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Psychoactive substance use among medical and paramedical undergraduate students of Lucknow

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Abstract:

BACKGROUND: Psychoactive drugs are substances that, when taken in or administered into one's system, affect mental processes like perception, consciousness, cognition, mood, and emotions. The use of psychoactive substances often starts at a young age. This study aimed to estimate the prevalence of psychoactive substance use among medical and paramedical undergraduate students of Lucknow.

MATERIAL AND METHODS: A cross-sectional study was conducted among 492 MBBS, BDS, and BSc Nursing students of Lucknow. A predesigned pretested semistructured self-administered questionnaire was used for data collection and analysis by using the SPSS 26.0 version.

RESULTS: The overall lifetime prevalence of "Ever use of the psychoactive substance" was 46.1%, whereas the overall current psychoactive substance use (in the past 3 months) was 35.2%. The prevalence of lifetime alcohol use was the highest at 36.6%, followed by tobacco (22.4%) and cannabis (17.9%). The prevalence was seen to be higher in males than in females and the highest in fourth-year academic students compared to other years.

CONCLUSION: The present study indicates that male students consume more psychoactive substances than female students. Effective interventions and strategies must be planned and implemented to reduce substance use among medical and paramedical students and overcome the issue of substance use by promoting a healthy lifestyle and coping skills.

Keywords:

Psychoactive, substance use, undergraduate

Introduction

Psychoactive substances encompass a diverse range of compounds capable of altering mental processes, such as perception, consciousness, cognition, mood, and emotions, upon ingestion or administration. Within this classification, psychoactive drugs, including alcohol and nicotine, represent a subset notorious for their potential to induce profound physiological and psychological effects. The consumption of psychoactive drugs without medical supervision poses grave health risks and often precipitates the development of substance use disorders. If left untreated, these disorders exacerbate morbidity and mortality rates, inflict considerable suffering, and impede various domains of individuals' functionality, including personal, familial, social, educational, and occupational spheres.[1] Alarmingly, recent trends indicate a downward shift in the age of substance initiation, a phenomenon correlated with dismal prognoses. Early onset substance use not only heightens the likelihood of addiction but also engenders a spectrum of high-risk behaviors such as gambling, theft, drug trafficking, physical altercations, and vehicular accidents.[2] In the Indian context, data from a 2019 survey

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conducted by AIIMS, New Delhi, underscore the pervasive nature of substance misuse, revealing a staggering 6 crore individuals grappling with alcohol addiction and over 3.1 crore individuals (2.8%) reporting the use of cannabis-derived products, including bhang, ganja, charas, heroin, and opium.[3] Furthermore, a study conducted in 2013 by AIIMS, New Delhi, in collaboration with the National Commission for Protection of Child Rights (NCPCR), shed light on substance use patterns among adolescents and young adults aged 10–24 years. Notably, a significant proportion of participants acknowledged lifetime engagement with various substances, with tobacco (83.2%) and alcohol (67.7%) emerging as the most commonly used agents, followed by cannabis, inhalants, pharmaceutical opioids, sedatives, and heroin.[4] Despite these alarming statistics, scant attention has been directed toward investigating the prevalence of psychoactive substance use among medical students in India. Given the pivotal role of medical undergraduates in shaping the future of healthcare delivery, understanding their substance use behaviors assumes paramount importance. The objective of the present study was to estimate the prevalence of psychoactive substance use among undergraduate students in medical sciences of Lucknow.

Material and Methods

Study design and setting

A cross-sectional study was conducted in Medical Universities/Colleges of Lucknow among students who were enrolled in undergraduate courses, namely, MBBS, BDS, and BSc Nursing in various medical Universities/colleges of Lucknow. The study was conducted from November 2021 to October 2022.

Study participants and sampling

The sample size was calculated to be 147 using the formula z^2pq/d^2, where $z_{1-\alpha/2}$ is the value of the standard normal deviate at two-sided 95% confidence level = 1.96, p = expected prevalence of substance abuse among undergraduate students, taken as 25%,[5] q = 1 – p, and d = margin of error for its estimated prevalence (7%). After taking a 10% nonresponse rate, the sample size was calculated to be 147.34 + 14.753 = 162. Thus, a minimum of 162 students were included in the study from each undergraduate medical course.

Inclusion Criteria: 1. Students who were enrolled in undergraduate courses, namely, MBBS, BDS, and BSc Nursing, in various universities/colleges of Lucknow and who gave consent for the study.

Exclusion Criteria: 1. Students who were not present at the time of the study. 2. Students who were presently on treatment with psychotropic medications.

A two-stage sampling technique was used. In the first stage, line listing of college was done: 7 MBBS, 5 BDS, and 34 BSc Nursing Colleges. Population proportionate sampling (PPS) was used to select colleges from the list; that is, 1 MBBS, 3 BDS, and 6 Nursing colleges were selected. A separate list of the students of each batch (MBBS having 250 students, BDS having 70 students, and BSc Nursing having 40 students) was made from the selected college.

In the second stage, approximately 41 students were selected from each batch of each selected college by simple random sampling. Therefore, 166 students from the MBBS course, 162 students from the BDS course, and 164 students from BSc Nursing course were selected. Hence, the total number of students from the undergraduate courses in medical sciences was 492, which were included in the study.

Data collection tool and technique

A predesigned, pretested semistructured self-administered questionnaire was developed in both Hindi and English languages.

Ethical considerations

Ethical approval was obtained from the university research cell (Ref. code: VI-PGTSC-IIA/P18). The nature and purpose of the study were elucidated to the competent authorities of the colleges while maintaining the anonymity of the college names. Subsequently, the study's objectives were communicated to faculty, and verbal consent was obtained from them. Additionally, informed consent was obtained from each student in a language they understood (Hindi or English), ensuring comprehension and voluntariness. For students under the age of 18, assent was obtained from the class teachers along with parental consent.

Results

Table 1 shows the distribution of students enrolled in MBBS, BDS, and BSc Nursing programs according to their academic year. Across all courses, students were evenly distributed across academic years. Furthermore, the majority of undergraduate students, particularly in MBBS (68.1%), BDS (59.1%), and BSc Nursing (53%), hailed from urban areas. In terms of gender distribution, the majority of MBBS students were male (62%), while BDS and BSc Nursing programs comprised predominantly female students (52.5% and 69.5%, respectively). Most students across all courses were unmarried, with the majority falling within the age range of 19–23 years (MBBS 88%, BDS 74.7%, BSc Nursing 74.4%). Additionally, a significant proportion of students resided in college hostels, and a majority belonged to nuclear families. Notably, a substantial portion of MBBS

Table 1: Distribution of professional undergraduate students according to their biosocial characteristics and course

Biosocial characteristics		Course						Total *n*=492	
		MBBS *n*=166		BDS		BSc Nursing			
		n	%	*n*=162	%	*n*=164	%	*n*	%
Residence	Rural	53	31.9	65	40.1	77	47.0	195	39.6
	Urban	113	68.1	97	59.9	87	53.0	297	60.4
Gender	Male	103	62.0	77	47.5	50	30.5	230	46.7
	Female	63	38.0	85	52.5	114	69.5	262	53.3
Marital status	Unmarried	163	98.2	160	97.8	160	97.6	483	98.2
	Married	3	1.8	2	1.2	4	2.4	9	1.8
Age (years)	≤18	9	5.4	2	1.2	21	12.8	32	6.5
	19-23	146	88.0	121	74.7	122	74.4	389	79.1
	≥24	11	6.6	39	24.1	21	12.8	71	14.4
Current residence	College Hostel	163	98.2	159	98.1	90	54.9	412	83.8
	Home	2	1.2	2	1.2	30	18.3	34	6.9
	Relatives/Local guardian	1	0.7	1	0.7	12	7.3	14	2.8
	Private hostel	0	0	0	0	13	7.9	13	2.6
	Paying guest	0	0	0	0	13	7.9	13	2.6
	Others	0	0	0	0	6	3.7	6	1.3
Religion	Hindu	151	91	133	82.1	153	93.3	437	88.8
	Muslim	12	7.2	14	8.6	9	5.5	35	7.1
	Sikh	0	0	0	0	1	0.6	1	0.2
	Christian	2	1.2	10	6.2	0	0	12	2.4
	Others	1	0.6	5	3.1	1	0.6	8	1.5
Caste	General	68	41.0	61	37.6	46	28.0	175	35.5
	OBCs	54	32.5	63	38.9	92	56.1	209	42.5
	SCs	37	22.3	20	12.4	26	15.9	83	16.9
	STs	7	4.2	18	11.1	0	0	25	5.1
Type of family	Joint	48	28.9	44	27.2	65	39.6	157	31.9
	Nuclear	118	71.1	118	72.8	99	60.4	335	68.1
Socioeconomic status*	I (upper class)	111	66.9	114	70.4	41	25.0	266	54.1
	II (upper middle)	35	21.1	24	14.8	52	31.7	111	22.6
	III (middle class)	10	6.0	15	9.3	29	17.7	54	11.0
	IV (lower middle)	5	3.0	8	4.9	33	20.1	46	9.3
	V (lower class)	5	3.0	1	0.6	9	5.5	15	3.0
Family Size	<6 persons	109	65.7	91	56.2	65	39.6	265	53.9
	≥6 persons	57	34.3	71	43.8	99	60.4	227	46.1

*According to modified B G Prasad Socioeconomic classification (2022)

and BDS students belonged to the upper class (66.9% and 70.4%, respectively), whereas 31.7% of BSc Nursing students were classified under the upper middle class.

In Table 2, among the total sample size of 492 students, the prevalence of lifetime alcohol use was the highest at 36.6% (P = 0.002), followed by tobacco (22.4%) and cannabis (17.9%). Similarly, the prevalence of current alcohol use was the highest at 27.8% (P = 0.001), followed by tobacco (17.3%) and cannabis (11.0%). The overall prevalence of ever use (lifetime) and current use (within the last 3 months) of substances was calculated at 46.1% and 35.2%, respectively.

Table 3 presents the prevalence of substance use according to academic year. Notably, fourth-year students exhibited the highest prevalence of lifetime alcohol and tobacco use (47.2% and 28.5%, respectively). Overall, fourth-year students demonstrated the highest prevalence rates of ever use and current use of substances (52.8% and 39%) compared to students in other academic years.

Table 4 shows the prevalence of lifetime alcohol use was the highest among male students (45.7%), followed by tobacco use (37.8%). Similarly, the prevalence of current alcohol use was the highest among males (34.3%), followed by tobacco use (30.0%). Overall, the prevalence of ever use and current use of substances was higher among male students (57.4% and 43.5%, respectively) compared to female students (36.3% and 27.9%, respectively).

Discussion

In the present study, the overall prevalence of ever use of the psychoactive substance in lifetime among medical

Table 2: Association of ever use (lifetime) and current use (last 3 months before the survey) of psychoactive substances among students (*n*=492)

Substances (multiple responses)	Courses						Total *n*=492		*P*
	MBBS *n*=166		BDS *n*=162		BSc Nursing *n*=164				
	n	%	*n*	%	*n*	%	*n*	%	
Ever use (Lifetime) of substances									
Tobacco	43	25.9	33	19.6	34	20.7	110	22.4	0.402
Alcohol	77	46.4	58	32.2	45	27.4	180	36.6	0.002
Cannabis	43	25.9	19	11.7	26	15.9	88	17.9	0.003
Sedatives	17	10.2	8	4.9	10	6.1	35	7.1	0.144
Others*	5	3.0	1	0.6	3	1.8	9	1.8	0.270
Overall (single response)	100	60.2	66	40.7	61	37.2	227	46.1	0.000
Current use (last 3 months before the survey) of substances									
Tobacco	36	21.7	24	14.8	25	15.2	85	17.3	0.181
Alcohol	59	35.5	49	30.2	29	17.7	137	27.8	0.001
Cannabis	25	15.1	11	6.8	18	11.0	54	11.0	0.057
Sedatives	9	5.4	5	3.1	3	1.8	17	3.5	0.193
Others*	3	1.8	00	00	00	00	3	0.6	-
Overall (single response)	75	45.2	54	33.3	44	26.8	173	35.2	0.002

*Others (Inhalants, Cocaine, amphetamine, LSD, opioids, etc.)

Table 3: Association of ever use (lifetime) and current use (last 3 months before the survey) of psychoactive substances according to their academic year among students (*n*=492)

Substances (multiple responses)	Academic year								Total *n*=492		*P*
	1st year *n*=123		2nd year *n*=122		3rd year *n*=124		4th year *n*=123				
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	
Ever use (Lifetime) of substances											
Tobacco	20	16.3	24	19.7	31	25.0	35	28.5	110	22.4	0.09
Alcohol	25	20.3	42	34.4	55	44.4	58	47.2	180	36.6	0.000
Cannabis	19	15.4	23	18.9	16	12.9	30	24.4	88	17.9	0.102
Sedatives	7	5.7	8	6.6	10	8.1	10	8.1	35	7.1	0.850
Others*	00	00	00	00	4	3.2	5	4.1	9	1.8	0.025
Overall (single response)	43	35.0	56	45.9	63	50.8	65	52.8	227	46.1	0.023
Current use (last 3 months before the survey) of substances											
Tobacco	16	13.0	23	18.9	22	17.7	24	19.9	85	17.3	0.526
Alcohol	20	16.3	37	30.3	41	33.1	39	31.7	137	27.8	0.011
Cannabis	13	10.6	17	13.9	9	7.3	15	12.2	54	11.0	0.248
Sedatives	4	3.3	3	2.5	3	2.4	7	5.7	17	3.5	0.454
Others*	00	00	00	00	00	00	3	2.3	3	0.6	-
Overall (single response)	30	24.4	47	38.5	48	38.7	48	39.0	173	35.2	0.039

*Others (Inhalants, Cocaine, Amphetamine, LSD, Opioids, etc.)

and paramedical undergraduate students was found to be similar to the findings of the study conducted by Pawar RD *et al*.[6] and higher than the findings of studies conducted by Hiremath BM *et al*.[7] in Karnataka (34.7%), Kumar D *et al*.[8] in Rishikesh (37.4%), and Dadwani R *et al*.[9] in Gujarat (18.86%).

Another study done by Singh MK *et al*.[10] in Lucknow showed that common substances used by adolescents were tobacco (76%), inhalants (20%), and alcohol (4%). Banerjee *et al*.[11] conducted a study in West Bengal and showed that common substances used were tobacco products (28.47%), alcoholic beverages (16.67%), and cannabis (5.55%).

In the present study, alcohol was the most common substance used. Similar results were also noted in the study conducted by Shrestha J *et al*.[12] in Nepal, which revealed that the most commonly used substances among participants was alcohol (41.86%), followed by tobacco (13.95%) and cannabis (9.88%), and only two students were identified as sedatives and opioids abusers. Additionally, findings from Arora A *et al*.[13] in Meerut showed that various substances used by the study participants included alcohol (19.13%), cigarettes (10%), cannabis (smoking) (4.34%), bhang (3.48%), tobacco (chewing) (2.17%), and other substances (gel and drugs 2.17%).

Table 4: Association of ever use (lifetime) and current use (last 3 months before the survey) of psychoactive substances among students by gender (*n*=492)

Substances (multiple responses)	Gender				Total *n*=492		*P*
	Male *n*=230		Female *n*=262				
	n	%	*n*	%	*n*	%	
Ever use (Lifetime) of substances							
Tobacco	87	37.8	23	8.8	110	22.4	0.000
Alcohol	105	45.7	75	28.6	180	36.6	0.001
Cannabis	40	17.4	12	4.6	52	10.6	0.005
Sedatives	25	10.9	10	3.8	35	7.1	0.002
Others*	9	1.8	0	0	9	1.8	0.001
Overall (single response)	132	57.4	95	36.3	227	46.1	0.000
Current use (last 3 months before the survey) of substances							
Tobacco	69	30.0	16	6.1	85	17.3	0.000
Alcohol	79	34.3	58	21.1	137	27.8	0.003
Cannabis	31	13.5	23	8.8	54	11.0	0.096
Sedatives	11	4.8	6	2.3	17	3.5	0.131
Others*	3	2.4	0	0	3	0.7	-
Overall (single response)	100	43.5	73	27.9	173	35.2	0.000

*Inhalants, Cocaine, Amphetamine, LSD, Opioids, etc

In the present study, males had higher prevalence of ever use of psychoactive substances in their lifetime than females. A study done by Zarin L *et al*.[14] in Meerut reported a higher prevalence in males (65.8%) than in females (34.2%).

In the present study, the final-year students had a high prevalence of ever use of substances in their lifetime, followed by third-year students, second-year students, and first-year students. Therefore, this study showed that the prevalence of psychoactive substance use increased with academic year. Jaiswal H *et al*.[15] in their study conducted in Maharashtra, India, showed that substance use was significantly (P = 0.002) higher in final-year students (38%) than in first-year students (12%).

In the present study, the prevalence of current psychoactive substance use among medical undergraduate students was found to similar to that of a study conducted by Kumar D *et al*.[8] in Rishikesh, which showed the prevalence of psychoactive substance use was 31.34%. Additionally, a study conducted by Sapkota A *et al*.[16] in Nepal showed that the prevalence of current substance use among medical students was 42.0%, but the study conducted by Musyoka C *et al*.[17] in Kenya showed that the prevalence of current substance abuse was 20.0%.

In the present study among the academic year, the prevalence of current use of substances was the highest in fourth-year students, followed by third-year students, second-year students, and first-year students. Hiremath S *et al*.[7] in their study in Telangana showed that the prevalence of substance use increased as the year of MBBS progressed.

Limitation and recommendation

A self-administered questionnaire was used for data collection, so a chance of information bias is possible. There should be prohibition of supply of substances near colleges and academic institutions. A minimum legal age for purchase and consumption of tobacco/alcohol/other substances should be raised.

Conclusion

The present study demonstrates an increase in the prevalence of psychoactive substance use in subsequent academic years. The prevalence of ever (lifetime) and current use of the psychoactive substance was found much more in male students than in female students.

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Conflicts of interest

There are no conflicts of interest.

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