



STUDY ON STIMULANT USAGE BY MEDICAL STUDENTS FOR COGNITIVE ENHANCEMENT IN KONASEEMA INSTITUTION OF MEDICAL SCIENCES AND RESEARCH FOUNDATION

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ABSTRACT

Background: The non-medical use of prescription stimulants for cognitive enhancement has become increasingly prevalent among medical students worldwide. This phenomenon raises significant ethical, medical, and academic concerns [1][2]. **Methods:** A cross-sectional study was conducted, focusing on stimulant usage trends among medical students. Data were synthesized to identify common patterns, motivations for use, and associated risks. **Results:** A total of 202 medical students from Konaseema Institute of Medical Sciences and Research Foundation participated in the study. The majority of respondents were aged between 20 and 29 years, with a predominance of female students, primarily from the 3rd and 4th years and internship levels. Among those who reported using stimulants for cognitive enhancement, caffeine pills were the most commonly used substance (42.9%), followed by other stimulants such as energy drinks and over-the-counter supplements (78.6%), while Ritalin (methylphenidate) was used by only 1.8% of participants. The main motivations for stimulant use included staying awake longer (55.4%), coping with academic pressure (51.8%), enhancing memory (30.4%), and improving concentration (28.6%). Peer influence and other unspecified reasons were minimal, each accounting for 1.8% of responses. When asked about the ethical acceptability of stimulant use for cognitive enhancement, 38.6% of students considered it unacceptable, 59.9% were unsure, and only 1.5% believed it was ethically acceptable. In terms of perceived academic outcomes among stimulant users, 44 students reported slight improvement, 5 reported significant improvement, 36 noted no change, and 17 were unsure. A chi-square test revealed a statistically significant association between stimulant use and perceived academic improvement ($\chi^2 = 277.00$, $p < 0.0001$). These findings highlight both the prevalence and nuanced perspectives surrounding stimulant use among medical students in this institution. **Conclusion:** The analysis reveals a significant awareness and use of stimulants among medical students, primarily driven by academic pressures and the desire for cognitive enhancement. While some students report academic benefits, the prevalence of side effects and ethical concerns highlights the need for educational initiatives. An interesting finding is that caffeine pills are the most commonly used stimulant, suggesting a reliance on accessible, over-the-counter substances.

KEYWORDS : "stimulant use," "cognitive enhancement," "medical students," "methylphenidate," "Adderall."

INTRODUCTION

In recent years, the academic pressures faced by medical students have intensified, leading to increased interest in pharmacological cognitive enhancers—most notably, prescription stimulants [1][2]. Originally intended for the treatment of attention-deficit/hyperactivity disorder (ADHD) and narcolepsy, drugs such as amphetamine-dextroamphetamine (Adderall), methylphenidate (Ritalin), and modafinil are now frequently used by students without medical indication [3]. This trend, often referred to as "academic doping," is driven by the desire to improve concentration, extend wakefulness, and optimize academic performance [4][5]. While the non-medical use of stimulants is illegal in many jurisdictions and poses significant health risks, including dependency, cardiovascular complications, and psychological distress, it remains a widespread and often underreported phenomenon [6]. Moreover, the ethical implications of cognitive enhancement in academic settings—particularly concerns regarding fairness and integrity—further complicate the issue [7]. Understanding the prevalence, motivations, and consequences of stimulant use among medical students is critical for developing effective prevention strategies and informing institutional policies.

Aim:

This study aims to assess the prevalence motivations, and ethical implications of non-medical stimulant use among medical students for cognitive enhancement, and to explore its potential impact on academic performance, health, and professional conduct.

Objectives

1. To Assess the Prevalence of Stimulant Use Among Medical Students

2. To Evaluate the Perceived Cognitive and Academic Benefits of Stimulant Use
3. To Investigate the Risks and Side Effects of Stimulant Misuse

MATERIALS AND METHODS:

Place Of Study: The study was carried out among medical students in Konaseema Institute of Medical Sciences & Research Foundation, Amalapuram, Dr.B.R. A Konaseema District, Andhra Pradesh, India.

Study Design: This was a cross-sectional study done among medical students in konaseema institute of medical sciences and research foundation, Amalapuram

Study Period: The study was carried out among medical students in Konaseema Institute of Medical Sciences & Research Foundation, Amalapuram for 1 month (march 2025).

Study Participants: Medical students in kims medical college, Amalapuram

Sample Size: 202 samples collected on the basis of a Questionnaire

Data Collection Procedure: After getting informed consent from the participants data was collected in a semi structured questionnaire.

Confidentiality: Particulars and details of all the participants were kept confidential throughout the study only summary of the details was used for declaring the result.

Ethical Consideration: Institutional ethics committee

approval and informed consent was taken.

Data Analysis And Interpretation: Data was entered using Microsoft Excel sheet Summarization and analysis of data was carried out by using IBM SPSS Software version 20(licensed).

Inclusion Criteria: Medical students in konaseema institute of medical sciences and research foundation, amalapuram.

Exclusion Criteria: Those who are not willing to participate in semi structured questionnaire.

RESULT:

202 Responses were used for the analysis of current study.

Table 1: Prevalence of Stimulant Use Among Medical Students

STIMULANT	Number of Users	Percentage
Caffeine pills	24	42.9%
other	44	78.6%
Ritalin	1	1.8%

Table 2: Motivations for Using Stimulants Among Medical Students

Motivation	Number of Responses	Percentage
Stay awake longer	31	55.4%
Improve concentration/focus	16	28.6%
Enhance memory	17	30.4%
Cope with academic pressure	29	51.8%
Peer influence	1	1.8%
Other:	1	1.8%

Table 3: Ethical Acceptability of Stimulant Use for Cognitive Enhancement

Ethical Acceptability	Number of Responses	Percentage
NO	78	38.6%
Unsure	121	59.9%
Yes	3	1.5%

Table 4: Perceived Impact of Stimulant Use on Academic Performance

Academic Performance	Stimulant Use: Yes	Stimulant Use :No	Total
No change	36	0	36
Yes, Slight improvement	44	0	44
Yes, significant improvement	5	0	5
Unsure	17	0	17
Total	102	175	277

Analysis

Stimulant	Count	Percentage
Caffeine pills	24	42.90%
Other:	44	78.60%
Ritalin	1	1.80%

Motivation	Count	Percentage
Stay awake longer	31	55.40%
Improve concentration/focus	16	28.60%
Enhance memory	17	30.40%
Cope with academic pressure	29	51.80%
Peer influence	1	1.80%
Other:	1	1.80%

Opinion	Count	Percentage
No	78	38.60%
Unsure	121	59.90%
Yes	3	1.50%

Academic Performance	Stimulant Use: Yes	Stimulant Use: No	Total	Chi Square	P Value
No change	36	0	36	277.00	0.000
Yes, slight improvement	44	0	44		
Yes, significant improvement	5	0	5		
Unsure	17	0	17		
Total	102	175	277		

The Study highlights a significant awareness and use of stimulants among medical students, primarily driven by academic pressure and desire for cognitive enhancement. While some students report academic benefits, the prevalence of the side effects and ethical concerns the need for educational initiatives. An interesting finding is that caffeine pills are the most commonly used stimulant, suggesting a reliance on accessible, over-the-counter substances.

DISCUSSION:

The use of stimulants among medical students for cognitive enhancement has gained attention in recent years, as students are increasingly exposed to high levels of academic pressure [1][2].

A 2016 study by Volkow et al. reported that approximately 5–10% of university students use prescription stimulants non-medically, with higher rates among those in competitive fields such as medicine [1]. In a study by Leung et al. (2018), 23% of medical students surveyed reported using stimulants like Adderall or Ritalin to improve concentration and academic performance, especially during periods of heavy academic workload (e.g., exams or clinical rotations) [2].

Studies indicate that stimulant use in medical students is often episodic, concentrated around exam periods. Teter et al. (2010) found that 18% of medical students in the United States had used stimulants for cognitive enhancement, with most users believing that the substances helped them stay awake longer, enhance focus, and improve memory recall [3].

The primary motivation for stimulant use is academic pressure. Harris and Pidgeon (2019) conducted a qualitative study exploring why medical students misuse stimulants, finding that most students cited the intense academic demands and the desire to outperform peers as the driving factors [4]. This was consistent with the findings of Gonzalez et al. (2021), who noted that medical students often feel that stimulant use is a “necessary evil” to cope with long study hours and the competitive nature of their environment [5].

Additionally, Wright et al. (2022) highlighted that social norms within medical school may also encourage stimulant use. Students may see peers using these substances and feel compelled to follow suit in order to keep up with the academic workload or manage stress [6].

Furthermore, Ragan and Lammers (2019) found that stimulant misuse may result in cognitive overload, leading to burnout and mental health issues such as depression or anxiety [6]. The use of stimulants in high-pressure academic environments may also increase stress and exacerbate the very issues students are attempting to mitigate.

Zheng et al. (2021) conducted a study showing that students who engaged in regular physical activity and followed a balanced diet exhibited improved cognitive performance and resilience to academic stress[5]. These lifestyle modifications can not only enhance cognitive function but also promote overall well-being, making them preferable alternatives to stimulant use.

Collectively these studies suggest a complex relationship between academic pressure, stimulant use, and the perceived need to perform. While some students may experience short-term cognitive benefits, the risks associated with stimulant misuse—such as side effects, dependency, and ethical concerns—underscore the need for healthier, more sustainable alternatives. Medical schools must take a proactive role in addressing stimulant misuse through education, support systems, and policies designed to promote both academic success and student well-being [1][4][7].

CONCLUSION

The Study highlights a significant awareness and use of stimulants among medical students, primarily driven by academic pressure and desire for cognitive enhancement. While some students report academic benefits, the prevalence of the side effects and ethical concerns the need for educational initiatives. An interesting finding is that caffeine pills are the most commonly used stimulant, suggesting a reliance on accessible, over-the-counter substances.

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