

SHORT COMMUNICATION

PSYCHOACTIVE SUBSTANCES ABUSE TRENDS AMONG MEDICAL STUDENTS OF LAHORE; A CROSS SECTIONAL STUDY

Maryam Noshad, Muhammad Hammad Butt, Tooba Mehboob, Irfan Bashir, Rabia Aslam, Naila Tabassam

University of Central Punjab, Lahore Pakistan

ABSTRACT

Objective: To track the trends and patterns of psychoactive substance abuse among medical students.

Study Design: Cross-sectional questionnaire based study.

Place and Duration of Study: Medical Colleges and Universities of Lahore, from Aug to Sep 2019.

Methodology: Total 200 medical students from Medical Colleges and Universities were included. The data were analyzed and computed using SPSS-21. Frequencies and percentages related to all the factors were computed.

Results: Among study participants, 96 (48%) of males and 104 (52%) of females with 154 (77%) of these students belong to 21-25 years of age group. The observed prevalence of substance abuse among students was 42 (21%). Joy seeking and a friend's offer was the initiation of psychoactive substance use among these students. Tobacco was the most highly consumed substance among students, followed by marijuana. Besides, the results also revealed that students also consumed cocaine and methamphetamine. Among 21% abusers, 4 (9%) and 5 (11%) of the students experienced side effects and withdrawal symptoms respectively.

Conclusion: The increasing consumption of tobacco and indulgence in psychoactive drugs are concerning issues because of uncontrolled consumption can cause serious brain damage. Academic burden and stress are the mediators of drug abuse among students. Therefore, stress management training and workshops should be conducted in institutes.

Keywords: Amphetamine, Medical student, Marijuana, Psychoactive substance, Withdrawal symptoms.

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INTRODUCTION

Psychoactive substance abuse is a global health issue. In universities, the use of psychoactive substances is growing gradually. Any substance which acts specifically on the Central nervous system (CNS) and changes the brain functioning is known as psychoactive substance¹. CNS stimulants are among the most abused drugs, but they have significant clinical use, e.g. analeptic stimulants, psychomotor stimulants, and methylxanthines². The most noticeable period of students' life is their undergraduate and/or post-graduate studies in which they may be indulged in drugs to cope with peer pressure, academic stress, and popularity of psychoactive substances³. Evidence from different sources has also indicated that stress is the main reason which may predispose students to take psychoactive drugs⁴. According to the 2015 World Drug

Report of UNODC, opioids/opiates, cannabis, and amphetamine-type stimulants (ATS) are now the top 3 actionable drugs worldwide⁵. Amphetamine is a potent Central Nervous System (CNS) stimulant and most abused substance⁶. Opioids, such as morphine are narcotic analgesics and are a frequently abused substance. Excessive use of such opioids like morphine causes addiction, psychological, and physical dependence. It also induces neuronal dysfunction⁷. CNS stimulants enhance strength and improve performance. Chronic use is linked with adverse effects like cerebrovascular accidents, seizures, psychosis, and these complications mostly occur in the body with pre-existing risk factors. Nicotine, a stimulant is available as a medicinal agent in chewing gum form to overcome the withdrawal symptoms⁸. Alcohol use & indulgence in drugs by students have become a global concern. The problem of psychoactive substance abuse has historically been linked to health care professionals due to their proximity to the drugs⁹. Caffeine, a

Correspondence: Dr Muhammad Hammad Butt, Department of Clinical Pharmacy, University of Central Punjab, Lahore Pakistan
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component of chocolate, coffee, and soft drinks, is largely consumed and it has strong effects on the human body. Lysergic acid diethylamide (LSD) acts as an agonist at the 5-HT_{2A} receptor in the CNS and as antagonist at peripheral 5-HT receptor's sub-types¹⁰. Treatment is being initiated in different healthcare systems in a mannered pattern. Two types of treatments are present for controlling drug abuse: one is psychosocial treatment & other one is therapeutic treatment. However, each form of treatment has some limitations due to its inevitable side effects and withdrawal symptoms. Very little published data is available, which specifically focuses on substance abuse in medical students in Pakistan, none of which covers the area where this study was performed.

METHODOLOGY

This cross-sectional questionnaire-based study was conducted in medical college and universities among medical students of Lahore, Pakistan, from August 2019 till the end of September 2019. The names of the institutes were not publicized as to maintain confidentiality. Before starting the study, research approval from Research & Ethics Committee of Foundation for young researchers, Lahore, Pakistan (Ref. #FYR/R&EC/13/2019) was obtained. Confidentiality of the participant name was maintained and consent was taken from the participants. The target sample size was 165 students and calculated by using online Raosoft sample size calculator. The sample size was calculated by keeping the population size as 500000, response distribution as 50%, while confidence interval and margin of error were set at 80% and 5%, respectively. However, a total of 200 students were contacted to participate in this study. Consecutive sampling technique was used to recruit the study participants. The questionnaire regarding the use of psychoactive substances and the associated factor of its use were developed by performing literature research. The questionnaire consists of different sections containing 25 closed-ended questions. The questionnaire was developed and approved by the pharmacy practice experts' professors to validate the data. The aim and instructions of the research

project were clarified to participants before filling the questionnaire with signed consent. Both male and female student of age more than 18 years old and not more than 25 years were selected. All the questionnaires were checked for completeness of response and incomplete were expelled out from the final data. After getting the forms first data were encoded in SPSS-21 to maintain the confidentiality of the respondent. All the data was incorporated in statistical Package for the Social Sciences version 21 to find results. All the categorical variables like demographic and other study questions were described in frequency (n) and percentage (%). The study flow diagram is presented in figure.

RESULTS

From the total 200 respondents, 96 (48%) were males and 104 (52%) were of females. In our study, we have found that the maximum number of students, i.e. 154 (77%) belonged to the age group 21-25 years. Moreover, about 46 (23%) of the students were aged between 15-20 years. Approximately 3/4th of the participants 137

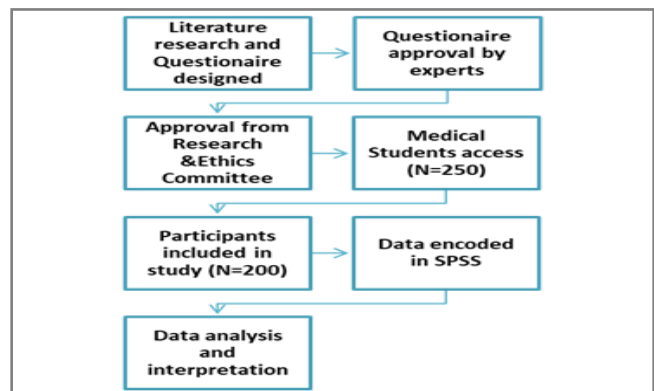


Figure: Schematic study flow.

(68.5%) were studying Pharm.D (Doctor of Pharmacy) and 63 (31.5%) had MBBS level of education. Majority of the study participants 54 (27%) and 51 (25.5%) were belongs to 3rd and 4th year of their degree respectively. However, 39 (19.5%) were from final year or 5th year of their degree. The maximum number of students knew about psychoactive agents. Among them, 194 (97%) of the students knew psychoactive agents while only 6 (3%) did not know psychoactive agents.

About 42 (21%) of the students agreed on using psychoactive agents and 158 (79%) of the students refused using such agents (table-I).

Joy seeking and a friend’s offer were found to be the most common causes of starting the

Table-I: Demographic Characteristics.

Variables	n (%)
Gender	
Male	96 (48%)
Female	104 (52%)
Age Group	
15-20 years	46 (23%)
21-25 years	154 (77%)
Level of Education	
Pharm.D	137 (68.5%)
MBBS	63 (31.5%)
Study Year	
1st Year	21 (10.5%)
2nd Year	35 (17.5%)
3rd Year	54 (27%)
4th Year	51 (25.5%)
5th Year	39 (19.5%)
Knowledge About Psychoactive Agents	
Yes	194 (97%)
No	6 (3%)
Students Using Psychoactive Agents	
Yes	42 (21%)
No	158 (79%)

Table-II: Percentage of different drug abused by participants n=200.

Variables	n (%)
Tobacco	30 (15%)
Marijuana	18 (9%)
Cocaine	18 (9%)
Methamphetamine	18 (9%)
Alcohol	16 (8%)
Heroin	16 (8%)
Valium or BZD	16 (8%)
Ecstasy	14 (7%)
Lysergic Acid Diethylamide	8 (4%)
Methadone	6 (3%)

drug’s use, both contributing 30 (15%) and 40 (20%) respectively. Other reasons included the inability to resolve routine problems 38 (19%), studies burden 24 (12%), curiosity 22 (11%), family issue 18 (9%), and low self-confidence 14 (7%), to eliminate shyness 4 (2%), presence of

addicted person 8 (4%) and due to diseases only 2 (1%). Various psychoactive substance abuse by study participants was presented in table-II as; Tobacco was found to be the most commonly used drug by 30 (15%) students. Marijuana 18 (9%), cocaine 18 (9%), and methamphetamine 18 (9%) were the second most common drugs of abuse. Alcohol 16 (8%), benzodiazepines 16 (8%), and heroin 16 (8%) were the third most common drugs of abuse. Other drugs of abuse included ecstasy 14 (7%), LSD 8 (4%) and methadone 6 (3%).

Among the abuser of psychoactive substances, using drugs before exams 14 (33.33%)

Table-III: Occasions and pattern of drug abuse among drug abusers (n=42).

Variable	n (%)
Occasions of Using Drugs by Students	
Before exams	14 (33.33%)
On the street	14 (33.33%)
At parties	10 (23.8%)
At home	4 (9.52%)
Form of Drug Being Used	
Cigarette	14 (33.33%)
Tablet	6 (14.28%)
Drinking liquid	6 (14.28%)
Chewing gum	4 (9.52%)
Powder	4 (9.52%)
Injection	4 (9.52%)
Inhalable vapor of liquid	4 (9.52%)
Method of Taking the Drug	
Smoke	22 (52.38%)
Oral	10 (23.8%)
Patch	6 (14.28%)
Injection	4 (9.52%)

and consuming them on the streets 14 (33.33%) were the most common occasions of drug usage by students. Moreover, drugs’ consumption at parties and homes accounted for 10 (23.80%) and 4 (9.52%) of the total usage respectively. According to statistics, 14 (33.33%) of the students who used drugs stated that they use drugs in the form of a cigarette. Chewing gum was being used 4 (9.52%), drug in form of a tablet was used 6 (14.28%), powder form was used 4 (9.52%), drug in form of drinking liquid was used 6 (14.28%)

and 4 (9.52%) of students were reported taking the drug in form of injection and 4 (9.52%) used inhalable vapors. According to data collected, 22 (52.38%) of students take drugs in the form of smoke. Oral, injection, and patch consumption are found to be 10 (23.80%), 4 (9.52%), and 6 (14.28%) respectively (table-III).

Among of the total abusers, 16 (38.09%) of students use drugs once a week, 14 (33.33%) use more than once a day, 6 (14.28%) use drugs once

Table-IV: Pattern of drug abuse, source of obtaining drugs and experienced side effects among the users n=42

Variables	n (%)
Frequency of Drug Usage	
Once a week	16 (38.09%)
More than once a day	14 (33.33%)
Once a day	6 (14.28%)
Several times a week	6 (14.28%)
Source of Drug Obtaining	
Friend	30 (71.42%)
Relative	6 (14.28%)
Medical store	4 (9.52%)
Drug dealer	2 (4.76%)
Source of Obtaining Money	
Pocket money	28 (66.66%)
Friend	8 (19.04%)
Relative	6 (14.28%)
Commonly Experienced Side Effects	
Sleep disorder	12 (28.57%)
Nausea	10 (23.08%)
Dry mouth	10 (23.08%)
Mydriasis	4 (9.52%)
Constipation	4 (9.52%)
Diarrhea	2 (4.76%)

a day and several times a week was used by 6 (14.28%) of students. The maximum number of students 30 (71.42%) get drugs from their friends. Other sources included relatives 6 (14.28%), medical store 4 (9.52%), and drug dealers 2 (4.76%). In current study according to drug users, 28 (66.66%) of students use their pocket money for buying drugs, 8 (19.04%) take the money from their friends and 6 (14.28%) take money from their relatives for buying drugs. Most commonly experienced side effect of drug abuse was found

to be sleep disorder 12 (28.57%). Nausea 10 (23.08%) and dry mouth 10 (23.08%) being second most common side effect. Others include mydriasis 4 (9.52%), constipation 4 (9.52%), and diarrhea 2 (4.76%) (table-IV).

DISCUSSION

Despite the spiritual and lawful rules implemented in Pakistan regarding use of psychoactive substance in any form with prescription. This study alarmingly shows high prevalence rate. In this research, researcher’s aimed to explore the reasons of abuse and patterns of use was checked.

The current study revolved between medicals students and from these, majority of the respondents were females 104 (52%) and 96 (48%) were males. In 2016 Osman *et al* conducted the study in Sudan in which they found the number of female respondents exceeding that of males because of the majority of females in institutes¹¹. Similar results were also found in another study where males were only 47.8% while females were 52.2% as respondents¹². Interestingly, we have found that the maximum number of students, were belonged to the age group 21-25 years as mentioned earlier in above section and few were belongs from 15-20 years category. The overall prevalence of substance abuse in our study was determined to be 21%, and the prevalence of drugs in medical students determined by Arora *et al.* is 20.43% these results were reinforces our study¹². Furthermore, most common causes of starting the drugs abuse was joy seeking and a friend’s offer contributing 15% and 20% respectively. In a plethora of studies carried out in Saudi Arabia and Taiwan revealed that stress relief, joy seeking, curiosity and influence of friends were the important predisposing factors for drug use in students^{13,14}. Tobacco was found to be the most commonly used drug by majority students and the other most abused psychoactive substances were marijuana, cocaine and methamphetamine but alcohol, benzodiazepines, heroin, ecstasy, and methadone were less abused by the medical students. In a study, the most reported

abuse drugs by medical students were methamphetamine, heroin, benzodiazepines, ketamine, and zolpidem. Ecstasy abuse seems to have re-emerged and has increased gradually since 2010¹⁴. In another study among medical students after alcohol and tobacco, marijuana is the most frequently abused substance¹⁵. Medical students abuse drugs before exams and consuming in the streets were observed the most common occasions of drug usage. Moreover, drugs' consumption at parties and homes accounted less of the total usage. The statistics presented in this study exhibit cigarette was the most abused form of psychoactive substance use after tablet form. The observed prevalence of cigarette smoking in the current study was high as compared with a study conducted in Iran where the prevalence of cigarette smoking was 17%¹⁶. The pattern of the drug's use were presented in (table-IV) as approximately forty percent of students use drugs once a week. Drug abuse pattern was of higher concern as to evaluate the abuser. A study performed in Iran reports that the majority of abusers used drugs daily¹⁶. The difference in results was due to the study setting, population of interest. The maximum number of students get drugs from their friends. Such results were familiar with studies by Mir *et al* and Jagnany *et al* where friends and peer pressure were the major source of drug supply and abuse initiation^{17,18}. The relationship between money and drug abuse is of particular interest, as the abuser used all of the income for drugs. In current study according to drug users, around 2/3rd of the participants use their pocket money for buying drugs, other take the money from their friends and relatives for buying drugs. These findings were consistent with another study where students use their pocket money as well as use some other resources for obtaining drugs¹⁹. This study stated the incidence of different kinds of psychoactive substance abuse by the medical students and unwavering certain connected factors regarding the use. This study will help in planning and assessing interferences by keeping in mind about the risk factors as well as indicates which new policies

are needed for the medical institutes to control the abuse of substances.

RECOMMENDATION

The Government should take steps to control the manufacturing, distribution, and sale of cigarettes as it is a highly abused form of the drug. Medical institutes should charge heavy fines on students who are found smoking. The sale of other forms of psychoactive substances should be monitored strictly. Parents should play a significant role in monitoring their children's pocket money, activities, and keep an eye on their friend's circle, as friends have been the major source of getting access to drugs. Training on managing the study burden will prove very helpful in the case of medical students as the enormous burden of studies drives them towards abuse of psychoactive agents. Teachers should guide the students in managing their study burden. Teachers training programs should be carried out. Moral and ethics education should be carried out for students as they play a vital role in determining the behavior of a human being and will prove helpful in giving them insight into how bad the drug abuse affects the society and moral character of a person.

CONCLUSION

The study concluded that the drug abuse problem has become the toughest issues among medical students, with the maximum number of students consuming tobacco, which is smoked in the form of cigarettes. Students start psychoactive substances due to study burden and to get relief from stress. Despite being aware of the complications, students use these substances to get relief. The substance used by university students requires special attention and emergency preventive measures. Education and awareness creation on harmful effect of substance use among students should be done. There should be a unit in the institute for counseling, teaching, and training students to cope with stress and problems, its consequences, and predisposing factors. Strategies to reduce the risk of alcohol and substance abuse must be done as soon as possible.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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