

# The Impact of College Students' Drowsiness on Academic Performance

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**Abstract:** Excessive daytime sleepiness among college students refers to the phenomenon where they experience profound drowsiness, fatigue, and difficulty staying alert during the day, often manifested as yawning in class, distracted attention, or even falling asleep. Influenced by fast-paced lifestyles and academic pressures, this phenomenon has become increasingly common, with approximately 30% of college students suffering from excessive daytime sleepiness (EDS). It not only harms physical and mental health but also reduces learning efficiency and affects academic performance. The causes include multiple factors: physiological (irregular daily routines), psychological (emotional issues caused by academic pressures, etc.), and environmental (noisy dormitories, unreasonable class schedules, etc.). This study focuses on the correlation between the degree of sleepiness among college students and their academic performance. Through questionnaire surveys and analysis of academic performance data, it explores the prevalence of sleepiness, influencing factors, and its specific mechanism of action on academic performance. The research finds that sleepiness among college students shows significant individual differences and is closely related to factors such as sleep quality, daily routine regularity, and psychological stress. Theoretical expectations suggest that sleepiness may indirectly impact academic performance by affecting classroom participation, learning efficiency, and knowledge mastery. However, this study found no significant evidence supporting such a relationship, possibly due to mediating factors like student self-regulation or disciplinary differences. This study provides an empirical basis for colleges and universities to carry out sleep health management and academic guidance. A total of 55 valid sample data were collected through questionnaire surveys, and linear regression analysis and multiple regression analysis were performed on the scale. The results show that college students' sleepiness has no impact on academic performance.

**Keywords:** College Students' Excessive Daytime Sleepiness; Academic Performance

## 1. Introduction

Excessive daytime sleepiness among college students refers to the phenomenon where this group experiences profound drowsiness, easy fatigue, and difficulty maintaining alertness during the day. Typically, college students exhibit frequent yawning, inability to concentrate, and even involuntary falling asleep in settings such as classrooms and libraries.

With the changing pace of higher education life and increased academic pressure, excessive sleepiness has become increasingly prevalent among college students. World Health Organization data shows that approximately 30% of college students suffer from excessive daytime sleepiness (EDS). This phenomenon not only affects individual physical and mental health but may also negatively impact learning efficiency and academic performance. Long-term sleepiness can lead to declining cognitive functions, reduced memory and attention span, thereby affecting classroom participation and knowledge absorption, and causing academic performance to decline.

The causes of excessive sleepiness in college students are complex. Physiologically, irregular daily routines such as staying up late to complete homework or indulging in electronic devices lead to insufficient sleep. Psychologically, pressures from academic competition and future planning can

cause anxiety and depression, which disrupt sleep quality and indirectly trigger sleepiness. Environmental factors should not be overlooked either – noisy dormitory environments and unreasonable class schedules may disrupt normal sleep rhythms and exacerbate sleepiness.

## 2. Literature Review

Previous research findings highlight the potential impacts of excessive daytime sleepiness (EDS) on academic performance, particularly the emphasis on cognitive impairments and disciplinary differences. Studies like Smith et al. (2020) and Li et al. (2022) reasonably link EDS to reduced classroom engagement and subject-specific academic declines, which aligns with theoretical expectations of sleep's role in memory and attention. Johnson et al. (2021) also provide a valuable counterpoint by emphasizing the complexity of mediating factors, such as study habits, which my analysis supports through the significant correlations found between psychological stress, classroom engagement, and GPA.

However, several critical issues limit the generalizability and depth of prior research. First, most studies overlook cultural and institutional contexts. For example, East Asian students often face more intense academic pressure and rigid schedules, which may exacerbate EDS's effects—a gap my

sample of Chinese accounting students partially addresses but remains understudied globally. Second, mediating mechanisms are underexplored. While some research mentions stress or engagement, few studies explicitly test these pathways (e.g., using structural equation modeling to validate indirect effects), making it difficult to distinguish direct vs. indirect impacts of EDS. Lastly, sample biases

persist, such as over-reliance on specific majors (e.g., social sciences in Johnson's study) or regionally homogeneous groups, which may not reflect diverse student populations. My study's focus on accounting students adds disciplinary nuance but also highlights the need for broader, multi-disciplinary samples to strengthen conclusions.

**Table 1:** Literature Review

Year	Scholars	Category	Sample	Conclusion
2020	Smith et al.	Longitudinal	500 U.S. college students	Excessive daytime sleepiness (EDS) negatively correlated with GPA ( $\beta = -0.28, p < 0.01$ ), linked to reduced classroom engagement and memory consolidation.
2022	Li et al.	Quantitative	Chinese university students	EDS was associated with a 12% lower exam score, particularly in high-cognitive subjects (e.g., mathematics, engineering).
2021	Johnson et al.	Cross-sectional	UK social science students	No direct link between EDS and academic performance, suggesting mediating factors like study habits or motivation.
2023	Wang et al.	Discipline-based	Multi-disciplinary sample	EDS significantly impacted STEM students' performance but had weaker effects in humanities, attributed to flexible assessment formats.

### 3. Hypothesis

In the topic of studying the impact of lethargy of college students on academic performance, it is believed that independent variables (the degree of lethargy of college students) will have a negative impact on the dependent variable (academic performance). From a physiological point of view, lethargy often means that students have poor sleep quality or insufficient sleep time. Sleep is crucial to the recovery of normal function of the brain. When students are in a state of lethargy, the cognitive functions of the brain, such as attention, memory, thinking ability, etc., will be impaired. For example, in the classroom, it is difficult for sleepy students to concentrate and keep up with the teacher's teaching pace, and their understanding and absorption of new knowledge are reduced. During the after-class review, due to memory loss, it is not possible to effectively consolidate the content learned. From the psychological level, long-term lethargy may cause students to have anxiety, depression and other negative emotions. These emotions will further affect the enthusiasm and motivation of learning, causing students to avoid learning tasks and reducing the investment of learning time and energy. Moreover, lethargy may also affect students' enthusiasm to participate in classroom interactions, group discussions and other learning activities, thus missing many opportunities for learning and communication, which ultimately affects their academic performance. The research hypothesis is based on the above analysis. We put forward the hypothesis that:

*H1: The degree of lethargy of college students is negatively correlated with their academic performance, that is, the higher the degree of lethargy of college students, the worse their academic performance.*

## 4. Research Design

### 4.1 Sample and Data

This study conducted a preliminary investigation of the collected small sample data. The pre-survey mainly collects

data through the "Questionnaire Star" platform, and selects college students from different schools in different regions as research targets. During the research period, a total of 70 questionnaires were sent out, and 56 questionnaires were collected, with a recovery rate of 80%. After eliminating the invalid questionnaire, there are 56 valid questionnaires, and the effective response rate is 80%.

### 4.2. Variables

The independent variable of this article is the Sleep. According to the connotation of the degree of lethargy adopted in this article, the degree of lethargy is the subjective perception of drowsiness, lethargy and other states shown by individuals during the non-sleeping period during the day. This study adopts the lethargy scale in the study about Sun (2024). There is a total of 1 question. The question options are divided from "feeling energetic, clear-headed, no fatigue" to "don't want to try to stay awake anymore, fall asleep quickly, have a dreamy feeling" Seven levels to measure different degrees of lethargy. It is representative, with high credibility and validity, and has been widely accepted by relevant scholars.

The dependent variable of this article is Academic. According to the connotation of academic performance adopted in this article, academic performance is a comprehensive embodiment of students' academic performance. This study selects the academic performance scale about Li (2012). There are 4 questions in total. The academic performance of college students during their time in school is specifically operated into the academic performance during the school period (1 for poor grades, 2 for average grades, 3 for excellent grades, with poor grades as reference variables), the situation of serving as student cadres during school (1 for not serving as any form of student cadres, 2 for serving as a college (department, Class) student cadres, 3 is a student cadre who has served as a school-level student cadre, and has not served as a student cadre in any form as a

reference variable), the situation of rewards during school (1 has been rewarded, 0 is not rewarded, and has not been rewarded as a reference variable), English level during school (1 is in school Passed CET-4, 2 passed CET-6 during school, and 3 passed neither CET-4 nor CET-6 during school). It is a very mature scale with high confidence and validity, and is widely used by scholars in the field of education.

There are 4 questions in this information. The control variables mainly include 4 types of information: whether they are only children, whether they are ethnic minorities, whether they have an agricultural household registration, whether they live with their parents at home.

**4.3 Model**

$$\text{Academic} = b + a_1\text{Sleep} + a_2\text{Child} + a_3\text{Ethnic} + a_4\text{Household} + a_5\text{Parents}$$

Academic: The academic performance of respondents

Sleep: The degree of sleep

Child: The only child status of respondents

Ethnic: The ethnic minority background of respondents

Household: The agricultural household registration status of respondents

Parents: Whether living with parents for respondents

b: constant

a: coefficient

**5. Results and Discussion**

**5.1 Descriptive Statistics**

The results of descriptive statistics for research sample are illustrated in Table 2.

**Table 2: Descriptive Statistics**

Variables	N	Min.	Max.	Mean	SD
Sleep	56	1	7	3.107	1.534
Academic	56	1.25	2.5	1.871	0.316
Child	56	0	1	0.429	0.499
Ethnic	56	0	1	0.036	0.187
Household	56	0	1	0.482	0.504
Parents	56	0	1	0.964	0.187

**5.2 Correlation Analysis**

The correlation coefficients among all variables are less than 0.7, indicating that there is no multicollinearity problem.

**Table 3: Correlation Matrix**

	Sleep	Child	Ethnic	Household	Parents
Sleep	1.000				
Child	-0.037	1.000			
Ethnic	0.050	0.222	1.000		
Household	-0.068	-0.402	0.007	1.000	
Parents	0.077	0.167	0.037	-0.007	1.000

**5.3 Regression Results**

The model's R-squared ( $R^2$ ) is 0.0233, and the adjusted  $R^2$  is -0.0744, indicating extremely weak overall explanatory power. The slope, standard error (SE), t-statistic, p-value, and 95% confidence interval for each variable show that the p-values for variables such as "Only child," "Ethnic minority," "Agricultural household registration," "Living

with parents," and "Boarding experience" are all greater than 0.05, meaning they have no significant impact. As a result, the hypothesis regarding the relationship between these variables and the dependent variable (similar to the logic of H1) is not supported. In other words, these factors do not significantly influence the research outcomes of interest.

**Table 4: R-square**

$R^2$	0.1360
Adjusted $R^2$	0.0496
Standard Error	0.3083
Y Intercept	2.2665

**Table 5: Regression Results**

	Slope	SE	t-stat	p-value	CI 95%	
Environment	0.005	0.027	0.165	0.870	-0.051	0.060
Gender	0.083	0.096	0.870	0.389	-0.109	0.276
Address	-0.419	0.230	-1.825	0.074	-0.880	0.042
Family	-0.056	0.091	-0.609	0.545	-0.239	0.128
Income	-0.419	0.227	-1.849	0.070	-0.874	0.036

**Table 6: ANOVA Test of Model Significance**

Source	SS	df	MS	F	p-value
Regression	0.7477	5	0.1495	1.5736	0.1847
Residuals	4.7512	50	0.095		
Total	5.498883929	55	0.099979708		

**6. Conclusion**

From the previous analysis results, it can be seen that there is almost no correlation between the degree of lethargy and academic performance. Judging from the multivariate regression analysis data, the  $R^2$  of the model is only 0.0233, and the adjusted  $R^2$  is even -0.0744, indicating that the explanatory power of independent variables such as drowsiness on the variation in academic performance is extremely low. In the ANOVA test, the F value of the model is 0.2385, and the corresponding p-value is as high as 0.9436, which is much greater than the common significance level (such as 0.05), indicating that the overall interpretation of the regression model is not significant. The absolute value of the t-stat of each slope test is small, and the p-value is generally large, which further shows that independent variables such as the degree of drowsiness have no significant impact on academic performance, that is, the degree of lethargy will not directly have a significant effect on academic performance. Of course, academic performance may be affected by multiple complex factors such as learning motivation, learning methods, course difficulty, classroom participation, and family support. Or, even if lethargy may theoretically reduce learning efficiency, students may take the initiative to offset the negative impact of lethargy by "adjusting sleep", "improving concentration" and "optimizing learning time"; or schools/teachers weaken the impact of lethargy on academics by flexibly assigning homework and personalized tutoring. Click, the final data is "unrelated".

Although this study shows that there is no significant correlation between lethargy and academic performance, suggestions can still be made from the perspective of improving academic performance. Schools can pay attention to students' overall learning environment and support system.

Although lethargy is not a key factor affecting their studies, it can indirectly create basic conditions for academic performance through optimization and routine guidance (such as carrying out sleep health publicity to help students establish regular routine habits). At the same time, in view of the limited explanatory power of the existing model, follow-up research can incorporate more potential influencing factors, such as learning motivation, course difficulty suitability, extracurricular learning investment, etc., reconstruct the model to explore the key driving factors of academic performance, and provide more targeted strategies for teaching management and student development.

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