

Original Research Article

The silent struggle: screening for attention-deficit/hyperactivity disorder symptoms and academic performance among undergraduate medical students

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ABSTRACT

Background: Attention-deficit/hyperactivity disorder (ADHD) frequently persists into adulthood and can adversely affect academic performance. Medical students are particularly vulnerable due to the demanding nature of medical education. This study estimated the prevalence of ADHD symptoms and examined their association with academic performance among undergraduate medical students.

Methods: A cross-sectional study was conducted among 214 undergraduate MBBS students at LLRM Medical College, Meerut. Participants were selected by convenient sampling. ADHD symptoms were assessed using the adult ADHD self-report scale (ASRS-v1.1). Students with ≥ 4 positive responses in Part A were classified as ADHD screen-positive. Data were analyzed using Jamovi software, applying Chi-square or Fisher's exact test.

Results: Of the 214 participants, 31 (14.4%) screened positive for ADHD symptoms. ADHD positivity was significantly associated with lower examination scores ($p=0.033$), history of failure in professional examinations ($p=0.0062$), and poor self-rated academic performance ($p<0.001$). The most common symptoms were misplacing or difficulty finding things (61.2%), difficulty unwinding (58.0%), and difficulty concentrating on conversations (54.8%).

Conclusions: ADHD symptoms were common and significantly associated with poorer academic performance. Early screening and timely support may improve academic outcomes and student well-being.

Keywords: Academic performance, ASRS-v1.1, Attention-deficit/hyperactivity disorder, Medical students

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental disorder characterized by persistent symptoms of inattention, hyperactivity, and impulsivity that can impair functioning across different stages of life. Although traditionally considered a childhood disorder, ADHD frequently persists into adulthood, affecting academic achievement, occupational performance, interpersonal relationships, and quality of life. Approximately 2-5% of adults worldwide are estimated to have ADHD, with many remaining undiagnosed and untreated.¹

Medical students are particularly vulnerable to the impact of ADHD symptoms due to the demanding nature of medical education, which requires sustained attention, effective time management, organization, and self-discipline. ADHD symptoms may contribute to academic difficulties, impaired functioning, and psychological distress among students.² Studies have reported a considerable prevalence of ADHD symptoms among university and medical students, highlighting its potential impact on academic performance and well-being.^{3,4} Furthermore, ADHD has been associated with emotional distress, reduced quality of life, and impaired daily functioning in this population.⁵

Lifestyle factors such as inadequate sleep, physical inactivity, excessive screen time, unhealthy dietary habits, substance use, and poor stress management have also been linked to ADHD symptoms and may further affect student performance and well-being. The adult ADHD self-report scale (ASRS-v1.1), developed in collaboration with the World Health Organization, is a widely used and validated screening tool for identifying ADHD symptoms in adults.⁶

Despite growing awareness of adult ADHD, limited data are available regarding its prevalence and associated lifestyle factors among Indian medical students. Assessing ADHD symptoms and their correlates in this population may help guide early identification, counseling, and supportive interventions within medical institutions.

Objectives

To estimate the prevalence of ADHD symptoms among medical students using the adult ADHD self-report scale (ASRS-v1.1). To assess the association between ADHD screening status and academic performance among medical students.

METHODS

Study design and setting

A cross-sectional study was conducted among undergraduate medical students and interns of LLRM Medical College, Meerut, India, from March 2026 to May 2026.

Study population

The study population comprised undergraduate MBBS students enrolled in the first, second, third, and final professional years of the MBBS course at the study institution.

Sample size

The sample size was calculated using the formula for estimation of a single proportion:

$$n = 4PQ/L^2$$

Sample size was calculated using the formula $n = 4PQ/L^2$, where P was taken as 15.9%, based on the prevalence of ADHD symptoms reported by Pritesh et al among medical and para-medical students in Central India.⁷ $Q = 100 - P = 84.1\%$, and L (absolute precision) was taken as 5%.

$$n = (4 \times 15.9 \times 84.1) / (5^2)$$

$$n = 214$$

Sampling technique

A convenient sampling technique was employed. All eligible undergraduate medical students present during the study period and willing to participate were invited to take part in the study.

Inclusion criteria

Undergraduate MBBS students studying in the first, second, third, and final professional years. Students aged 18 years and above. Students who provided informed written consent for participation.

Exclusion criteria

Students who were absent on the day of data collection. Students who declined to participate in the study. Incompletely filled questionnaires.

Study tool

Data were collected using a predesigned, pretested, semi-structured questionnaire consisting of three sections: sociodemographic details (age, gender, year of study, residence, etc.); lifestyle-related variables including sleep duration, screen time, physical activity, caffeine consumption, and academic performance; adult ADHD self-report scale (ASRS-v1.1) symptom checklist.

Assessment of ADHD symptoms

ADHD symptoms were assessed using the adult ADHD self-report scale (ASRS-v1.1), developed in conjunction with the World Health Organization.

The ASRS-v1.1 consists of 18 items divided into: Part A (6 questions): used as a screening tool for ADHD. Part B (12 questions): used to assess additional ADHD-related symptoms and symptom burden.

Participants were classified as screening positive for ADHD if they had four or more positive responses in part A according to the standard ASRS-v1.1 scoring guidelines.

Data collection procedure

After obtaining institutional ethical approval and informed consent, eligible students were approached during academic sessions. The purpose of the study was explained, confidentiality was assured, and the questionnaire was administered. Completed questionnaires were collected and checked for completeness.

Statistical analysis

Data were analyzed using Jamovi software. Associations were assessed using the Chi-square test or Fisher's exact

test. A p value <0.05 was considered statistically significant.

Ethical considerations

Ethical approval was obtained from the institutional ethics committee of LLRM medical college. Written informed consent was obtained from all participants before enrollment in the study. Confidentiality and anonymity of the participants were maintained throughout the study.

RESULTS

Figure 1 shows Among the 214 study participants, 31 (14.4%) screened positive for ADHD, while 183 (85.6%) screened negative. ADHD screening was performed using the adult ADHD self-report scale (ASRS v1.1) symptom checklist. Participants were categorized as ADHD screen-positive when their responses met the recommended ASRS screening criteria and as screen-negative when they did not meet the criteria.

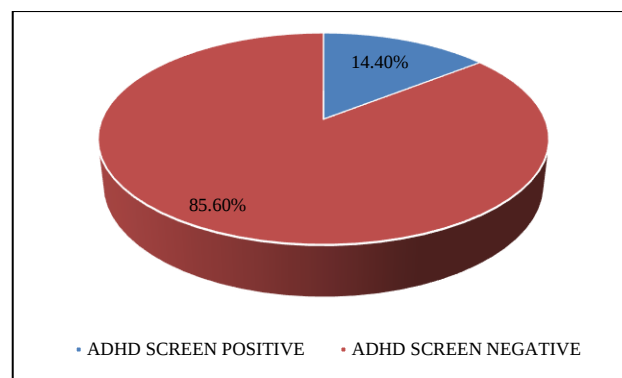


Figure 1: Distribution of ADHD screening status among study participants.

The findings indicate that approximately one in seven participants screened positive for ADHD symptoms, suggesting a notable burden of ADHD-related symptoms in the study population.

Table 1: Association between ADHD prevalence and percentage obtained in the last professional examination.

Academic performance in last professional examination	Negative	Positive	Total	P value (Fisher's Exact Test)
Less than 50%	5	4	9	P=0.033 Significant (p<0.05)
50-60%	53	13	66	
61-70%	98	13	111	
71-80%	24	1	25	
More than 80%	3	0	3	
Total	183	31	214	

Table 2: Association of ADHD prevalence with history of failure in professional examination.

History of failure in professional examination	ADHD negative	ADHD positive	Total	P value
Yes	13	7	20	$\chi^2=7.498$; p=0.0062 Significant (p<0.05)
No	170	24	194	
Total	183	31	214	

Table 3: Association between ADHD prevalence and self-rated academic performance.

Academic Performance	ADHD negative	ADHD positive	Total	Fisher's Exact Test (p value)
Excellent	6	1	7	p< 0.001 Significant (p<0.05)
Average	124	13	137	
Good	42	6	48	
Poor	11	11	22	
Total	183	31	214	

Table 1 shows the association between ADHD prevalence and academic performance in the last professional examination. A statistically significant association was observed between academic performance and ADHD prevalence using Fisher's Exact Test. The prevalence of ADHD was highest among students scoring less than

50% (44.4%), followed by those scoring 50-60% (19.7%), 60-70% (11.7%), and 70-80% (4.0%), while no ADHD-positive participant was observed among students scoring more than 80%. These findings suggest that lower academic performance was associated with a higher prevalence of ADHD symptoms.

Table 2 shows a significant association between ADHD prevalence and history of failure in professional examinations. ADHD prevalence was higher among students with a history of failure in professional examinations (35.0%) than among those without such a history (12.4%), with the association being statistically significant.

Table 3 shows the association between ADHD prevalence and self-rated academic performance. A statistically significant association was observed between ADHD prevalence and self-rated academic performance using Fisher's Exact Test. The prevalence of ADHD was highest among participants who rated their academic performance as poor (50.0%), followed by those reporting excellent (14.3%), good (12.5%), and average (9.5%) academic performance.

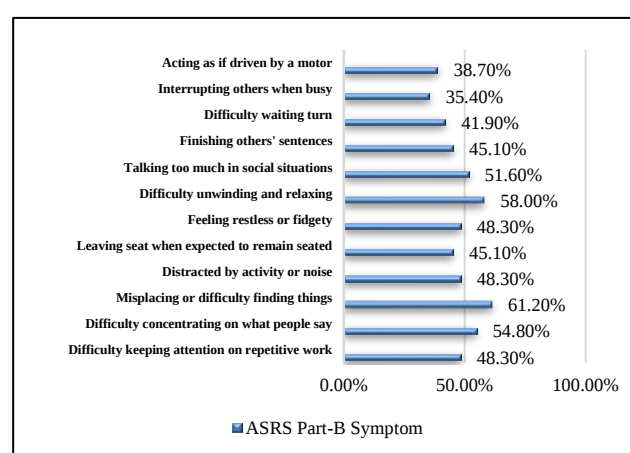


Figure 2: Distribution of ASRS part-B symptoms among ADHD-positive participants (n=31).

Figure 2 shows the distribution of ASRS part-B symptoms among ADHD-positive participants. The most frequently reported symptom was misplacing or difficulty finding things (61.2%), followed by difficulty unwinding and relaxing (58.0%) and difficulty concentrating on what people say (54.8%). More than half of the participants also reported talking too much in social situations (51.6%). Symptoms such as difficulty keeping attention on repetitive work (48.3%), feeling restless or fidgety (48.3%), and being distracted by activity or noise (48.3%) were also commonly observed. The least frequently reported symptoms were interrupting others when busy (35.4%) and acting as if driven by a motor (38.7%).

DISCUSSION

In the present study, the prevalence of ADHD symptoms among medical students was 14.4%, as assessed using the adult ADHD self-report scale (ASRS-v1.1). This finding indicates that approximately one in seven medical students screened positive for ADHD symptoms. The prevalence observed in the present study is comparable to that reported by Rakchat et al, who found a prevalence of

14.4% among university students. Similarly, Alsafar et al reported a prevalence of 15.2% among medical students, while studies from other countries have reported prevalence ranging from 11.9% to 17.0%.^{3,4,13,14} The similarity of findings across studies suggests that ADHD symptoms are relatively common among students pursuing higher professional education and represent an important mental health concern. Similar Indian student studies have also reported ADHD screening positivity among undergraduate and medical students.⁵⁻⁷

Medical education requires sustained attention, concentration, effective time management, and organizational skills. Students with ADHD symptoms often face difficulties in maintaining focus, completing tasks, and coping with academic demands. Consequently, these students may be at increased risk of academic underachievement and educational difficulties.⁸

The present study also demonstrated a significant association between ADHD symptoms and academic performance. Students with lower percentages in their last professional examination were more likely to screen positive for ADHD symptoms compared with those achieving higher examination scores. In addition, ADHD positivity was significantly higher among students with a history of failure in professional examinations. Furthermore, students who rated their academic performance as poor exhibited the highest prevalence of ADHD symptoms compared to those reporting average, good, or excellent academic performance. These findings are also supported by recent evidence showing an association between ADHD symptoms and lower academic performance among college students.^{9,10}

These findings are consistent with previous studies showing that ADHD symptoms adversely affect academic functioning. Symptoms such as inattention, distractibility, forgetfulness, impulsivity, and poor organizational skills can interfere with learning, examination preparation, and classroom performance.^{1,8} Previous research has demonstrated that students with ADHD symptoms are more likely to experience lower grades, academic difficulties, and poorer educational outcomes than their peers.^{1,11}

In the present study, inattentive symptoms were more common than hyperactive-impulsive symptoms among ADHD-positive medical students. The most frequently reported symptoms were misplacing or difficulty finding things (61.2%), difficulty unwinding and relaxing (58.0%), and difficulty concentrating on what people say (54.8%). Similar findings were reported by Kessler et al in the development of the ASRS and by Lee et al in their systematic review of medical students, where attention and organizational difficulties were identified as prominent manifestations of adult ADHD.^{8,15} These symptoms may adversely affect academic performance, study habits, and daily functioning.

The present study has certain limitations. First, the cross-sectional design limits the ability to establish a causal relationship between ADHD symptoms and academic performance. Second, the study was conducted in a single medical college, which may limit the generalizability of the findings. Third, convenient sampling may have introduced selection bias. Fourth, the ASRS-v1.1 is a screening tool and does not constitute a clinical diagnosis of ADHD. Finally, self-reported academic and lifestyle information may be subject to recall or reporting bias. Despite these limitations, the study provides useful information regarding ADHD symptoms and their association with academic performance among undergraduate medical students.

CONCLUSION

The study found a notable prevalence of ADHD symptoms among undergraduate medical students, with a significant association between ADHD symptoms and poorer academic performance. Early identification through screening and appropriate academic and psychological support may help improve student well-being and academic outcomes. These findings add to the limited evidence on ADHD symptoms among Indian medical students and highlight the need for greater awareness and timely support within medical education.

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