

Drug Abuse in Zagazig University Students, Egypt: Cross Sectional Study

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Abstract

Background: Drug addiction is a major public health and socioeconomic problem worldwide that annoys the Egyptian government, as it deals with youth within the age of productivity. **Aim of the Work:** To determine the prevalence of drug abuse among Zagazig University students. **Subjects and Methods:** A cross-sectional study conducted on 750 students in Zagazig University from the beginning of November 2015 to the end of November 2016, after an informed verbal consent. Data were collected through a self-administrated questionnaire and the results of screening urine samples. **Results:** The prevalence of drug abuse in general was 7.41%. The prevalence of drug abuse in descending order was tetrahydrocannabinol (3.9%) followed by tramadol (1.9%) then benzodiazepines (0.67%), while, opium and barbiturates each one of them (0.47%). 18% of them were Polydrug users and were only males. Tramadol was the commonest drug to use in polydrug users. The prevalence of smoking was 16.81% and strongly related to gender as in males 26.1% were current smokers while in females only 1.4%. The prevalence of abusing alcohols was 6%, and all of them were males. **Conclusion:** The prevalence of drug abuse in Zagazig university students is considered high and a very serious problem damaging the youth and the community. **Recommendation:** Future longitudinal studies should be conducted to investigate the risk factors of drug abuse and suggest the use of urine analysis for drugs of abuse for all students before joining the university.

Keywords

Abuse, Addiction, Students

1. Introduction

Young adulthood, aged 15 - 24, is a period of rapid economic, social, and cultur-

al transitions in Egypt which have created a favorable condition for increased socially disruptive pattern of drugs and alcohol use. Substance abuse is a growing problem in Egypt, as in many developing countries [1].

In Egypt, university students are very an important category that is liable to depend on the drugs. This is a very serious problem that worries both the people and government; however, data on drug dependence are still few [2]. Very few surveys have reported the incidence of misuse and dependency on substances among these students [3].

Young adults aged 15 - 24 years constituted about 20% of the population in Egypt in 2000 [4]. Hence, we must pay attention toward the younger age of drug abusers and the increase in the discovery of some of drug abuse with the progressive poisoning pattern over years [5].

The aim of this work is to determine the prevalence of drug abuse among Zagazig university students.

2. Subjects and Methods

A cross-sectional study was conducted on Zagazig university students of both sexes, without any mental or psychological or medical disorders, and agreed to participate after a written informed consent, from November 2015 to November 2016.

The sample size was calculated using Open Epi-I program to be 750 stratified random sample weighted according to the students number from both sexes. The students selected from theoretical colleges (e.g. Commerce College and Law College), and Practical colleges (e.g. Medicine, Pharmacy, Science and Nursing College). The Ethical Committee of Zagazig medicine faculty approved the study.

A recoded, pre-tested, well-structured self-administrated questionnaire was used and verified for internal consistency. The questionnaire composed mainly of three parts; sociodemographic data, types of abused drugs and history of previous failure (**Annex I model**).

Urine samples were screened by dipstick test named (ABON™ Multi-Drug) which is one step screening test panel (**Figures 1-3**) (used for qualitative detection of drugs of misuse which includes tramadol, opiate, tetrahydrocannabinol, amphetamine, Cocaine, barbiturate, and benzodiazepines). Only positive cases were confirmed by gas chromatography.



Figure 1. Interpretation of urine screening test: (A) negative, (B) positive, and (C) invalid test.

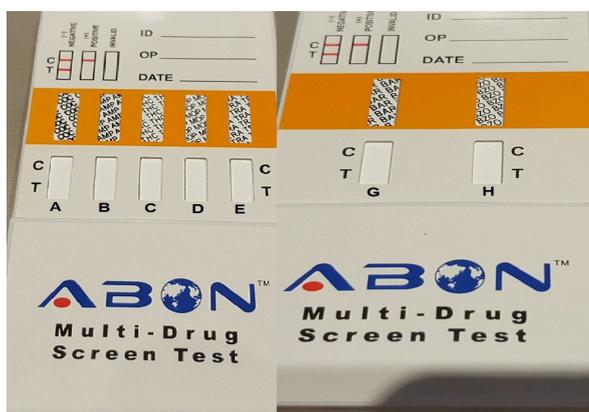


Figure 2. Drug detected by urine screening test: (A) cocaine, (B) amphetamine, (C) THC, (D) opioid, (E) tramadol, (F) barbiturate and (H) benzodiazepine.



Figure 3. Positive test for TCH (arrow 1), opioide (arrow 2) and tramadol (arrow 3).

The collected data were statistically analyzed using Statistical Package for the Social Science version 16 program. Descriptive statistics were calculated using (frequency, percentage, mean and standard deviation (SD)). For analysis of qualitative data, Chi-square test. And fisher exact t test was used. P value was considered significant if it was <0.05 .

3. Results

The majority of studied students were males 62.4%, and 37.65 were females. Their mean age was 20.0 yr. and 1.31 (SD) that distributed at the following groups in descending order; 52% were ($>19 - 20$ y), 35% were ($>21 - 22$ y), 10.2% were ($>17 - 18$ y), and only 2.8% were ($>23 - 24$ y) (**Figure 4**).

16.8% of students were **smokers**, smoking prevalence significantly higher in males (26.1) than females (1.4%). The prevalence of **analgesic misuse** was 69.2%, and showed no significant difference as regard sex (males 64.9%, females 73.9%). About 10% of the students stated **drinking alcohol**, and showed highly significant increase in males 16.5% with only 6.5% drank alcohol once, while no females were alcohol abusers. On the other hand, prevalence of **sedative misuse** was 5.2% but there was no significant difference between males (5.2%), and females (5.2%). 4% of students misused **stimulants** without significant differences

between males (6.5%) and females (1.25%) (Table 1).

There was significant increase in prevalence of misusing drugs & alcohol among smokers than non-smokers. 44.21% of alcoholic were smokers while 3.6% were non-smokers. Also 19.79% of students misusing sedatives were smokers while only 3.25% of were non-smoker. Regarding stimulants abuse, 23.68% were smokers while 2.38% of were non-smokers (Table 2).

18% of students were polydrug users (Figure 5). The percentages of positively screened students were 3.9%, 1.9%, 0.67%, 0.47% and 0.47% for tetrahydrocannabinol, tramadol, Benzodiazepine, opium and barbiturates while, there was negative screening for the amphetamin and cocaine. There was significant relationships to sex with 11.67% of positive screening were males and only 0.84% were females (Table 3).

There was an association between drug abuse and failure in the exam. There was significant difference between positively screened students failed and un-failed in the exam before (21.05% and 3.3% respectively) (Table 4).

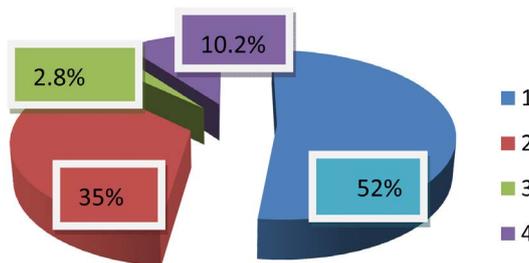


Figure 4. Age distribution among studied students (19 - 20), 2 (21 - 22), 3 (23 - 24) and 4 (17 - 18).

Table 1. Prevalence of Smoking and substance misuse and its relationship to gender among students in Zagazig University (2016-2017).

| | Males N = 469 F (%) | Females N = 282 F (%) | Total (%) | P value |
|-------------------|------------------------|--------------------------|-----------|----------|
| Smoking | 122 (26.1) | 2 (1.4) | (16.5) | <0.0001* |
| Analgesics | | | | |
| • Yes | 304 (46.9) | 209 (74.1) | 69.2 | 0.08 |
| • No | 123 (26.3) | 51 (18.8) | 22.6 | |
| • Once | 41 (8.8) | 22 (7.7) | 8.2 | |
| Alcohol | | | | |
| • Yes | 78 (16.7) | 0 (0.0) | 10.3 | |
| • No | 359 (76.1) | (97.9)276 | 89.6 | |
| • Once | 31 (6.6) | 6 (2.1) | 4.4 | |
| Sedatives | | | | |
| • Yes | 25 (5.3) | 15 (5.3) | 5.2 | 0.91 |
| • No | 430 (91.9) | 261 (92.7) | 93.7 | |
| • Once | 13 (2.8) | 6 (2.1) | 1.1 | |
| Stimulant | | | | |
| • Yes | 30 (6.4) | 4 (1.4) | 4 | 0.01* |
| • No | 431 (92.1) | 274 (97.2) | 94.6 | |
| • Once | 7 (1.5) | 4 (1.4) | 1.4 | |

*Significant.

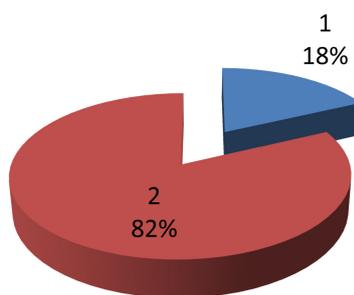


Figure 5. Percentage of polydrug users among the positive studied population.

Table 2. Percentage of abusing sedatives, stimulants and alcohols in relation to smoking among 750 students in Zagazig University (2016-2017).

| Substance Abused | Smoker N = 57 F (%) | Non-smoker N = 693 (%) F (%) | Total (%) | P value |
|------------------|------------------------|---------------------------------|-----------|----------|
| Alcohols | 32 (56.1) | 26 (3.8) | 6.6) | <0.0001* |
| Sedatives | 11 (19.3) | 23 (3.3) | 4.52) | <0.0001* |
| Stimulants | 14 (24.6) | 16 (2.3) | 4.0) | <0.0001* |

*Significant.

Table 3. Positive urine screening test results and its relationship to sex among studied Zagazig university students (2016-2017).

| Drug screened | Males N = 468 F (%) | Females N = 282 F (%) | Total % | P value |
|---------------|------------------------|--------------------------|---------|----------|
| THC | 30 (6.4) | 0 | 3.9 | <0.0001* |
| Tramadol | 16 (3.4) | 1 (0.35) | 1.9 | 0.02 |
| BZDs | 4 (0.85) | 1 (0.35) | 0.67 | 0.62 |
| Opium | 4 (0.85) | 0 | 0.47 | 0.18 |
| Barbiturates | 4 (0.85) | 0 | 0.47 | 0.18 |
| Amphetamine | 0 | 0 | 0 | 0 |
| Cocaine | 0 | 0 | 0 | 0 |
| All drugs | 54 (11.5) | 2 (0.71) | 7.41 | <0.0001* |

*Significant; THC = Tetrahydrocannabinol; BZDs = Benzodiazepine.

Table 4. Relationship between positive urine screening results and previous failure history in exams among students in Zagazig University (2016-2017).

| Failed in an exam before | Yes N = 114 F (%) | No N = 636 F (%) | Total % | P value |
|--------------------------|----------------------|---------------------|---------|----------|
| THC (%) | 9 (7.89) | 12 (1.89) | 1.19 | 0.003* |
| Tramadol (%) | 7 (6.1) | 6 (0.94) | 1 | 0.001* |
| Opium (%) | 2 (1.8) | 2 (0.31) | 0.2 | 0.17 |
| BDZs (%) | 3 (2.63) | 2 (0.31) | 0.39 | 0.001* |
| Barbiturates (%) | 3 (2.63) | 0.00 | 0.39 | 0.001* |
| All drugs | 24 (21.05) | 21 (3.3) | 3.17 | <0.0001* |

*Significant; THC = Tetrahydrocannabinol; BZDs = Benzodiazepine.

4. Discussion

Drug addiction is a major public health and socioeconomic problem worldwide that annoys the Egyptian government. This study was done to determine the prevalence of drug misuse among Zagazig University students.

In this study, the mean age of the studied students was 20.03 ± 1.31 years similar to mean age declared by Bethany *et al.* (2013) [6] in adolescents admitted for substance use disorder treatment in the northeastern United States medical centers and Nahid *et al.* (2014) [7] in Students of Isfahan Province, Iran who found that the mean age of students in their samples was 20.9, 19.6 years, respectively.

In contrary Hamdi *et al.* (2013) [8] studied that students from 8 governorates in Egypt showed the highest onset of substance use at age of 15 years old, because of the demographic pattern that reflects availability and accessibility to drugs.

Smoking prevalence was 16.81% conducted by Refaat (2004) [9] among Suez Canal University students, who reported current smoker prevalence was 26.5% in males, 12.2% in females. Radwan *et al.* (2015) [10] found that current smokers in males were about 27.5% and in females about 18.1% in the Egyptian national survey.

Smoking prevalence was significantly higher in males (26.1%) than females (1.4%). These results are in agreement with the study that stated that prevalence of smoking was higher among males than females. This is because of the cultural and social traditions in Egypt [11].

The prevalence of analgesic misuse was 69.2% (males 64.9% and females 73.9%). These results are approximately similar to an Iranian study conducted by Sarahroodi *et al.* (2012) [12] who found that 76.6% of the respondents reported using analgesics with 73.4% male and 79.2% female students.

Mc-Cabe *et al.* (2008) [13] in the United States found that 54.3% of students reported using analgesics and 9.7% of students reported taking stimulants in their lifetime.

The alcohol prevalence was 10.29%. This is in an agreement with Karam *et al.* (2007) [14] who found that the alcohol prevalence was 10.5%. In contrary Tesfaye (2014) [15] reported that 50.2% drank alcohol at least once in their lifetime from them 53.8% in males and 38.8% in females in Ethiopia. This was explained by Biratu *et al.* (2014) [16] who stated that homemade alcoholic drinks are acceptable for the vast majority of Ethiopian people. Furthermore, Yuri *et al.* (2011) [17] at the Federal University of Alagoas reported that regular alcohol prevalence was 29.1%.

The prevalence of sedative misuse among studied students was 5.2%. Iranian study conducted by Reza Hosseini *et al.* (2014) [18] found that the prevalence of sedatives was 7.4%, while Ahmed *et al.* (2014) found that 17% of students reported taking sedative in the King Saud University Medical Students.

In this study the prevalence of stimulant misuse among studied students was 4% higher than a study done by Mohamed *et al.* (2007) [19] in Zagazig Univer-

sity who found that 1.30% of students were abusing stimulants as the awareness by abusing drugs increase.

Also, there were significant difference between smokers misusing drugs & alcohol and non-smoker misusing them. Katie *et al.* (2012) [20] identified that there was a strong association between drinking alcohol and smoking among college students. Reed *et al.* (2007) [21] reported that students tend to smoke more cigarettes when they were drinking.

In a study done on college students' attitudes about smoking Dierker *et al.* (2006) [22] found that the primary reason for starting to smoke, and the main reason smokers continue to smoke as reported were addiction and stress.

Similarly, in a self-administered questionnaire study among 3258 students at 11 faculties of Assiut University El-Ansari *et al.* (2014) [23] found that drinking alcohols was positively associated with one's illicit drug/s use.

The most abused drug was tetrahydrocannabinol followed by tramadol then benzodiazepines, while opium and barbiturates in the same category. These were in an agreement with Webb (2006) [24] who conducted a study on United Kingdom university students, it had been found that tetrahydrocannabinol was the most common drug abused. This was explained by their families by being common in the locality with relatively low price, followed by tramadol and there was significant relationship between drug abuse and sex (more in males).

In contrary, Adeyemo *et al.* (2016) [25] reveal that alcohol was the most commonly abused drugs amongst University Students in Benin City, Nigeria. Maria *et al.* (2015) [26] who conducted a survey on 275 university students in a private institution in Brazil, found that alcohol was the most widely used drug, followed by tobacco, and marijuana then psychoactive drugs.

Mwaheb *et al.* (2012) [27] conducted a study in Fayom city on male students and found that 75% of them were abusers of drugs. They reported that the common drugs of abuse were 40% cannabis, 37% tramadol, and 23% benzodiazepine. These percentages are higher than the current study and this may be due to conduction of the study on males only.

In contrary, A North American study entitled "Monitoring the Future" reported the following data regarding the prevalence of drug use by university students over a year: alcohol (82.1%), tobacco (30.0%), and marijuana (32.3%). These are evidence that the high rate of use of alcohol followed by the use of tobacco and marijuana is a reality worldwide and, thus, use of drugs is a global public health issue [28].

In this study, the percentages of positively screened students of all studied population were 3.9%, 1.9%, 0.67%, 0.47% and 0.47% for tetrahydrocannabinol, tramadol, Benzodiazepine, opium and barbiturate respectively. On the other hand, there was negative screening for the amphetamin and cocaine.

Regarding screening for drug of abuse, El-Ezz and Ez-Elarab (2011) [29] in Ain Shams University found that 87.2%, 12% and 3.3% of students were abused on analgesics, sedatives and stimulants respectively.

Negative amphetamines and cocaine screening results came in agreement with a study conducted by Werese and Hambisa (2014) [30] in Ethiopia and Goreishi and Shajari (2013) [31] in Iranian study.

There was strong association between positively screened students and failure in the exams before. Similarly, a study in Colombia concluded that drug abuse was a major problem and the main cause in university students reported a higher default and dropout, school dissatisfaction, a higher amount of repetitions in the courses and low academic performance [32].

Tarig *et al.* (2016) [33] carried a study in Sudan university students and found that Curiosity (33.1%) was the main reason for initiation of substance abuse.

Strength: The first study of this kind in Zagazig University students. It is a large population-based study that involves at-risk groups (adolescents and young adults). It includes the prevalence of many drug misuses.

Limitation

Despite cross-sectional studies can usually be conducted relatively faster and are inexpensive, but large scale studies are needed to predict incidences. The study also is prone to certain biases because of the students response (recall and stigma) enrolled in. The lab results may be affected by the time of the sample collection.

Recommendation

Future longitudinal studies are recommended to be conducted to investigate the risk factors of drug abuse and suggest use of urine analysis for drugs of abuse for all students before joining the university.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Arabic Abstract

دراسة عن تعاطي المخدرات لطلاب جامعة الزقازيق – مصر : دراسة مقطعية عرضية

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أقسام الطب الشرعي والسموم الإكلينيكية والصحة العامة*

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مقدمة البحث: إدمان المخدرات هو أهم المشاكل الصحية العامة والاجتماعية والاقتصادية في جميع أنحاء العالم التي تزعج الحكومة المصرية، كما أنها تتعامل مع صغار السن في سن الإنتاجية. **هدف البحث:** يجري هذا البحث : لتقييم سوء استخدام المخدرات بين طلاب جامعة الزقازيق، وأيضا لتحديد المخدرات التي يساء استخدامها فيما بينهم. **طريقة البحث:** دراسة مستعرضة أجريت على 750 طالبا في الأكثر شيوعا جامعة الزقازيق خلال الفترة من بداية نوفمبر 2016 وحتى نهاية شهر نوفمبر 2017 بعد اخذ تصريح بإجراء البحث. تم أخذ بيانات الطلاب من الاستبيان الذي ملأ به الطلاب ونتائج فحص عينات البول. **النتائج:** أوضحت الدراسة بلغ معدل انتشار التدخين بين جميع الطلاب 16.81%، وكان مرتبطا بشكل كبير بنوع الجنس كما في الذكور الإجمالي 26.1% من المدخنين الحاليين بينما في الإناث فقط 1.4%. بينما كان انتشار تعاطي الكحول 6% من جميع الطلاب وجميعهم من الذكور. وكان انتشار تعاطي المخدرات 7.41% بين جميع الطلاب. وكان أكثر المخدرات تعاطيا تيترو هيدروكلوريد (3.9%)، ثم الترامادول (1.9%) ثم البنزوديازيبينات (0.67%)، في حين أن الأفيون والباربيتورات كل واحد منهم (0.47%). وكان مستخدما أكثر من نوع واحد من المخدرات الى حوالي 18% الذين كانوا فقط من الذكور. وكان الترامادول هو الدواء المشترك لاستخدامها في المستخدمين لأكثر من نوع واحد من المخدرات. **التوصيات:** يوصى بإجراء دراسات طولية في المستقبل للتحقيق في عوامل الخطر من تعاطي المخدرات واقتراح استخدام تحليل البول للمخدرات لجميع الطلاب قبل انضمامهم إلى الجامعة.

Annex I Model Student Questionnaire

These questions refer to the past 12 months.

Circle your response

- 1-What is your sex? Male Female
- 2-In what year were you born? _____ Year
- 3-Have you used drugs other than those required for medical reasons?
Yes No
- 4-Have you abused prescription drugs?
Yes No
- 5-Do you abuse more than one drug at a time?
Yes No
- 6-Can you get through the week without using drugs?
Yes No
- 7-Are you always able to stop using drugs when you want to?
Yes No
- 8-How frequently have you smoked cigarettes during the LAST 30 DAYS?
____ Not at all
____ yes
____ No
- 9-How frequently have you drunk alcoholic beverage to drink (more than just a few sips)?
____ Not at all

___ yes

___ No

10-Have you ever heard of any of the following drugs?

Yes

No

(a) Tranquillizers or sedatives [give names that apply] ___

(b) Marijuana (grass, pot) or hashish (hash, hash oil) ___

(c) Amphetamines (uppers, pep pills, bennies, speed) ___

(d) Ecstasy ___

(e) LSD ___

(g) Crack ___

(h) Cocaine ___

(i) Heroin ___

(j) tramadol ___

11-How many times IN YOUR LIFE (if any) have you used any of the following drugs?

Not at all

Yes

No

(a) Marijuana (grass, pot) or hashish (hash, hash oil) _____

(b) Tranquillizers or sedatives _____

(c) Amphetamines (speed) _____

* (d) Methamphetamine _____

(e) Ecstasy _____

(f) LSD _____

(i) Cocaine _____

(j) Crack _____

(k) Heroin (smack, horse) _____

(l) Other opiates (tramadol) _____

12-Did you fail in the exam before?

Yes

No

13-Do you ever feel bad or guilty about your drug use?

Yes

No

14-Does your spouse (or parents) ever complain about your involvement with drugs?

Yes

No

15-Has drug abuse created problems between you and your spouse or your parents?

Yes

No

16-Have you lost friends because of your use of drugs?

Yes

No

17-Have you neglected your family because of your use of drugs?

Yes

No

18-Have you been in trouble at work because of drug abuse?

Yes

No

19-Have you lost a job because of drug abuse?

