


Generic drugs use during the COVID-19 pandemic among Lebanese patients using psychotropics: An opportunity for generic drug promotion

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Abstract

Introduction: The Coronavirus disease of 2019 (COVID-19) pandemic has imposed several challenges leading to the shortage of medications due to the disruption of their supply chains. Among others, patients using psychotropics encountered difficulties finding their medication despite the efforts of investing in local production. Encouraging patients to use generic drugs can be an effective strategy to ensure sustainable access to medication.

Objectives: This study aimed to describe the consumption of psychotropic medications during the COVID-19 pandemic and the willingness together with the reasons for using generic drugs. It also assessed the association between generic drugs and the general characteristics of the patients.

Design: A cross-sectional study was performed over a period of 4 months (July–October 2021) targeting 128 patients using psychotropic drugs.

Results: The sample included more women than men with a mean age of 38 years. Antidepressants were the psychotropic medications mostly consumed followed by anti-anxiety medications. Almost 13% of the patients started using psychotropics either through self-prescription or a friend's advice and 73.4% used generic drugs. Fear of dependence, unavailability of the brand drug, and pharmacist's recommendation were the main reported reasons for using generic drugs.

Conclusion: During the COVID-19 pandemic, the consumption of psychotropics increased due to new prescriptions and self-medication. No differences were noted between using generics and the characteristics of the patients in contrast to previous studies which support the implementation of generic prescription and substitution policies.

Keywords

COVID-19 pandemic, shortage of medication, generic drugs, psychotropic medications, patients

Introduction

To ensure access to medicines, many governments encourage prescribing generic drugs or substituting to generics after initial therapy with a brand drug.^{1,2} Such policies can potentially lower the health care cost for both patients and the public health sector since generic drugs are 30%–80% cheaper.^{2,3} The 90% confidence interval of generic-drug-to-brand-drug ratios for some pharmacokinetic parameters (maximum concentration and area under the curve) should lie between 80% and

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125% of those of the brand.⁴ Comparable clinical outcomes were observed when using brands or their generic counterparts suggesting comparable effectiveness.⁵ Research showed that after 12 months switch from brands to generics, patients had similar outpatient visits, admission to the hospital, and discontinuation of the medication.⁶

In Lebanon, the prescription of generics is low despite the good knowledge of doctors.⁷ Older physicians and those with more years of practice had higher acceptance to substitute to generics after initial treatment with a brand drug.⁸ The ministry of public health in Lebanon promoted the use of generic by implementing the unified medical prescription that allows pharmacists to substitute to generic drugs without referring to the doctors.⁹ Nevertheless, the Coronavirus disease of 2019 (COVID-19) pandemic has imposed several challenges leading to the shortage of medications due to the disruption of their supply chains.¹⁰ Among others, patients using psychotropics encountered difficulties finding their medication despite the efforts of investing in local production.¹¹ The pandemic itself also negatively affected the mental health of people and health professionals which necessitate an excessive need to access psychotropics.¹² Furthermore, the lack of healthcare professionals, hospital beds, and prioritization of patients have delayed the diagnosis of new patients together with the management of those previously diagnosed.¹³

Encouraging patients for using generic drugs is crucial since the COVID-19 pandemic had several negative outcomes due to job losses,¹⁴ shortage of medication and the need for sustainable supply chains.¹⁵ Avoiding the discontinuation of medication in chronic patients namely those using psychotropics is essential to prevent the deterioration of their mental health.¹⁶ Assessing the characteristics of patients that used generic drugs can help target specific groups in order to promote generic drug use and clarify the associated misconceptions. This study aims to evaluate (i) the consumption of psychotropic medications during the COVID-19 pandemic, (ii) the willingness and reasons for using generic drugs, and (iii) the association between having used a generic alternative for the psychotropic drug and the general characteristics of the patients.

Methods

Study design

In order to achieve the intended objectives, a cross-sectional study was performed over a period of 4 months (July–October 2021) targeting patients using psychotropic drugs during the study period.

Study sample

One hundred twenty-eight 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 problems making them unable to adequately answer the survey were excluded.

Data collection

Data were collected using a uniform survey given to the patients if they answered with “Yes” to the question: Are you currently using psychotropic drugs? The survey was developed after an extensive literature review taking into consideration two experts’ opinions. Data completion took an average of 10 min per participant and the questionnaire was available in Arabic (the official language in Lebanon).

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, 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 taken by the participants was also collected and was then classified into four types of drugs: (i) antipsychotics (typical or atypical), (ii) antidepressants (TriCyclic Antidepressants, Selective serotonin reuptake inhibitors, Serotonin and norepinephrine reuptake inhibitors), (iii) anti-anxiety drugs (Benzodiazepines) and (iv) mood stabilizers (lithium, anticonvulsants). Furthermore, patients were asked about who prescribed the psychotropic drug for them which was stratified into four options (a physician, pharmacist, family or friends, or self-prescription). Afterward, they were asked three close-ended questions: (1) if they used a generic drug for their psychotropic medication; (2) if they encountered additional side effects using the generic; (3) the reasons for using the generic drug (fear of dependence, unavailability of the brand drug, the inefficacy of the brand or pharmacist's advice).

Statistical analysis

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois) Version 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 using a generic drug as the dependent variable. The Chi-square/Fisher exact test was used to compare percentages between associate categorical variables. A p -value $< .05$ was considered statistically significant.

Ethical considerations

This study used a survey for data collection without any type of invasive procedures or intervention. The study protocol, consent form, and survey were reviewed and approved by the institutional review board of the faculty of pharmacy of the Lebanese University. 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

General characteristics of the participants

Table 1 represents the general characteristics of the study participants. The sample consisted of 32% of men and 68% of women. The mean age was 36.8 years (SD = 13.4) with the majority less than 40 years of age (62.5%) while 32% were between 41 and 60 years and 5.5% were older than 60 years. Most of the patients were recruited from Mount Lebanon and Beirut (43.0% and 34.4% respectively). Almost 38% were single, 52.3% married and 9.4% were either divorced or widowed. Almost a third of the participants had a high school degree and 48.4% had a university degree or more. The majority (69.0%) were employed at the data collection time.

Lifestyle habits of the participants

Table 2 presents the lifestyle habits of the study sample. Almost 30.0% of the patients were cigarette smokers and 34.4% were shisha smokers. Most of the participants reported being passive smokers (62.9%) and only 14.8% were alcohol consumers. As regards caffeine consumption, 85.9% reported drinking caffeinated drinks on a daily basis. Furthermore, 41.3% practiced physical activity.

Medical and medication history of the patients

The medical and medication history of the patients are presented in Table 3 below. More than 70% of patients reported having comorbidities. Among others, 17.2% reported having hypertension, 12.6% dyslipidemia, 5.5% diabetes, 7.8% cardiovascular diseases and peptic ulcer disease respectively. As regards the consumption of psychotropic medication, 63.4% used antidepressants, 24.6% used anti-anxiety medications, 9.8% used antipsychotics and 8.2% used mood stabilizers. Almost 80% of patients reported that a physician prescribed the psychotropic medication while 10.2% started it on their own and the rest started it based on a pharmacist's recommendation (7.1%) or a friend and family member's advice (3.2%). Most of the patients (73.4%) used a generic for their psychotropic medication out of which 52.1% faced side effects using it.

Figure 1 illustrates the reasons why patients used the generic of their psychotropic medication. Almost 30% of the patients reported that they used the generic due to the fear of dependence on the brand while 25.5% used it because of the unavailability of the brand and as

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

		Total (N = 128)
		Frequency (%)
Sex	Man	41 (32.0%)
	Woman	87 (68.0%)
Age (years)	Mean ± SD	36.8 ± 13.4
	18–40	80 (62.5%)
	41–60	41 (32.0%)
	More than 60	7 (5.5%)
Governorate of residence	Beirut	44 (34.4%)
	Mount Lebanon	55 (43.0%)
	South	11 (8.6%)
	North	11 (8.6%)
	Bekaa	7 (5.5%)
Marital status	Single	49 (38.3%)
	Married	67 (52.3%)
	Divorced/Widowed	12 (9.4%)
Household arrangement	With family	39 (30.5%)
	Alone	78 (60.9%)
	Medical assistance	11 (8.6%)
Level of education	<Middle school	23 (18.0%)
	High school	43 (33.6%)
	University or more	62 (48.4%)
Employment status	Employed	87 (69.0%)
	Unemployed	39 (31.0%)

Results are given in terms of frequency (percentage) or Mean ± Standard Deviation.

Table 2. Medical history of the study sample before and during the COVID-19 pandemic.

	Total (N = 128)
Lifestyle habits	Frequency (%)
Cigarette smoking	38 (29.7%)
Shisha smoking	44 (34.4%)
Passive smoking	78 (62.9%)
Alcohol consumption	19 (14.8%)
Caffeine consumption	110 (85.9%)
Physical activity	52 (41.3%)

Results are given in terms of frequency (percentage).

a result of a pharmacist’s advice respectively. Only 19.2% reported that the inefficacy of the brand was their reason to switch to its generic counterpart.

Association between having used generic medication for the psychotropic drug and the general characteristics of the patients

Table 4 presents the association between having used a generic alternative for the psychotropic drug and the general characteristics of the patients. No statistically significant differences were noted where almost 39% of

men and women used a generic ($p = 0.891$). In terms of age groups, those between 18 and 40 years of age used more generics compared to patients between 41 and 60 years ($p = 0.343$). Around 40% of both single and married patients used a generic with no significant differences ($p = 0.505$). Those with medical assistance or living alone used a generic alternative more than those living with their families ($p = 0.259$). A slightly higher percentage of employed patients (41.4%) used generics compared to 34.3% of unemployed ones ($p = 0.468$).

Discussion

The present study aimed to assess the consumption pattern of generic alternatives for psychotropic medications during the COVID-19 pandemic in a sample of Lebanese patients and the reasons for using them. One hundred twenty-eight patients using psychotropic drugs were recruited. More women consumed psychotropic drugs than men. This finding was also noted 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.¹⁷ The mean age of the patients was

approximately 38 years slightly higher than the one in the previously mentioned study¹⁷ and in a cross-sectional study evaluating the factors associated with depression in the Lebanese population.¹⁸ This can be explained by the fact of the concurrence of the COVID-19 pandemic with the data collection

Table 3. Medical and medication history of the patients.

Medical history	Total (N = 128) Frequency (%)
Do you have comorbidities?	94 (73.4%)
Hypertension	22 (17.2%)
Dyslipidemia	16 (12.6%)
Peptic ulcer disease	10 (7.8%)
Cardiovascular diseases	10 (7.8%)
Diabetes	7 (5.5%)
Respiratory disease	3 (2.3%)
Cancer	2 (1.6%)
Medication history	
Antidepressants	81 (63.1%)
Anti-anxiety medications	31 (24.6%)
Antipsychotics	13 (9.8%)
Mood stabilizers	10 (8.2%)
Who prescribed the psychotropic drug for you?	
Physician	100 (79.4%)
Self-prescription	13 (10.2%)
Pharmacist	9 (7.1%)
Friend/Family member	4 (3.2%)
Did you use a generic drug for your psychotropic?	
Yes	94 (73.4%)
Did you have any side effects from the generic?	
Yes	49 (52.1%)

Results are given in terms of frequency (percentage).

period, and as result, a higher risk of job losses and psychological problems mainly affecting this age group.¹⁹

The majority of the sample reported living alone, previously shown to be associated with a higher risk of depressive symptoms.²⁰ Moreover, previous research reported a detrimental effect of the pandemic namely being quarantined or living alone which might increase the risk of developing psychiatric symptoms.²¹ Around 70% of the patients were employed which can eliminate the risk of financial distress due to unemployment and therefore, the possibility of purchasing the medications. Nevertheless, employed patients have less time to access pharmacies, especially with the limited opening hours of drugstores and the long waiting lines during the pandemic.²²

Around 30% of the participants were cigarette smokers and 14.8% were alcohol drinkers. Findings from a study conducted in 2010 reported that smoking was significantly associated with an elevated level of psychological disorders, particularly among women with no direct effect of drinking.²³ As regards their medical history, most of the patients had other comorbidities such as hypertension, dyslipidemia, cardiovascular diseases, or peptic ulcer disease emphasizing the need for other medications than psychotropic drugs which might have affected their acceptance of using generics. Antidepressants were the psychotropic medications mostly consumed followed by anti-anxiety medications. These findings are consistent with those of a population-based cohort study carried out in Canada highlighting the significant association between the emergence of the pandemic and the increased use of psychotropic medication.²⁴

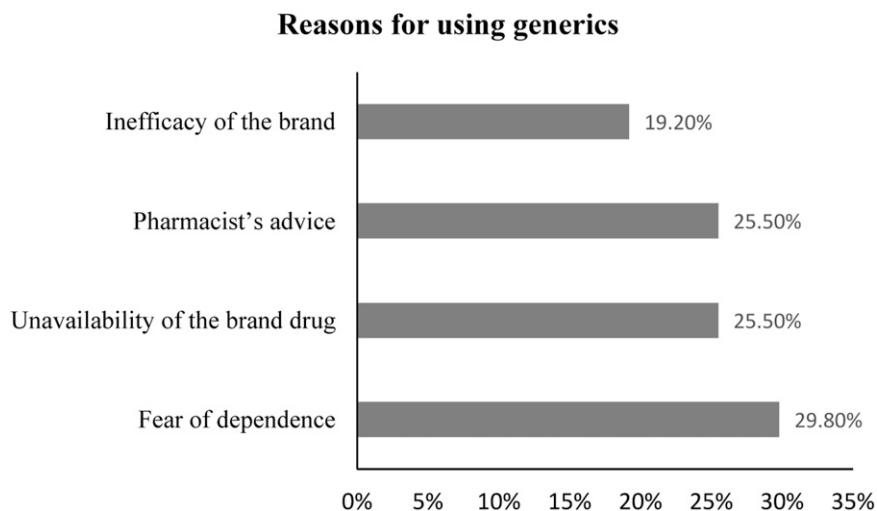


Figure 1. Reasons for using the generic of the psychotropic medication.

Table 4. Association between having used generic medication for the psychotropic drug and the general characteristics of the patients.

Using the generic for the psychotropic drug		Frequency (%)	p-value
Sex	Man	15 (38.5%)	.891
	Woman	33 (39.8%)	
Age (years)	18–40	33 (43.4%)	0.343
	41–60	14 (35.0%)	
	More than 60	1 (16.7%)	
Governorate of residence	Beirut	14 (34.1%)	0.922
	North	5 (45.5%)	
	South	4 (36.4%)	
	Mount Lebanon	23 (42.6%)	
	Bekaa	2 (40.0%)	
Marital status	Single	20 (43.5%)	0.505
	Married	25 (39.1%)	
	Divorced/Widowed	3 (25.0%)	
Household arrangement	With family	11 (29.7%)	0.259
	Alone	31 (41.9%)	
Level of education	Medical assistance	6 (54.5%)	0.889
	<Middle school	7 (35.0%)	
	High school	17 (41.5%)	
	University or more	24 (39.3%)	
Employment status	Employed	36 (41.4%)	0.468
	Unemployed	12 (34.3%)	

Results are given in terms of frequency (percentage).

Almost 13% of the patients started using psychotropics either through self-prescription or a friend's advice. This percentage is considered high since psychotropics can have serious adverse events and drug interactions and require medical follow-up.²⁵ In our sample, 73.4% of patients used generic alternatives during the COVID-19 pandemic. The use of generic drugs by most patients during the pandemic can be due to several reasons such as shortage of medication, low-cost of generics, and recommendations from a healthcare professional²⁶ which can open a window of opportunity to promote patients' attitudes and willingness to buy generic drugs even after the pandemic.²⁷ Fear of dependence was the main reported reason for using generic drugs. Research showed that patients with psychiatric disorders had fears of addiction and substance abuse which could be a possible explanation to substitute to a generic alternative.²⁸ Other reasons such as the unavailability of the brand medication or pharmacists' recommendations were also reported and could be associated with the fact that most brand drugs in Lebanon are imported¹¹ and therefore, patients and healthcare providers found the substitution to generic drugs as a possible safe replacement. Interestingly, no significant differences were noted between using generic drugs and the patient's general characteristics

in contrast to previous reports.^{29,30} This finding is encouraging and allows for targeting patients using psychotropics to advance generic use and duly lower the overall health cost. Nevertheless, medical attention and follow-up are required especially for drugs with a narrow therapeutic index.

This study has limitations. The small sample size can affect the generalizability of the findings to other patients. Moreover, the shortage of medications may affect the persistence of patients' perception regarding the use of generics after the COVID-19 pandemic. Nevertheless, the present study has also strengths. To our knowledge, this is the first study evaluating patients' willingness to use generic alternatives for psychotropic medications. Furthermore, recall bias was reduced given that participants filled out the survey at their time and place preferences.

Conclusion

The use of generic drugs can be a possible strategy to secure sustainable access to psychotropic medications. During the COVID-19 pandemic, the consumption of psychotropics increased due to new prescriptions and self-medication. Fear of dependence, unavailability of the brand drug, and pharmacists' substitution were the

main reported reasons for using generics. Interestingly, no differences were noted between using generics and the characteristics of the patients in contrast to previous studies. These findings support generic prescription and substitution policies through the engagement of doctors, pharmacists, and patients.

Declaration of conflicting interests

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Georges Hatem is a PharmD, Ph.D. of public health student at the University of Porto. He is also a researcher in the Clinical and Epidemiological Research Laboratory (Faculty of Pharmacy, Lebanese

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Ali Ankouni is a PharmD. He obtained his bachelor's degree in pharmacy practice in 2020 and his Diploma of doctor in pharmacy, PharmD in 2021 (Faculty of Pharmacy, Lebanese University). He participated in several research projects, such as evaluating psychotropic drug consumption during the COVID-19 pandemic and the relationship between obesity and antidepressant drug use. He has worked in a community pharmacy since 2020 and has been with the Lebanese Red Cross since 2019, where his work focuses on educating on vaccine importance and COVID-19.

Sethrida Salhab is a fifth-year M.D. (Medical Doctor) student at the University of Balamand (UOB). She graduated with a Bachelor's degree in Medical Laboratory Sciences. She has laboratory experience at Lebanese hospitals, including Saint George Hospital University and Mount Lebanon Hospital. Sethrida has shadowed surgeons and attended multiple surgeries, including Obstetric and Plastic surgeries. She was also involved in several volunteering works, including raising awareness about colorectal cancer at the American University of Beirut Medical Center and participating in free medical campaigns organized by the UOB.

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