

Substance Abuse among University Students: Assessing Prevalence, Risk and Preventive Measures

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ABSTRACT

Objectives: This research was undertaken to determine the prevalence and beliefs about drug abuse among university students in Jordan and to recommend certain preventive measures for the problem of drug addiction.

Methods: A descriptive cross-sectional online survey was conducted in April 2021 and included 679 students from private and public universities in Jordan. Students were asked to fill out the study survey through social media (Facebook and WhatsApp).

Results: The study included a survey conducted among 679 students from private and public universities whereby two third of them were females and more than half were studying in medical and health departments. It was found that 7.1% of university students used drugs in their life including illicit drugs, alcohol and cigarettes. Also, the addictive students started using drugs at a mean age of 18 years old \pm 3.9. Importantly, around half of the addictive students succeeded to quit using drugs, 20.8% reported not trying to quit, while 33.3% of them tried but could not quit. In addition, the findings of this study revealed that peer pressure (n= 657, 96.8%), and the lack of religious commitment (n= 654, 96.3%), were the most motivational factors for drug abuse. Finally, regression analysis showed that female gender (OR= 0.094, p-value <0.001), and studying in public university (OR= 0.496, p-value= 0.042) were considered protective factors against substance abuse.

Conclusion: Focusing on increasing the awareness of youths about the risks of using drugs is a major framework in the society. Our recommendations are to increase awareness among the students, parents and society about drug abuse.

Keywords: Students, substance use, knowledge, attitude.

INTRODUCTION

Substance use is generally known as a state produced by the continued and exceeding use of a certain substance (natural or synthetic), which causes periodic and chronic intoxication detrimental to the individual and to society ¹. Such substance has a range of psychological effects such as

alterations in the person's mood, thought, perception, and behavior by influencing the central nervous system ²⁻⁴.

There is no denial that the rate of substance use among university students is increasing ⁵. Students from developing countries are at a greater risk of acquiring substance use disorders due to lack of the necessary identification, treatment and control programs of substance use disorders within the institutions of higher learning ⁶. Most developing countries experience rapid economic, social, and cultural transitions creating

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favorable conditions for the increase in socially disruptive substance use ^{7,8}.

Substance use is a critical area of research. This is due to the implications of developing substance dependence at an early age affecting negatively the future of young people ². There are ten categories of drugs that may lead to drug abuse including anxiolytics, caffeine, hallucinogens, sedatives, inhalants, stimulants, hypnotics, cannabis, alcohol, opioids and unknown substances ⁹. A number of epidemiological studies had been conducted to determine the attitudes towards substance use among university students in different countries. Students in Islamic Azad University in Iran were knowledgeable about the factors of addiction, preventive methods, and harmful effects of substance use ^{3,31}. A small fraction of students at Tabriz University in Iran reported using drugs to feel more adult or tried to be more popular with peers ¹⁰. Students in Turkey had negative attitudes towards heroin and cocaine and positive attitudes towards cannabis ¹¹.

Although Jordan is known for its conservative Islamic values, substance use has become increasingly common ^{12,28,29}. It was reported that tobacco is considered a “gateway drug” that may lead to alcohol, hashish, and other substance use as well high-risk behaviors in the long term in Jordan (Abdel-Qader et al. 2021). However, not only is nicotine a highly addictive substance in and of itself, research is making clear the connection between smoking cigarettes and substance abuse, including the role of cigarettes as a gateway drug and a higher likelihood of relapse among smokers who achieve sobriety ^{3,30}. In 2003, Jordan adopted the Framework Convention on Substances Control. However, reports have indicated that substance use among Jordanian youths is on the rise, with hashish use increasing among the 16-25 age groups ¹³. According to estimates from the United Nations Office on Drugs and Crime (UNODC), the largest amount of Captagon (the brand name of the psychostimulant fenethylamine) was seized in Syria, Jordan and Kingdom of Saudi Arabia in 2011 ¹⁴.

A chemical analysis of 124 seized Captagon tablets in Jordan indicated the absence of fenethylamine and the presence of many contaminants in an indication of the serious harmful effects from drug abuse ¹⁵. Nearly 40% of all adults aged 25 years or over reported having smoked at least 100 cigarettes during their lifetime with smoking prevalence rate of 48.2% for men and 5.1% for women ⁵. Very little is known about the knowledge, attitudes, and beliefs regarding substance use among Jordanian university students. Thus, there is increasing need to address substance use among Jordanian university students to forestall future problems with drug abuse.

METHODS

Study design and population

A descriptive cross-sectional online survey was conducted in April 2021 and included 679 students from private and public universities in Jordan.

Questionnaire development

The questionnaire was constructed upon reviewing relevant literature ^{1,2}. The draft questionnaire was reviewed by three research experts for face and content validity to assess its relevance, specificity, and comprehensiveness. The questionnaire was developed in English,; the language of instruction in the Jordanian universities

The final version of the questionnaire was divided into several sections addressing different topics of interest. The aim of first section was to collect demographics data about participants' characteristics. The second section involved substance abuse behavior by the study participants. Notably and as we mentioned previously that nicotine a highly addictive substance which can led to substance use, for this reason, in this section the authors included smoking and alcohol drinking with illicit drug abuse in one question. The third part was planned to assess factors associated with substance abuse from students' perspectives using 3-point Likert scale that ranges from highly impact to no impact.

The aim of the fourth section was to assess factors that prevented non-addictive students from abusing substances using 5-point Likert scale with answers that range from strongly agree to strongly disagree.

Data collection

The study was conducted via an online survey that was uploaded on the Google Form platform. A sample of eligible participants was invited to participate in the study from the private and public universities in Jordan (n=679) through social media (Facebook and WhatsApp). The covering letter stressed anonymity, confidentiality and explained the objectives of this study. The participants did not receive any benefit or payment for filling out the questionnaire. The inclusion criterion was subjects who were studying at Jordanian universities.

Ethical approval

This study was approved by the Research Ethics Committee in Applied Science University (ASU), Amman, Jordan on 21st March 2021 (No: 2021-PHA-13). The consent to participate was implied by the act of completing and returning the electronic survey.

Statistical analysis

Data was analyzed using statistical package for social science (SPSS) version 22 (SPSS Inc., Chicago, IL, USA). The descriptive analysis was undertaken using mean and standard deviations (SD) for continuous variables and percentage for qualitative variables. Screening of the factors affecting the use of illicit drugs, alcohol, or cigarette smoking was carried out using univariate and multivariate logistic regression. Following univariate logistic regression analysis, any variables found to be significant on the single predictor level (p-value < 0.25) were entered into the multiple logistic regression analysis to explore the variables that were significantly and independently associated with the use of these substances.

Variables were selected after checking their multicollinearity, where tolerance values were > 0.1 and variance inflation factor (VIF) values were <10. The values were checked to indicate the absence of multicollinearity between the independent variables in regression analysis (p-value <0.05 was considered to be statistically significant). Cronbach's alpha (α) was used to evaluate the internal consistency of the questionnaire, with values ≥ 0.7 considered acceptable ¹⁶.

RESULTS

The questionnaire's internal consistency and reliability was assessed by measuring Cronbach's α values of 0.880 and 0.786 for the risk factors and preventive factors, respectively. The values indicate acceptable internal consistency.

During the study period, 679 students from different Jordanian universities responded to the electronic questionnaire. Around two-third of the students were females (n= 449, 66.1%), and more than half of them were above 20 years old. Students were recruited from both private (n= 410, 60.4%), and public universities (n= 269, 39.6%), and more than half of them were from medical or health related colleges. Only 39.3% (n= 276) reported to have attended a previous workshop about substance abuse. Results are summarized in Table 1. The results show that the prevalence of any illicit drug abuse, alcohol and/or cigarette among the participated students throughout their lives was 7.1% (n= 48). The mean age when starting the use of these addictive substances was 18 years old \pm 3.9. Students were asked about their attempts to quit these substances, where 20.8% (n= 10) reported not trying to quit at all, while 33.3% of them (n= 16) tried but could not quit. Around half of the students succeeded to quit these substances (n= 22, 45.8%). Results are presented in Table 2.

Table 1. Sociodemographic characteristics of the study participants (n= 679)

Parameter	n (%)
Age (years)	
• ≤ 20 years	298 (43.9)
• >20 years	381 (56.1)
Gender	
• Male	230 (33.9)
• Female	449 (66.1)
University	
• Private University	410 (60.4)
• Public University	269 (39.6)
Field of study	
• Medical or health field	368 (54.2)
• Other	311 (45.8)
Did you receive any workshop about drug abuse?	
• No	412 (60.7)
• Yes	267 (39.3)

Table 2. Substance abuse behavior by the study participants (n= 679)

Parameter	Mean (SD)	n (%)
Have you ever used illicit drugs, alcohol, or cigarette smoking?		
No		631 (92.9)
Yes		48 (7.1)
How old were you when you started using addictive substance?	18.0 (3.9)	
Have you ever quit or tried to quit using the addictive substance? *+		
No, I did not try		10 (20.8)
Yes, I tried but I could not quit		16 (33.3)
Yes, I tried and succeeded		22 (45.8)

SD= Standard deviation, * percentage was calculated out of 48

Students were asked to determine their perception towards a number of factors that may be associated with the risk of substance abuse (**Table 3**). Peer pressure (n= 657, 96.8%), lack of religious commitment (n= 654, 96.3%), lack of parents' support (n= 652, 96.0%), and

having addictive parents (n= 649, 95.6%) were the most common reported risk factors as perceived by students. In contrast, using these substances to help them in concentrating while studying (n= 415, 61.1%) was the least factor associated with the risk of substance abuse.

Table 3. Factors associated with substance abuse from students' perspectives (n= 679)

Factors	Moderate/high impact n (%)
Personal related factors	
Feeling of maturity	553 (81.4)
Imitating a famous person	607 (89.4)
Emotional relationship failure	600 (88.4)
To get away from trouble	553 (81.4)
Lack of religious commitment	654 (96.3)
Loss of a dear one (brother, father, mother, friend...)	614 (90.4)

Factors	Moderate/high impact n (%)
Free time	635 (93.5)
Family related factors	
Lack of parents' support	652 (96.0)
Bad relationship between parents and children	637 (93.8)
Having addicted parent(s)	649 (95.6)
Parent's separation (divorce)	608 (89.5)
Social related factors	
Impact of media, TV programs and series	628 (92.5)
Peer pressure	657 (96.8)
Ease of access to drugs in area	593 (87.3)
Too much money available for the student	624 (91.9)
University related factors	
To help in concentrating while studying	415 (61.1)
Academic failure	606 (89.2)

TV: television

Non-addictive students were asked about the factors that prevented them from abusing substances (**Table 4**). Playing sports (n= 588, 93.2%), counseling and advice (n=

582, 92.2%), in addition to prayers and supplications (n= 567, 89.9%) were the most commonly reported preventive measure. For more details, refer to **Table 4**.

Table 4. Factors that prevented non-addictive students from abusing substances (n= 631)

Factors	Strongly agreed/agreed n (%)
Counselling and advice	582 (92.2)
Prayers and supplications	567 (89.9)
Increasing the number of educational programs and activities	561 (88.9)
Abandoning relationship with people who use illicit drugs	550 (87.2)
Playing sports	588 (93.2)
Listening to music	456 (72.3)
Engage in artistic activities	564 (89.4)
Not carrying a lot of money	469 (74.3)
Specifying the places to visit	539 (85.4)

TV: television

Finally, logistic regression analysis led to the identification of two predictors of substance abuse behavior among the participating students (**Table 5**). As seen in **Table 5**, female gender (OR= 0.094, p-value

<0.001), and studying in public university (OR= 0.496, p-value= 0.042) were considered protective factors against substance abuse.

Table 5. Assessment of predictors of substance abuse behavior among the study participants (n= 679)

Parameter	Are you addict? [0: No, 1: Yes]			
	OR	p-value#	OR	p-value\$
Age (years) • ≤ 20 years • >20 years	Reference 3.191	0.001^	2.049	0.061
Gender • Male • Female	Reference 0.086	<0.001^	0.094	<0.001*
University • Private University • Public University	Reference 0.607	0.128^	0.496	0.042*
Field of study • Medical or health field • Other	Reference 1.199	0.545	----	----
Did you receive any workshop about drug abuse? • No • Yes	Reference 0.615	0.138^	1.969	0.506

Using simple logistic regression, \$ using multiple logistic regression, ^ eligible for entry into multiple regression analysis, * significant at 0.05 significance level

DISCUSSION

There are religious, legal and cultural constrictions about the sale and consumption of drugs for non-medical purposes in the Middle East¹⁷. Nevertheless, there is an increase in the demand and use of these drugs in the Middle East region including Jordan¹¹. Moreover, the rate of drug use among students has witnessed an increase over the past years¹⁸⁻²⁰. Notably, the number of the annual published researches about drug abuses and disorders in the Arab countries is still low, a matter that led to underestimating the problem in several countries²⁰. Unfortunately, youths are considered the most vulnerable group for substance abuse²¹. According to the National Strategy published by the National Council to Fight Drugs in the Hashemite Kingdom of Jordan (2009), the council recommended focusing on youths as they are considered the most vulnerable to drug addiction and represent the largest proportion of the Jordanian society²². Therefore, the aim of this study was to estimate the level, attitudes and beliefs about substance use among students in the Jordanian universities.

Our findings showed that in a sample of students from universities in Jordan (n=679), the percentage of drug abuse including illicit drugs, alcohol and/or cigarettes was 7.1%. A study reported that there was an association between cigarette smoking and substance abuse²³. Another study revealed that cigarette is the way to alcohol and substance use³. Additionally, the findings of our study revealed that the mean age of start using these addictive drugs was 18 years old \pm 3.9. In this context, Alzyoud and co-workers (2014) published that the rate of smoking cigarettes and waterpipe increased and involved 11-17 years old students in Jordan. According to their study, adolescents thought that it is safe to smoke tobacco then stop it two years later, a matter that led to the escalation of this problem²⁴. However, this was not the main motivation for drug abuse in our study. The participation of 50% students from the medical and health field in the questionnaire conducted in this work can be a contributing factor to their understanding of drug adverse effects. Importantly, the respondents in this study mentioned that the main reasons for starting drug abuse included peer pressure, lack of religious commitment, lack of parents' support and having addictive parents. Other reasons

included imitating a famous person, feeling maturity, getting away of troubles, having free time and the impact of social media. Using drugs to increase the concentration of students was the least motivational factor for substance abuse in our sample of study. Earlier reports documented that there is positive correlation between depression in Jordanian university students and the use of painkillers, alcohol, caffeine, tobacco, tranquilizers, inhalants, and other substances²⁵. Importantly, the results of this research are vital for recommending preventive measures for the problem of drug abuse between youths in Jordan. As it is clear from this study, the factors that led to drug abuse belong to several criteria including personal, social, family-related and university-related factors. Thus, we suggest introducing mandatory courses about drug addiction at the levels of schools and universities. The courses must cover drug addiction from many dimensions such as the religious, medical, social and cultural perspectives. Furthermore, arranging free lectures and awareness programs in the society can be an asset. In this context and due to the increase in the number of students who consume drugs in colleges and universities, it is importance to increase the awareness about drug abuse at school before students join colleges or universities¹². Awareness programs can introduce many people to free-charge treatments from addiction in which many people are not knowledgeable about and have fear of approaching these treatment measures. Previous studies emphasized on the importance of targeting youths in drug awareness programs. Using attractive magazines and images that can refrain youths from approaching drugs can be an advantage. In this regard, Al Atom (2018) published cartoonish images for several pamphlets that target youths in Jordan and warn them from the side effects of using drugs such as "Drugs: your road to exhaustion." and "Drugs: Straight to Hell"²². Additionally, there are programs supported by the Jordanian Government to increase awareness about the risks of drug abuse such as the program of Drug-Prevention/Drug's negative effects on the Badia²². In addition, we recommend concentrating on strengthening the factors that prevented some students from approaching drug addiction in this study such as

counseling/advice, prayers/supplications, educational programs/activities, playing sports, engaging in artistic activities, and specifying the places to visit. Haddad and colleagues (2010) conducted a survey among 400 high school students from the North of Jordan about the awareness of the risks of drug abuse and recommended collaboration between policy makers, health staff and religious people to prevent drug abuse in Jordan²⁶. Moreover, it was reported that self-medication by several prescribed and non-prescribed drugs is very common in Jordan²⁷. Thus, pharmacists need good training and confidence in providing information about drug side effects and not depending on reading the medicine information leaflet by patients²⁷. Based on several reports that showed the increase in drug abuse in Jordan, Jaber et al. (2015) conducted a study about the opinion of Pharmacy students (at graduate and undergraduate levels) in Jordan regarding their training requirements to overcome the abuse of drugs including prescription drugs²⁸. The students affirmed their needs for a structured training about identifying drug addicts, knowing drug types that are commonly abused in the area of the pharmacy as well as the way of dealing with drug addicts²⁸. Accordingly, we recommend conducting such training so that the Jordanian pharmacists can collaborate with the authorities in fighting drug addiction.

Limitations of the study

Notably, there are some limitations in this study. First, the questionnaire was distributed randomly into the university students in Jordan in which 50% of the participant students were from the medical and health field and most probably are aware about the side effects of drug addiction. Different outcomes are expected if more respondents from other colleges answered the questionnaire. Second, the questionnaire was self-reported making it difficult to assess the truthfulness of the respondents' answers. Third, two third of the respondents were females and in a cultural restriction of a country in the Middle East, it is expected that addiction is less prevalent among females. Fourth, the mean age of the respondents was low, a matter that hinders generalizing the

data. Accepting these shortcomings, our study has considerable strengths as the data contribute to adding important information about drug addiction in Jordan where there is shortage in the studies conducted in this field. Also, the sample size obtained in this study is considered good. Most importantly, the study provides good recommendations for the authorities based on the responses of the participants.

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CONCLUSION

Attention must be paid to the category of university students as there is increase in drug abuse in this class of the society. Our recommendations are to increase the number of educational programs and activities as well as to introduce mandatory courses about drug addiction in aim to raise the awareness of youths about the risks of using drugs.

Conflict of interests

The authors have no conflicts of interest to declare.

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تعاطي المواد المخدرة بين طلاب الجامعة: تقييم الانتشار والمخاطر والتدابير الوقائية

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ملخص

الأهداف: تم إجراء هذا البحث لتحديد مدى انتشار والمعتقدات حول تعاطي المخدرات بين طلاب الجامعات في الأردن والتوصية ببعض الإجراءات الوقائية لمشكلة الإدمان.

الطريقة: تم إجراء مسح وصفي مقطعي عبر الإنترنت في أبريل 2021 وشمل 679 طالباً من جامعات خاصة وعامة في الأردن. طُلب من الطلاب ملء استبيان الدراسة عبر وسائل التواصل الاجتماعي (فيسبوك وواتس آب).

النتائج: اشتملت الدراسة على مسح تم إجراؤه على 679 طالباً من الجامعات الحكومية والخاصة، حيث كان ثلثاهم من الإناث وأكثر من نصفهم يدرسون في الأقسام الطبية والصحية. وجد أن 7.1% من طلاب الجامعات يتعاطون المخدرات في حياتهم من ضمنها المخدرات غير المشروعة والكحول والسجائر. أيضاً، بدأ الطلاب المدمنون في تعاطي المخدرات بعمر متوسط 18 عاماً ± 3.9 . الأهم من ذلك، نجح حوالي نصف الطلاب المدمنين في الإقلاع عن تعاطي المخدرات، وأفاد 20.8% أنهم لم يحاولوا الإقلاع عن التدخين، بينما حاول 33.3% منهم الإقلاع عن التدخين، ولكنهم لم يتمكنوا من ذلك. بالإضافة إلى ذلك، كشفت نتائج هذه الدراسة أن ضغط الأقران (عدد= 657، 96.8%)، وقلة الالتزام الديني (عدد= 654، 96.3%)، كانت أكثر العوامل المحفزة لتعاطي المخدرات. أخيراً، أظهرت تحليل النتائج أن جنس الإناث، والدراسة في الجامعات الحكومية تعتبر عوامل وقائية ضد تعاطي المخدرات.

الخلاصة: التركيز على زيادة وعي الشباب بمخاطر تعاطي المخدرات هو عمل مهم في المجتمع. توصياتنا هي زيادة الوعي بين الطلاب وأولياء الأمور والمجتمع حول تعاطي المخدرات.

الكلمات الدالة: الطلاب، تعاطي المخدرات، المعرفة، السلوك.

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