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"A Cross-Sectional Investigation On The Examining The Prevalence And Patterns Of Drug Abuse Among Pharmacy Students"

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Abstract

Background: Substance abuse among students, particularly those in healthcare disciplines, is a growing public health concern. Pharmacy students, despite their knowledge of drug safety and adverse effects, remain vulnerable to substance abuse due to academic stress, peer influence, and easy access to medications. This study investigates the prevalence and patterns of substance abuse among pharmacy students and examines associated risk factors. **Aim & Objective:** This study aims to assess the prevalence, patterns, and motivations for substance abuse among pharmacy students. It also seeks to identify the impact of academic pressure and social influences on substance use and explore potential intervention strategies. **Method:** A cross-sectional study was conducted among Loknete Shri Dada Patil Pharate College of Pharmacy, Pune pharmacy students. A pre-tested, self-administered online questionnaire was used to collect data on demographic details, substance use patterns, frequency of use, motivations, and side effects. Statistical analysis was performed using SPSS software, with chi-square tests applied to assess associations between substance use and various factors. **Results:** Among 200 participants, 29% reported substance use, with alcohol (88%) being the most commonly used substance, followed by tobacco (52%) and marijuana (31%). Substance use was more prevalent among males ($p < 0.001$) and students aged 20-25 years ($p = 0.002$). Key motivators included peer pressure (52%), stress (45%), and academic pressure (31%). Significant associations were observed between substance use and adverse effects such as sleep disorders (21%) and nausea (17%). **Conclusion:** The study highlights a concerning prevalence of substance abuse among pharmacy students, primarily influenced by peer pressure and academic stress. Targeted interventions, including awareness campaigns, counseling services, and institutional policies, are essential to mitigate risks

and promote healthier coping mechanisms. Addressing these concerns will help ensure the development of responsible and ethically sound healthcare professionals.

Keywords: Substance Abuse, Pharmacy Students, Academic Stress, Peer Influence

1. Introduction

Substance abuse among students, particularly those pursuing healthcare-related education, has emerged as a significant public health concern [1]. Pharmacy students, who are expected to have extensive knowledge about drugs, their mechanisms of action, and potential side effects, paradoxically remain vulnerable to substance abuse. The demands of a rigorous academic curriculum, the stress of professional expectations, and the accessibility of medications contribute to an increased risk of substance use. Despite being trained on the harmful effects of drug misuse, pharmacy students may still engage in substance use due to academic pressure, peer influence, and mental health challenges [2]. This issue raises serious ethical, professional, and health-related concerns, necessitating an in-depth investigation into the prevalence and patterns of substance abuse among pharmacy students.

Several studies have highlighted that healthcare students, including those in pharmacy programs, report significant levels of stress, which is a known trigger for substance use. The pressure to excel in coursework, secure internships, and prepare for licensure exams can lead students to seek temporary relief through alcohol, tobacco, or illicit drugs [3]. Additionally, social and environmental factors such as financial burdens, cultural norms, and easy access to prescription medications contribute to the likelihood of experimentation and dependency. Peer influence plays a crucial role in initiating substance use, as students may feel compelled to conform to social norms or engage in substance use at parties, social gatherings, or during stressful academic periods such as examinations [4].

Understanding the prevalence, patterns, and underlying motivations for substance abuse among pharmacy students is crucial for developing effective intervention strategies. A cross-sectional study approach provides a comprehensive assessment of the extent of the problem, allowing researchers to analyze the frequency of use, commonly abused substances, and associated risk factors [5]. Prior studies have indicated that alcohol remains the most commonly abused substance among students, followed by tobacco and cannabis [6]. However, the prevalence and patterns of drug use can vary depending on geographical location, institutional policies, and access to substances [7]. By examining these trends, targeted preventive measures can be designed to address the specific needs of pharmacy students.

The consequences of substance abuse extend beyond personal health and well-being. Students engaged in substance use may experience cognitive impairments, decreased academic performance, and an increased risk of mental health disorders such as anxiety and depression [8]. Furthermore, substance abuse can compromise their professional responsibilities, ethical standards, and patient care in the future. Given that pharmacists play a crucial role in educating patients about medication safety and adherence, any substance misuse among pharmacy students raises concerns about their ability to serve as responsible healthcare professionals [9].

This study aims to examine the prevalence and patterns of drug abuse among pharmacy students, assess the associated risk factors, and explore potential interventions. By addressing this issue, the study will contribute to a deeper understanding of substance use behavior within the pharmacy student community. The findings will aid in formulating evidence-based policies, educational programs, and mental health support systems to promote awareness, early intervention, and rehabilitation strategies. Ultimately, this research will help foster a healthier and more responsible future workforce in healthcare.

2. Methods

A cross-sectional study was conducted among medical students from **Loknete Shri Dada Patil Pharate College of Pharmacy,** Pune, enrolled in 2024, using a standard pretested self-administered online questionnaire.

2.1 Sample Size

The sample size was calculated using the standard formula for estimating the prevalence of a binary outcome in a population. Assuming a prevalence of substance abuse among medical students to be 30%, as reported in numerous previous studies, a precision of 5%, and a confidence level of 95%, the sample size was calculated to be 323.

2.2 Study Design: It is a Cross-sectional study

2.3 Study Setting: Loknete Shri Dada Patil Pharate College of Pharmacy Field practice area.

2.4 Study Period: 2 months (April 2022 to May 2022).

2.5 Study Population: College students (Intermediate, Degree, and Professional courses excluding postgraduate and above) in the study area.

2.6 Sampling Method: Stratified random sampling method

The students were divided based on the course and college, and students from the selected colleges were allotted the participant numbers from the random number table. Permission was taken from the college authorities, and the students' details were kept anonymous to protect their identities.

2.7 Inclusion Criteria:

Any college students of any gender are willing to participate in the study.

2.8 Exclusion Criteria:

1. Students who are unwilling to participate

2. Students who are on the day of study.

3. Students who are diagnosed with any mental illness

The questionnaire consists of the following sections:

- Socio-demographic details
- Subset for abusers
- Subset for non-abusers
- Awareness about de-addiction centers and treatment
- Willingness to stop substance abuse
- Academic performance

2.9 Statistical analysis:

The data were analyzed using SPSS version 20. Descriptive statistics were used to summarize the demographic characteristics and substance use patterns. To assess associations between various factors and substance abuse, chi-square tests were performed. A p-value of less than 0.05 was considered statistically significant.

3. Results:

Among the 200 participants, 108 (54%) were male, and 92 (46%) were female. Most participants were aged between 20 and 25 (73%), while 27% were between 16 and 19. Substance abuse was reported by 58 participants (29%), with alcohol being the most commonly used substance (88%), followed by tobacco (52%), marijuana (31%), cocaine (31%), methamphetamine (31%), heroin (28%), and other substances (76%) as shown in Figure 3. The frequency of substance use varied, with 34% using substances daily, 48% weekly, and 10% monthly, as shown in Figure 2. The occasions of substance use were closely linked to different social and academic settings, with 57% of users consuming substances before exams, 41% on the street, 28% at parties, and 22% at home. The method of substance use also varied, with oral consumption being the most common (52%), followed by smoking (38%), patch application (10%), and injection (3%). The motivations for substance use included peer pressure (52%), stress (45%), academic pressure (31%), curiosity (22%), and other reasons (19%), indicating a mix of social and psychological influences. Substance use also led to various side effects, with sleep disorders (21%) being the most commonly reported, followed by nausea (17%), dry mouth (17%), mydriasis (7%), constipation (7%), and diarrhea (3%) as shown in Table 1.

Table 1: Demographic and baseline characteristics of the study population

Variables	N = 200
Gender, n (%)	
Male	108 (54)
Female	92 (46)
Age group, years, n (%)	
16-19	54 (27)
20-25	146 (73)
Substance abuse, n (%)	
Yes	58 (29)
No	142 (71)
Types of substances used, n (%)	
Alcohol	51 (88)
Tobacco	30 (52)
Marijuana	18 (31)
Cocaine	18 (31)
Methamphetamine	18 (31)
Heroin	16 (28)
Other	44 (76)
Occasions of substance use, n (%)	
Before exams	33 (57)
On the street	24 (41)
At parties	16 (28)
At home	13 (22)
Method of substance use, n (%)	
Oral	30 (52)
Smoke	22 (38)
Patch	6 (10)
Injection	2 (3)
Frequency of substance use, n (%)	

Daily	20 (34)
Weekly	28 (48)
Monthly	6 (10)
Reasons for substance use, n (%)	
Peer pressure	30 (52)
Stress	26 (45)
Academic pressure	18 (31)
Curiosity	13 (22)
Others	11 (19)
Commonly experienced side effects, n (%)	
Sleep disorder	12 (21)
Nausea	10 (17)
Dry mouth	10 (17)
Mydriasis	4 (7)
Constipation	4 (7)
Diarrhea	2 (3)

The chi-square test was used to assess the association between substance abuse and various categorical variables, as shown in Figure 1. A statistically significant association was observed between substance abuse and gender ($p < 0.001$), with males reporting higher usage. Age group ($p = 0.002$), alcohol ($p < 0.001$), tobacco ($p = 0.004$), marijuana ($p = 0.019$), cocaine ($p = 0.019$), methamphetamine ($p = 0.019$), heroin ($p = 0.026$), and other substances ($p < 0.001$) were also significantly associated with substance abuse. Additionally, substance use was linked to occasions such as before exams ($p = 0.004$), on the street ($p = 0.002$), at parties ($p = 0.026$), and at home ($p = 0.038$). Methods of use, including oral ($p = 0.004$) and smoking ($p = 0.013$), and frequency of use, particularly daily ($p = 0.015$) and weekly ($p = 0.002$), were significant. Key motivations included peer pressure ($p = 0.004$), stress ($p = 0.002$), academic pressure ($p = 0.019$), and curiosity ($p = 0.038$). Sleep disorders ($p = 0.032$), nausea ($p = 0.049$), and dry mouth ($p = 0.049$) were the most commonly reported significant side effects. Other factors, including injection and patch use, monthly frequency, and specific side effects, did not show statistically substantial associations, as shown in Table 2.

Table 2: Association between substance abuse and various factors

Variables	Substance abuse	p-value
Gender, n (%)		
Male	Yes	<0.001
Female	Yes	-
Age group, years, n (%)		
16-19	Yes	-
20-25	Yes	0.002
Types of substances used, n (%)		
Alcohol	Yes	<0.001
Tobacco	Yes	0.004
Marijuana	Yes	0.019
Cocaine	Yes	0.019
Methamphetamine	Yes	0.019
Heroin	Yes	0.026
Other	Yes	<0.001
Occasions of substance use, n (%)		
Before exams	Yes	0.004
On the street	Yes	0.002
At parties	Yes	0.026
At home	Yes	0.038
Method of substance use, n (%)		
Oral	Yes	0.004
Smoke	Yes	0.013
Patch	Yes	0.067
Injection	Yes	0.127
Frequency of substance use, n (%)		
Daily	Yes	0.015
Weekly	Yes	0.002
Monthly	Yes	0.067

Reasons for substance use, n (%)		
Peer pressure	Yes	0.004
Stress	Yes	0.002
Academic pressure	Yes	0.019
Curiosity	Yes	0.038
Others	Yes	0.042
Commonly experienced side effects, n (%)		
Sleep disorder	Yes	0.032
Nausea	Yes	0.049
Dry mouth	Yes	0.049
Mydriasis	Yes	0.103
Constipation	Yes	0.103
Diarrhea	Yes	0.127

Figure 1: Prevalence of Substance abuse and no substance abuse

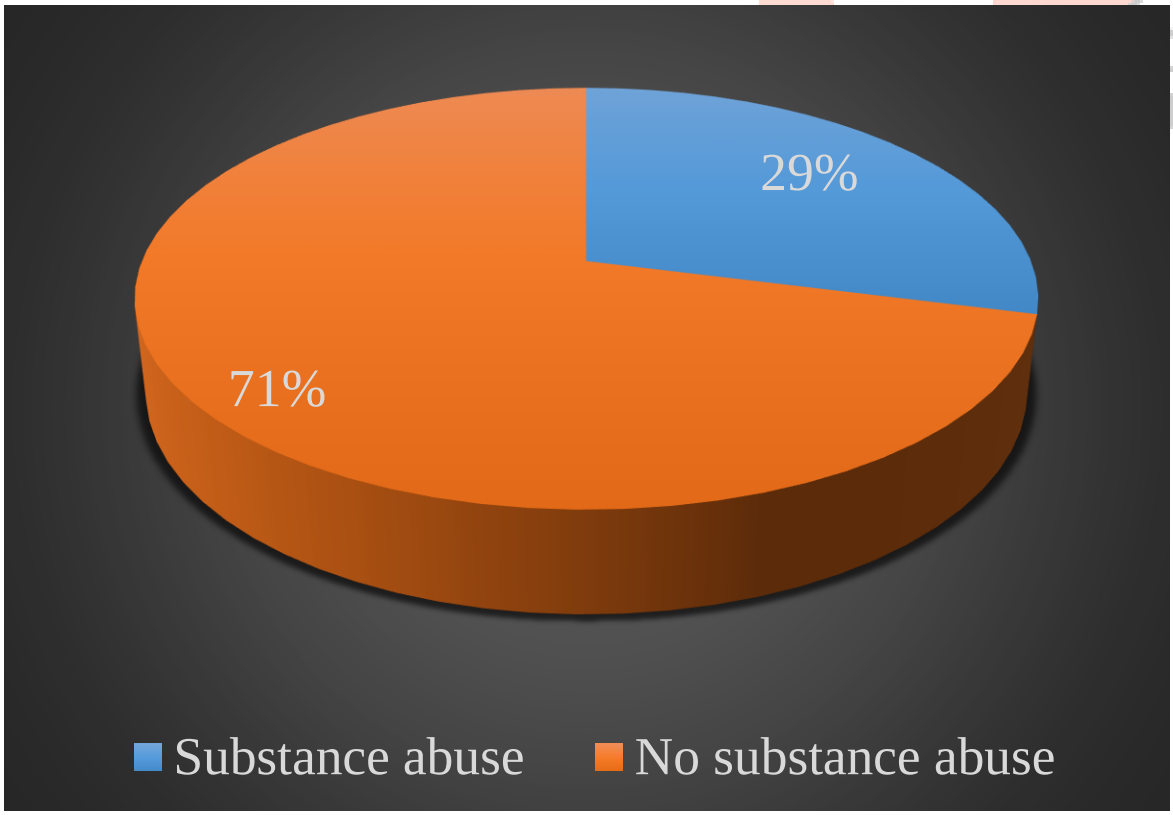


Figure 2: Frequency of Substance

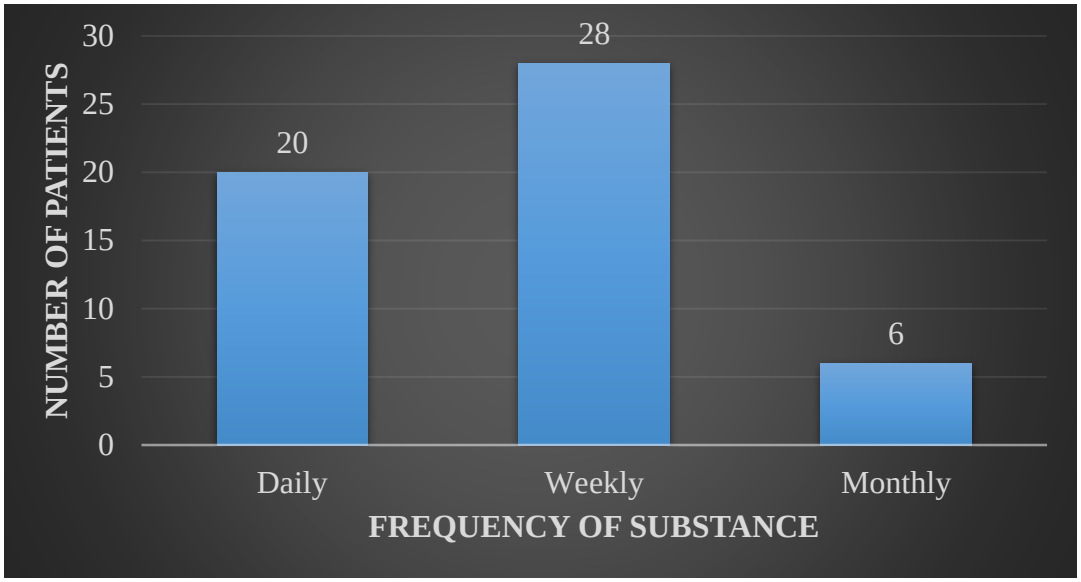
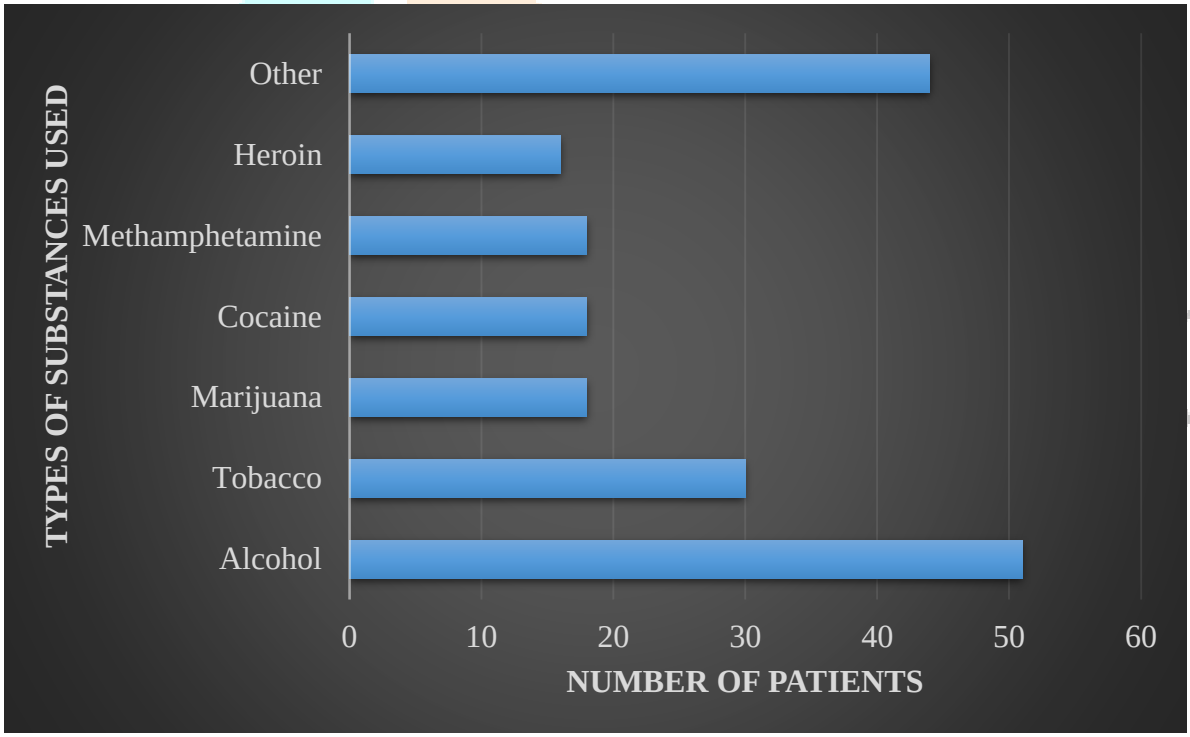


Figure 3: Types of Substance Used



4. Discussion

The present study provides valuable insights into the prevalence and patterns of drug abuse among pharmacy students, highlighting key factors contributing to substance use within this population. Our findings reveal that 29% of the participants reported substance use, with alcohol being the most commonly abused substance (88%), followed by tobacco (52%), marijuana (31%), and other illicit substances. The study identifies several significant risk factors, including peer pressure, academic stress, and curiosity, which play a crucial role in influencing substance use behavior.

A noteworthy observation in our study is the higher prevalence of substance use among male students compared to female students, with a statistically significant association ($p < 0.001$). This aligns with previous research indicating that gender differences play a role in substance abuse patterns, often influenced

by social norms and peer group behaviors. Additionally, age was a significant factor, with older students (20-25 years) reporting higher substance use compared to younger students (16-19 years) ($p = 0.002$). This suggests that increased exposure to stressors over time, along with greater autonomy in decision-making, may contribute to higher substance use in older students.

The study further highlights that substance use is strongly associated with specific occasions and environments. A significant proportion of students reported consuming substances before exams (57%), on the street (41%), at parties (28%), and home (22%). This pattern suggests that both academic pressure and social settings play a role in initiating and sustaining substance use. The methods of consumption varied, with oral consumption being the most common (52%), followed by smoking (38%), patch application (10%), and injection (3%).

The motivations behind substance use were diverse, with peer pressure (52%) and stress (45%) being the primary reasons. Academic pressure was reported as a significant factor by 31% of students, reinforcing the need for mental health support and stress management interventions within educational institutions. These findings emphasize the importance of creating a supportive environment to help students cope with stress in healthier ways.

Substance use was also found to be associated with various adverse effects, with sleep disorders (21%), nausea (17%), and dry mouth (17%) being the most commonly reported. The statistical analysis indicated significant associations between substance use and these side effects, further underscoring the negative health impacts of drug abuse among students.

Overall, our study underscores the need for targeted interventions, including educational campaigns, counseling services, and stricter institutional policies, to address substance abuse among pharmacy students. By fostering awareness and providing support systems, institutions can play a pivotal role in mitigating the risk factors and promoting healthier behaviors among students.

5. Conclusion

This study highlights the significant prevalence of substance abuse among pharmacy students and its association with academic stress, peer pressure, and social environments. The findings emphasize the urgent need for preventive measures, including awareness campaigns, mental health support, and institutional policies to address this issue. By implementing targeted interventions, educational institutions can help reduce substance abuse and its associated adverse effects, ultimately fostering a healthier and more responsible future workforce in healthcare. Addressing these concerns will ensure pharmacy students are well-equipped to uphold ethical and professional standards in their careers.

Disclosure

The authors report no conflicts of interest in this work.

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