

The Prevalence and Pattern of Substance Use among Medical Undergraduates in Baghdad University: A Preliminary Report

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وبائية ونمط اساءة استعمال المؤثرات العقلية لدى طلبة الطب في جامعة بغداد: استطلاع أولي

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Abstract

B **Background:** Substance misuse can involve excessive and continuous consumption of psychoactive substances without medical supervision leading to dependence and adverse health consequences. It is an escalating public health problem that is under researched in Iraq. The current work examines the prevalence, pattern, reasons, and adverse effects of substance use among medical undergraduates attending the College of Medicine in Baghdad. **Methods:** In July 2019, 256 students completed an online survey anonymously through the college's website. The survey included socio-demographic data, type of substances used, consumption patterns, reason for use, and adverse effects. The study was a research project associated with the community medicine and continuous medical education departments. **Results:** From the 12 substances listed, half of the participants met the diagnostic criteria for substance misuse, mainly for caffeine (30.5%) and tobacco (12.5%) followed by Over the Counter (OTC) medicines (12.1%), benzodiazepines (5.8%), steroids (4.6%), and alcohol (4.2%). Tramadol was the most used illicit drug (1.9%). Peer influence and the decision not to quit were the expected patterns of use with common triggers being life stress (13.7%) and anxiety (12.5%). **Conclusion:** The prevalence of substance use among medical students in Baghdad is high, particularly given Iraq's religious and social precautions and their medical knowledge compared with previous local studies. The stress of studying, anxiety, and unstable living conditions within the city were common predisposing factors. The laxity of legislation concerning drug availability is contributing to widespread substance use in Iraq. Health authorities should actively implement intervention and treatment programs.

Keywords: substance use, medical undergraduates, Baghdad

Conflicts of interests: None

Introduction

The World Health Organization (WHO) formally defined substance use disorder as the excessive and continuous use of any mind-altering (psychoactive) substance or use that is harmful or hazardous. Such use may lead to dependence syndrome involving behavioral, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority is given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.¹ These substances can be legal medicines prescribed for medical or mental disorders and used randomly without medical supervision. These also can be illicit (hard) drugs consumed for recreational reasons and obtained from the black market. In 2013, the American Psychiatric Association updated the Diagnostic and Statistical Manual, Fifth Edition (DSM-5) to define

substance misuse within categories: substance-use disorders, substance-related, substance-induced disorders according to the severity and type of the substance being used.² Levels of severity are measured on a continuum from mild to severe based on the same overarching diagnostic criteria, including physical and psychological symptoms resulting from using one or more of registered substances with the presence of craving and social dysfunction.³ Despite the differences in pharmacological action for each item, the reward system is similar. Psychoactive substances range from the traditional daily drink of caffeine to harmful illicit drugs. Opiates, LSD, amphetamine, cocaine can be fatal by intoxication.⁴ Many factors predispose people to misuse substances, including age, gender, personality type, genetic factors, availability, cultural acceptance, the effect of peer groups, mental disorder, and presence of chronic stress.^{2,5}

Prolonged self-treatment with prescribed or over the counter medicines (OTC) like analgesics, sleeping pills, anxiolytics, cold remedies, and cough syrups will cause a state of a dependence medical, psychological, and behavioral impairment.^{5,6} The problem of substance use is more common among the young population (14-55 years). It is increasing worldwide. According to the WHO,^{6,7} in 2015 there were around 1.3 billion tobacco users; 165.35 million 60-kilogram bags of coffee were consumed worldwide; approximately 3.3 million net deaths attributable to alcohol consumption; and 246 million people using illicit drugs.⁷ There is considerable literature about different aspects of substance use in western countries. Still, substance use and the potential for misuse have not been adequately studied in Arab countries, especially Iraq, due to obstacles associated with difficulties in methodology, lack of robust data, and social stigma. Studies exist on many different population cohorts, however, there remains a knowledge gap in relation to university students. Research highlights how medical students experience high levels of stress and psychological distress in many countries because of long hours of study and the intense focus on technical skills development – pressures which can contribute to

substance use.^{9,10} In Iraq, substance use and substance use disorders are an escalating problem,^{6,11} which could be attributed to the ongoing violence and instability, economic uncertainty, poorly monitored borders, and a porous pharmacy system.¹² The Iraq Mental Health Survey (I.M.H.S.), a nationally representative survey conducted in 2006/7 on 4,332 adults, indicated that (0.9%) of Iraqi youth were diagnosed with substance-related disorders.¹³

According to the available data on smoking (tobacco) from the Iraq Ministry of Health and Iraq Family Health Survey, tobacco use is reported by 21.9% and 14.9% of the general population, respectively.^{13,14} Other Iraqi studies on high school and university students reported tobacco use rates ranging from 3.2% to 21%.^{15,16} A large-scale survey conducted on 1435 university students in Baghdad found that 9.7% consumed alcohol daily, and heavy alcohol consumption was reported by 12.2%.¹⁷ Many studies in western countries found comorbidity between mental health difficulties and substance use, i.e., generalized anxiety disorder, panic disorder, posttraumatic stress disorder (PTSD).^{18,19,20}

The study

Purpose

The purpose of the current study was to assess the prevalence of substance use and substance type reported by medical students enrolled in the College of Medicine at Baghdad University. Given their awareness of the hazards associated with such use, the study also offered an opportunity to explore the patterns and reasons behind this health problem from the students' perspectives.

Participants and consent

There were no exclusion criteria for the sample. From a pool of 2955 students enrolled at the college, 256 responded to a brief survey that was distributed electronically in July 2019 during their summer holiday. Students recruited to the study represented a homogenous sample of healthy, intellectually able young people with medical knowledge about substance use and its consequences.

Confidentiality was assured by returning the completed surveys anonymously via electronic link. The survey included a statement of written consent to be signed by the participants.

Method

The study protocol was approved by the Ethical and Research Committee in the college. The departments of community medicine and continuous medical education involved students in research projects under the supervision of allocated academic staff who were advised to create a survey format that focused on students' problems. A brief descriptive survey was designed by the Department of Community Medicine quoting from the Global Assessment Program on Drug Abuse Toolkit Module 3. It was distributed in English. Students from the first to fifth year of study received formal invitation letters to participate voluntarily together with multiple choice survey formats, including selected socio-demographic data, type of substance, pattern of use and duration, reasons for substance use, and perceptions of the adverse effects.

Data analysis

Data were statistically analyzed using the Statistical Package for Social Sciences program version 21 (SPSS v 21.0). The alpha level of significance was 0.05, analysis into frequency, percentage, and cross-tabulation with a confidence interval of 95%.

Results

The current study involved 256 students of which 105 (41%) were men and 151 (59%) were women. The average age was 20.5+ years. In total, 111 (55.47%) participants reported not using any of the listed substances other than tea and coffee in small amounts. The remaining 144 (44.53%) students responded positively to the same question in a way that met the definition of misuse. Of this group, 28.8% were women and 22.2% were men (Table 1).

Beverages containing caffeine in different concentrations (brewed or instant tea and coffee, others) were the most consumed substance (30.5%). Tobacco in different concentrations (normal or e-cigarette, shisha) were used by 12% of the students and 12% reported taking OTC medications, such as sleeping pills, anti-histaminic analgesics. Benzodiazepines: Diazepam, Alprazolam, Chlordiazepoxide, and steroids were consumed by 5.8% while 4.2% drank alcoholic beverages in different concentrations e.g., beer and liquors. The most common illicit substances being used were Tramadol (1.9%),

amphetamine derivatives: (1.4%), marijuana (1.1%) and heroin (0.4%). Women used caffeine, OTC medicines, benzodiazepine, and steroids more than men (Table 2). Figure 1. depicts the pattern of substance use where 64.8% shared their substance intake with their peer groups compared with 35.8% who chose a solitary setting. More than half (59%) did not try to quit while 25% attempted to do so. The remaining 16% stopped entirely. Figure 2. shows the reasons for using substances where the number of students who responded with ‘yes’ to the question about the influence of being at university on their substance use was slightly higher (36.1%) than those who said ‘no’. (34%). "Miscellaneous" reasons for use involved study-related stress, depression symptoms, need for mental concentration, and community instability were endorsed by 30.2% of students. Other reasons that were endorsed, such as anxiety, insomnia, and psychosomatic pain were comparative. Adverse symptoms were mood changes (9.4%), sleep disorders (6.3%), loss of concentration (3.9%), tremor, and appetite change (1.6%). These symptoms were combined with complaints of headaches and fatigue, as shown in Figure 3.

Table 1. Frequency distribution of collective substance use by medical students

Gender	N	Use %	N	No Use %	Total	%
Female	47	18.4%	87	34%	134	52.3%
Male	64	25%	58	22.7	122	47.7%
	111	43.4%	145	56.6%	256	100%

Table 2. Frequency distribution of types of substances used, according to gender

Substance	N	Female	N	Male	N	Total
Caffeine	47	18.4%	31	12.1%	78	30.5%
Tobacco	7	2.7%	24	9.4%	32	12.5%
OTC medicines	20	7.8%	8	3.1%	28	12.1%
Benzodiazepine	12	4.7%	6	2.3%	18	7%
Alcohol	1	0.4%	10	4%	11	4.3%
Amphetamines	2	0.8%	5	2%	7	2.7%
Steroids	5	1.9%	2	0.8%	7	2.7%
Tramadol	1	0.4%	4	1.6%	5	1.9%
Marijuana	0	0%	2	0.8%	2	0.8%
Heroin	0	0%	1	0.4%	1	0.4%

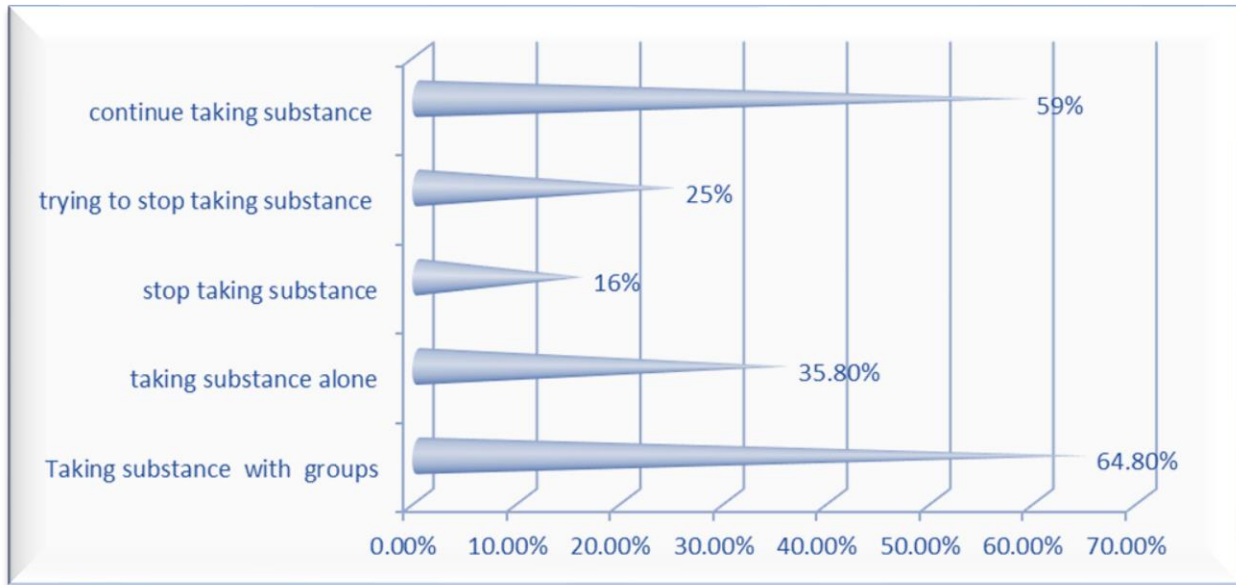


Figure 1. Pattern of substance use among students

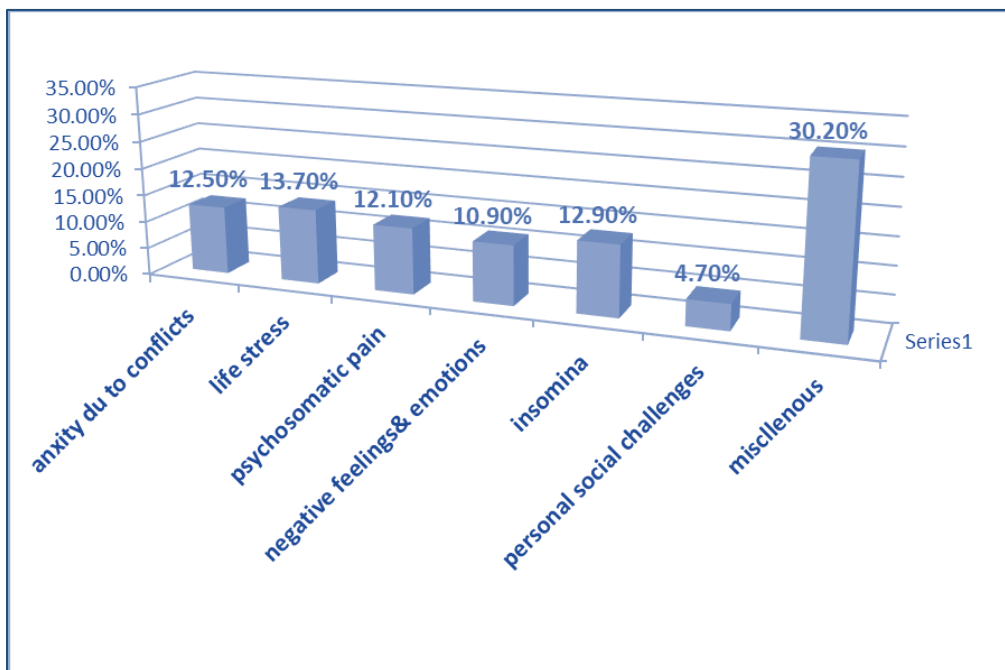


Figure 2. Reason for substance use given by students

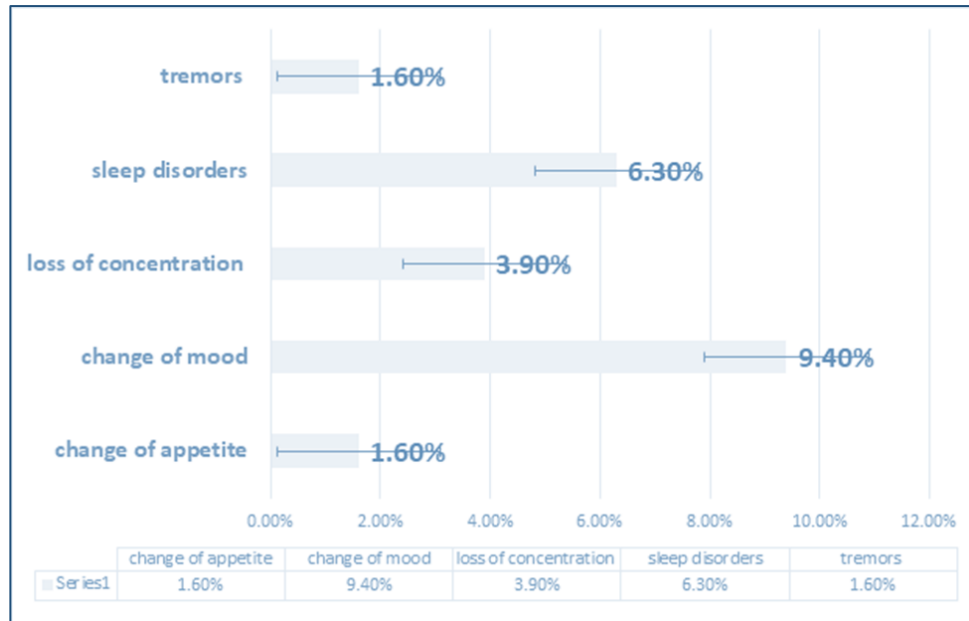


Figure 3. Reported symptoms due to substance use

Discussion

There is a paucity of studies on substance use in Arab countries, including Iraq; particularly those that apply a robust definition for substance misuse because the issue can be a sensitive one due to religious and social precautions. Further, there is variation in labeling certain substances as "legal" or "illegal, especially in western countries and Muslim countries according to state legislations and cultural norms.^{2,21}

The available local literature involves small-scale studies, which are now largely outdated.^{12,13,15,22} There has yet to be research conducted with medical students attending Baghdad Medical College. In the current study, 12 substances were listed, and half of the participants met the diagnostic criteria for substance misuse, mainly for caffeine and tobacco. Their average age (20.5years) is the commonest age group for substance misuse worldwide.^{1,5,7,8}

The many years required for medical training are a common source of high stress and psychological distress for medical students and the challenges associated with medical careers may leave them predisposed to substance misuse.^{9,23} Moreover, the insecure and unstable conditions that characterize life in Baghdad after decades of armed conflict and community violence play a substantial role in exacerbating stress levels.^{24,25} Accordingly, such conditions can lead students to seek relief from anxiety or

take opportunities to get "high" out of boredom and despair.^{24,26}

In the current study, the most consumed substance was caffeine with 30.5% of students reporting excessive daily consumption. Caffeine beverages show the pharmacological properties of classical psychostimulants, in particular, arousal, motor activation, and reinforcing effects but in a milder form. Caffeine indirectly activates ascending neurotransmitter systems e.g., cholinergic, histaminergic, adrenergic, serotonergic. Usually, daily consumption of 130-250 mg of caffeine does not cause physical dependence. When 400mg (> 4 cups of coffee) is consumed daily, headaches, tiredness, drowsiness, and decreased concentration will manifest as withdrawal symptoms.²⁸ The physical dependence on caffeine "caffeinism" occurs at > 1000mg per day (8-10 cups of coffee), considering its concentration.

This sizeable ratio of caffeine misuse is consistent with a study on medical students in Jordan and is an expected finding given that it is the most consumed psychoactive drug in the world.²⁹ Some studies showed that as little as two to three cups of coffee per day could trigger a withdrawal effect marked by tiredness or sleepiness. However, it is not yet clear to what extent it is clinically a significant disorder.^{1,5,8}

The second commonly used substance was tobacco in the form of smoking ordinary E-cigarettes and shisha. Like coffee, smoking is socially acceptable behavior in almost every public place, and there are no smoke-free regulations. Indeed, tobacco is of course legal, easily obtained, and can be consumed in public. Nicotine in any tobacco product is readily absorbed in the blood and immediately stimulates the adrenal glands to release the hormone Epinephrine (adrenaline). Epinephrine stimulates the central nervous system and increases blood pressure, breathing, heart rate, activates the brain's reward circuits, and increases the chemical messenger dopamine levels, reinforcing rewarding behaviors.^{7,30} Studies suggest that other chemicals in tobacco smoke, such as acetaldehyde, may enhance nicotine's effects on the brain. The percentage of smoking reported by students in the current study is identical to a study of medical students in Saudi Arabia although lower than what has been previously reported in Baghdad.^{31,25} Other studies suggest lower rates in Kufa, Iraq (9.3%) and in Egypt where 4.3% of students reported alcohol use,³² which is notably higher than the figure of 0.7% reported by the Iraq Mental Health Survey (I.M.H.S.) and another study^{13,33}

These rates are lower than what has been reported in western countries,^{6,8,11,12,17} and is to be expected in Islamic communities; nevertheless, alcohol is not banned in Iraq. It is sold and served publicly, and to some extent, culturally accepted in some regions. This liberal attitude facilitates alcohol misuse, especially among young people.

Using OTC medicines, analgesics, steroids, and benzodiazepine derivatives may be a consequence of student experiences of stress and psychological distress together with the lack of strict legislation on selling such drugs through pharmacies.³⁴ In the current study, Tramadol was the most used illicit drug. The consumption rates of amphetamine, marijuana, heroin was lower than comparable studies in western countries and a study in

Jordan where substance use among university students was 2.5% (cannabis), 3.3% (sedatives), 0.9% (opiates), 2.8% (Benzhexol), 2.6% (stimulants), 12% (alcohol), and 29% (tobacco). There was no reported use of cocaine.³⁵

Students identified some risk factors: seeking acceptance, encouragement from peers involved in substance use, and poor communication with the family. The most common cause of substance use in this study was to reduce temporary stress, the need to control anxiety and depressive symptoms, or just for recreation.^{17,21,26,27} Regarding pattern of use, more than half of the students reported that they consume substance with their peers in a group, which highlights how social influences can lead to substance use. It appears that some youth, including students, will continue or quit consumption without significant problems or when they experience symptoms of anxiety and depression.^{18,27} Still, others may use more dangerous drugs, causing substantial harm to themselves and other people.

To improve the quality of health services, the Iraq Ministry of Health launched a program to monitor drug use trends incorporated by policymakers in the state authorities. This step is essential for public health planning and developing strategies to identify and treat patients with substance use disorders. The Community Epidemiology Work Group (C.E.W.G.) is a network of researchers that meets semiannually to discuss the current epidemiology of substance use disorder. Its primary mission is to provide ongoing community-level surveillance of substance use through the gathering of quantitative and qualitative data.^{33,36} Alcohol and substance use by medical students is not uncommon in western countries with reported hazardous effects on physical and mental health, and its drawback effects on their medical career.^{17,23} It appears also to have taken root in Baghdad.

Conclusions

The prevalence of substance use among medical students in Baghdad is high, considering their education, religious, and cultural values. The most consumed substances are caffeine, tobacco, and alcohol. Reports of illicit drug use were higher than in previous Iraqi studies. Continued consumption with peer groups was the prevalent pattern. Stress, anxiety, and community-wide instability following years of armed conflict and political unrest were the

widely given reasons for consumption. The prevalence and pattern of substance use are concerning signs that substance misuse is a growing public health problem and should be considered by the health authority. Findings need to be confirmed by large-scale research on the same sample. An urgent strategy for treatment and prevention should be implemented.³

Limitations

There are some limitations to consider, namely the survey questions were brief and did not probe for enough detail for such an important issue. Data sampling was limited to

the allocated time of one month. Psychopathology was not explored nor were socio-demographic factors compared alongside substance use patterns. The smaller sample size

may not be generalizable when considering the significance of this public health problem among Iraq's young population.

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المخلص

مقدمة: أساءة استعمال المؤثرات العقلية تعني الإفراط في تعاطي تلك المواد في غياب الدواعي الطبية للاستعمال مما يؤدي الى احداث حالة من الادمان الفسلجي واضطرابات نفسية وسلوكية . وعلى الرغم من تصاعد هذه المشكلة الصحية في العراق ، لم تتل الاهتمام الوافي في البحث العلمي . تهدف هذه الورقة الى التحري عن وبائية ونمط التعاطي لدى عينة متعلمة ذات وعي صحي عالي بمخاطر هذه المواد وعلاقتها بالعوامل الداخلة بالدراسة. **الطريقة:** تم إجراء دراسة مقطعية على عينة عشوائية من طلبة كلية الطب في بغداد. خلال شهر تموز 2019، انتظم 256 طالب وطالبة في الدراسة بشكل طوعي مع إخفاء الهوية الشخصية في ملء استمارة وزعت الكترونياً على كل الطلبة المسجلين في منصة التعليم الالكتروني للكلية، تضمن الاستبيان المعلومات الديموغرافية للطلبة ، متعددة الخيارات حول نوع المادة المتعاطاة ، الدوافع للتعاطي، وجود أي اضطرابات صحية أو نفسية ، والتأثيرات السلبية الناتجة عن التعاطي. **النتائج:** أظهرت الدراسة وجود 43.4% من مجموع المشاركين يصلون الى توصيف أساءة استعمال المواد ذات التأثير العقلي ومن أكثر المواد شيوفاً هي (الكافيين) متمثلة بمشروب القهوة بانواعه 30% تليها مادة (النيكوتين) : تدخين السكاكر العادية والالكترونية ، أقر 21.1% بالاستعمال العشوائي للاقرص المنومة بانواعها. شكلت الاناث نسبة تعاطى أعلى من

زملاءهم الذكور . أرجح 13.7% من الطلبة اسباب تعاطيهم الى وجود ضغط نفسي ، بينما أرجح 12.5% منهم السبب الى الشعور بالقلق المتعلق بالدراسة والظروف المحيطة. **الاستنتاجات :** تعد هذه النسبة الغير متوقعة عالية الوبائية في العراق قياسا الى الدراسات السابقة ولكون طلبة كلية الطب يمتلكون المعرفة العلمية بالمواد المتعاطاة وتأثيراتها السلبية ومضاعفاتها علاوة عن الروادع الدينية والاجتماعية خصوصاً لدى الاناث. تشير النتائج الى ارتباط ظاهرة أساءة استعمال المؤثرات العقلية الى الضغوط النفسية لدراسة الطب والنجاح المهني مستقبلاً. توصي هذه الدراسة بايلاء الأهتمام والتركيز على تفاهم هذه الظاهرة في المجتمع العراقي من قبل السلطات الصحية العليا وتطبيق البرامج الصحية العلاجية والوقائية بشكل فعال .

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Appendix

Survey format for substance misuse in College of Medicine-Baghdad University, Department of Community Medicine, Department of Continuous Medical Education,2019-2020

Dear students

You are invited to answer the following questions voluntarily; your name and identity will be hidden

1) Gender:

- Male
- Female

2) Age

3) Grade that you recently completed:

First, Second, Third, Fourth, Fifth

4) Which of the following substances you are currently using or used it before the 6months

1. Caffeine: strong tea, brewed coffee, instant coffee; how many cups/day?
2. Tobacco; ordinary cigarette, E-cigarette, Hookah; how many packets of regular cigarettes? Day? How E-cigarettes /day, how frequently smoking Hookah/week? Many
3. Alcohol: Beer, Liquors; how many tans of Beer/day, how much units of Liquors/day
4. O.T.C. medicines: sleeping pills, analgesics, Anti-histamines; how many tablets/day?
5. Benzodiazepine group: Valium: Xanax, Librium, lorazepam, how many tablets/day?
6. Steroids; Dexamethasone tablets; how many tablets /day
7. Tramadol: Tramal tablets or injections
8. Amphetamines; Crystal, Captagon; how many tablets/day
9. Heroin; any form, quantity, and frequency of use
10. Marijuana: Hashish, Teriaq, amount &frequency
11. Benzoxole tablets; how many tablets/day.
12. Cocaine; any for or quantity

5) You use these substances:

- A. To reduce anxiety
- B. To reduce stress
- C. To reduce pain
- D. To mitigate negative emotions; depression, anger, boredom
- E. To help to sleep
- F. Personal &social problems
- G. Studying- related r problems

6) Do you have/had any psychiatric problem:

- Yes
- No

7) If you have current or past (last six months) psychiatric disorder

- Yes
- No

8) Do you have a chronic medical disorder or current medical problem?

- Yes
- No

9) Does psychiatric or medical disorders affect your study?

- Yes
- No

10) Do you relate misusing substances to studying medicine; to start or to continue?

- Yes
- No

11) How do you usually consume your substance?

- Alone
- with peers, relatives, friends

12) Did you stop using that substance?

- Yes
- No
- Try to stop

13) Is there any of your family member misusing or had substance-related disorders:

- Yes
- No
- Don't know

14) When did you start your substance misuse?

- Before admission to the college
- After admission to the college

15) If you try to quit using your substance, what is the physical or mental symptom that you experienced?

- Tremor
- Sleep disturbance
- Not able to concentrate when doing something
- Change of mood
- Change of appetite
- Other associated symptoms; headache& fatigability