

Intoxicant Use in Undergraduate Medical Students of Islamabad, Pakistan

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ABSTRACT

Intoxicant use and subsequent substance abuse is the leading health problem in younger age groups in contemporary times, and across the globe. It contributes to morbidity, mortality and economic loss. It also disturbs the social system of a community and creates a serious threat to global health. The aim of this study was to determine the use of intoxicants among medical college students of Islamabad and to identify the associated factors with intoxicant use. A cross-sectional research design was used to gather survey data from two private medical colleges. Data from a final sample of 310 respondents was analyzed using descriptive statistics. It was found that smoking was the most prevalent intoxicant used amongst the participants (21.9%). The other most common prevalent use of intoxicants included alcohol (6.1%), *Naswar* (powdered tobacco dip) (6.8%) and Heroin (3.9%). The male gender and need for mental relaxation were found to be statistically significant with cigarette smoking. Most of the students indicated that they did not feel guilty about using intoxicants. It is important that medical college administration develops policies to control intoxicant use

among students, including and not limited to awareness campaigns, counseling and support for stress relief.

Key words: Medical students, Intoxicant use, Islamabad, Pakistan, Cigarette smoking

INTRODUCTION

An intoxicant is defined as something that causes people to become excited or confused and less able to control what they say or do. Intoxicants or psychoactive substances are extremely harmful for the health and include alcohol, caffeine, nicotine, marijuana, and certain pain medicines (Baba et al., Z. 2013). Similarly, many illegal drugs, such as heroin, LSD, cocaine, and amphetamines are also examples of intoxicants. Psychoactive intoxicants can cause dependence syndrome and can change the behavior, and cognitive and physiological system of the body (Madras, 2016). In spite of medical advances in the 21st century our health systems have limited control over the misuse of psychoactive substances. In developing countries research shows that the use of psychoactive substance is increasing over time. When intoxicants are used repeatedly over a long period of time, it becomes more difficult to discontinue use leading to permanent addict and also contributing to the development of advanced medical conditions such as heart disease, cancer, and other chronic ailments (Gupta, 2007).

Long-term use of intoxicants changes the neurotransmitters release and inhibition in the nervous system (Valenzuela, 1997). When a person does not get a higher dose over a period of time, a person's body cannot maintain normal body functions. Permanent damage in the nerve cells can occur and causes morbidity and mortality (Blood-Siegfried & Rende, 2010). In a study of US college students it was found that every year around 1400 deaths occur due to intoxicants such as alcohol and drug abuse (Hingson et al., 2002). Intoxicant use can be a cause for minor crimes such as property destruction, theft, and also major crimes

such as sexual abuse, murder and suicide (Gilbert et al., 2009).

According to global literature, one out of every four medical students are using illegally prescribed medications or some other form of intoxicants (DeSantis & Hane, 2010). It is common to find medical students using drugs and alcohol, primarily due to stress of studies, peer pressure, access to illegal drugs, and lack of penalization (Arria et al., 2008). Students are also found to use over the counter medication or other medical drugs without prescription for overdosing (Johnston et al., 2013). Around the globe 190 million people are involved in drug abuse, which is 3.1 % of the world population. Increased intoxicant use decreases work productivity and academic performance of students and increases absenteeism and knowledge retention. Increased intoxicant use can also contribute to involvement in crimes and mental health deterioration in medical students.

In a study of students using intoxicants in India, it was found that suicide and suicide ideation was associated with intoxicant use (Baba et al., 2013). In another study from Kashmir Valley of India it was found that 31.3% people were involved in intoxicant use in different forms including tobacco usage (22.5%), inhalants drugs (10%) and alcohol (6.2%). Students were vulnerable to using intoxicants due to various reasons like academic pressure, peer pressure, for the sake of popularity and attention, and easy availability of substances (Baba et al., 2013). Another study in India showed that students living in hostels had higher prevalence of intoxicant usage compared to students living with their families. According to a study conducted on students in Lahore, Pakistan, the most common intoxicants used were tobacco cigarettes (78.9%), alcohol (26.2%), cannabis (25.5%), amphetamines (14.6%), Benzepines (3.6%) and glue sniffing (0.4%). Students belonging to a higher income class were more involved in the use of intoxicants and illicit drugs (Imran et al., 2011).

In Khyber Pakhtunkhwa province of Pakistan, a study reported that 68% students

engaged in intoxicant use with tobacco being the most common intoxicant used (Kalsoom et al., 2014). In this study, though both genders showed use of intoxicants, tobacco and *Sheesha* (tobacco smoking through a pipe) was more commonly used by males than females. Sedative drugs were the second most consumed intoxicant and males were again the most common users. Alcohol, cannabis, and injectable drugs were also prevalently consumed, with men consuming more alcohol and women using more injectable drugs.

Across the world, changing socialization patterns, culture and effects of globalization have led to higher stress levels in all human beings. The effect of social change, conflict and uncertainty has a greater effect on young adults and students, leading them to turn to intoxicant use. The Constitution of Pakistan under the Narcotic and Substance Act of 1997 (Section 6, 7 and 8) prohibits the production, transportation, sale, purchase and use of narcotics and other illegal substances (Pakistan Narcotics Act, 1997). Despite this, there is high use of narcotics and other illegal substances, which is a significant concern for nationwide addiction, substance abuse, crime, and health- both physical and mental. Though Pakistani people are found to be more conservative and traditional, there is a rising problem of intoxicant access and use in the country (Kalsoom et al., 2014). In Pakistan the ratio of cigarette smoking in females is increasing, and many agree that this is because of the increase in pressure from the triple shift burden on women, and also the social acceptability for cigarette smoking in women shown on media.

A significant problem is that it is difficult to identify the extent of intoxicant use and substance abuse in Pakistan and similar conservative regions of the world due to social stigma and shame. Many people would not agree to participate in research about intoxicant use or answer questions honestly, especially women and youth. Studies have shown that adults who have a background of parental drug abuse are more likely to be involved in drug abuse themselves, compared to adults who do not have such a parental history. There is dire

need for studies to be conducted to assess prevalence of intoxicant use across the country and across different population groups (Pakistan Narcotics Act, 1997). Understanding the use of intoxicants in Medical college students is a neglected area, as people assume that medical students would have more commitment and awareness about the risks and hazards of intoxicant use.

It is imperative that we try and identify if intoxicant use exists in medical students in order to advise policy for this. There is concern that intoxicant use and substance abuse can negatively affect multiple aspects of the student's life, such as retention and academic achievement, but also that it can have a negative effect on their family, crime rates, and their future patients. It is also important that studies are conducted to assess the current situation of intoxicant use in the capital city of Pakistan, as Islamabad is expected to have greater implementation of laws and be a model city for the rest of the country.

Aim of the study:

The objective of the study is to use descriptive statistics to identify the: (i) prevalence of intoxicant use among the undergraduate medical students in two medical colleges of Islamabad city; (ii) reasons for intoxicant use; and (iii) efforts to abandon intoxicants in the study participants. It is hoped that this study's findings can help to identify if a problem exists and which measures can be taken to prevent intoxicant use in medical students.

METHODOLOGY

The study design is a descriptive cross-sectional research and the study population is currently enrolled medical college students, both male and female. Students of all years of the MBBS program were included in the study.

Ethical Considerations

Ethical approval was taken from the Institutional Review Board (IRB), Department of Public

Health, Al Shifa Trust Eye Hospital, Islamabad, Pakistan. Written consent was taken from all the participants and confidentiality was ensured by not asking the identity of any of the participants.

Sample

Both male and females were sampled and the selection criterion was currently enrolled medical students. The sample size was calculated by using OpenEpi Menu Version 2.0. The sample size was estimated at 327, with a 15% refusal rate added. Simple random sampling was used in this study. The total number of medical students in both the sampled colleges was 300 and 512, respectively. We were able to finally sample 139 and 237 students respectively from both the colleges. An equal number of students were selected from each of the MBBS classes and every second student of each class was selected in an attempt to reach the target sample.

Survey

The survey was in the English language (**Appendix A**). No translation was needed as all medical students study in the English language in Pakistan. A final sample of 376 medical students participated in the study. The first part of the questionnaire comprised of demographic questions, and the second part included questions regarding common intoxicant use among the medical students including: Tobacco cigarettes, alcohol, *Garda* (type of marijuana), *Naswar*, Heroin, Marijuana, Ecstasy, Cocaine, Ketamine, and any other intoxicant they wished to name and share information about.

Data Collection

Permission for data collection was taken from the hospital administration and a list of students from each class was gained. The questionnaire was distributed among willing students and they were asked to complete the survey in a private space provided by the hospital administration.

Data Analysis

SPSS was used for data analysis. Descriptive statistics were calculated and Chi square test was used to find the association between the intoxicant use and our study variables. A p-value of less than 0.05 was considered significant.

RESULTS

The participants comprised of 53% males and 47 % female participants. The average age of participants was 21.67 years with SD \pm 1.81. A significant number of participants (20-30%) had parents who were illiterate or with literacy below secondary schooling. More than half of the participants had a monthly pocket money more than PKR 15,000; whereas, many students (33.3%) had pocket money ranging from PKR 16,000-35,000. Majority of the students (66.7%) lived with their families, whereas 24% were living in the college hostel.

From the participants that reported using intoxicants (n=173; 52.3%), the following were listed (**Table 1**): smoking (n=68 students; 20.4%); *Naswar* (n=21 students; 6.3%); alcohol (n=19 students; 5.7%); *Garda* (n=19 students; 5.7%); Heroine (n=12 students; 3.6%); Marijuana (n=11 students; 3.4%); Ecstasy (n=13 students; 3.9%); Cocaine (n=07 students; 2.1%); and Ketamine (n=03 students; 1.2%).

Table 1:
Descriptive statistics for use of intoxicants in sample (n=173)

	<i>f</i>	%
Smoking	68	20.4%
<i>Naswar</i> (powdered tobacco dip)	21	06.3%
Alcohol	19	05.7%
<i>Garda</i> (type of marijuana)	19	05.7%
Heroine	12	03.6%
Marijuana	11	03.4%
Ecstasy	13	03.9%
Cocaine	07	02.1%
Ketamine	03	01.2%

Table 2 shows the most common reason for intoxicant use. Amongst males it was mental relaxation, while in female students there is no predominant reason to use intoxicant use. The chi square statistics show association between gender and reasons for intoxicant use.

Table 2:

Reasons for use of intoxicants in study population according to gender

	Male	Female	Total
I had nothing to do	0.0%	7.7%	7.7%
I was curious	5.5%	5.8%	11.3%
I wanted to forget problem	5.7%	7.7%	13.4%
love one lost	7.3%	1.9%	9.2%
Mental relaxation	37.3%	7.7%	45.0%
Any other	9.6%	3.8%	13.5%
Total			100.0%

 $\chi^2=15.498$, $P=0.003$ $df=5$

Table 3 shows the data for the attempt to quit intoxicant use. The results show that men mostly do not have an active intention to quit (59.7%). Women show both no active intent to quit (25.0%) but also show greater attempt to seek help from friends to quit (7.7%), compared to men (5.5%). The chi square statistics show association between gender and attempt to quit intoxicant use

Table 3:

Statistics for attempts to abandon use of intoxicants in study participants

	Male	Female	Total
Seek help from friend	5.5%	7.7%	13.2%
Seek help from doctor	0.2%	1.9%	2.1%
No active intention	59.7%	25.0%	84.7%
Total			100.0%

 $X^2=2.55$, $p=0.225$, $df=1$

DISCUSSION

In this study we attempted to identify the use of intoxicants in medical students of Pakistan. Despite the conservative culture and concern for social desirability bias, we found that both male and female medical students indicated that they used different types of intoxicants. The

most prevalent intoxicant type used by the medical students included smoking tobacco cigarettes, followed by use of *Naswar*, Alcohol, and *Garda*. Our study shows less prevalence in use of intoxicants compared to a study in Khyber Pakhtunkhwa (Kalsoom et al., 2014). The reason may be that the medical students in Islamabad face less stress and have more knowledge regarding consequences and side effects regarding the use of intoxicants. A study in Lahore showed that consumption of alcohol is high compared to the results in our study, which may mean that there is less public access to alcohol in the capital city of Islamabad.

Our study findings negate the results from a study in North Ethiopia which showed that alcohol usage is higher in students compared to cigarette smoking (Gebreslassie et al., 2013). The reason for lower prevalence of alcohol in Pakistani students might be religious and cultural practices and less public access to alcohol. Our study also shows that marijuana use among the participants is very low. This aligns with results from a study in Peshawar, which shows that there is Marijuana use in students is very low (Kalsoom et al., 2014). It may be that Marijuana use is low in urban cities and also that medical students have knowledge of the harmful effects of Marijuana, whereas they consider smoking to be less harmful.

In this study we also found that the most common reason for use of intoxicants was need for mental relaxation and that there was no intention to quit or seek help to abandon use of intoxicants. The results of our study align with other research which confirms that students face multiple stresses including academic pressure and peer pressure, which makes them turn to intoxicant use for mental relief (Ganai & Qadari, 2013). Other reasons that medical students may be facing stress include problems related to college administrative support and teaching quality, and home factor and relationship quality with family members.

We also found that the use of intoxicants is higher in students who have income or pocket money above PKR 15,000. Our study findings corroborate the results of another local

study which found that students belonging to higher economic class or having a monthly income of more than PKR 15,000 are more likely to be involved in the use of intoxicants as they have the finances to support their consumption ((Imran et al., 2011). It may also be that people from middle and higher income brackets face less stigmatization and cultural disapproval for consuming intoxicants and that they have the confidence to share honest information about intoxicant use compared to people from lower income backgrounds.

CONCLUSION

Our study reveals that intoxicant use among the undergraduate medical college students in Pakistan is an issue that needs to be further researched and given attention for policy planning. The data suggests that the most common intoxicant used in cigarette smoking and the primary reason for use of is mental relaxation. As most participants shared no intention to quit or seek help, the study implies that college administration and family members must be used to support reduction in intoxicant use. There is urgent need for college administration to monitor, regulate, and penalize intoxicant use not just for the health of the individual students but also for the quality of knowledge retention in students and academic performance. Ultimately the future of patient safety, error making and optimal provider performance is dependent on the intoxicant usage of currently enrolled medical students.

Medical college administration must also look into planning policies for stress relief and mental health of their students. There also needs to be careful investigation and surveillance by state and legal bodies about access to illegal intoxicants and abuse of prescription or over the counter medication. Pakistan Narcotic act 1997 section 6, 7 &8 should be strictly followed by the law enforcement agencies. At community level there needs to be investment in awareness and educational sessions and family support campaigns to reduce reliance on intoxicants and develop coping strategies for stress relief. Mass media

awareness program regarding any intoxicant use and their adverse effect on the health would also be helpful. Finally, we need more researches to explore other factors for intoxicant use and action based research to identify which interventions can support prevention and abandonment of intoxicant use.

Conflict of interest statement

The authors declare no conflict of interest.

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Ethics and Permission

The present study was approved by the IRB (Institutional Review Board) committee Department of Public Health, Al Shifa Trust Eye Hospital, Islamabad.

Author Contributions Statement

MI conceptualized the study and collected the data with SBA, HK, and AS. SBA, HK and AS analyzed the data and prepared the manuscript. All authors approved the final publication.

Data sharing and availability statement

Data is available from the corresponding author based on request.

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REFERENCES

- Arria, A. M., Caldeira, K. M., O'Grady, K. E., Vincent, K. B., Fitzelle, D. B., Johnson, E. P., & Wish, E. D. (2008). Drug exposure opportunities and use patterns among college students: Results of a longitudinal prospective cohort study. *Substance abuse*, 29(4), 19-38.
- Baba T, Ganai A, Qadri S, Margoob M, Iqbal Q, Khan Z. (2013). An epidemiological study on intoxicant use among college students of north India (Kashmir valley). *International Journal of Medical Science and Public Health*, 2(3),562-8.
- Blood-Siegfried, J., & Rende, E. K. (2010). The long-term effects of prenatal nicotine

- exposure on neurologic development. *Journal of midwifery & women's health*, 55(2), 143-152.
- DeSantis, A. D., & Hane, A. C. (2010). "Adderall is definitely not a drug": justifications for the illegal use of ADHD stimulants. *Substance use & misuse*, 45(1-2), 31-46.
- Gebreslassie M, Feleke A, Melese T.(2013) Psychoactive substances use and associated factors among Axum University students, Axum Town, North Ethiopia. *BMC public health*. 2013 Dec;13(1):693.
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries, *The lancet*, 373(9657), 68-81.
- Qadri, S., Goel, R.K.D., Singh J., Ahluwalia, S.K., Pathak, R., & Bashir, H. (2013) "Prevalence and pattern of intoxicant use among school children in Northern India: A rapid assessment study", *International Journal of Medical Sciences and Public Health*, 2(2), 273-282. 10.5455/ijmsph.2013.2.271-280
- Goel R.K.D., Qadri S, Singh J, Ahluwalia SK, Pathak R, Bashir H (2013) "Prevalence and pattern of intoxicant use among school children in Northern India: A rapid assessment study" *Indian Journal of Medical Sciences and Public Health*; 2(2):273-282
- Gupta S, Kulhara P (2007) "Cellular and molecular mechanisms of drug dependence: An overview and update" *Indian J Psychiatry*; 49(2): 85-95
- Hingson, R. W., Heeren, T., Zakocs, R. C., Kopstein, A., & Wechsler, H. (2002). Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24. *Journal of studies on alcohol*, 63(2), 136-144.
- Imran, N., Haider, I.I., Bhatti, M.R., Sohail, A., & Zafar, M. (2011). Prevalence of psychoactive drug use among medical students in Lahore, *Annals of King Edward Medical University*, 17(4), 338. <https://doi.org/10.21649/akemu.v17i4.357>

- Kalsoom, E. U., Azeemi, M.M.H., & Farid, K. (2014). Intoxicant use among students of professional institute of professional of Khyber Pakhtunkhwa, *Journal of postgraduate Medical Institute*, 28(1), 53-7.
- Johnston, L. D., O'Malley, P.M., Bachman, J. G., & Schulenberg, J. E. (2013). Monitoring the Future National Survey Results on Drug Use, 1975-2012 - Volume I: Secondary School Students. Institute for Social Research The University of Michigan
- Madras, B. K. (2016). The growing problem of new psychoactive substances (NPS), In *Neuropharmacology of new psychoactive substances (NPS)* (pp. 1-18). Springer, Cham.
- Pakistan Narcotics Act 1997, an act to consolidate and amend the laws relating to narcotics drugs and psychotropic substances article 6, 7&8, Retrieved:
<https://na.gov.pk/uploads/documents/Control-of-Narcotic-Substances-Act-XXV.pdf>
- Valenzuela, C. F. (1997). Alcohol and neurotransmitter interactions. *Alcohol health and research world*, 21(2), 144.

Appendix-A

Questionnaire

Section A: Demographic information

1. Name of College
2. Age
3. Gender
4. Year of study
5. Education of father
6. Education of mother
7. Marital status
8. Number of children
9. Monthly income monthly or pocket money
- 10 Living with (e.g. on my own, with parents, etc.)

Section B: Smoking consumption

- Do you smoke tobacco cigarettes?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section C: Alcoholic consumption

- Do you drink alcohol?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section D: Garda

- Do you use the Garda?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section E: Naswar

- Do you use Naswar?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section F: Heroin

- Do you use the Heroin?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section G: Marijuana

- Do you use the marijuana?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor
 - No intention to quit
 - Any other

Section H: Ecstasy

- Do you use the ECSTASY?
 - Yes
 - No

- What are your reasons for using this substance?
 - I had nothing to do
 - I was curious
 - I wanted to forget my problems
 - Mental relaxation/pleasure
 - Peer pressure/ influence
 - Any other

- What have you been trying to do to quit use of this substance?
 - Seek help from friends
 - Seek help from Doctor

- No intention to quit
- Any other

Section I: Cocaine

- Do you use the Cocaine?

- Yes
- No

- What are your reasons for using this substance?

- I had nothing to do
- I was curious
- I wanted to forget my problems
- Mental relaxation/pleasure
- Peer pressure/ influence
- Any other

- What have you been trying to do to quit use of this substance?

- Seek help from friends
- Seek help from Doctor
- No intention to quit
- Any other

Section J: Ketamine

- Do you use the ketamine?

- Yes
- No

- What are your reasons for using this substance?

- I had nothing to do
- I was curious
- I wanted to forget my problems
- Mental relaxation/pleasure
- Peer pressure/ influence
- Any other

- What have you been trying to do to quit use of this substance?

- Seek help from friends
- Seek help from Doctor
- No intention to quit
- Any other

Section K: Any other intoxicant use (mention name _____)

- Do you use this intoxicant (insert name _____)?

- Yes
- No

- What are your reasons for using this substance?

- I had nothing to do
- I was curious

- I wanted to forget my problems
- Mental relaxation/pleasure
- Peer pressure/ influence
- Any other

- What have you been trying to do to quit use of this substance?

- Seek help from friends
- Seek help from Doctor
- No intention to quit
- Any other