264	100.00	0	0.00	0	0.00	264	9.37	2339	99.70	7	0.30	0	0.00	2346	12.28
	40 – 44	1641	99.82	2	0.12	1	0.06	1644	10.09	230	100.00	0	0.00	0	0.00	230	8.16	1871	99.84	2	0.11	1	0.05	1874	9.81
	45 – 49	1419	99.93	1	0.07	0	0.00	1420	8.72	208	100.00	0	0.00	0	0.00	208	7.38	1627	99.94	1	0.06	0	0.00	1628	8.52
	50 – 54	984	99.80	2	0.20	0	0.00	986	6.05	129	99.23	1	**0.77**	0	0.00	130	4.61	1113	99.73	3	0.27	0	0.00	1116	5.84
	55 o more	1209	99.83	2	0.17	0	0.00	1211	7.43	218	100.00	0	0.00	0	0.00	218	7.73	1427	99.86	2	0.14	0	0.00	1429	7.48
	Total	16245	99.72	42	0.26	3	0.02	16290	100.00	2803	99.43	16	**0.57**	0	0.00	2819	100.00	19048	99.68	58	0.30	3	0.02	19109	100.00

Scales		Non-seeking psychological care								Seeking Psychological care								Total							
		Total								Total								Total							
		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total	
	Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Sedatives	18 – 19	1145	96.79	36	3.04	2	0.17	1183	7.26	222	89.88	25	**10.12**	0	0.00	247	8.76	1367	95.59	61	4.27	2	0.14	1430	7.48
	20 – 24	2859	95.55	121	4.04	12	0.40	2992	18.37	645	90.85	64	**9.01**	1	0.14	710	25.19	3504	94.65	185	5.00	13	0.35	3702	19.37
	25 – 29	2301	94.69	119	4.90	10	0.41	2430	14.92	427	88.96	48	**10.00**	5	1.04	480	17.03	2728	93.75	167	5.74	15	0.52	2910	15.23
	30 – 34	2228	95.13	106	4.53	8	0.34	2342	14.38	301	90.66	30	**9.04**	1	0.30	332	11.78	2529	94.58	136	5.09	9	0.34	2674	13.99
	35 – 39	1967	94.48	110	5.28	5	0.24	2082	12.78	234	88.64	26	**9.85**	4	**1.52**	264	9.37	2201	93.82	136	5.80	9	0.38	2346	12.28
	40 – 44	1546	94.04	93	5.66	5	0.30	1644	10.09	205	89.13	22	**9.57**	3	**1.30**	230	8.16	1751	93.44	115	6.14	8	0.43	1874	9.81
	45 – 49	1333	93.87	79	5.56	8	0.56	1420	8.72	182	87.50	22	**10.58**	4	**1.92**	208	7.38	1515	93.06	101	6.20	12	0.74	1628	8.52
	50 – 54	918	93.10	67	6.80	1	0.10	986	6.05	118	90.77	9	6.92	3	**2.31**	130	4.61	1036	92.83	76	6.81	4	0.36	1116	5.84
	55 o more	1130	93.31	73	6.03	8	0.66	1211	7.43	185	84.86	30	**13.76**	3	**1.38**	218	7.73	1315	92.02	103	7.21	11	0.77	1429	7.48
	Total	15427	94.70	804	4.94	59	0.36	16290	100.00	2519	89.36	276	**9.79**	24	0.85	2819	100.00	17946	93.91	1080	5.65	83	0.43	19109	100.00
Halluci-nogens	18 – 19	1168	98.73	15	1.27	0	0.00	1183	7.26	241	97.57	6	**2.43**	0	0.00	247	8.76	1409	98.53	21	1.47	0	0.00	1430	7.48
	20 – 24	2940	98.26	49	1.64	3	0.10	2992	18.37	687	96.76	23	**3.24**	0	0.00	710	25.19	3627	97.97	72	1.94	3	0.08	3702	19.37
	25 – 29	2388	98.27	41	1.69	1	0.04	2430	14.92	472	98.33	8	1.67	0	0.00	480	17.03	2860	98.28	49	1.68	1	0.03	2910	15.23
	30 – 34	2321	99.10	21	0.90	0	0.00	2342	14.38	326	98.19	5	**1.51**	1	0.30	332	11.78	2647	98.99	26	0.97	1	0.04	2674	13.99
	35 – 39	2070	99.42	11	0.53	1	0.05	2082	12.78	263	99.62	1	0.38	0	0.00	264	9.37	2333	99.45	12	0.51	1	0.04	2346	12.28
	40 – 44	1639	99.70	4	0.24	1	0.06	1644	10.09	229	99.57	1	0.43	0	0.00	230	8.16	1868	99.68	5	0.27	1	0.05	1874	9.81
	45 – 49	1415	99.65	5	0.35	0	0.00	1420	8.72	207	99.52	1	0.48	0	0.00	208	7.38	1622	99.63	6	0.37	0	0.00	1628	8.52
	50 – 54	986	100.00	0	0.00	0	0.00	986	6.05	129	99.23	1	0.77	0	0.00	130	4.61	1115	99.91	1	0.09	0	0.00	1116	5.84
	55 o more	1209	99.83	2	0.17	0	0.00	1211	7.43	218	100.00	0	0.00	0	0.00	218	7.73	1427	99.86	2	0.14	0	0.00	1429	7.48
	Total	16136	99.05	148	0.91	6	0.04	16290	100.00	2772	98.33	46	**1.63**	1	0.04	2819	100.00	18908	98.95	194	1.02	7	0.04	19109	100.00

Scales		Non-seeking psychological care								Seeking Psychological care								Total							
		Total								Total								Total							
		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total		No intervention		Brief intervention		Intensive treatment		Total	
	Age	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Opioids	18 – 19	1181	99.83	2	0.17	0	0.00	1183	7.26	247	100.00	0	0.00	0	0.00	247	8.76	1428	99.86	2	0.14	0	0.00	1430	7.48
	20 – 24	2987	99.83	4	0.13	1	0.03	2992	18.37	708	99.72	2	0.28	0	0.00	710	25.19	3695	99.81	6	0.16	0	0.00	3702	19.37
	25 – 29	2421	99.63	9	0.37	0	0.00	2430	14.92	478	99.58	2	0.42	0	0.00	480	17.03	2899	99.62	11	0.38	1	0.03	2910	15.23
	30 – 34	2338	99.83	4	0.17	0	0.00	2342	14.38	331	99.70	1	0.30	0	0.00	332	11.78	2669	99.81	5	0.19	0	0.00	2674	13.99
	35 – 39	2080	99.90	2	0.10	0	0.00	2082	12.78	264	100.00	0	0.00	0	0.00	264	9.37	2344	99.91	2	0.09	0	0.00	2346	12.28
	40 – 44	1642	99.88	1	0.06	1	0.06	1644	10.09	230	100.00	0	0.00	0	0.00	230	8.16	1872	99.89	1	0.05	1	0.05	1874	9.81
	45 – 49	1419	99.93	1	0.07	0	0.00	1420	8.72	208	100.00	0	0.00	0	0.00	208	7.38	1627	99.94	1	0.06	0	0.00	1628	8.52
	50 – 54	986	100.00	0	0.00	0	0.00	986	6.05	129	99.23	1	0.77	0	0.00	130	4.61	1115	99.91	1	0.09	0	0.00	1116	5.84
	55 o more	1210	99.92	1	0.08	0	0.00	1211	7.43	218	100.00	0	0.00	0	0.00	218	7.73	1428	99.93	1	0.07	0	0.00	1429	7.48
	Total	16264	99.84	24	0.15	2	0.01	16290	100.00	2813	99.79	6	0.21	0	0.00	2819	100.00	19077	99.83	30	0.16	2	0.01	19109	100.00
Other	18 – 19	1167	98.65	15	1.27	1	0.08	1183	7.26	240	97.17	7	**2.83**	0	0.00	247	8.76	1407	98.39	22	1.54	1	0.07	1430	7.48
	20 – 24	2951	98.63	36	1.20	5	0.17	2992	18.37	683	96.20	26	**3.66**	1	0.14	710	25.19	3634	98.16	62	1.67	6	0.16	3702	19.37
	25 – 29	2400	98.77	26	1.07	4	0.16	2430	14.92	461	96.04	18	**3.75**	1	0.21	480	17.03	2861	98.32	44	1.51	5	0.17	2910	15.23
	30 – 34	2304	98.38	33	1.41	5	0.21	2342	14.38	326	98.19	6	1.81	0	0.00	332	11.78	2630	98.35	39	1.46	5	0.19	2674	13.99
	35 – 39	2048	98.37	33	1.59	1	0.05	2082	12.78	255	96.59	6	**2.27**	3	**1.14**	264	9.37	2303	98.17	39	1.66	4	0.17	2346	12.28
	40 – 44	1617	98.36	23	1.40	4	0.24	1644	10.09	219	95.22	9	**3.91**	2	0.87	230	8.16	1836	97.97	32	1.71	6	0.32	1874	9.81
	45 – 49	1396	98.31	24	1.69	0	0.00	1420	8.72	202	97.12	5	**2.40**	1	0.48	208	7.38	1598	98.16	29	1.78	1	0.06	1628	8.52
	50 – 54	974	98.78	11	1.12	1	0.10	986	6.05	129	99.23	0	0.00	1	0.77	130	4.61	1103	98.84	11	0.99	2	0.18	1116	5.84
	55 o more	1198	98.93	13	1.07	0	0.00	1211	7.43	216	99.08	1	0.46	1	0.46	218	7.73	1414	98.95	14	0.98	1	0.07	1429	7.48
	Total	16055	98.56	214	1.31	21	0.13	16290	100.00	2731	96.88	78	**2.77**	10	0.35	2819	100.00	18786	98.31	292	1.53	31	0.16	19109	100.00

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Data Availability The original contributions presented in the study are included in the article/supplementary material; further inquiries should be sent to the corresponding author/s.

Declarations

Ethics Approval All procedures followed were in accordance with the ethical standard of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Thus, the protocol was reviewed and approved by the Ethics Committee of the Universidad Nacional Autónoma de Mexico.

Consent to Participate The subjects provided their written informed consent to participate in the study.

Conflict of Interest The authors declare no competing interests.

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