Original Articles

Prevalence, Types and Predictors of Illicit Substance Use among the Hashemite University Students in Jordan

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Abstract

Objectives: The objectives of this study were to assess the prevalence of illicit substance use among Hashemite University (HU) students, identify the types of substances frequently used, and identify variables that best predict substance use.

Materials and Methods: Data were collected from 835 students studying at HU selected through stratified random sampling using an instrument developed and modified by the researchers.

Results: Hundred forty five (17.5 %) of the participants indicated that they used at least one of the illicit substances during their entire life. Alcohol was found to be the most widely used substance among students, followed by Central Nervous System (CNS) depressants. The level of education of parents was found to be the best predictor of illicit substance use and explain for 6.2% of the total variance.

Conclusions: This study shed light on the importance of health education programs at schools and universities especially for those students who are vulnerable to substance use. Also, parents, teachers and school administrators are responsible for watching the students and encouraging them to use more effective and adaptive ways for coping than using illicit substances.

Keywords: Substance Use, University Students, Jordan.

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Introduction

Substance use is one of the great social concerns, especially when it involves youth in colleges and universities. Young adults between 18 to 25 years of age which is considered a critical phase of development, and it is considered a transitional stage from adolescence to adulthood through which they start to be independent in their life, education, and economic status. Their responsibilities usually increase during this stage and so they are faced with different types of stressors (academic, economic, social, and environmental), which may compel them to encounter different problems. [1]

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Researchers have identified different factors that may lead to substance use. The more risk factors that the individual has, the more likelihood of substance use there will be. Sadava and Park, [2] found a positive relationship between depression and alcohol use among Canadian university students. On the other hand, Broman [3] and Taylor [4] found a strong relationship between stress and substance use among college population. Other factors that lead to substance use were categorized by Karam, Maalouf, and Ghandour, [5] who identify three main factors of substance use which include: a) peer influence and pressure; b) family related factors such as poor parent-child relationship, family problems; and c) individual factors, such as low self-esteem, religiosity, personality disorders, and low academic progression. [5] Also, different studies found that male students are more likely to use illicit substances than female students. [5-7]

Jordan is not a producer or manufacturer of illicit substances, but its unique location in the Middle East makes it a link between producing and consuming countries. However, the documented number of substance use persons for the year 2006 reached about 2500 cases, only 157 of which were rehabilitated. [8] Actually, the real number of substance use is difficult to estimate as users do not try to seek treatment help for many social and legal reasons. The highest proportion of substance use among poor people were "Hashish" and "Alcohol", whereas rich people mostly used "Heroin". In Jordan, most of illicit substance users come from a very poor class or a very high class. [8]

Many different problems have been linked to substance use such as accidents (Road Traffic Accidents (RTAs), fires, falling down,…etc), personality disorders, psychological disturbances, physical alterations (weight loss, infectious diseases, malignant tumors,…etc), and disassembled family and community. Up to the researchers' knowledge, there was only a single study conducted in Jordan to examine the prevalence of substance use among university and college students which found that almost 24% of the sample indicated that they use one of the substances (excluding tobacco). [7] Thus, this study attempts to achieve the following objectives: (1) assess the prevalence of illicit substance use among HU students, (2) identify the types of illicit substances used, and (3) determine the best predictors contributing to substance use. This study is part of a bigger study conducted to examine stressors and reactions to stressors among HU students.

Materials and Methods

Research Design

A descriptive cross-sectional design was used to answer the research questions. The dependent variable was: the prevalence of illicit substance use among students studying at HU. The independent variables were demographic variables such as age, gender, family income, number of family members, student's Grade Point Average (GPA), student's level of stress, smoking status, and parents' level of education.

Research Questions

1. What is the prevalence of illicit substance use among the HU students?
2. What are the illicit substances that students at HU have been using without medical prescription during last month, last year, or/and during their entire life?
3. What are the best predictors of illicit substance use among HU students?

Instrument

The instrument used in this study was developed and modified by the researchers. It consists of two parts: part one is composed of a list of illicit substances that may be used by individuals. The students were asked if they use -without medical prescription- any of the following substances during last month, during last year, and during their entire life (See Table 1). The list of substances provided in the instrument were: Alcohol, CNS depressant drugs (morphine, pethidine, valium, …), CNS stimulant drugs (captagon, amphetamines, …), Hashish, Marijuana, Cocaine, Heroin, and Inhalents.

The second part of the instrument consists of some demographic variables such as age, gender, family income, number of family members, student's GPA, student's level of stress, smoking status, and parents' level of education.

Also, to address the level of stress experienced by students, they have been asked to indicate the level of stress (mild, moderate, or severe) they experienced in the last month. The content validity of the instrument used in this study was checked by three panel of experts (Psychiatrist who is specialized in addiction, two PhD prepared psychiatric nurses). Furthermore, similar questionnaires were used by different researchers. [9-12]

Sample and Data Collection

The target population of this study consists of all the students at HU who registered for the second semester for the academic year 2007-2008. Stratified random sampling according to students' academic level was used to select the participants for the study.

After obtaining the approval of the Scientific Research Committee at the HU for conducting the study, a Research Assistant (RA) was hired and trained to collect data. The registration office provided the researcher with a list of all courses and sessions offered to all students during the second semester of the academic year (2007-2008) with information about courses' level (first, second, third, and fourth year). Six sessions from each group (level) were selected using simple random sampling. Then, the primary researcher contacted the teacher/instructor of each selected course in order to set a plan for data collection during the class sessions. Twenty-four sessions were randomly chosen from a list that contains around 300 sessions. The total selected sample from all sessions consisted of 835 participants (students). Confidentiality and anonymity were assured for the students before completing the instrument. Inclusion criteria include all university students at HU who are registered for the second semester in the academic year 2007-2008 and who agree to participate in the study. Exclusion criteria include those students who have any current or previous psychiatric illness. For the purpose of this study, illicit substance use refers to the use or ingestion of illicit substances by an individual without a medical prescription.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS version 12.0). Descriptive statistics were used to generate means, standard deviations, and frequencies for the number of variables. In addition, research questions were answered by employing descriptive analysis for questions one and two, and stepwise multiple-regression analysis for the third question.

Results

Descriptive Results

The whole surveyed sample consisted of 835 students. Of those, only 145 (17.4%) students indicate that they used any of the mentioned substances either during last month, last year, or during their entire life. Those students (N=145) were entered in the later analyses. Age of the students (N=145) who used substance(s) ranged between 18-28 years (mean= 21.7, SD=5.10). Family monthly income for the students ranged between 60-5000 Jordanian Dinars (JDs) (mean=938). The number of students' family members ranged between 1-20 members (mean=7.5, SD=2.3). Students' academic achievement, which is measured by GPA ranged between 1.06-4.0 out of 4.0 (mean=2.63, SD=0.55). Frequencies and percentages of other demographic variables are illustrated in Table (1).

Table (1): Characteristics of Demographic Variables (N=145).

Variable	*Frequency*	*Percentage*
Age		
18-20 Years	76	52.4
21-23 Years	54	37.3
24-26 Years	8	5.5
27-28 Years	7	4.8
Gender		
Male	90	62.1
Female	55	37.9
Monthly family income by JDs		
Less than 300	34	26.8
300-599	53	41.7
600-899	21	16.5
900-1199	11	8.7
1200 and more	8	6.3
Number of family members		
1-3 members	2	1.4
4-6 members	49	34.3
7-9 members	66	46.1
10 members and more	26	18.2
Students' Level (Year)		
First year	27	18.6
Second year	31	21.4
Third year	52	35.8
Fourth year	35	24.2
Grade Point Average (GPA)		
Excellent (3.5-4.0)	11	8.0
Very Good (3.0-3.49)	18	13.1
Good (2.5-2.99)	44	31.9
Acceptable (2.0-2.49)	51	36.9
Weak (below 2.0)	14	10.1
Level of stress as perceived by students		
Mild	23	16.1
Moderate	82	57.3
Severe	38	26.6
Smoking Status		
Smoker	55	37.9
Non Smoker	90	62.1
Fathers' educational level		
0-3 years (Illiterate and Elementary)	11	7.8
4-9 years (Preparatory and Secondary)	46	32.6
10-15 years (Diploma and Bachelor)	71	50.3
16 years and more (Master and Doctorate)	13	9.3
Mothers' educational level		
0-3 years (Illiterate and Elementary)	24	16.6
4-9 years (Preparatory and Secondary)	59	40.7
10-15 years (Diploma and Bachelor)	59	40.7
16 years and more (Master and Doctorate)	3	2.0
Daily sleeping hours		
1-4 hours	21	14.7
5-6 Hours	53	37.1
7-8 Hours	49	34.2
9 hours and more	20	14.0

**** Some totals are less than total (N=145) because of missing data.***

Illicit Substance Use

Out of 835 students who completed the instrument, 145 (17.4%) students indicated that they use one or more of the substances either during last month, last year, or during their entire life**.** Alcohol is found to be the most widely used substance by the students who participated in the study followed by CNS depressants. Table (2) shows frequencies and percentages of the substances used by the students during last month, last year, and their entire life, respectively.

Regarding the students who used more than one substance (combined substances) during last month, 9 students (6.2 %) indicated that they combined two substances at the same time, and 2 students (1.4%) indicated that they used 3 substances. During their entire life, 15 students (10.3 %) used two substances together, and 7 students (4.8%) used three substances at the same time. Only 4 students (2.7%) used more than three substances at the same time. Males were found to use substances more than females (one third were females) (See Table 2).

Table (2): Frequencies and Percentages of Substances Used During Last Month, Last Year, and the Entire Life (N=145).

Substance	*Last Month*		*Last Year*		*The Entire Life*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Alcohol	42	39.6	58	45.3	63	37.7
CNS Depressants	28	26.4	34	26.5	49	29.3
CNS Stimulants	27	25.5	24	18.7	33	19.8
Hashish	7	6.6	6	4.7	12	7.2
Marijuana	0	0	1	0.8	3	1.8
Cocaine	0	0	2	1.6	2	1.2
Heroin	0	0	1	0.8	1	0.6
Inhalents	2	1.9	2	1.6	4	2.4
Total	106	% 100	128	100%	167	100%

Predictors of Substance Use

To identify the best predictors of illicit substance use among the demographic variables, a stepwise multiple regression was performed. Fathers' and mothers' level of education was found to be the most predictor of substance use and explained 6.2% of the total variance.

The overall model was significant ($R^2 = 0.077$, $F_{(1,120)} = 4.98$, $P<0.001$). The fathers' level of education explained 3.0% of the substance use variance while mothers' level of education explained 3.2 % of the variance (See Table 3).

Table (3): Stepwise Multiple Regression for Variables Predicting Substance Use (N=145).

Predicting Variables	*R*	*R^2*	*Adjusted R2*	*β*	*F*	*P*
Fathers' level of education	0.194	0.038	0.030	0.194	4.71	0.032*
Mothers' level of education	0.278	0.077	0.062	0.267	4.98	0.008**

**** Significant correlation at 0.05 levels.***
***** Significant correlation at 0.01 levels.***

Discussion

The purposes of this study were to examine the prevalence, types, and predictors of substance use among university students. Available research studies for substance use revealed that substance use is considered a number one public health problem for most developed and rich countries especially among university students.[1, 13-17] The present study found that 17.4% of the participants (students) indicated that they use one or more of the substances either during last month, last year, or during their entire life.

Results of this study showed lower prevalence rate of illicit substance use than a previous study carried out in Jordan in 2003 which showed that the prevalence rate of substance use was about 24% (excluding tobacco use) of the surveyed students. [7] However, this percentage may be considered low in comparison with percentages in other countries, this may be attributed to the Islamic religion which prohibits the use of illicit substances, and the forces of the Jordanian community which is considered a conservative one. Furthermore, the increased exposure to the Western culture through either travel, satellite channels, or the internet may create the desire for youth to imitate others.

On the other hand, this study found a strong correlation between the parents' level of education and substance use. The low level of education for parents is found to increase the liability of substance use among their children. This result may be explained by the fact that well educated parents usually understand the development and the requirements of their children more than less educated parents. Furthermore, family conflicts, which is a predisposing factor of illicit substance use, are usually lower in well-educated families.

Most of the substances used by students are in their critical age of 18-26 years, the number of older students who are exposed to substance use decreases dramatically. This is may be ascribed to the increase in the educational level, and life experiences. This result is congruent with the longitudinal study undertaken by Johnston, et al. (2004) which showed that many forms of substance use tend to increase during the transition phase- between high school and college and university due to the increased level of stress that is associated with increased responsibilities. The study also revealed that substance use declines as students graduate and assume post university responsibilities. [18-20]

In this study, only one third of the substance users were females. Actually, females rarely use illicit drugs in Jordan because of the protective nature of the family and society for females in general.

This is congruent with the results obtained by Suleiman et al. (2003) who found that substance abuse was higher in male students. [7] Another factor that could have contributed to substance use is the family income, a factor that is considered the main reason for substance use in the Gulf States as the individual's income and standard of living rose dramatically, and this has led to increase the number of substance users especially the Heroin and Cannabis. [16-17, 21-24] The current study also showed that most of the substance users come from families with low income level (less than JD 500) and also in larger families (members of 7-9), and this may explain the reason why most of the substance users focus on cheaper substances such as alcohol, some of the CNS depressants or CNS stimulants, inhalants, and Hashish. The study also revealed that very rare cases were found where costly substances were used such as Cocaine and Heroin. This result supports the annual report of the General Security Department (GSD) in Jordan -for the year 2006 which shows in detail the types of illicit substances used by people in Jordan, and which mentions that most of the users focus on the use of cheap substances such as Hashish, and very limited numbers use Heroin, because its single dose costs around $100, which is considered expensive. Also, this result is congruent with the results obtained by Suleiman at al. (2003) who found that alcohol was the highest substance used (12%) and no one indicated the use of Cocaine.

On the other hand, the decrease in the individual income and life standards have also contributed in the increase in the level of stress, as it clearly appears in Table (1), and the increase in the level of stress may lead, according to most studies, to maladaptive behaviors such as substance use, or mental and personality problems. The strange result is that 61.2% of those who have previous history of substance use are not smokers; rather, the use of such substances makes them susceptible to smoking in the future.

Conclusions and Limitations

This study attempted to assess substance use among university students in Jordan, which reflected the low percentage of substance users. Also, this study is considered as a warning for parents and policy makers for the gradually increasing problem. The results of this study help in identifying different predictable factors that might be the focus of parents and policy-makers in the future.

On the other hand, this study also revealed some predictors for substance use among university students such as parents' level of education. In addition, this study attempted to shed light on the importance of mandatory health education programs at schools and universities, and through different mass media such as T.V and satellite channels to raise people's awareness about this problem in order to prevent substance use and promote health awareness for individuals and communities.

The generalization of this study is limited as there is only one university that was included in the study sample. Future research that studies the substance use, prevalence, causes, complications, and treatment modalities should be carried out at a broader comprehensive level. Another limitation of this study includes the lack of data about other predictors of substance use such as: peer pressure, personality characteristics, family disruptions, and psychological factors. Future studies should address those variables. Also, it is recommended to use more valid and reliable instruments to detect the prevalence of substance use rather than just ask the participants about the use of particular substances.

References

1. Nunes JV. Patterns of psychoactive substance use among adolescents. American Family Physician. 1995; 52(6):1693- 1696.
2. Sadava SW, Park AM. Stress related problem drinking and alcohol problems: A longitudinal study and extension of Marlatt's model. Canadian Journal of Behavioral Science. 1993; 25:446-464.
3. Broman CL. Stress, race and substance use in college. College Student Journal. 2005; 3:1-6.
4. Taylor J. Substance use disorders and cluster B personality disorder: Physiological, cognitive, and environmental correlates in a college sample. American Journal of Drug and Alcohol Abuse. 2005; 31(3):515-535
5. Karam EG, Maalouf WE, Ghandour LA. Alcohol use among university students in Lebanon: Prevalence, trends and covariates The IDRAC University Substance Use Monitoring Study (1991 and 1999). Drug and Alcohol Dependence. 2004; 76: 273-286.
6. Eliason MJ. Are therapeutic communication therapeutic for women? Substance Abuse Treatment, Prevention, and Policy. 2006; 1:3.
7. Suleiman RA, Shareef M, Kharabsheh M, AbuDanoon M. Substance use among university and college students in Jordan. The Arab Journal of Psychiatry. 2003; 14: 94-105.
8. Al-Mjali T. Substance addiction in Jordan. BBC News, 26-12-2006. Amman, Jordan.
9. Ahmadi J, Yazdanfar F. Substance use among Iranian university students. International Journal of Drug Policy. 2002; 13: 507-508.
10. Akvardar, Y, Demiral, Y, Ergor G, Ergor A. Bilici M, Ozer O. Substance use in a sample of Turkish medical students. Drug and Alcohol Dependence. 2003; 72: 117-121.
11. Ahmadi J, Maharlooy N, Alishahi M. Substance abuse: Prevalence in a sample of nursing students. Issues in Clinical Nursing. 2004; 13: 60-64.
12. McCabe SE, Teter C. Drug use related problems among nonmedical users of prescription stimulants: A web-based survey of college students from a Midwestren university. 2007; 91: 69-76.
13. McCabes SE, Boyd CJ, Cranford JA, Morals M, Slayden J. A modified version of the drug abuse screening test among undergratuate students. Journal of Substance Abuse Treatment. 2006; 31:297-303.
14. Wolff MW. Personality characteristics as a function of frequency and type of substance use. Adolescence. 2002; 2:45-52.
15. Peltzer Karl. Psychological correlates of substance use among South African university students. Social Behavior and Personality. 2001; 22:212-220.
16. Abalkhail BA. Social status, health status and therapy response in heroin addicts. Eastern Mediterranean Health Journal. 2001; 7(3):465-472.
17. Al-Nahedh. Relapse among substance- abuse patients in Riyadh, Saudi Arabia. Eastern Mediterranean Health Journal. 1999; 5: 241-246.

18. Staton M, Leukefeld C, Webster JM. Substance use, health, and mental health: Problems and service utilization among incarcerated women. International Journal of Offender Therapy and Comparative Criminology. 2003; 47(2): 224-239.
19. Johnston LD, O'Malley PM, Bachman PM, Schulenberg JE. National survey results on drug use from the monitoring of future study. 1975-2003. College Students and Adults Ages. 2003; 2: 19-45.
20. Amir T. Comparison of patterns of substance abuse in Saudi Arabia and the United Arab Emirates. Social Behavior and Personality: An International Journal. 2001; 29(6): 519-529.
21. Jordan LC, Davidson WS, Herman SE, Miller BJ. Involvement in 12-Step Programs Among persons with Dual Diagnosis. Psychiatric Services. 2002; 53: 894-896.
22. Westermeyer J. Substance use disorders: Predictions for the 1990s. American Journal of Drug and Alcohol Abuse. 1992; 18(1): 1-11.
23. Derbas AN, Al-Haddad MK. Factors associated with immediate relapse among Bahraini heroin abusers. Eastern Mediterranean Health Journal. 2001; 7(3): 473-480.
24. Simons JS. Differential prediction of alcohol use and problems: The role of biopsychological and social environmental variables. American Journal of Drug and Alcohol Abuse. 2003; 29(4): 861-879.

استخدام المواد المحظورة عند طلبة الجامعة الهاشمية في الأردن

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الملخص

الأهداف: تقييم مدى انتشار استخدام المواد المحظورة عند طلبة الجامعة الهاشمية، ومعرفة العوامل المتنبئة لانتشارها وتحديد أنواع المواد المستخدمة.

طريقة البحث: تم جمع المعلومات من خلال استخدام أداة تم تطويرها من قِبل الباحثين، حيث جمعت المعلومات من (835) طالباً وطالبة يدرسون في الجامعة الهاشمية خلال الفصل الدراسي الثاني 2007-2008.

النتائج: وجد أن نسبة استخدام المواد المحظورة بين طلبة الجامعة الهاشمية هي (17.4%)، وإن انتشارها بين الذكور أكثر منه بين الإناث، حيث كان الكحول أكثر هذه المواد انتشاراً كما وجد أن مستوى التعليم للوالدين كان له الدور الكبير في التنبؤ باستخدام المواد المحظورة من قبل الطلبة.

الاستنتاجات: ان نتائج هذا البحث تؤكد أهمية نشر الوعي حول خطر استخدام المواد المحظورة دون استشارة طبية كما تؤكد أهمية ملاحظة ومراقبة بعض الطلبة المعرضين بشكل كبير لاستخدام هذه المواد ومحاولة إيجاد وسائل ترفيهية وتكيفية بدلاً من استخدام تلك المواد.

الكلمات الدالة: استخدام المواد المحظورة، طلبة الجامعة، الأردن.