

# Prevalence and Vulnerability to Drug Abuse among Students of High School and Colleges in Riyadh, Saudi Arabia: Cross-Sectional Study

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## Abstract

**Background:** Drug and substance abuse is a significant burden worldwide. This problem affects many families in each community in a way or another. By the end, the misuse of these substances can lead to health associated problems in addition to social, economic, and legal issues. The Students' susceptibility to drug abuse depends on different factors such as low self-esteem or to gain acceptance. **Objectives:** To compare the attitude of drug abuse between high school students and college students and to assess the common reasons that led to increase number of abusers. **Methods:** The study was conducted between February and May 2018 in Riyadh city on colleges and high schools students. A sample of 935 students aged between 15 and 25 years were randomly selected by distributing an online self-administered questionnaire for data collection. **Results:** The overall prevalence of drug abuse in Riyadh city was 18.94% among high school students (8.07% and 10.87% female abusers) and 24.14% among college students (13.87% male and 10.28% female abusers). A significant relationship was found between abuse and being a male students in college. The prevalence was different for high schools, the most widely abused substance was alcohol (44.5%) followed by Hashish (40.19%). These were used for different reasons the most common was for fun followed by escaping from problems. **Conclusion:** The study demonstrated that college students have higher prevalence and vulnerability to drug abuse than high school students, with the most commonly used substances being Alcohol and Hashish. According to our findings, the main reasons behind students' abuse of drugs are due to boredom thus wanting to have fun and having problems so they escape from them by drugs. Due to the prevalence of drug abuse and the various reasons behind it as demonstrated in our study, we believe that parents should be more involved with their children's lives, students should be encouraged to have hobbies in their spare time and guidance should be provided for them in order to learn how to deal with their problems correctly.

**Keywords:** drug abuse, students, high school, college, alcohol, Riyadh.

## Introduction

Drug and substance abuse is one of the significant burdens worldwide<sup>[1]</sup>. According to World Health Organization, substance abuse refers to the continuous user consumption of drugs and substances such as alcohol, psychoactive and illicit drugs in a harmful or hazardous manner to themselves as well as to others<sup>[2]</sup>. This problem affects most of the families in each community in a way or another. In 2012 approximately 5% of total population (230 million) used an illicit substance<sup>[3]</sup>. The misuse of these substances by the end can lead to health, social, economic, and legal issues<sup>[4]</sup>.

The Students' susceptibility to drug abuse depends on different situations or factors, such as; Low self-esteem, to gain acceptance

and admiration from his/her squad while trying to create their personalities<sup>[5]</sup>. Another cause of abuse is the stress during examination periods; these drugs can be mistakenly used to boost their concentration<sup>[6]</sup>. Others can use it due to their family and friends influences', to mimic a parent, or a friend's cultural behavior. Furthermore, parents' educational level may be an important factor that reflects their awareness towards drugs' abuse. Considering the low family income and the employments of parents may also contribute to abuse. Adding to that the psychological status, especially in somber situations<sup>[7,8,9]</sup>.

Almost all of the previous studies showed that drug abuse appear to be a major problem among university and high school students, especially in youth and young adults (15-25 years)<sup>[10]</sup>.

Our study will shed the light on the major common causes that make this age group targeted and which factors increase their susceptibility to illicit drugs. There are no sufficient studies to connect the relation between high school and college students with different possible factors influencing their medication misuse in Saudi Arabia particularly in Riyadh district.

A similar study in Riyadh in 2014, examined students attitude towards OTC medications use during examination, it reported that 5% increased usage of energy drinks, with higher percentage for females than in males<sup>[11]</sup>.

This study will discuss the most substances abused in Riyadh like: alcohol, cannabis, khat, cocaine, Tramadol, heroine, tranquilizers, methamphetamines, OTC medications, opioids, hallucinogens, B Blockers, antihistamines, antidepressants, caffeine, Energy drinks, Traditional medicine, Glue, Polish remover, Thinner, Gasoline, Detergents and Pregabalin.

We estimate that our results will show comparable outcome to a previous study conducted in Abha City in 2016, on substance abuse among male secondary school students. It revealed that 68% of abuser student's average age was 17-18. Other results showed that 9.3% of their sampled students were alcohol abusers and 8.8% were substance abusers<sup>[12]</sup>.

## Methodology

This cross-sectional study was conducted in Riyadh city; it was started on February and continued till May in 2018. An ethical approval of the study design was obtained from research committee of Al-Maarefa University. Participation in our study was voluntary, before filling each questionnaire participants had to check a box assuring that the data will be collected anonymously to be used for research purposes only.

Data was collected by Google Surveys, we used a 42- items pilot tested self-administered online questionnaire in Arabic language, and it was distributed via social media (whatsapp, twitter, facebook and snapchat) among high school and university students. The questionnaire was validated by other staff members whom are experts in the medical field.

It consisted of two parts, first part included questions about participants demographics (gender, nationality, age group, marital status, living status, family in-come, monthly allowance, educational level, GPA, medical condition, smoking cigarettes/hookah, packets/ day, age when first started smoking, source they obtained smoking habit from, if family knows about smoking, ability to stop smoking, substances abuse, frequency of abuse/ month, if abusing more than one substance at the same time, age when first started drug abuse, if they still using these substances, reasons of substance abuse, if they felt guilty because of substance abuse, if they could spend the week without drug abuse, their ability to stop drug abuse, if they had suffered from a medical problem and they were asked to define this problem, if they seek help to stop smoking/ abusing, registration in a rehabilitation program, withdrawal symptoms, had higher grades, failed in a course, reduced ambition, if their family knows about being abuser, if they had another smoker or abuser in the family and they were asked to determine the relative relation, economical issues and illegal issues).

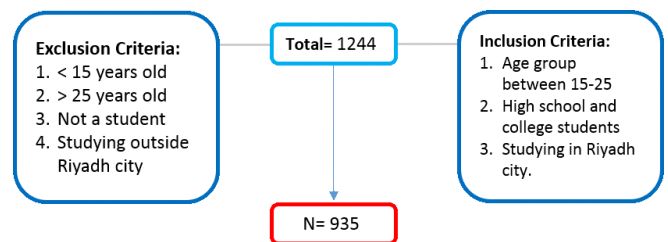
Second part was study-related questions, about drugs and substances abused which were ( Alcohol, Khat, Tramadol, Cocaine, Flakka, Heroine, Hashish, Pregabalin, Tranquilizers, Methamphetamine, LSD, Beta blockers, Antihistamine, Antidepressants, Cough medications, Glue, Acetone, Correctors, Paints, Thinners, Gasoline, Detergents, Pain killers, Sleeping pills, Laughing gas, Lighter gas)

A total of 1244 volunteers participated in this study from both genders male and female. Inclusion criteria resulted in only 935 participated students of high schools and colleges with age between 15-25 years old and were studying in the city of Riyadh.

Data analysis was carried out using GNU PSPP 1.0.1, the results were reported as frequencies and percentages. Comparison between the variables was tested using Chi- square and it was carried by Independent samples T test. A p-value of < 0.05 was considered statistically significant.

## Results

Out of 1244 responses, 935 were valid after excluding those who were not students, who were out of the age group range (15-25 years old) and those who were studying outside the city of Riyadh. Of 935 total there were 322 (34.4%) responses from high school students and 613 (65.56%) from college students. For high school there were 142 (44.10%) male students and 180 (55.90%) female students, and for college students there were 298 (48.61%) male students and 315 (51.39%) female students. Overall, the higher participation was seen from female participants.



**Table1: Demographic characteristics of participants, N= 935.**

Institution	N	%
High school	322	34.4%
College	613	65.56%
<b>Gender</b>		
Male	440	47.05%
Female	495	52.94%

For high school students, there were 45 (13.97%) male students who were tobacco smokers and 27 (8.39%) female smokers. For college students there were 155 (25.29%) male smokers and 57 (9.30%) female smokers. The higher percentage of smoking was seen among males than females, that showed a significant relationship between smoking and gender (P value= 0).

**Table2: Smoking among students in relation to gender.**

Smoke	Yes	No
<b>High school</b>		
Male	13.97%	30.12%
Female	8.39%	47.52%
<b>College</b>		
Male	25.29%	23.33%
Female	9.30%	42.09%

**Table 3: P value of smoking in relation to gender**

	<i>P value</i>	<i>Relationship</i>
High school	0	Significant
College	0	Significant

The total number of participants who admitted substance abuse among high school were 61 (18.94%) students, 26 (8.07%) were male students and 35 (10.87%) were female students, this indicated that there was no relationship between gender and substance abuse among high school students (P value= 0.769 ).

In contrast to high school students, there were 148 (24.14%) drug abusers among college students, 85 (13.87%) were male students and 63 (10.28%) were female students that displayed a significant relationship between genders and being an abuser. (P value= 0.014)

**Table 4: Substances abuse among students in relation to gender**

<i>Abusers</i>	<i>Yes</i>	<i>No</i>
High school		
Male	8.07%	36.02%
Female	10.87%	45.03%
College		
Male	13.87%	34.75%
Female	10.28%	41.11%

**Table5: P value of drug abuse in relationship to gender**

	<i>P value</i>	<i>Relationship</i>
High school	0.769	No relationship
College	0.014	Significant

Out of total smokers there were 257 (90.49%) students who were living with their families, 19 (6.69%) students who were living alone and 8 (2.81%) students were living with a roommate. Which denoted that there was a significant relationship between being a smoker and the living status (P value=0). 48% of those smoker students answered with yes when they were asked if their family knows about their smoking.

Out of our total number of students who abuse drugs, 193 (92.34%) of them were living with their families, 11 (5.26%) students were living alone and 5 (2.39%) students were living with a roommate (P value= 0.161). 15% of those students responded with yes when they were asked if someone in their family knows about them being a drug abuser.

**Table 6: Smoking and substances abuse among students in relation to their living status**

	<i>Smokers</i>		<i>Abusers</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
With Family	257	90.49%	193	92.34%
Alone	19	6.69%	11	5.26%
Roommate	8	2.81%	5	2.39%
Family knows		48%		15%

**Table7: P value of smoking and drug abuse in relationship to living status.**

	<i>P value</i>	<i>Relationship</i>
Smoking	0	Significant
Drug abuse	0.161	No relationship

According to our findings, there were 53 (18.66%) smokers and 51 (24.40%) drug abusing student with a monthly allowance of less than 500 SR. For those with allowance between 500 to 1,000 SR monthly there were 92 (32.39%) smokers and 68 (32.54%) abusers. For those who get more than 1,000 but less than 2,000 SR there were 77 (27.11%) smokers and 51 (24.40%) abusers. And for the last category, students with more than 2,000 SR monthly, there were 62 (21.83%) smokers and 39 (18.66%) abusers. Thus, these statistics showed that there was no relationship between having higher monthly allowance and being a smoker or abuser.

**Table8: Smoking and drug abuse among students in relation to their monthly allowance**

	<i>Smokers</i>		<i>Abusers</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Less than 500 SR	53	18.66%	51	24.40%
500 - 1,000 SR	92	32.39%	68	32.54%
1,000 - 2,000 SR	77	27.11%	51	24.40%
More than 2,000 SR	62	21.83%	39	18.66%

**Table9: P value of smoking and drug abuse in relationship to monthly allowance**

	<i>P value</i>	<i>Relationship</i>
Smoking	0	Significant
Drug abuse	0	Significant

The reasons associated with drug abuse were numerous but abusing drugs for Fun was the most common with (66.02%) students, followed by escaping from problems with (40.66%), Family problems (24.4%), Psychological problems (19.12%), Influence of Friends (18.18%), sleeping problems (13.87%), and other reasons shown in table 10.

**Table10: Percentages of reasons students abuse drugs.**

<i>Reasons</i>	<i>Percentages</i>
For Fun	66.02%
Exam	11.48%
Availability	7.65%
To be more confident	6.22%
Get rid of being shy	9.09%
Escaping Problems	40.66%
Family Problems	24.4%
Financial Problems	11%
Psychological Problems	19.12%
Advertising	2.39%
Sleeping Problems	13.87%
Influence Friends	18.18%

Most drugs were first used when the students were above 16 years old with 71.83%, followed by ages between 14 to 16 years old with 16.9%.

**Table 11: Age students started to abuse.**

<i>Age</i>	<i>N</i>	<i>%</i>
<10 years	9	6.33%
11 - 13 years	7	4.90%
14 - 16 years	24	16.9%
>16 years	102	71.83%

The most widely used substance was Alcohol with (44.5%), after that Hashish (40.19%), Acetone (22.97%), Correctors (20.57%), Glue (17.7%), Tranquillizers (16%), followed by others shown in Table12.

**Table 12: Percentages of Substances abused.**

Substances	%	
	Use	Don't use
Alcohol	44.5%	55.5%
Hashish	40.19%	59.81%
Acetone	22.97%	77.03%
Corrector	20.57%	79.43%
Glue	17.7%	82.3%
Tranquilizers	16.75%	83.25%
Cough Medication	15.79%	84.21%
Detergents	14.83%	85.17%
Antihistamines	14.35%	85.65%
Gasoline	13.88%	86.12%
Antidepressants	12.92%	87.08%
Pregabalin	11.96%	88.04%
Paints	11.96%	88.04%
Tramadol	8.61%	91.39%
Methamphetamine	8.13%	91.87%
LSD	7.18%	92.82%
Thinners	6.22%	93.78%
Cocaine	5.26%	94.74%
Khat	3.35%	96.65%
Beta blockers	3.35%	96.65%
Heroin	1.91%	98.09%

The rate at which students who abuse substances use their drugs on a monthly basis was categorized between Less than 5 times (51.67%), 5 to 10 times(10.52%), more than 10 times(8.61%).

**Table13: Percentages of the frequency students abuse drugs per month.**

Times/Month	N	%
< 5 Times	108	72.90%
5 - 10 Times	22	14.86%
> 10 Times	18	12.16%

Some students had higher grades after using Tobacco or taking substances with 24.88%, and some got lower graders or it did not have any effect with 70.81% as shown in Table14.

Students who think they have failed a course due to substance use are 16.74%, and the percentage of students that did not fail is 78.94% as shown in Table15.

**Table 14: Relationship between using tobacco or drugs and having higher grades**

Grades	N	%
Higher	52	24.88%
Same or Lower	148	70.81%

**Table 15: Relationship between using Tobacco or drugs and Failing a course**

	N	%
Failed	35	16.74%
Did not Fail	165	78.94%

21 students (10.04%) of abusers had disease associated to their abuse, most common was amnesia with 6.22%, followed by confusion 1.43%, convulsions with 0.95%, and other diseases as shown in Table16.

**Table 16: Percentage of drug abuse related diseases.**

Diseases	Percentages
Amnesia	6.22%
Confusion	1.43%
Insomnia	0.43%
Headache	0.43%
Convulsion	0.95%
Hemoptysis	0.43%

## Discussion

A significantly higher percentage of smokers are seen in male students from high schools and colleges. It may be due to environmental influences; males are usually exposed to cigarettes more than females. Also, the social acceptance plays a major role, in our society it is accepted to see a male smoker but it is not the same for females. In a previous study, males had a higher smoking ratio than females<sup>[13]</sup>.

According to our study, living conditions do affect the smoking habit. Students who are living with their families had the highest percentage with (90.49%). 48% of smokers' families are aware about their smoking habit. That means around half of the smoking cases are done in front of their family sight.

Our findings indicate that the prevalence of drug abuse among students in college is directly related to the gender. Male students have the higher percentage of abusing substances. But, for high school students it is higher in female than in male students. This may be due to the small sample size we have. In a similar study conducted in Riyadh approximately 66.6% of female students and 44.4% of male students experienced anxiety or depression, this may lead them to abuse drugs more than males<sup>[14]</sup>.

Most of drug abuser students are living with their families with a percentage of (92.34%). Only 15% of their families are aware about their substance abuse. This indicates that there is no relationship between the living condition and abuse potential.

Most of smokers and abusers have a monthly allowance between 500-1000 SR. This had an insignificant p value, thus there is no relationship between monthly allowance and being smoker or abuser.

The most commonly abused substances among high school and college students are Alcohol at the top with (44.5%), then followed by Hashish (40.19%), Acetone (22.97%), Correctors (20.57%), Glue (17.7%), Tranquillizers (16%), cough, detergents, antihistamines, gasoline, antidepressants, paints, pregabalin, tramadol, methamphetamine, LSD, thinners, cocaine, khat, beta blockers, heroine, flakka, painkillers, sleeping pills, laughing gas, and lighters gas arranged highest to the lowest frequencies.

In a similar study conducted in Riyadh, it showed that alcohol, amphetamines, heroin and cannabis were the most frequently abused substances in the community. And some of these substances are easier to find and more available than others<sup>[15]</sup>.

The majority of abusers use these substances less than 5 times per month (51.67%). Tendency to abuse these substances is arranged from highest to lowest, starting from those who are abusing drugs just to have fun (14.76%), escaping from problems (9.09), having family problems (5.45%), psychological Problems

(4.28%), influence of friends (4.06%), and sleeping problems (3.1%). These results are comparable to other similar results show that most respondents use substances when they are bored, tired or stressed, or parties to relax and relive stress<sup>[16]</sup>.

Most of abusers are 16 years and older (48.8%). This is comparable to a recent study on substance abuse among male school students revealed that 68% of abusers are with average age of 17 to 18. This may be due to feeling more independent and curious to experience these substances<sup>[17]</sup>.

The schooler achievement is found to be affected by abusing substances. Around 25% of student had higher grades and about 17% had failed a course due to abuse.

## Conclusion

Our study demonstrated that college students have higher prevalence and vulnerability to drug abuse than high school students, the most commonly used substances are Alcohol and Hashish. The main reason behind students' abuse is boredom and wanting to have some fun, also encountering some problems makes them want to escape by abusing drugs. Due to the prevalence of drug abuse and the various reasons behind it as demonstrated in our study, we believe that parents should be more involved with their children's lives, students should be encouraged to have hobbies in their spare time and guidance should be provided for them in order to learn how to deal with their problems correctly.

## Limitations

- Time frame was insufficient, so the questionnaires haven't reached the desired number of high school students.
- It was harder for us to reach male students due to some cultural boundaries.

## Recommendations

- Conducting this study in other cities of Saudi Arabia.

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