Impact of the COVID-19 pandemic on the consumption patterns of psychotropic drugs and predictors of limited access to medication

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Abstract

Background: Despite the efforts of the health system to improve access to medications during the coronavirus disease of 2019 (COVID-19) pandemic, such as online consultations, encouraging generic prescriptions, and other measures to limit the storage of medication, psychotropic patients faced significant challenges in accessing their medications.

Objectives: This study aimed (1) to compare the consumption of psychotropics before and during the pandemic, (2) to assess the association between having difficulties finding the medications and the general characteristics of the patients, and (3) to assess the predictors of these difficulties.

Design: A case–control study was performed in which 128 patients (cases) were recruited during the pandemic (July–October 2021), and 256 patients (controls) using psychotropics before the pandemic were matched for age and sex.

Methods: Data were collected using a uniform survey given to patients using psychotropics and filled out at their time and place preferences.

Results: More patients used antipsychotics and anti-anxiety medications before the pandemic, while antidepressants were used more during the pandemic. Almost half of the patients reported facing difficulties finding their medications in both time frames. Before the pandemic, these difficulties were noted per increase in age and being employed and were less faced if patients had medical assistance or lived in the north of Lebanon. However, more patients reported having difficulties accessing their medication during the pandemic, with no significant differences.

Conclusion: The consumption of psychotropic drugs was higher among cases. All patients faced challenges in accessing their medication throughout the pandemic, while older and employed patients had more limitations before the pandemic. Further investigations exploring viable solutions are recommended in order to maintain sustainable access to treatment.

Keywords

COVID-19 pandemic, psychotropic medication, patients, shortage of medication, access to medication, predictors

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Introduction

The coronavirus disease of 2019 (COVID-19) pandemic has disrupted the supply chain of drugs and, as a result, negatively affected access to medications, particularly for chronic conditions.[1] Among others, access to psychotropic medications is crucial due to the impact of the pandemic itself on the mental health of patients, which can be more considerably influenced by the associated emotional

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responses.[2] Other challenges exacerbated patients' mental health, such as the lack of health professionals and health facilities and increased medication storage.[3]

Evidence suggests that a psychiatric epidemic is coocurring with the COVID-19 pandemic,[4] which may necessitate attention to improving access to psychotropic drugs. Several psychopathologies, such as anxiety and depression,[5,6] increased during the pandemic in addition to other conditions, including burnout[7] and post-traumatic stress disorder.[8] Eating disorders and violence rates also grew, requiring substantial management through psychotropics.[9] Uptake of hypnotic medications was 12% higher among those under 18 years of age, and anxiolytic and antipsychotic consumption significantly increased following the pandemic among the elderly.[10] Problematic use of the Internet, depressive symptoms, and suicidal ideas were also observed among younger populations,[11] in addition to alcohol abuse associated with psychological disorders following the pandemic.[12] Despite the health system's efforts to improve access to medications during the pandemic, such as online consultations,[13] encouraging generic prescription,[14] and other measures to limit the storage of medication,[15] psychotropic patients faced significant challenges in finding their medications.[16] In response, some patients tried alternatives due to the unavailability of the prescribed medication,[17] while others relied on self-medication without referring to a specialist.[18]

The healthcare system in Lebanon relies mostly on private institutions (70%), with most medical expenses being out-of-pocket. The rest are either operated by non-governmental organizations or are public hospitals.[19] Recently, the COVID-19 pandemic negatively affected the healthcare system and imposed many dilemmas such as prioritization of treatment,[20] which can aggravate the status of psychotropic patients. Healthcare workers were at higher risk for poor sleep limiting their productivity and quality of life.[21] Successive lockdowns and social isolation increased the odds of depression, anxiety, and stress symptoms.[22] Other stressors such as the Beirut port explosion, economic crisis, and political unrest, intensified both the need for support and the severity of cases.[23] Patients using psychotropic medications were mainly affected by the consequences of the pandemic since mental health stigma limited their access to care.[24] To understand what possible strategies can be applied to improve access to medications, this study aims (1) to compare the consumption of psychotropics before and during the COVID-19 pandemic, (2) to assess the association between having difficulties finding the medications and the general characteristics of the patients, and (3) to assess the predictors of these difficulties.

Method

Study design

To achieve the intended objectives, a case–control study was performed by interpreting findings from two cross-sectional studies. In the first study, data were collected before the COVID-19 pandemic over a period of 6 months (May to October 2019) while in the second one, data collection was carried out during the pandemic between July and October 2021.

Study sample

Patients using psychotropic drugs were invited to participate in the study with no preferences based on race or ethnicity. Lebanese adult patients residing in Lebanon during the interview period were included. However, those refusing to participate in the study or those with severe mental disorders making them unable to adequately answer the survey were excluded.

Overall, 283 patients were approached during the period before the pandemic and 256 (90.5%) accepted to participate in the study compared to 163 during the pandemic with a response rate of 78.5% ($N = 128$). Table 1 represents the general characteristics of the study participants. Before the pandemic, the sample consisted of almost 32% of males and 68% of females ($p = 0.938$). The mean age was 39.6 years (SD = 12.9) for the control group and 36.8 years (SD = 13.4) for the cases. Most of the sample had less than 40 years, almost 32% were between 41 and 60 years and 5.5% were older than 60 years ($p = 0.997$). Statistically significant differences were noted in terms of the governorate of residence with 58.7% of controls living in Beirut compared to 34.4% of cases ($p < 0.001$). Almost a third of the participants had a high school degree and more than 40% had a university degree or more ($p = 0.293$). The majority were employed at the data collection time ($p = 0.140$). Most of the patients had public insurance (50.4% for controls and 56.3% for cases) and 34.4% of the controls lack any type of medical coverage compared to 27.3% of the cases ($p = 0.377$).

Sample size calculation

WinPepi was used to calculate the sample size needed to test the difference between proportions in a case–control study with a power of 80% and a significance level of 5%.[25] The expected proportion of the population with a specific outcome was set at 0.65. This value was computed as an average value to represent patients with limited access to medicine (65%) based on opinions of 30 community pharmacists. To allow the detection of the impact of the COVID-19 pandemic, participants from the second study were considered cases and those from the first were the control group (allocation 1:2). This yielded a necessary sample size of 128 cases and 256 controls matched for age and sex.

Data collection

Four pharmacy students were responsible for data collection in both timeframes during their internship period

Table 1. Distribution of the general characteristics of the patients.

		Before COVID-19 (controls)	During COVID-19 (cases)	p-value
		Frequency (%)	Frequency (%)	
Sex	Male	83 (32.4)	41 (32.0)	0.938
	Female	173 (67.6)	87 (68.0)	
Age (years)	Mean ± SD	39.6 ± 12.9	36.8 ± 13.4	
	18–40	159 (62.1)	80 (62.5)	
	41–60	83 (32.4)	41 (32.0)	0.997
	More than 60	14 (5.5)	7 (5.5)	
Governorate of residence	Beirut	149 (58.7)	44 (34.4)	
	North	52 (20.5)	11 (8.6)	
	South	25 (9.8)	11 (8.6)	<**0.001**
	Mount Lebanon	16 (6.3)	55 (43.0)	
	Bekaa	12 (4.7)	7 (5.5)	
Marital status	Single	83 (32.4)	49 (38.3)	
	Married	124 (48.4)	67 (52.3)	**0.044**
	Divorced/widowed	49 (19.1)	12 (9.4)	
Household arrangement	With family	55 (21.6)	39 (30.5)	
	Alone	177 (69.4)	78 (60.9)	0.158
	Medical assistance	23 (9.0)	11 (8.6)	
Ethics approval and consent to participate	<Middle school	63 (24.8)	23 (18.0)	
	High school	83 (32.7)	43 (33.6)	0.293
	University or more	108 (42.5)	62 (48.4)	
Ethics approval and consent to participate	Employed	157 (61.3)	87 (69.0)	0.140
	Unemployed	99 (38.7)	39 (31.0)	
Type of health coverage	None	88 (34.4)	35 (27.3)	
	Public insurance	129 (50.4)	72 (56.3)	0.377
	Private insurance	39 (15.2)	21 (16.4)	

Results are given in terms of frequency (percentage) or mean ± standard deviation. p-values < 0.05 are presented in bold and represent statistically significant differences.

(9 am–2 pm). They approached patients in community pharmacies and explained the study's objectives. If they accepted to participate, their data were only collected if they answered with "Yes" to the question: Are you currently using psychotropic drugs? Data collection was performed through a uniform survey (Supplementary material) developed after an extensive literature review taking into consideration two experts' opinions. The survey was initially piloted on 15 patients (only in the period before the pandemic), and questions that lacked clarity or comprehensiveness were adjusted or deleted accordingly. The survey was filled at their time and place preferences. It was available in Arabic (official language in Lebanon) and took an average of 10 min per participant to complete.

General characteristics of the participants

The survey included questions about the general characteristics of the participants (age, sex, marital status (single, married, and divorced/widowed), governorate of residence, and level of education (<middle school, high school, and university or more)). Participants were also asked about their household arrangements (alone, with family, or with

medical assistance). Information about the employment status (employed or unemployed) and the type of health coverage (public, private insurance, or none) was collected as well in this part.

Lifestyle habits of the participants

This section collected information about participants' smoking status (cigarettes or Nargileh) and whether active or passive. Nargileh is also called shisha or waterpipe and is considered a common type of smoking in Lebanon. Moreover, this part collected participants' drinking habits (alcohol and caffeine consumption) and their physical activity status.

Medical and medication history of the participants

The presence of comorbidities such as diabetes, hypertension, dyslipidemia, cardiovascular diseases, mental disorders, cancer, peptic ulcer, and respiratory diseases was collected in this part (multiple answers were allowed). The name of the psychotropic drug (s) previously or currently

Table 2. Lifestyle habits of the study sample before and during the COVID-19 pandemic.

	Before COVID-19 (controls)	During COVID-19 (cases)	p-value
	Frequency (%)	Frequency (%)	
Cigarette smoking	141 (55.1)	38 (29.7)	<**0.001**
Shisha smoking	74 (29.0)	44 (34.4)	0.284
Passive smoking	160 (62.7)	78 (62.9)	0.976
Alcohol consumption	39 (15.3)	19 (14.8)	0.908
Caffeine consumption	231 (90.2)	110 (85.9)	0.208
Physical activity	62 (24.2)	52 (41.3)	<**0.001**

Results are given in terms of frequency (percentage). *p*-values < 0.05 are presented in bold and represent statistically significant differences.

taken by the participants was also collected in this part and was then classified into four types of drugs by a clinical pharmacist: (1) antipsychotics (typical or atypical), (2) anti-depressants (TriCyclic Antidepressant, Selective serotonin reuptake inhibitors, Serotonin, and norepinephrine reuptake inhibitors), (3) anti-anxiety drugs (Benzodiazepines), and (4) mood stabilizers (lithium, anticonvulsants).

Difficulties in finding psychotropic drugs before and during the COVID-19 pandemic

Patients were asked if they had difficulties finding their psychotropic medication during the past 3 months. These difficulties include lack of access to pharmacies, difficulties in renewing the medical prescription, not finding the required dosage or number of boxes needed, and inability to find the medication.

Statistical analysis

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS Inc, Chicago, Illinois) Version 27.[26] Based on the values of the skewness and Kurtosis of the sample, it is normally distributed and converge to the actual values.[27] The age of patients is presented using means and standard deviations while categorical variables are presented using frequencies and percentages. A bivariate analysis was conducted taking the general characteristics of the participants as independent variables and having difficulties finding the medication as the dependent variable. The aforementioned analysis was conducted before and during the COVID-19 pandemic. The Chi-square/Fisher exact test was used to compare percentages between associate categorical variables. The unpaired student *t*-test/Mann–Whitney test was used for the comparison of data between two different groups. A multivariate analysis using a logistic regression model was performed to assess the predictors of having difficulties finding the drug. These analyses produced odd ratios with a 95% confidence interval (CI). Independent variables were only selected if they had *p*-values < 0.20 in bivariate

analyses. A *p*-value < 0.05 was considered statistically significant.

Ethical considerations

This study used a survey for data collection without any type of invasive procedures or intervention. Data were completely anonymous and non-identifiable; storage of data follow-up university general data protection regulation guidelines and written informed consent was obtained from each participant. They were also informed that they could withdraw their participation at any point during the interview. Findings were considered for research purposes only and no financial incentives were provided.

Results

Lifestyle habits of the participants

Table 2 presents the lifestyle habits of the study sample. Statistically significant differences between cases and controls were reported as regards cigarette smoking and physical activity where 141 of the controls (55.1%) were cigarette smokers compared to only 38 cases (29.7%; *p* < 0.001). Furthermore, more cases (41.3%) practiced physical activity compared to a significantly lower percentage of controls (24.2%; *p* < 0.001). Nevertheless, no differences were shown in terms of smoking shisha, passive smoking, alcohol, and caffeine consumption.

Medical and medication history of the participants

The comparison of the medical history between cases and controls is presented in Table 3 below. More than 70% of patients reported having comorbidities in both cases and controls (*p* = 0.523). No differences were reported between cases and controls as regards having hypertension (17.2% and 16.8%; *p* = 0.923), diabetes (5.5% and 7.4%; *p* = 0.473), dyslipidemia (12.6% and 13.7%; *p* = 0.771), cardiovascular diseases (7.8% of both cases and controls) and peptic

Table 3. Medical history of the study sample before and during the COVID-19 pandemic.

	Before COVID-19 (controls)	During COVID-19 (cases)	p-value
	Frequency (%)	Frequency (%)	
Do you have comorbidities?	180 (70.3)	94 (73.4)	0.523
Hypertension	43 (16.8)	22 (17.2)	0.923
Diabetes	19 (7.4)	7 (5.5)	0.473
Dyslipidemia	35 (13.7)	16 (12.6)	0.771
Cardiovascular diseases	20 (7.8)	10 (7.8)	1.000
Mental disorders	85 (33.2)	63 (49.2)	**0.002**
Cancer	17 (6.6)	2 (1.6)	**0.031**
Peptic ulcer disease	18 (7.0)	10 (7.8)	0.781
Respiratory disease	13 (5.1)	3 (2.3)	0.206

Results are given in terms of frequency (percentage). *p*-values < 0.05 are presented in bold and represent statistically significant differences.
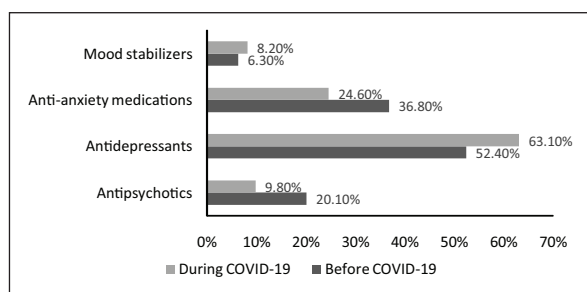
Figure 1. Comparison in psychotropic medications consumption before and during the COVID-19 pandemic.

ulcer disease (7.8% and 7.0%; $p = 0.781$). Nonetheless, more cases (49.2%) reported having a diagnosed mental disorder compared to 33.2% of controls ($p = 0.002$) and a higher percentage of controls (6.6%) suffered from cancer ($p = 0.031$).

Figure 1 illustrates the comparison in psychotropic medications consumption before and during the COVID-19 pandemic. No significant difference was noted in terms of mood stabilizer consumption (6.3% of controls and 8.2% of cases; $p = 0.537$). Nevertheless, a higher percentage of patients (36.8%) used anti-anxiety medications before the pandemic compared to 24.6% of patients during the pandemic ($p = 0.012$). In contrast, more patients (63.1%) used antidepressants during the pandemic in comparison to before it (52.4%; $p = 0.039$).

Association between having difficulties finding the psychotropic medications and the general characteristics of the patients

Before the pandemic, age was significantly associated with having difficulties finding psychotropic medication with a higher percentage of those aged < 60 years ($p = 0.019$). During the pandemic, more patients faced difficulties finding their medication with no differences in terms of age groups ($p = 0.387$). Twenty-five percent of patients living in the north of Lebanon had difficulties finding their medication before the pandemic compared to 75% of those living in Mount Lebanon ($p < 0.001$). Almost half of the controls who live alone or with their families reported difficulties accessing their medication compared to only 26.1% of those with medical assistance ($p = 0.050$). Moreover, those employed reported having more difficulties accessing their psychotropic medication before the pandemic compared to unemployed patients ($p = 0.050$). Nevertheless, during the pandemic, no significant differences were noted as regards the place of residence, household arrangement, or employment status ($p > 0.05$; Table 4).

Predictors of having difficulties finding psychotropic medications before the COVID-19 pandemic

The predictors of having difficulties finding psychotropic medications before the COVID-19 pandemic are presented in Table 5. It has been reported that the odds of having difficulties finding psychotropic drugs were 1.01 higher per increase of 1 year in age (OR 1.01, 95% CI = [1.00, 1.02]). Moreover, patients having medical assistance had 69% lower odds of having difficulties finding their medication compared to those living alone (OR 0.31, 95% CI = [0.12, 0.83]). Furthermore, those living in the North of Lebanon had 72% lower odds of having difficulties finding their medication compared to those in the capital Beirut (OR 0.28, 95% CI = [0.14, 0.57]). A significant correlation was also noted between being employed and having difficulties finding the medication with 1.64 higher odds compared to unemployed patients (OR 1.64, 95% CI = [1.01, 2.73]).

Discussion

This study explored the impact of the COVID-19 pandemic on the consumption patterns of psychotropic medications and the factors affecting access to psychotropic drugs among patients in Lebanon. It also investigated the

Table 4. Association between having difficulties finding the psychotropic medications and the general characteristics of the patients.

		Having difficulties finding the psychotropic medication			
		Before COVID-19 (controls)	p-value	During COVID-19 (cases)	p-value
		Frequency (%)		Frequency (%)	
Sex	Male	47 (56.6)	0.142	14 (63.6)	0.457
	Female	81 (46.8)		26 (54.2)	
Age (years)	18–40	85 (53.5)		24 (52.2)	
	41–60	41 (49.4)	**0.019**	14 (70.0)	0.387
	More than 60	2 (14.3)		2 (50.0)	
Governorate of residence	Beirut	81 (54.4)		15 (55.6)	
	North	13 (25.0)		2 (40.0)	
	South	12 (48.0)	**<0.001**	4 (100.0)	0.451
	Mount Lebanon	12 (75.0)		18 (56.3)	
	Bekaa	8 (66.7)		1 (50.0)	
Marital status	Single	39 (47.0)		11 (47.8)	
	Married	67 (54.0)	0.445	24 (61.5)	0.544
	Divorced/widowed	22 (44.9)		5 (62.5)	
Household arrangement	With family	27 (49.1)		15 (75.0)	
	Alone	94 (53.1)	**0.050**	21 (50.0)	0.162
	Medical assistance	6 (26.1)		4 (50.0)	
Level of education	<Middle school	30 (47.6)		8 (50.0)	
	High school	42 (50.6)	0.908	15 (60.0)	0.802
	University or more	55 (50.9)		17 (58.6)	
Employment status	Employed	86 (54.8)	**0.050**	28 (57.1)	1.000
	Unemployed	42 (42.4)		12 (57.1)	

Results are given in terms of frequency (percentage). p-values < 0.05 are presented in bold and represent statistically significant differences.

Table 5. Predictors of having difficulties finding psychotropic medications before the COVID-19 pandemic.

	Crude model	
	OR [95% CI]	p-value
Age in years (per increase of 1 year)	1.01 [1.00, 1.02]	**0.050**
Female sex (male as reference)	0.67 [0.39, 1.14]	0.143
Household arrangement (Alone as reference)		
With family	0.85 [0.46, 1.56]	0.603
With medical assistance	0.31 [0.12, 0.83]	**0.019**
Governorate of residence (Beirut as reference)		
Mount-Lebanon	2.52 [0.78, 8.17]	0.124
South	0.78 [0.33, 1.81]	0.556
North	0.28 [0.14, 0.57]	**<0.001**
Bekaa	1.68 [0.48, 5.82]	0.414
Employment status (Unemployed as reference)		
Employed	1.64 [1.01, 2.73]	**0.050**

OR: odds ratio; CI: confidence interval.
Question: Do you find difficulties finding your psychotropic medication? The baseline answer is "No.". p-values < 0.05 are presented in bold and represent statistically significant differences.

predictors of having difficulties accessing medication. Overall, more patients used antipsychotics and anti-anxiety medications before the pandemic while antidepressants were more used during the pandemic. Almost half of the patients reported facing difficulties finding their medications in both time frames. Nevertheless, before the pandemic, these difficulties were noted per increase in age and being employed and were less faced if patients had

medical assistance or lived in the north of Lebanon. More patients reported having difficulties accessing their medication during the pandemic with no significant differences.

During the COVID-19 pandemic, a higher consumption of psychotropic drugs was noted among females. This finding was also reported in a cross-sectional survey performed in Lebanon in 2022 highlighting the impact of lockdowns and other associated stressors during the pandemic on depression and anxiety among patients.[22] Most of the sample was 40 years or less. In agreement with the distribution of the sample, a report published during the pandemic showed that females had two times higher rate of depression and younger population had higher odds of mental disorders.[28] Since controls were age-matched to cases, this result could reflect the age group with most patients using psychotropics during the pandemic. Reports revealed that during the COVID-19 pandemic, young adults had a higher risk of developing psychological problems,[29] possibly related to the fear of getting infected or infecting others,[30] job losses,[31] stress, and frailty.[32] Before the pandemic, patients who resided in the capital (Beirut) were those mostly using psychotropic drugs. Nevertheless, throughout the pandemic, those living in Mount Lebanon had the highest consumption. This finding may be associated with the fact that the highest number of COVID-19 cases were in Mount Lebanon, which has led to more strict containment measures and as a result higher risks of mental disorders.[33] Before the COVID-19 pandemic, a significantly higher percentage of psychotropic patients were smokers in comparison to the period afterward. This result is in accordance with a systematic review published in 2021 and reporting several lifestyle modifications following the pandemic including a decrease in alcohol consumption and cigarette smoking.[34] However, physical activity increased in contrast with the findings of a systematic review that was published recently and reported an increase in sedentary behaviors during the pandemic.[35] Significantly more patients had a history of cancer before the pandemic which can be related to the postponement of the screening and diagnostic tools for the different types of cancer during the pandemic,[36] and as a result, a decrease in the reported cases.

Antidepressants use increased remarkably during the COVID-19 pandemic in agreement with other studies performed in different settings.[37–39] A recent study published in 2022 showed an increase in antidepressant use following the outbreak, namely among women and those aged 40 years or more.[40] Nonetheless, a significant decrease in the use of anti-anxiety medications and antipsychotics was noted during the same period. This finding can be explained by the higher preference for antidepressants for the long-term treatment of post-COVID mental disorders since their discontinuation has less severe withdrawal symptoms in comparison to anti-anxiety medications.[41]

Moreover, recommendations advised limiting the prescription of benzodiazepine to treat anxiety and depression during the COVID-19 pandemic due to its association with respiratory depression which may have led to the substitution of benzodiazepines with antidepressants.[42,43] More patients faced difficulties finding their medications during the COVID-19 pandemic in comparison to the period before, possibly due to the over-storage of many products including medicines,[44] and the fear of having difficulties accessing treatments which have led to a shortage of many drugs such as psychotropics.[45] However, these difficulties were not significantly varying with any of the general characteristics of the patients contrary to the period before the pandemic. In contrast, a study conducted in Bangladesh reported that patients with more comorbidities or those with multimorbidity were more likely to experience difficulties accessing their medications.[46] This incompatible result in this study can be due to the increase in the prices of medicines and the lack of access to new treatments in Lebanon during the pandemic.[47,48] The odds of having difficulties finding psychotropic drugs before the pandemic were higher per increase of 1 year in age. Non-adherence to medication was reported to be higher with age,[49] which may potentially lead to skipping dosage or excess intake of medicines.[50] Moreover, patients in this study who had medical assistance had lower odds of having difficulties finding their medication compared to those living with their families or alone. Social and clinical support can improve adherence to treatments,[51] and better monitoring of the needs of patients in advance. Lower odds of having difficulties finding medications were noted among those living in the North of Lebanon compared to those in the capital. This easier access to medication may be associated with their location next to the Syrian border and consequently, the importation of unfound drugs in Lebanon from Syria.[52] Employed patients faced more challenges finding their medication compared to unemployed ones possibly due to time and work constraints or their reliance on other family members in the supply of drugs.

This study has limitations. The relatively small sample size in addition to the convenience sampling method might not have reflected the actual distribution of patients using psychotropics and, therefore, can affect the generalizability of the findings to other patients. Given that data were self-reported, recall bias might have arisen, namely, during the pandemic given the existence of other priorities. This bias was reduced since the survey was filled out at the time and place preferences of the patients. The present study has also strengths. Patients from the two-time frames were age and sex-matched which allowed a stronger detection of the impact of the pandemic itself. Furthermore, to our knowledge, this is the first study assessing access to medicines among psychotropic patients before and during the COVID-19 pandemic.

Conclusion

The COVID-19 pandemic affected the consumption patterns of psychotropics with a higher use of antidepressants and a lower use of anti-anxiety and antipsychotic drugs during the aforementioned period. Before the pandemic, patients reported facing difficulties accessing their medications which were associated with the increase in 1 year of age and being employed, and were less faced if patients had medical assistance or lived in the north of Lebanon. More patients faced these difficulties during the pandemic with no significant differences between them. Further investigation through a longitudinal study is recommended to assess the current situation in Lebanon.

Declarations

Ethics approval and consent to participate

The study protocol, survey, and consent form were reviewed and approved by the institutional review board of the faculty of pharmacy of the Lebanese University (reference: 7/21/D). Written informed consent was obtained from every participant.

Consent for publication

Not applicable.

Availability of data and materials

Not applicable.

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Supplemental material

Supplemental material for this article is available online.

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