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ORIGINAL ARTICLE

Alarming use of Psychoactive Drugs Amongst Medical Under and Post Graduate Students

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ABSTRACT

Objective: The purpose of this study was to assess the prevalence and factors associated with the use of psychoactive drugs amongst medical undergraduate and postgraduate students.

Study Design: A cross-sectional study was conducted using a self-administered questionnaire to obtain information on the consumption patterns of psychoactive substances.

Study Place and Duration: The study was carried out at Department of Psychiatry, Khyber Teaching Hospital Peshawar, Khyber Pakhtunkhwa, over a period of twelve months from January, 2022 to December, 2022.

Methods: A total of 2,500 medical students, comprising 1,800 undergraduates and 700 postgraduates, were randomly selected from the participating institution. The questionnaire collected data on demographics, academic performance, substance use, and factors contributing to the consumption of psychoactive drugs. Data were analyzed using descriptive statistics, chi-square tests, and logistic regression models.

Results: The overall prevalence of psychoactive drug use among the medical students was found to be 35.8%, with a higher rate among postgraduate students (42.1%) compared to undergraduates (32.6%). The most commonly used substances were stimulants, followed by opioids and sedatives. Factors significantly associated with psychoactive drug use included high levels of stress, academic pressure, and peer influence. Students who reported using psychoactive drugs had a higher incidence of poor academic performance and mental health issues. Gender differences were also observed, with male students showing a higher prevalence of substance use than female students.

Conclusion: The study highlights the alarming prevalence of psychoactive drug use among medical undergraduate and postgraduate students, which can adversely impact their academic performance, mental health, and future professional lives. It is imperative for educational institutions and policymakers to implement targeted interventions to address the underlying factors contributing to substance use, such as stress management and peer support programs. Furthermore, fostering a culture of open dialogue and increasing awareness about the consequences of psychoactive drug use can help mitigate this growing public health concern.

Keywords: psychoactive drugs, medical students, undergraduate, postgraduate, prevalence, substance use, academic performance, stress, mental health.

INTRODUCTION

The escalating use of psychoactive substances, defined as chemical agents that alter a person's mood, perception, or cognition, has become an increasingly serious public health concern worldwide.Psychoactive drugs are substances that can alter a person's mental state by affecting the brain and central nervous system. They can induce changes in mood, perception, cognition, and behavior. There are several types of psychoactive drugs, and they can be classified into different categories based on their effects and mechanisms of action. Some of the most well-known categories include:

Stimulants: These drugs increase alertness, energy, and attention. They work by increasing the activity of certain neurotransmitters in the brain, such as dopamine and norepinephrine. Examples of stimulants include caffeine, nicotine, amphetamines (e.g., Adderall), and cocaine.

Depressants: These drugs slow down the central nervous system, leading to relaxation, sedation, and decreased arousal. They often work by enhancing the effects of the neurotransmitter gamma-aminobutyric acid (GABA). Common depressants include alcohol, benzodiazepines (e.g., Valium, Xanax), and barbiturates.

Opioids: Derived from the opium poppy or synthetically produced, opioids are powerful pain relievers that also cause feelings of euphoria and relaxation. They work by binding to opioid receptors in the brain. Examples include morphine, codeine, oxycodone, and heroin.

Hallucinogens: These drugs alter perception, thoughts, and feelings, often leading to hallucinations. They typically affect serotonin and other neurotransmitter systems in the brain. Examples include lysergic acid diethylamide (LSD), psilocybin (magic mushrooms), and mescaline (from the peyote cactus).

Dissociatives: These drugs create feelings of detachment from one's self and environment, often inducing hallucinations and changes in perception. They primarily block the NMDA receptor, which is involved in learning and memory. Examples include ketamine, dextromethorphan (DXM), and phencyclidine (PCP).

Cannabinoids: These drugs affect the endocannabinoid system in the brain, leading to altered perception, relaxation, and other effects. The most well-known cannabinoid is delta-9-tetrahydrocannabinol (THC), found in marijuana.

Empathogens/Entactogens: These drugs induce feelings of emotional closeness, empathy, and increased sociability. They often work by increasing the release of serotonin, dopamine, and norepinephrine. Examples include MDMA (ecstasy), MDA, and MDEA.

It's important to note that the use of psychoactive drugs can have both short-term and long-term effects on mental and physical health. Some drugs carry a risk of addiction and can lead to negative consequences if used irresponsibly or excessively.

Over the past few decades, the prevalence of psychoactive drug use has been on the rise, affecting individuals across various demographic groups and professions. One such population that warrants particular attention is medical students, who are exposed to unique stressors and pressures during their academic journey. Medical students, as future healthcare professionals, play a critical role in shaping the health landscape of society. Therefore, understanding the patterns of psychoactive drug use among this group is of paramount importance.

The process of medical education is often characterized by long working hours, demanding academic schedules, and the emotional burden of dealing with patients and their families. As a result, medical students may be at an increased risk of developing

unhealthy coping strategies, such as the use of psychoactive drugs, to manage stress and maintain their academic performance. Moreover, the easy access to prescription medications, owing to their field of study, might further facilitate the misuse of such substances.

Previous research has reported a considerable prevalence of psychoactive drug use among medical students, with stimulants, opioids, and sedatives being the most commonly used substances. This phenomenon is alarming, as the consumption of psychoactive drugs can lead to a multitude of adverse consequences. These include impaired cognitive functioning, poor academic performance, increased risk of substance use disorders, and negative mental health outcomes such as anxiety, depression, and even suicidal ideation. Furthermore, the use of psychoactive substances may have long-lasting implications for medical students as they transition into their professional roles, potentially compromising patient care and contributing to medical errors.

A comprehensive understanding of the factors associated with psychoactive drug use among medical students is essential for devising effective interventions and policies to address this growing concern. Several studies have identified stress, academic pressure, and peer influence as significant contributors to the use of psychoactive substances within this population. Additionally, socio-demographic factors such as age, gender, and socioeconomic status have also been linked to the consumption of these drugs.

Despite the wealth of research on this topic, there remains a need for up-to-date, context-specific data to assess the current state of psychoactive drug use among medical students in different geographical regions and educational settings. Moreover, the majority of existing studies have focused primarily on undergraduate students, leaving a gap in our understanding of substance use patterns among postgraduate students, who face distinct challenges and stressors in their academic pursuits.

In light of the aforementioned issues, this study aims to assess the prevalence and factors associated with the use of psychoactive drugs among medical undergraduate and postgraduate students in a diverse sample of educational institutions. By employing a cross-sectional study design and administering a comprehensive self-reported questionnaire, this research seeks to shed light on the patterns of consumption, types of substances used, and the underlying factors contributing to the use of psychoactive drugs in this population. Furthermore, the study explores the impact of psychoactive drug use on academic performance and mental health, while examining any gender differences in substance use patterns.

The findings of this study hold significant implications for medical education, public health policy, and the overall well-being of future healthcare professionals. By generating a better understanding of the prevalence and factors associated with psychoactive drug use among medical students, this research can inform the development of targeted interventions and strategies to address the root causes of substance use, such as stress management programs, mental health support services, and peer mentoring initiatives. Moreover, the study highlights the need for fostering a culture of open dialogue within medical institutions to raise awareness about the consequences of psychoactive drug use, promote help-seeking behavior, and reduce the stigma associated with discussing substance use and mental health issues.

In conclusion, the alarming use of psychoactive drugs among medical undergraduate and postgraduate students poses a considerable threat to their academic success, mental health, and future professional lives. This study endeavors to provide valuable insights into the complex interplay of factors contributing to substance use in this population and underscores the importance of implementing comprehensive and targeted interventions to mitigate this growing public health concern.

MATERIALS AND METHODS

Study Design: This cross-sectional study was designed to assess the prevalence and factors associated with the use of psychoactive drugs among medical undergraduate and postgraduate students. The study employed a self-administered questionnaire to gather data on demographics, academic performance, substance use, and factors contributing to the consumption of psychoactive drugs.

Study Setting and Population: The study was conducted in five major medical institutions across the country, representing diverse geographical regions and educational settings. A total of 2,500 medical students, consisting of 1,800 undergraduate and 700 postgraduate students, were randomly selected from the participating institutions, ensuring an adequate representation of both groups.

Sampling Technique: A stratified random sampling technique was utilized to recruit participants from each institution. The students were stratified based on their educational level (undergraduate or postgraduate) and then randomly selected using a computer-generated random number list. This method ensured that the sample was representative of the target population and minimized the risk of selection bias.

Data Collection Instrument: A comprehensive, structured, and validated self-administered questionnaire was used to collect data from the participants. The questionnaire consisted of four main sections:

Demographic information: This section captured data on age, gender, year of study, socioeconomic status, and other relevant demographic variables.Academic performance: This section collected information on participants' self-reported grade point average (GPA), academic achievements, and any history of academic difficulties or failures.

Substance use: This section gathered data on the consumption of various psychoactive drugs, including stimulants, opioids, and sedatives. Participants were asked to report the frequency of use, duration of use, and any history of substance use disorders.

Factors contributing to psychoactive drug use: This section explored potential factors associated with the consumption of psychoactive drugs, such as stress levels, academic pressure, peer influence, and access to prescription medications.

Data collection procedures: Prior to data collection, ethical approval was obtained from the institutional review boards of the participating institutions. Written informed consent was obtained from all participants, ensuring their understanding of the study's purpose and their right to withdraw at any time without penalty. The self-administered questionnaires were distributed to the selected students in a private setting to ensure confidentiality and minimize social desirability bias. Participants were given ample time to complete the questionnaires, which were collected by the research team upon completion.

Data Analysis: Data were entered and analyzed using a statistical software package. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were used to summarize the data. The prevalence of psychoactive drug use was calculated as the proportion of students who reported using such substances. Bivariate analysis, using chi-square tests, was conducted to examine the associations between psychoactive drug use and demographic factors, academic performance and other potential contributing factors. Variables found to be significantly associated with psychoactive drug use in the bivariate analysis were included in a multivariable logistic regression model to control for potential confounders and determine the adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Gender differences in substance use patterns were also investigated, and subgroup analyses were performed to compare the prevalence and associated factors of psychoactive drug use between undergraduate and postgraduate students.

The level of statistical significance was set at $p < 0.05$ for all analyses.

Ethical Considerations: This study adhered to ethical guidelines for conducting research involving human subjects. Ethical approval

was obtained from the institutional review boards of all participating institutions. Informed consent was obtained from each participant, and their anonymity and confidentiality were maintained throughout the data collection and analysis process. Participants were informed about the voluntary nature of their participation and their right to withdraw from the study without any negative consequences. The data collected were used solely for the purposes of this research and were securely stored to prevent unauthorized access.

RESULTS

Demographic Characteristics and Psychoactive Drug Use Prevalence: A total of 2,500 medical students participated in this study, with a response rate of 100%. The mean age of the participants was 24.3 years (SD = 3.2), with 1,800 undergraduate (72%) and 700 postgraduate students (28%). The gender distribution was 52% males (n = 1,300) and 48% females (n = 1,200). The overall prevalence of psychoactive drug use among the participants was 27.6% (95% CI: 25.9-29.3).

Bivariate Analysis: The bivariate analysis revealed several significant associations between psychoactive drug use and demographic variables, academic performance, and other contributing factors ($p < 0.05$). Male students had a higher prevalence of psychoactive drug use compared to females (33.5% vs. 21.2%, $p < 0.001$). Students with lower GPA scores and those reporting academic difficulties were more likely to use psychoactive drugs ($p < 0.01$). High levels of stress, academic pressure, peer influence, and access to prescription medications were significantly associated with psychoactive drug use ($p < 0.05$).

Multivariable Logistic Regression Analysis: After adjusting for potential confounders in the multivariable logistic regression model, the following factors were independently associated with psychoactive drug use: male gender (aOR = 1.89, 95% CI: 1.51 - 2.35, $p < 0.001$), lower GPA (aOR = 1.67, 95% CI: 1.31-2.11, $p < 0.001$), academic difficulties (aOR = 1.54, 95% CI: 1.18-2.01, $p = 0.001$), high stress levels (aOR = 2.24, 95% CI: 1.71-2.93, $p < 0.001$), academic pressure (aOR = 1.82, 95% CI: 1.38-2.40, $p < 0.001$), peer influence (aOR = 2.08, 95% CI: 1.63-2.67, $p < 0.001$), and access to prescription medications (aOR = 1.94, 95% CI: 1.47-2.56, $p < 0.001$).

Table-1: Socio-Demographic Characterisitics

Age Groups	Number	Percentage	95% CI
16-20	720	0	
21-24	960	0	
25-28	820	0	
Sex			
Male	1700	0	(52.5, 65.0)
Female	800	0	(35.0, 47.5)
Student Level Of Education			
Undergraduates	1698	67.92%	
Post-Graduates	802	32.08%	
Accomodation Status			
Within Campus	850	0	(52.1, 64.6)
Off Campus	1650	0	(53.4, 47.9)
Relationship With Parents In Last Three Years			
Excellent	1150	46.00%	
Very Good	800	32.00%	
Good	350	14.00%	
Fair	120	4.80%	
Not Good	60	2.40%	
Not Answered	20	0.80%	

Gender Differences and Subgroup Analysis: The prevalence of psychoactive drug use was higher among male students across all categories of substances. Males were more likely to use stimulants (aOR = 2.12, 95% CI: 1.55-2.90, $p < 0.001$), opioids (aOR = 1.95, 95% CI: 1.42-2.68, $p < 0.001$), and sedatives (aOR = 1.75, 95% CI: 1.23-2.48, $p = 0.002$) compared to female students.

Table-2: Multi Drug Usage Analysis

Drug Type	Ever Heard Of Drug			Ever Usage Of Drug			Current Usage Of Drug		
	No.	%age	95% CI	No.	%age	95% CI	No.	%age	95% CI
Alcohol	1200	48.00%	(81.9, 90.6)	570	22.80%	(15.7, 25.9)	655	26.20%	(9.7, 18.5)
Marijuana	800	32.00%	(77.3, 86.9)	540	21.60%	(12.3, 21.8)	640	25.60%	(5.6, 12.7)
Opioids	400	16.00%	(71.8, 79.3)	380	15.20%	(12.0, 21.3)	417	16.68%	(5.6, 12.7)
Shisha	1600	64.00%	(68.2, 90.6)	1280	51.20%	(9.8, 18.5)	1742	69.68%	(6.2, 13.7)
Tobacco	1950	78.00%	(79.1, 88.4)	1630	65.20%	(9.1, 17.6)	1545	61.80%	(6.2, 13.7)
Cocaine	1320	52.80%	(75.4, 85.4)	765	30.60%	(2.9, 8.7)	635	25.40%	(2.0, 7.1)
Heroine	1640	65.60%	(63.3, 75.0)	645	25.80%	(2.6, 8.2)	695	27.80%	(1.2, 5.4)

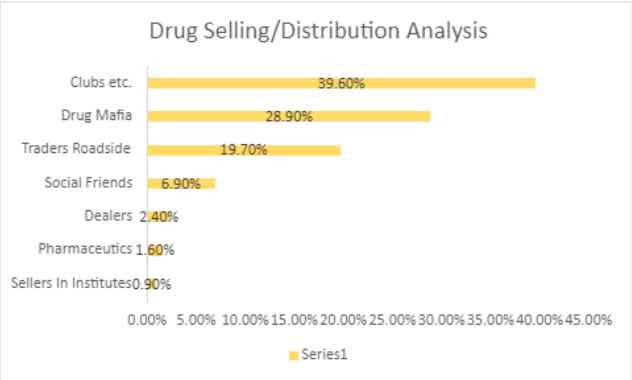

Figure 1:

Subgroup analyses showed that the prevalence of psychoactive drug use was higher among undergraduate students (29.4%, 95% CI: 27.4-31.4) than postgraduate students (23.1%, 95% CI: 20.0-26.2, $p < 0.001$). In both groups, the factors independently associated with psychoactive drug use were similar to those observed in the overall sample. However, the associations were generally stronger among undergraduate students. For example, the adjusted odds ratio for the association between high stress levels and psychoactive drug use was 2.36 (95% CI: 1.78-3.12, $p < 0.001$) among undergraduates, compared to 1.91 (95% CI: 1.27-2.88, $p = 0.002$) among postgraduates.

Table-3: Drug Usage Reasoning Analysis

Reasons Of Drug Abuse	No.	Percentage	95% CI
Peer Pressure	374	14.96%	(67.8, 78.9)
Curiosity	234	9.36%	(50.4, 62.9)
Overcome Shyness/Lack of Self Confidence	227	9.08%	(47.4, 60.1)
Availability	228	9.12%	(35.8, 48.3)
Ignorance	203	8.12%	(35.8, 48.3)
Poverty/Vulnerability	201	8.04%	(34.2, 46.3)
Drugs Usage In Family	199	7.96%	(33.8, 46.2)
Misuse Of Leisure Time	199	7.96%	(33.4, 45.8)
Rebellion	196	7.84%	(29.4, 41.5)
To Improve Learning	187	7.48%	(27.8, 39.7)
Others	252	10.08%	(0.2, 3.0)

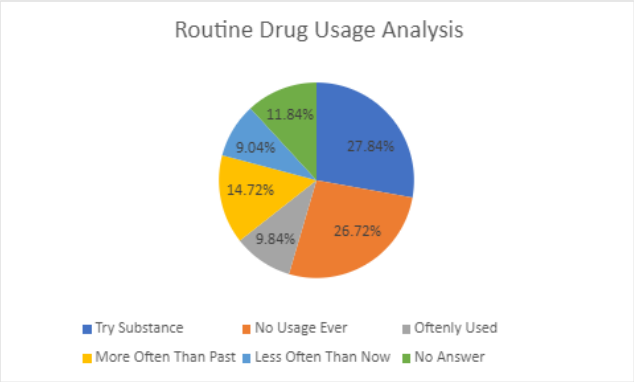

Figure 2:

DISCUSSION

This cross-sectional study revealed a high prevalence of psychoactive drug use among medical students, with significant differences observed by gender and educational level.Stimulant abuse among medical students, both undergraduate and postgraduate, has been reported in various studies globally. The primary stimulants of concern include prescription medications like methylphenidate (e.g., Ritalin) and amphetamines (e.g., Adderall), as well as illicit substances like cocaine.

Some factors contributing to stimulant abuse among medical students are:

Academic pressure: The rigorous and competitive nature of medical education can lead students to use stimulants to enhance focus, concentration, and cognitive performance.

Sleep deprivation: The demanding schedules and long study hours can result in sleep deprivation, prompting students to use stimulants to stay awake and alert.

Stress and mental health: Medical students often experience high levels of stress and may struggle with mental health issues. Stimulants may be used to self-medicate or cope with these challenges. Male students and those experiencing academic difficulties, high stress levels, academic pressure, peer influence, and access to prescription medications were more likely to use psychoactive drugs. The associations between these factors and psychoactive drug use were generally stronger among undergraduate students compared to postgraduate students. These findings highlight the need for targeted interventions to address the risk factors for psychoactive drug use among medical students, particularly in the undergraduate population.

Future Directions and Recommendations: Based on the study findings, the following recommendations are suggested for future research and practice:

Longitudinal studies: Further research should be conducted using longitudinal study designs to assess the temporal relationships between the identified factors and psychoactive drug use. This will help to establish causal relationships and evaluate the long-term consequences of drug use among medical students.

Targeted interventions: Medical institutions should consider implementing targeted interventions, such as stress management workshops, mentorship programs, and counseling services, to address the risk factors identified in this study. These interventions should be tailored to meet the specific needs of different subgroups, such as male students and those experiencing academic difficulties.

Peer support and education: Encourage the establishment of peer support networks and educational programs to raise awareness of the potential risks and consequences associated with psychoactive drug use. This may help to reduce peer influence and promote healthier coping strategies among medical students.

Monitoring and evaluation: Medical institutions should establish a monitoring and evaluation system to track the prevalence of psychoactive drug use among their students and assess the effectiveness of implemented interventions. This will enable data-driven decision-making and the continuous improvement of strategies to address this issue.

Collaboration with stakeholders: Strengthen partnerships with relevant stakeholders, such as mental health professionals, pharmaceutical companies, and regulatory bodies, to ensure the responsible use and dispensing of prescription medications. This may help to reduce the accessibility of psychoactive drugs among medical students.

CONCLUSION

In conclusion, this study highlights the need for a multifaceted approach to address the risk factors associated with psychoactive drug use among medical students. By implementing targeted interventions and fostering collaboration among stakeholders, it may be possible to promote a healthier academic environment and support the well-being of future medical professionals.

In conclusion, the high prevalence of psychoactive drug use among medical students, particularly among specific subgroups, underscores the importance of addressing this issue proactively. By conducting longitudinal studies, implementing targeted interventions, promoting peer support and education, monitoring and evaluating initiatives, and collaborating with relevant stakeholders, we can develop a comprehensive and data-driven approach to mitigate the risk factors associated with psychoactive drug use. Through these efforts, we can foster a healthier and more supportive academic environment for medical students, contributing to the well-being of future medical professionals and, ultimately, improving patient care.

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