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Substance use and substance use disorders in relation to COVID-19: qualitative experiences of people who use drugs in Jordan

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ABSTRACT

Background: Monitoring substance use and Substance Use Disorders (SUD) during global pandemics is essential, as individuals who engage in such activities may be at greater risk for infections as well as economic and social complications. This study aimed to describe the impact of COVID-19 on substance use and SUD, any changes that occurred in patterns of use, and services provided, the main challenges faced and if and how they had been overcome.

Methods: A qualitative study consisting of face-to-face semi-structured interviews with a sample of SUD patients from 3 main addiction treatment centers in Jordan. Recruitment stopped once data saturation was reached. Interviews were transcribed and analyzed using NVivo-R1 software, and thematic analysis was undertaken.

Results: A total of 17 individuals were interviewed (male, aged 19–52 years). Five key themes emerged from a narrative analysis: Impact of COVID-19 on the availability of substances, the pattern of use, social life and its relation to SUD, impact on tobacco smoking, and finally on the user's health, awareness and hygienic measures.

Conclusions: This study provided in-depth information to inform, support, and customize the design of interventions to mitigate the negative effects of substance use and SUD-related outcomes in a rapidly changing pandemic.

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COVID-19; substance use disorder; Jordan; pandemic; addiction; MENA

Introduction

According to the World Health Organization (WHO) worldwide deaths due to substance use are about 500,000 (WHO, 2021). The global prevalence of substance use disorders is estimated to be 100.4 million for alcohol use disorder, 22.1 million for cannabis use disorder, and 26.8 million for opioid use disorder. Alcohol usage is responsible for 4.2% of all disability-adjusted life years (DALYs), whereas other substances are responsible for 1.3% of all DALYs (Degenhardt et al., 2018). This sheds the light on the importance of drawing global attention toward reducing the impact of the crisis.

SUD is defined as the use of alcohol or other drugs on a regular basis that results in clinically and functionally severe impairment, such as disability, health issues, and failure to meet key duties at work, school, or home (Facing Addiction in America, 2015). Treatment for SUD has numerous barriers that affect the provision of services and users' access to treatment facilities, such as: socioeconomic hurdles, especially those linked with poverty (Ross et al., 2015); living in rural areas (Clary et al., 2020); inadequate treatment services (e.g., capacity); inadequate recovery support services (e.g., recovery

housing); inadequate technological resources (e.g., technological support tools); inadequate collaboration and leadership (e.g., communication and partnership); an increase in unethical practices in the field, such as incentive-based patient brokering (Ashford et al., 2018); lack of adequate trained primary care physicians; and stigma (Alsaïdi et al., 2021; Volkow, 2020).

On March 11 2020, the World Health Organization declared the novel coronavirus (COVID-19) outbreak a global pandemic (Cucinotta & Vanelli, 2020). Many countries, including Jordan, responded to this by enforcing several preventive measures to contain the virus from spreading. For instance, on March 17 2020, Jordan prevented and controlled all internal and external transportations, isolated the governorates, called for social distancing, wearing face masks, and gave the authority to the Minister of Defence to issue orders based on the situation (i.e., Defence Law) (Alqutob, Moonesar, et al., 2020). As a result, a strict complete lockdown was imposed on the whole country. Healthcare facilities such as hospitals were an exception, although no admissions were allowed except

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for emergency cases. The complete lockdown (March-June 2020) was then lifted gradually. For example, people who have permissions (e.g., patients who need to refill their chronic medications or essential workers) could move around from 10 AM till 6 PM (Alqutob, Al Nsour, et al., 2020). After that (June-September 2020), preventive measures were minimized; only a night lockdown was imposed from 12 AM till 6 AM with a complete lockdown in only one day of the week (i.e., Friday) (AlRyalat et al., 2021).

This challenging circumstance impact people's lives. For instance, this affected the whole economy of the country and reduced the household income for many people (Raouf et al., 2020), especially those whose income rely on "cash-in-hand" or a private business. According to the World Drug Report 2021, COVID-19 caused 255 million people to lose their jobs and pushed more than 100 million into extreme poverty (UNODC, 2021) In addition, the fear of getting an infection posed stress, anxiety, and depression on the general population and this in turn caused sleep difficulties (Al-Ajlouni et al., 2020; Al-Shannaq & Mohammad, 2021). All these stressors could be contributing risk factors for the development of addiction, or relapse (Roberts et al., 2021; Sinha, 2008). Further, persons who are trying to recover from SUD need social support, thus, social isolation may pose a risk for relapse (Volkow, 2020). As an example, recent evidence suggests that loneliness during COVID-19 was related to an increase in anxiety, depression and alcohol use (Horigian et al., 2021). Furthermore, COVID stress syndrome, which consists of five elements: fear of SARS-CoV2 infection; socio-economic concerns; xenophobia; traumatic stress; and compulsive checking and reassurance seeking, was associated with increased risk of alcohol and substance use among health and essential workers (McKay & Asmundson, 2020).

The literature describes the effect of COVID-19 on SUD mainly based on two aspects: (1) The effect on the pattern of use, availability, and the magnitude of use; (2) the effect on the provision of treatment and implementing novel solutions. For the first, an increase in alcohol, cannabis, prescription opioids, and sedative/hypnotics use was reported globally (Farhoudian et al., 2021; Kumar et al., 2022). In addition, there was a reported scarcity of substances and increase in the substances' prices, globally (Farhoudian et al., 2021; Kumar et al., 2022). Although little is known regarding the effect of the lockdown on SUD in the Middle East and North Africa (MENA) region, in some MENA countries there was a significant change in the patterns of poisoning cases arriving at the emergency department during lockdown, and that young males who lost their jobs during COVID-19 were the most vulnerable group for poisoning and overdose with different substances (Behera et al., 2022; Fayed & Sharif, 2021; Tanz et al., 2022). For the second, there was an interruption in providing treatment services for SUD, globally (de Vargas et al., 2021). Efforts were made to adapt to the situation by offering digital services, telehealth services (Zhen-Duan et al., 2022), larger quantities of take-home maintenance medications, and home delivery services (Prina, 2020; James, n.d.). However, unsupervised medication-based treatments may have posed a risk of overdose and fatality on SUD individuals (Rostam-Abadi et al., 2022; Volkow, 2020). Moreover, flu-like

symptoms from SARS-CoV2 overlap with opioid withdrawal symptoms, hence, may have increased the likelihood of overdosing (Dunlop et al., 2020).

There is a scarcity of data about the health response and situation of people who use drugs (PWUD) during the pandemic in the Middle East and North Africa (MENA) region (Aaraj et al., 2029; Van Hout et al., 2022). A mixed method study was conducted by the MENA Harm Reduction Association (MENAHRRA) to assess the situation of PWUD and impacts on harm reduction services in these countries, including Jordan, during COVID-19. The study highlights how COVID-19 aggravated existing marginalization and stigmatization of PWUD and other key populations in the MENA region, with government level resourcing severely impacted by COVID-19 (Van Hout et al., 2022).

This highlights the importance of our qualitative study which to investigate patients' experiences and perspective regarding the impact of COVID-19 pandemic on substance use, SUD and services provided to SUD patients during the pandemic in Jordan. Moreover, we aim to understand the challenges that were faced by users during the pandemic and how they were overcome.

Materials and methods

Study design and settings

In Jordan, two public facilities treat alcohol and SUDs; the National Centre for Rehabilitation of Addicts (NCRA) at the Jordanian Ministry of Health (MoH) and the Anti Narcotic Department's (AND) Drug rehabilitation center which falls under the authority of the Public Security Directorate (PSD), as well as service provided by the private sector (Yasin et al., 2020). This study was carried out in both public (in-patient) centers in addition to one community based organization; Forearms for Change Center for Enabling Community (FOCCEC). Table 1 highlights the major characteristics of the three settings.

Admissions to the NCRA were conducted voluntarily either by patient's or family's will, as cultural norms require the family to take full care and responsibility for the patient and help the psychiatrists/physician to persuade the patient into treatment. A patient cannot be admitted to NCRA unless they consent to treatment. On the other hand, because AND falls under the authority of the Public Security Directorate, many patients have compulsory admission by law referral (Narcotic Drugs and Psychotropic Substances Law, 1988).

Ethical approval for this study was obtained by the Institutional Review Board (IRB) at Hashemite University (reference number: 16/11/2000751). The inclusion criteria for this study were any individual over 18 years old, under care of NCRA, AND or FOCCEC, who used substances during the period of COVID-19 pandemic, whether they had started using before or during the pandemic.

Data collection

In-person semi-structured interviews were conducted in Arabic with a purposive sample of patients in all 3 settings.

Table 1. The major characteristics of the three study settings.

Criteria	National Centre for Rehabilitation of Addicts (NCRA)	Addiction Treatment Centre (AND)	Forearms for Change Centre for Enabling Community (FOCCEC)
Run by: Admission	Ministry of Health (MoH) Only voluntary (self or family)	Anti-narcotic Department-Public Security Directorate Voluntary (self or family) and compulsory (by law referral)	Community Based Organization Only voluntary (self or family)
Residency	Not mandatory-60 days residency (including women as both out-patients and inpatients)	mandates at least 14 days residency (optional: up to 42 days)	No residency- support, self-help groups and harm reduction services as outpatients
Female treatment Minimum age treated	YES (inpatient and outpatient) 18 years and above	NO, Referred to NCRA/MoH	YES (outpatient) All ages. However, those < 18 needs to have their parents' approval

A qualitative interviewing guide was developed based on past research by the authors [21] and literature review. Participants were informed about the goals of the study by a focal point (gatekeeper) in each of the 3 settings. After obtaining informed consent, interviews were conducted and recorded, lasting between 10–40 minutes (median = 19 minutes). Data collection stopped once data saturation had been reached. MW (PhD, principal investigator, female) conducted all interviews in presence of DS (PharmD, research assistant, female) as note taker. Both researchers have been trained for conduction and analysis of qualitative interviews. All questions focused on the participants' experience of using substances during COVID-19 pandemic period, and how that affected their substance use, if there was any effect on accessing health services, shifts in substances used, accessibility to substances and if the pandemic had affected their perception of health. The interviews were conducted between November 2020 and February 2021.

Data analysis

The first phase of data analysis consisted of transcription; all data were transcribed verbatim in the Arabic language. After that, transcriptions were translated into English by DS and reviewed by MW. Both authors are bilingual, so meaning of specific phrases and synonyms was kept intact by translation discussion and agreement between MW and DS. Finally, data in English were analyzed using QSR NVivo R1 software. Thematic analysis was undertaken and comprised three stages. Stage one identified statements of interest that related to the aim, grouping them under key headings (codes). Codes were derived both inductively from the data and deductively from prior knowledge and literature. DS coded all interviews and MW double-checked 3 interviews for agreement. Stage two reduced these initial codes (axial coding), to refine them, bringing together related initial codes under second level subthemes. Stage three further refined these by comparing axial codes, interpreting, and condensing them where appropriate to overarching themes. Deviant case analysis was also undertaken, so relevant codes that did not “fit” with the emerging themes were used to identify isolated experiences and beliefs. Themes were agreed between MW and DS and then discussed with the team. The research team was multidisciplinary (Public Health, Sociology, Mental Health Nursing, Clinical and Social Pharmacy) and had experience in qualitative research

and qualitative data analysis. Quotes were chosen to illustrate the meaning of the themes and deviant codes.

Results

Demographic data

A total of 17 participants were interviewed. All were male, no females with SUD were admitted to NCRA during the study period. Age ranged from 19 to 52 years old (median age = 27 years old). Eleven participants were unmarried and most had college/university/postgraduate education. For inpatients, the average length of stay at the time of interview was approximately 23 days (range 5–49 days). The most common substances used by participants were Hashish ($n = 11/17$), Captagon (fenethylline, an amphetamine type stimulant, $n = 10/17$), alcohol and Joker powder (synthetic cannabinoid receptor agonist, SCRA) ($n = 9/17$ each). Hashish and alcohol were the most frequently reported as first substances used by participants ($n = 5/17$). Table 2 summarizes the demographic details of the participants.

Thematic framework

Six key themes emerged from the analysis: The impact of COVID-19: (1) on the pattern of substance use; (2) on the availability of substances; (3) on socioeconomic status and its relation to substance use; (4) on tobacco smoking; (5) on the user's health, awareness, and hygienic measures; and finally (6) accessibility to addiction healthcare services during the lockdown.

The impact of COVID-19 on the pattern of use:

(a) *Shifts in substances during the lockdown:*

Some participants stated that they shifted from one substance to another during the lockdown due to their lack of resources. One participant started using different types of substances due to the unavailability of others.

If there was no Hashish, then I would switch into crystal meth. . . If crystal meth wasn't available, I would switch to Captagon . . . If there was no Captagon, I would take whatever is available and so on. At the end if there was nothing available, then you have to make it available, you have to!

(Participant 2, 21 years old)

Table 2. Case numbers and demographic characteristics of substance users recruited in the study ($n = 17$).

Item	Case Numbers (n) [∇]
Marital status	
1. Married	13 (1)
2. Engaged	8 (1)
3. Unmarried	1,2,3,4,5,6,10, 12,15,16,17 (11)
4. Divorced	7,9,11,14 (4)
Age	
1. < 20	5 (1)
2. 20–30	1,2,3,4,6,7,10,11,12,16,17 (11)
3. 31–40	8,9 (2)
4. 41–50	13,14,15 (3)
Gender	
Male	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17 (17)
Female	(0)
Drug of Use	
1. Hashish (weed)	1,2,3,4,5,7,9,10,11,12,16,17 (11)
2. Marijuana	1,7, 11 (3)
3. Synthetic cannabinoids receptor agonists (SCRA, aka. Joker)	1,2,3,4,5,7,9,15,16. (9)
4. Captagon*	2,3,5,6,9,10,11,12,16,17 (10)
5. Sedatives [§]	1,7,8,10,11,14 (5)
6. Crystal meth	2,5. (2)
7. Alcohol	5, 6, 7, 8,11,13,14,15,16. (9)
8. Opioids [¶]	5,7,12. (3)
9. Cocaine	5,7,9,16. (4)
10. Pregabalin	1,2,3,5,8,10,11,12,16. (9)
11. Gabapentin	7,8,12,16. (4)
12. 3-MMC (methedrone)	10. (1)
13. 4-MMC (mephedrone)	10. (1)
14. Parazine [®] : chlordiazepoxide + Trifluoperazine	7. (1)
15. Deanxit [®] : melitracen+ flupentixol	7. (1)
16. Librax [®] : chlordiazepoxide+ clidinium bromide	7. (1)
Duration of drug use	
<1 year	(0)
1–2 years	2,5. (2)
2–5 years	(0)
>5 years	4,6,7,9,11,6,8,15,16,12,13,14,17. (13)
Education level	
1. Elementary school	1. (1)
2. Middle school	2. (1)
3. High school	4,6,9,12,13,16,17. (7)
4. College/University/postgraduate	3,5,7,8,10,11,14,15. (8)
Occupation	
1. Employed	1,4,6,7,9,10,11,15. (8)
2. Unemployed	2,5,8,13,16,17. (6)
3. Private business	12,3. (2)

Note ∇ the number between parentheses demonstrates the frequency of cases.

*Captagon= Fenethylamine (an amphetamine type stimulant).

[§]Sedatives: e.g., bromazepam, alprazolam, clonazepam, diazepam.

[¶]Opioid: e.g., oxycodone, tramadol, heroin.

Shifting from hashish to alcohol was one of the ways participants managed to support themselves during the curfew, according to one participant.

There was a Christian guy who owned a liquor store . . . and when we ran out of things, he used to get us alcohol, as he had permission to move around.

(Participant 5, 19 years old)

One of the interviewees mentioned that he had switched from using cigarettes to “Gharqanah” which is a homemade hookah used for hashish. He commented that using it in this way gave him a better psychoactive effect.

I stopped smoking cigarettes and I started making something called “Gharqanah” [Arabic for drowning] that most guys do. We put two bottles together (the open top of the first bottle over the second) and you punch a hole through the cap of the bottle, and you put the weed inside, it gives off better vibes

(Participant 17, 28 years old)

(b) *The impact of the COVID-19 pandemic on the amount of substance use:*

Some participants reported an increase in the amount of substance use during the pandemic, while others reported that it did not change. On the other hand, only one reported a decrease in substance use. Participants related increased substance use during the lockdown attributed this to greater free time during. Other factors were also mentioned such as stress, family issues, peer pressure, feeling bored and isolated.

It [drug use] increased as everybody started consuming it. I mean the use of it [drugs] became more common.

(Participant 1, 24 years old)

March came and what happened to me [shows regret in his voice] is that I had free time. . . Free time plays a big role. I am sitting at home and what am I going to do? What am I going to do? And also bad friends played a role too.

(Participant 3, 24 years old)

*The impact of COVID-19 on the availability of substances:**(a) Accessibility to drugs during the lockdown:*

Although Jordan was under lockdown from March till June 2020, most of the participants ($n = 13/17$) mentioned that they did not run out of drugs. In fact, one of them mentioned that drugs were more accessible.

Quite the opposite, in fact drugs were more available.

(Participant 11, 23 years old)

Because we have it [Joker Powder] available in the village. Simply, you go out and get it, we're living in a village, and the cops don't come unless there's a problem. It's a quiet village; you can leave your house during the curfew. We used to go out, get it and come back. We had a place to gather. We go under trees . . . we smoke and set up fire . . . that's our routine. . .

(Participant 4, 25 years old)

Because I live in a camp [refugee camp], the camp is not like Amman honestly, the camp is full of alleys and all that, so the police don't come inside the camp, we are forgotten, deleted from the map [Sarcasm] when talking about the police coming in here. It was normal.

(Participant 9, 37 years old)

Only one participant, who lived in Al-Aqaba (southern Jordan by the Red Sea), mentioned that he ran out of drugs during the curfew.

Because they [drugs] weren't available and were expensive, as the price doubled. Many guys had the same issue, maybe even the drug dealer ran out of drugs . . . And he shouldn't have run out of drugs.

(Participant 5, 19 years old)

One participant described his withdrawal experience when he ran out of Joker powder.

- I started swallowing my tongue, have spasms and going into coma and then woke up like this. [simulating body spasm]

-MW: All this happened when you ran out of it [joker powder]?

-Yes, when I ran out of it.

(Participant 1, 24 years old)

On the other hand, some participants reported that it was easy to get certain drugs and harder for others. The scarcity of some substances during the pandemic obviously affected their price too.

During the pandemic weed (Hashish) was not available, I mean it was expensive and no one could find it.

(Participant 2, 21 years old)

I managed that by getting it [alcohol] from my friend. But the price was double

(Participant 6, 26 years old)

(b) How participants obtained substances during lockdown:

A variety of modes were detailed by patients around obtaining substances during the lockdown. These included paid home delivery service, some gas delivery trucks (since they were legally permitted to move during lockdown), friends who had permits and others. All of which illustrated creativity of finding new ways, circumventing the law, restrictions and kinship in order to obtain the supply. One participant, who was an AUD

patient, reported that people were selling alcohol in illegal ways.

Some people sold alcohol while everything was closed [laughs]

(Participant 13, 43 years old)

By the way, there were people helping us with getting drugs, they worked like a taxi, but taxis couldn't go out [during the lockdown] Like a taxi, for example, "I need this specific drug" [asking the taxi driver] and then I always gave him 5 JDs, for example, or how do I say it to you . . . or I told him, for example, that I want to buy something for 20 JDs and I gave him enough money to buy two cigarettes of weed and he would take it, go [to buy drugs] and come back, and we stayed at home lockdown, as we didn't have the permission to go out, it was in the midst of the lockdown.

(Participant 5, 19 years old)

Yes, delivery. You remember the gas truck was allowed to deliver gas at that time. Delivery was allowed. They were able to get drugs as well.

(Participant 7, 30 years old)

Another opinion indicated that living in a neighborhood where all drug dealers live facilitated access to drugs during the lockdown.

Everything is near me, I live in **** neighbourhood and all drug dealers are there.

(Participant 17, 28 years old)

Friends who had permission to move around worked on delivering drugs to others in need, according to one of the interviewees.

I did a lot of teaching, maybe I'm not rich with money, but my social interaction is very good, some of my ex-students work in the municipality, and they had the authority to leave and use transportations so they were the ones to get me. . . drugs . . .

(Participant 15, 52 years old)

Other responses to this question included: sneaking out through hind roads/alleys using bicycles or quad bikes; meeting with their friends who lived in the same neighborhood; taking advantage of the allowed time during the partial lockdown; getting alcohol from their friends by going to their homes; using work permission to move around and keeping extra supplies.

*The impact of COVID-19 on socioeconomic status and its relation to substance use:**Impact of COVID-19 and financial status on substance use:*

During the interviews it was reported that the COVID-19 pandemic affected people's financial status, affecting substance use. For instance, one of the participants stated that he lost his dream job due to the pandemic thus leading him to use drugs.

I told you I had my own shop. It was mine; no one has anything to do with it, even my family. I made it from A to Z and it was gone! how could I tell you . . . my health was gone, problems over problems and many concerns and worries inside the house outside the house . . . all of this together. Then you start to think about one thing only . . . which is using drugs, to . . . to forget

(Participant 2, 21 years old)

I came here [to Jordan] and it's been 6-5 months and there were no jobs, so I didn't have financial support to buy the furniture, there were no jobs. So all I thought of when the night came was to

drink and sleep.

(Participant 13, 43 years old)

One participant stated that if he had a job, he would not have used drugs during the lockdown.

As long as I work, thanks to Allah, I don't get near it [drugs]. I don't come near it at all when I'm working in the factory. But free time plays a big role in addiction.

(Participant 3, 24 years old)

Participants stated that the lockdown regulations were extremely strict, increased their stress, boredom and feeling of isolation and consequently, use of substances.

I started to suffer a little bit . . . I felt that my shop started to fail. When COVID-19 started, and we had the lockdown till they reopened in June right? I think, at that point I was destroyed; the rent was high and I didn't pay my rent and had many issues inside and outside the house and thousands of things that accumulated. So I was working outside my shop which means I worked at people's homes. They [the police] caught me 6 times because I was out during the curfew. They impounded 6 cars. What I earned from work was spent on paying the tickets. At this point everything was destroyed. I closed my shop to not be in debt.

(Participant 2, 21 years old)

The impact of COVID-19 on tobacco smoking:

All the participants reported that they used tobacco cigarettes ($n = 16/17$), except one participant who used electronic cigarettes (e-cigarettes).

a. Quantity consumed per day:

We were interested to know if smoking behavior changed during the lockdown; participants smoked a range of 1–5 packs of cigarettes per day. Several participants emphasized the notion of how Captagon increased their cigarette consumption. Some mentioned that cigarettes enhance the psychoactive effect of Captagon, perhaps leading to polysubstance use.

Because I take Captagon, you know what I mean? I would smoke [tobacco] about 3 packs a day.

(Participant 9, 37 years old)

c. The Availability of cigarettes during the lockdown:

Most participants reported that they did not run out of tobacco cigarettes during lockdown. In contrast, one of them mentioned that he ran out of cigarettes but not drugs.

I didn't find cigarettes, but drugs were available

(Participant 3, 24 years old)

Some participants mentioned that they used to get cigarettes from their friends, others stated that the supermarket in their neighborhood used to illegally sell cigarettes during the lockdown and they bought extra packs of cigarettes each time.

My friends have coffee shops. Yes, they used to deliver it [cigarettes] to my home.

(Participant 15, 52 years old)

I live in a [refugee] Camp . . . which means if the supermarket closed the front door [because of the lockdown] they would open the back door [hidden]. So, we entered from the back door and he [the shop keeper] gave us cigarettes . . . he had a stockpile of

cigarettes in his house

(Participant 6, 26 years old)

I usually buy 2 packs of cigarettes. I always had extra.

(Participant 13, 43 years old)

The user's health, awareness, and hygienic measure:

(a) Awareness about practicing safety measures during COVID-19 pandemic:

In general, participants reported that COVID-19 pandemic made them aware of hygiene measures (e.g., face mask, hand sanitizer). Nevertheless, only two actually wore their face masks during the interview. Other participants reported that substance use was a greater priority for them. One participant reported that his substance use made him ignore COVID-19 infection risk.

Let me tell you the truth, at the beginning I didn't believe that there was something called COVID-19, but then my dad sat with me and he told me, "Your mom has diabetes, and COVID-19 affects people who have diabetes and hypertension, it is a serious thing" . . . so I decided to decrease my interaction with people. For example, if I found out that there were many people in the gathering, I would not go, or if I knew that one of the attendees had been in contact with someone who had an infection, or if someone went to Amman, I would not go. I knew two people who didn't go out so I used to hang out with them.

(Participant 5, 19 years old)

Another participant commented that he did not sanitize his hands except if he saw hand sanitizer available, and he wore a facemask only because he was afraid to get a ticket. He also mentioned that he did not believe that COVID-19 existed until he saw his friends got infected.

I wasn't convinced that there was something called COVID-19 until my friends got infected and I saw how they were. It happened two months ago.

(Participant 6, 26 years old)

Furthermore, even participants were aware of COVID-19, reported to have only worn facemask at the treatment center, and did not care about practicing safety measures, and did not believe that safety measures protected from COVID-19.

Let all people get infected, it's ok, herd [immunity] and whoever dies dies

(Participant 15, 52 years old)

I was someone who used to wear a facemask until I got infected, then I felt safe because I got immunity, so I don't wear it all the time.

(Participant 7, 30 years old)

(b) Impact of COVID-19 on health perspective of people who use substances:

Participants were asked if COVID-19 changed the way they looked at their health. Most participants believed that COVID-19 pandemic did not change their health perspectives.

I told you if someone smokes something that harms him . . . He won't care about COVID-19 or anything else.

(Participant 4, 25 years old)

One of the interviewees reported that his brother, who lived in the same house, got infected; however, he was not aware if he also got infected because of drug use.

I swear I thought I was infected and recovered without knowing.
(Participant 4, 25 years old)

Participants were aware of the negative effect that drug use had on their health and immunity, and that it rendered them more susceptible to infections, including COVID.

Um . . . firstly, taking substances destroys your health . . . As long as you take drugs, you are more susceptible to COVID. Like, you destroy your health . . . you destroy your respiratory system . . . The respiratory system is the main defence in the human body that can protect other organs. Lungs . . . Because COVID hits the lungs first that's why you should protect yourself from COVID . . . you should reduce your addiction to protect yourself more.

(Participant 3, 24 years old)

Interestingly, the participant who ran out of drugs during the lockdown stated that the pandemic was a blessing for him as he realized that he could live without drugs.

I felt at that time [Covid-19] that drugs were not the most important thing in my life, my health is first. Yes, during that period [Covid-19] I realized that I could live without it [drugs], and that all these things are silly.

(Participant 5, 19 years old)

One of the interviewees experienced kidney injury during the pandemic, and he believed that this kidney injury was a consequence of using drugs such as pregabalin and gabapentin. Accordingly, this made him reconsider the way he thought about his health.

After my kidney problem, I now know what health means. I know what it means to lose everything but not your health.

(Participant 7, 30 years old)

COVID-19 pandemic was an opportunity for tobacco harm reduction, as it made one of the participants switch from ordinary to electronic cigarettes.

It [Covid-19] made me switch to electronic cigarettes and I manipulated my father into doing the same thing. And my mother as well."

(Participant 10, 22 years old)

One of the participants believed that taking alcohol with sedatives made him a careless person, which explained in his opinion, why he did not care about the pandemic.

No, I didn't even feel anything. As you know sedatives [in his case: alcohol+ bromazepam] make you careless [not care], nothing matters in the world except the mood that you're in.

(Participant 14, 45 years old)

Participants were asked about how they treated COVID-19 and the responses mainly included home remedies and vitamins. They reported to self-medicate with paracetamol, zinc, vitamins, and to measure oxygen saturation.

I drank a lot of citrus because I love citrus and salt. So I drank things like. . .my mom made herbal tea for me . . . things like this, and I always took the American Centrum[®] vitamins. I used to take one pill [Vitamins] everyday, also I used to get a B12 injection from time to time in the pharmacy.

(Participant 13, 43 years old)

Accessibility to addiction healthcare services during the lockdown:

Participants reported that they had access to substance use treatment centers during the pandemic, either by telephone or ambulance. As for medications, some got hold of their medications as during the lockdown as the doctor used to prescribe extra amounts. As for FOCCEC, they stayed in touch with their patients during lockdown as they provided different out-reach services, especially emotional support and referral to psychiatrists.

The doctor gave it [medication] to me in huge amounts.

(Participant 1, 24 years old)

Discussion

This study described, from the perspective of substance use patients, what is known regarding the impact of COVID-19 on substance use and SUD in Jordan.

The COVID-19 pandemic created severe issues for health-care and broader social structures, exposing societal vulnerabilities. People who use substances or have a substance use disorder (SUD) are among the most marginalized populations affected by COVID-19. Monitoring substance use and SUD during the pandemic is essential, as individuals who engage in substance use or present with SUD are at greater risk for COVID-19, and the economic and social changes resulting from the pandemic may aggravate SUD (Kumar et al., 2022).

Participants reported that their substances of choice were available and accessible during the lockdown even for those who lived in remote areas such as villages, refugee camps, or in governorates other than Amman (the capital city of Jordan), as there was no strict curfew in these areas. This was contrary to the reduction in illicit drug consumption reported by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). This is evident in results obtained from an online sample of people known to use drugs, in which almost half (46%) reported either no illicit drug use or reduced illicit drug use during the lockdown period. EMCDDA suggested that this decline may have been due to the strict measures which reduced socialization and disrupted the street drug markets leading to a decrease in substance availability (Matias et al., 2020). However, this study was a rapid assessment looking at March – June 2020 only, as compared to our study (March 2020-March 2021). Drugs quickly came back in Europe with little problems to access [33]. Participants in this study also reported that the lockdown measures, in particular the closing of country borders, affected the availability of some drugs, after which some PWUD shifted to other drugs. This was consistent with Van Hout et al. (2022) who found that PWUD in Jordan resorted to *Joker* that was reported to synthesized locally when borders were closed.

In our study, social networks were central factors for accessing drugs during the pandemic. Zhen-Duan et al. (2022) discuss how the pandemic changed social networks and interpersonal relationships to increase the availability of substances, but also ways these changes helped people cope with COVID-19 stressors (Zhen-Duan et al., 2022). Another contributing

factor that should not be underestimated is the culture and cohesion between people within the MENA region of the world (Wazaify & Scott, 2017). Some people, if not only for the money, may also feel the obligation and desire to help an acquaintance or regular patient with their needs (in this case drug supply) despite concerns around dependence or fear of being caught.

Participants reported an increase in their consumption of substances during COVID-19 pandemic. In a survey of 105 countries by Faeq et al. (2023), a reported 22.9% and 31% reported an increase in their alcohol and tobacco consumption respectively (Faeq et al., 2023). This is expected due to lockdown and the associated level of stress, anxiety, depression, boredom, family issues, and isolation (European Monitoring Centre for Drugs and Drug Addiction, 2022; Kesten et al., 2021). Different psychiatric conditions, including depression, panic attacks, Post-Traumatic Stress Disorder (PTSD), and even suicidality, were reported to be associated with outbreaks, especially in younger age groups (Ho Su Hui et al., 2020). Such factors are also believed to have triggered relapse, even in long-term abstainers, or increased drug consumption (Wemm & Sinha, 2019).

Several studies reported the psychological impact and coping mechanisms around the COVID pandemic in the Jordanian population (Akour et al., 2020; Al-Tammemi et al., 2020; Malkawi et al., 2021). One study conducted among university students in Jordan reported that 12.9% of respondents (aged 18–38 years) used medications to cope with the COVID related stress, daily (18.4%) or 3–4 times a week (20.4%). Almost half (49.0%) of which used sedative-hypnotics and 13% used opioids (Al-Tammemi et al., 2020). Opioids are substances which can depress respiratory rate (Radke et al., 2014). Therefore, even mild symptoms of COVID-19 can be detrimental to this group of users (Diacono & Caruana, 2022).

All participants in this study engaged in tobacco use, which concurs with World Health Organization data that Jordan has the highest number of people who smoke globally (Safi & J, 2020). We also noted that some participants switched to e-cigarettes during lockdown, perhaps due to lack of combustible cigarette availability. We suggest the possible effect of the lockdown promoting tobacco harm reduction (Chen et al., 2022).

We also note how patients combined tobacco with captagon. Acute interactions of nicotine and other psychomotor stimulants like methamphetamine and cocaine have been reported in the literature to produce potentiative effects on behavioral and neurochemical responses (Jutkiewicz et al., 2021; Kohut, 2017). These transient interactions may play a role in the frequent co-use of nicotine and other stimulants such as captagon.

Patients generally prioritized substance use above avoiding COVID-19 infection. A considerable proportion of young people undergoing substance use treatment may not be able to use health information to take care of their health and navigate the healthcare system effectively (Rolova et al., 2021). More in-depth studies into the self-perception of health among substance users in Jordan are warranted.

Moreover, individuals engaging in substance use, face greater risk of infectious diseases, including COVID-19 and its adverse outcomes, possibly due to chronic medical conditions and reduced access to healthcare (Tai et al., 2021). In this study, participants reported that they faced no problem accessing the treatment centers during the pandemic either by ambulance or phone, the fact that may have mitigated the adverse consequences. None of the participants mentioned online interventions during the pandemic, which is consistent with previous studies from low-middle income countries (LMICs) (Arjadi et al., 2015; Wazaify et al., 2020). In other countries, programmatic adaptations to COVID-19 SUD care, including telehealth and loosening restrictions around medications for opioid use disorders mitigated the difficulties that patients had faced, especially among low-income individuals with SUD (Zhen-Duan et al., 2022).

Limitations of the study

This study relied on gatekeepers to facilitate access to participants. Thus, it is possible that some patients may have been excluded due to selection bias. We did not formally collect information on people invited to take part who declined (although we were informed that no one did). Women were not represented in our sample because there were no admissions during the study period. Authority figures at some substance treatment centers sat in for some interviews (the ones held at AND), which may have limited or biased discussion. Finally, we cannot ignore the impact of COVID-19 pandemic on the study; the lockdown in general and the closures of treatment centers whenever a case had been detected within the center, all caused significant delay in the timeframe of the study. The strict safety measures (e.g., wearing mask during the interview) may have also affected the communication with interviewees, although the researcher had to take the mask off sometimes during the interview to facilitate communication (Marler & Ditton, 2021).

Conclusion

Participating patients with SUD reported increased or unchanged levels of substance during the COVID-19 pandemic. They had access to healthcare providers and received medications throughout the pandemic. Users were generally aware of the impact of COVID-19 infection and followed the hygienic measures, although their substance use took higher priority.

The results of this study can aid design of interventions to mitigate substance use and SUD-related outcomes in similar rapidly changing settings such as the COVID-19 pandemic, particularly in LMICs. Moreover, decision makers in Jordan should focus on strengthening anti-tobacco measures, and perhaps including tobacco harm reduction techniques as part of substance use prevention and treatment approaches.

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