

Self-medication of Anxiolytics, Antidepressants, and Psychoactive Stimulants amongst Students of HITEC-IMS Taxila: A Cross-Sectional Study

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Abstract

Background: Self-medication is one of the major issues faced by the Physicians as it can complicate the current illness in addition to the associated risk factors associated with polypharmacy. Students initiate antidepressants on their own in the start in order to better cope up with the studies and exam related stress, however non supervised use for a longer duration can put them at higher risk of addiction.

Objective: To determine the frequency, reasons of self-medication of Anxiolytics, Antidepressants, and Psychoactive Stimulants and to see the association of self-medication with demographic characteristics among medical and dental students of HITEC-IMS Taxila.

Methods: A cross-sectional study was conducted at HITEC-IMS and Dental College, Taxila, from June to August 2022. A sample size of 250 was calculated by the Open Epi calculator from a total population of 700 with a 50% anticipated frequency, a 95% confidence interval, and a 5% chance. Convenience sampling was adopted for taking the samples of medical and dental students. Data was collected manually by a structured Performa and analyzed by SPSS version 25.

Results: A total of 250 students were included in the study. 86.8% were medical students, and 13.2% were from dental colleges. Out of 250 students, 79 (31.6%) were taking psychoactive stimulants. Out of the 79 students who were using these medicines, the frequency of self-medication was 40 (50.6%), but 39 (49.9%) were using them with a proper prescription. Gender showed a significant association with self-medication (p-value 0.01).

Conclusion: Counselling and mentoring regarding stress coping strategies should be part of undergraduate training rather than self-medication of psychostimulants.

Keywords: Academic pressure, antidepressants, psychoactive stimulants, pharmacy students, self-medication.

Introduction

The term self-medication is defined as “*over-the-counter use of medicines by patients on the basis of*

their own perceptions and thoughts, without taking any guidance from a health professional”. Different factors responsible for self-medication are easy accessibility and availability of these medicines, reluctance to consult a health care professional, and

the offer of a surplus of prescription drugs by friends and relatives.¹

There has been an alarming rise in psychological distress among college and university students globally over the past decade, negatively affecting multiple domains of their lives. In response, the use of psychoactive stimulants is increasing steadily.² “Brain doping,” “academic performance enhancement,” “pharmacological neuro enhancement, and cognitive enhancement” are different names used for the psychoactive stimulants. They are mainly categorized as different psychoactive substances that are used without prescription for the purpose of increasing alertness, attention, focus, or memory by healthy individuals.³

The students studying in medical universities have easy access to information from many resources e.g. drug indices, literature on Medscape and pubmed, and other friends to diagnose and treat themselves.⁴ Antidepressants are commonly used among students for treating anxiety and study-related stress.^{1,5} Students get into the trap of using self-prescribed psychoactive stimulants in order to enhance their academic performance⁶. Other incentives for the misuse of prescription- only drugs among students comprise improving academic grades, mental health problems such as sleep disturbance, sports outcome or the management of some already existing diseases.²

The rate of self-medication is particularly significant for the South Asian countries; however the trend is less common in Europe and other developed countries, where strict legalization make it impossible to buy these medications without a doctor’s prescription⁷. A recent survey conducted of university students in Pakistan showed the prevalence of self-medication to be 76% in Karachi and 41% in Islamabad, which is alarming and should be considered for making some policy and devising regulatory interventions. Majority reported study stress as a reason for antidepressant use, and more than half of the students reported for enhancing performance.¹ A study from 12 cities in Pakistan showed widespread use of antidepressants with a prevalence of 8.34 (8.03–8.85 for 95% CI), and consumption of psychoactive stimulants was obvious among the students in their final year, with a prevalence of 1.31 (1.13–1.75 for 95% CI).⁶

It is particularly concerning that an increasing number of students are engaging in excessive use of prescription-only psychoactive stimulants, facilitated by their easy accessibility through unregistered

pharmacies in our country. To date, no prior study has been conducted at HITEC-IMS to address this emerging issue. Therefore, we undertook this research to determine the frequency of self-medication involving anxiolytics, antidepressants, and psychoactive stimulants, and to identify the underlying factors contributing to their use among medical and dental students at HITEC-IMS. This study can help the administration devise a plan for early detection, implementing stress-coping interventions by involving the mentors and psychologists.

Objectives:

1. Determine the frequency of self-administration of anxiolytics, antidepressants, and psychoactive stimulants among medical and dental undergrad students
2. Identify the factors driving the self-administration of anxiolytics, antidepressants, and psychoactive stimulants.
3. Investigate the relationship of self-medication with variables such as gender, age, living situation, and academic year of the students.

Methodology

It’s a descriptive cross-sectional study conducted at HITEC-IMS & HITEC-Dental College from June to August 2022 after taking the ethical approval from the HITEC-IMS ethical review board #HITEC-IMS-14-2022.

The calculated sample size was 250, calculated by an open EPI calculator with a 95% confidence interval and a 5% chance. The total population taken under study was 700, and the anticipated frequency was 50%. Non-probability, Convenience sampling. Among the Inclusion criteria are the Medical and dental students of HITEC-IMS, who gave informed consent. Students migrated from any other institute during the last six months and who were absent at the time of data collection were excluded.

Data were collected by using a proforma developed after reviewing literature from articles with similar objectives. Data were collected after verbal informed consent and responses were recorded 1. It was validated by the relevant faculty. The Performa

consisted of 3 sections. The first section included demographic characteristics like age, gender, year of study, and residential status. The second section included whether they had any awareness and use of psychoactive stimulants and antidepressants. The third section was about the reasons for using anxiolytics, antidepressants, and psychoactive stimulants. Data were analyzed by employing SPSS version 25.

Analysis of categorical variables includes percentages and frequencies. The relationship of anxiolytics, antidepressants, and psychoactive stimulants with age, gender, living status, and year of study was investigated by applying the Chi-square test of significance and taking the pre-determined α value of 0.05.

Results

This survey was conducted among medical and dental undergrad students of HITEC-IMS Taxila to determine the frequency of self-medication of anxiolytics, antidepressants, and psychoactive stimulants. A total of 250 students from the medical and dental colleges participated in the study. The demographic details of the participants are given below in Table 1.

Variables	Frequency(n)	Percentage (%)
Gender		
Male	71	28.4
Female	179	71.6
Age in years		
<25	36	14.4
20-25	196	78.4
>25	18	7.2
Living status		
Hostel lite	147	58.8
Day scholar	103	41.2

Family setup		
Nuclear	184	73.6
Joint	66	26.4
Course of the study		
Medical	217	86.8
Dental	33	13.2
Total	250	100

Out of 250 students, 186 (74.4%) were aware of the use of psychoactive stimulants, and 197 (78.8%) were aware of anxiolytics and antidepressants. Of the total participants, 79(31.6%) were using these medicines, and 171(68.5%) were not using any of these medicines. It was found that percentage of the students using antidepressants was greater than the students using stimulant. Results related to the use of different types of medicines are depicted in fig 1.

Results of the study showed that the use of self-medication is more prevalent among female students 29 (60%) than male students 10 (32%), It was further assessed that 40(50.6%) students were using these medicines without any prescription, and 39(49.9%) were using them on the advice of their physician. On enquiring about the frequency of use of these medicines, 25(31.6%) were using them frequently, and 54 (68.4%) were using them on demand.

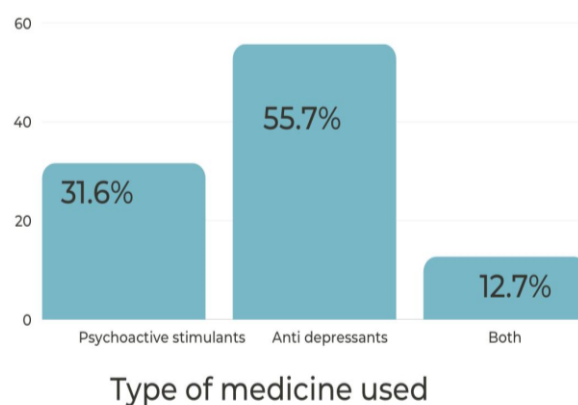


Fig 1: Frequency of Use of anxiolytics, antidepressants and psychoactive stimulants.

Fig 2 depicts the results of reasons identified by the students for using these medicines. Study stress was

identified as a major factor leading to the use of these medicines while peer pressure, and family issues were not reported as a major concern.

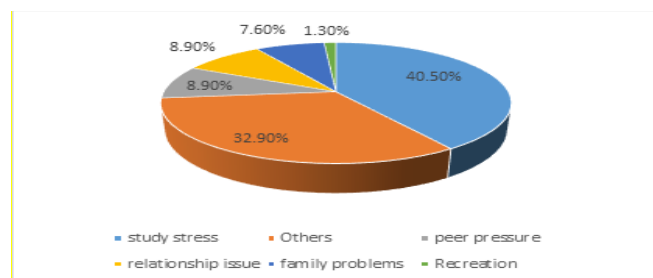


Fig 2: Reasons for using psychoactive stimulants, anxiolytics and anti-depressants.

Self-medication was found to be more common among females as compared to males (p-value 0.01), but no significant association of age, living situation and academic year of student was found with self-medication of these drugs. Detailed results are given below in table 2.

Table 2: Association of self-medication with demographic characteristics.

Demographic characteristic	Self-medication		p-value
	Yes	No	
Gender	10(32%)	21(68%)	0.01*
Male			
Female	29(60%)	19(40%)	
Age (years)			0.8
<20	6(43%)	8(57%)	
20-25	30(51%)	29(49%)	
>25	3(50%)	3(50%)	
Living status			0.6
Hostelites	22(47%)	25(53%)	
Dayscholars	17(53%)	15(47%)	
Academic year			0.8
Preclinical			
Clinical	14(52%)	13(48%)	

	25(48%)	27(52%)	
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Discussion

The practice of self-medication is widespread all over the world, especially among urban and educated populations. Doctors also tend to self-medicate to the extent feasible. Due to their knowledge about both diseases and drugs.⁸ This study was conducted on the 250 medical and dental students of HITEC-IMS, to shed light on the sensitive aspects of self-medication of anxiolytics, antidepressants, and psychoactive stimulants among them. Study stress, peer pressure, relationship issues, and family problems were observed among the most common reasons for self-medication. Self-medication was found statistically associated with gender (p-value 0.01), but no statistically significant association was observed with age (p= 0.8), living situation (p= 0.5) and academic year of student (p= 0.6).

Out of 250 participants, 186 (74.4%) reported awareness of psychoactive stimulants, while 197 (78.8%) were familiar with anxiolytics and antidepressants. However, only 79(31.6%) indicated actual use of these medications. This prevalence is markedly lower compared to similar studies conducted in Mangalore (92%)⁵, Nigeria (81%)⁸, South India (92%)³, Bangladesh (100%)⁹, and Brazil (86.4%).¹⁰ The comparatively low rate of self-medication in our study may be attributed to stronger familial and peer support systems, as well as heightened awareness of the potential adverse effects associated with psychoactive drug use. Students may also underreport usage due to stigma surrounding mental health and psychoactive drug use, especially in academic settings. Results of the study showed that the use of self-medication is more prevalent among female students 29 (60%) than male students 10 (32%), similar to the results of an online survey in Germany,⁴ Nigeria⁸, Brazil¹¹ and Gujrat.¹² In contrary to our result, study conducted in Iran¹³, showed high prevalence of self-medication among male students (65.4%).

In our study, 32% of participants reported using the substances due to academic stress, 8.9% cited peer pressure, 7.6% mentioned relationship issues, and 32.9% attributed their use to family problems or other unspecified reasons. Only one student reported

recreational use. In contrast, a similar study found that the majority used these substances to enhance cognitive performance.⁵ Notably, over half of the students in our sample (50.6%) who were using antidepressants and psychoactive stimulants did not have any diagnosed psychiatric disorder. These findings are consistent with a German study⁴, which reported that pharmacological neuroenhancer use was more prevalent among healthy individuals.

Approximately 63% of the students are engaged in self-prescribing the psychoactive stimulants, owing to increasing academic pressure, however 96% of students used antidepressants without consulting a physician to obtain relief from the pressure of studies,¹ but in KSA⁷, long waiting list in the hospitals for specialist consultation and a lack of time to visit the hospital were the main factors that resulted in increased reliance of students on self-prescribed antidepressants and psychoactive drugs. For most students, the major reason for using self-medication was taking the illness less seriously in Gondar, Ethiopia.¹⁴ Self-medication practice is becoming popular as the people have knowledge, previous experience, minor illness and it also saves money, time and relieves stress.¹⁵

A majority of students (63%) identified academic competition as the primary driver for self-medicating with psychoactive stimulants, while nearly all (96%) reported using antidepressants to alleviate study-related stress.¹ In contrast, a study conducted in the Kingdom of Saudi Arabia (KSA)⁷ found that self-medication was largely attributed to long hospital queues and limited time to seek medical care. In Gondar, Ethiopia¹⁴, most students cited a tendency to take illnesses less seriously as the main reason for self-medication.

Overall, the practice of self-medication is gaining popularity, driven by individuals' prior knowledge, previous experiences, and the perception that minor illnesses do not warrant professional consultation. It is also viewed as a means to save time and money, and to reduce stress.¹⁵ Majority participants 64(81%) in our study were aware of the harmful effects, these findings are similar to research conducted across twelve cities of Pakistan¹, where despite the awareness of negative outcome of psychoactive stimulants, students continued to indulge in self-medication.

Our study showed significant association with gender, which is similar to study in Nigeria.⁸ In contrary to that no statistical association found with gender in another study conducted in Karachi, Pakistan.¹⁶

Conclusion

The self-medication of stimulants, anxiolytics, and antidepressants attributed to study stress is alarming among medical and dental students. Counselling and mentoring regarding stress coping strategies should be part of undergraduate training.

Limitations

The main limitation are convenience sampling, single center and the inability to identify causation due to the cross-sectional nature of the data collection. There is possibility that lot of students did not provided us the right information as depression and associated psychiatric ailments are considered as a taboo in the society.

Recommendations

There is dire need to raise early awareness among the students about the adverse effects and associated drawbacks with the inappropriate use of antidepressants and psychoactive stimulants. Since good habits are being formed at school age, school curriculum should be revised to further enlighten students. Finally legislation may also be needed to stop and strictly punish the unauthorized vendors of psychoactive stimulants and antidepressants.

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Dr. Aashi Mughal: Critical Revision

Dr. Asifa Afzal: Analysis and interpretation of data and drafting the article.

Dr. Sidra Farooq:

Dr. Raima Sadiquie: Acquisition of data and drafting the article.

Dr. Mohsin Raza: Analysis and interpretation of data.

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