

# Investigation and Analysis of the Current Situation and Influencing Factors of the Impact of Academic Pressure on Sleep Quality among College Students

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**Abstract:** With the popularization of higher education and the intensification of academic competition, the academic pressure faced by college students is increasingly prominent, becoming one of the important factors affecting their physical and mental health. Studies have shown that there is a common problem of varying degrees of academic pressure among college students, which not only affects their academic performance but also has a negative impact on their sleep quality<sup>[1,2]</sup>. Sleep, as an important guarantee for the physical and mental health of college students, its decline in quality can lead to problems such as inattention, memory loss, and emotional fluctuations, thereby affecting learning efficiency and quality of life<sup>[1]</sup>. Under the background of the “Healthy China 2030” strategy, college student health promotion has been listed as a key content, and improving sleep quality, as an important part of a healthy lifestyle, is of strategic significance for improving the overall health level of college students. Therefore, systematically investigating the current situation of the impact of academic pressure on sleep quality among college students and deeply analyzing its influencing factors is of great value for formulating targeted intervention measures and optimizing the higher education environment.

**Keywords:** Academic pressure; Sleep quality; College students

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## 1. Introduction

Amidst the expansion of higher education and rising academic competition, college students are facing escalating academic pressure, which has become a prominent concern affecting their holistic well-being. This pressure not only influences academic performance but also detrimentally impacts sleep quality. Given that adequate sleep is fundamental to cognitive function, emotional regulation, and overall health, its impairment can significantly hinder learning efficacy and quality of life. In alignment with the national “Healthy China 2030” initiative, which prioritizes youth health promotion, understanding the mechanisms through which academic stress affects sleep is critical. This study aims to systematically investigate this relationship and explore key moderating factors, thereby

providing a basis for developing effective interventions and fostering a healthier academic environment.

## **2. Concept and current situation analysis of academic pressure**

### **2.1. Concept of academic pressure**

As a multidimensional and multi-level construct, academic pressure has not yet formed a completely unified definition in academic circles. Early research mostly regarded it as a threat or challenge perceived by individuals in the academic situation that exceeds their coping ability. In their latest research on health science students, foreign scholars Tapia *et al.* operationalized academic pressure as a set of psychological and physiological reactions produced by students when facing academic tasks (such as exams, assignments, scientific research), which would further affect their cognitive function (such as attention, memory) and overall health status<sup>[3]</sup>. This definition emphasizes the “reactive” feature of academic pressure, that is, it is an internal state caused by external academic stimuli. However, with the deepening of research, scholars have realized that academic pressure is not a purely passive reaction, but an active process involving cognitive evaluation. In the research conducted by Guo *et al.* in 2023, the connotation of this concept was further expanded, pointing out that academic pressure not only originates from external objective academic requirements (such as course difficulty, GPA pressure), but more importantly, it is the student’s subjective evaluation of these requirements, including the judgment of their own abilities, the estimation of the possibility of failure, and the cognition of the importance of academic results<sup>[4]</sup>. Therefore, academic pressure can be understood as a dynamic interactive process that arises from the continuous interaction between individuals and the environment. It is the result of the combined action of external academic load, individual cognitive evaluation, and coping resources<sup>[5]</sup>.

### **2.2. Research status of academic pressure**

#### **2.2.1. Current situation of academic pressure among college students**

A large number of empirical studies have revealed the widespread problem of academic pressure among college students in China. Chinese scholar Cui’s research and analysis of undergraduate students from multiple universities showed that more than 60% of students reported moderate or higher academic pressure, and about 15% of students were at a high stress level<sup>[6]</sup>. The research by Fang *et al.* in 2019 further dissected the main sources of academic pressure, pointing out that excessive course burden, fierce exam competition, heavy research tasks, and concerns about future employment prospects are the four core elements that constitute college students’ academic pressure<sup>[7]</sup>. It is worth noting that the distribution of academic pressure is not uniform, and there are significant differences among different groups. Tapia *et al.*’s research found that in the field of health science, female students’ academic pressure levels are significantly higher than those of male students, which may be related to gender role expectations, emotional expression styles, and coping strategies<sup>[3]</sup>. In addition, grade and major are also important influencing factors. Zhou’s research points out that as the grade increases, especially entering the junior and senior stages, due to the multiple pressures of postgraduate entrance examination, internship, and job hunting, students’ academic pressure levels show an upward trend<sup>[8]</sup>. And the academic pressure of students in high-intensity majors such as medicine and law is generally higher than that of students in humanities and social sciences, which reflects the profound impact of different discipline training models and future career paths on students’ on-campus experience.

### 2.2.2. Cognitive adjustment of academic pressure among college students

Faced with the widespread academic pressure, college students are not passively suffering but actively mobilizing various cognitive resources to adjust. This adjustment ability, that is, the effectiveness of pressure cognitive evaluation and coping strategies, is the key to determining the ultimate impact of pressure. The research by Guo *et al.* emphasized the core role of “academic self-efficacy,” that is, the student’s belief in their ability to successfully complete academic tasks. Students with high academic self-efficacy tend to regard academic challenges as tasks that can be overcome, rather than threats, so that they can invest in learning with a more positive attitude and effectively buffer the negative impact of pressure <sup>[4]</sup>. Kong *et al.* conducted research on normal university students and found that students who adopt positive coping methods (such as seeking social support, problem-solving, and positive reevaluation) have significantly lower anxiety levels than students who adopt negative coping methods (such as avoidance, fantasy, and emotional venting) <sup>[9]</sup>. This indicates that the choice of coping methods is an important embodiment of pressure cognitive regulation <sup>[10-12]</sup>.

In recent years, as an important concept of positive psychology, psychological capital has been introduced into the research field of academic pressure. The research by Mao *et al.* showed that psychological capital, composed of self-confidence, optimism, hope, and resilience, is an important internal protective resource for college students. Students with high levels of psychological capital can maintain a more stable emotional state and stronger learning motivation even when facing high-intensity academic pressure, showing stronger “academic buoyancy” <sup>[12-15]</sup>. Liu’s research further supplemented the role of “adversity belief” from a cognitive perspective, that is, the individual’s view of the nature and significance of adversity. Students with positive adversity beliefs are more likely to regard academic setbacks as opportunities for growth, thus reducing the negative emotions brought about by pressure <sup>[16]</sup>.

## 3. Concept and current situation analysis of sleep quality

### 3.1. Concept of sleep quality

Sleep quality is a multidimensional, complex concept that goes beyond the simple sleep duration and covers various aspects of sleep. In their meta-analysis, Zhong *et al.* defined sleep quality as the comprehensive reflection of individuals’ subjective satisfaction with their own sleep status and objective sleep parameters (such as total sleep time, sleep latency, number of nighttime awakenings, and sleep efficiency) <sup>[1]</sup>. A high-quality sleep not only means sufficient sleep duration (usually recommended 7–9 hours), but more importantly, it means good sleep continuity (not easy to wake up), appropriate sleep structure (sufficient deep sleep and rapid eye movement sleep), and freshness after waking up. Subjectively, individuals’ perception and evaluation of sleep are also important. Even if the objective indicators are normal, if individuals subjectively think that they “did not sleep well,” their daily function may still be impaired. Therefore, the assessment of sleep quality among college students usually requires a comprehensive judgment combining subjective scales (such as the Pittsburgh Sleep Quality Index, PSQI) and objective monitoring (such as activity recorders, polysomnography).

### 3.2. Research status of sleep quality

The sleep quality problem of the college student group has become a focus of attention in the field of public health. In a meta-analysis published by Zhong *et al.*, multiple research data were integrated, and the results were shocking: the overall incidence rate of sleep disorders among Chinese college students is as high as 25.7%, and this proportion has been showing an increasing trend in the past decade <sup>[1]</sup>. This means that among every four college

students, one is suffering from difficulties in falling asleep, early waking up, difficulty in maintaining sleep, or impaired daytime function, and other problems. Ma *et al.* conducted a logistic regression model analysis based on five universities in Tianjin in 2019, and further identified the key risk factors affecting college students' sleep status, among which academic pressure, irregular work and rest schedules, excessive use of electronic devices, and poor dormitory environment have all been proven to be important predictors<sup>[17]</sup>. Tapia *et al.*'s research also took a health science perspective, regarding sleep quality as an important variable that affects college students' academic performance and overall physical and mental health, and found that students with poor sleep quality have more serious academic procrastination behavior and weaker emotional management ability<sup>[3]</sup>. These studies together painted a worrying picture: sleep problems are widespread on college campuses and are closely intertwined with factors such as academic pressure, living habits, and mental health status, forming a complex network.

#### **4. Research status of the relationship between academic pressure and sleep quality**

The negative correlation between academic pressure and sleep quality has been repeatedly verified in a large number of studies. The core logic of this correlation lies in the fact that excessive academic pressure will activate the body's stress response system, lead to sympathetic nerve excitement, release stress hormones such as cortisol, and thus interfere with the normal sleep-wake rhythm. Through the investigation of 437 health science students, Tapia *et al.* used correlation analysis to clearly point out that there is a significant weak negative correlation between students' academic pressure scores and sleep quality scores<sup>[3]</sup>. This means that as academic pressure levels rise, students' sleep quality shows a downward trend. The meta-analysis by Zhong Zhongci *et al.* provided higher-level evidence support for this conclusion, and its comprehensive analysis results showed that academic pressure is a stable and important risk factor for sleep disorders among college students<sup>[1]</sup>. Zhang *et al.* provided additional evidence from another perspective, which found that internet addiction will damage sleep quality by increasing academic pressure, which indirectly proves the mediating role of academic pressure in the path of influencing sleep<sup>[2]</sup>. These studies together constructed a clear causal chain: academic pressure is the cause, sleep quality decline is the result, and there is a direct and robust negative relationship between the two.

However, the relationship between academic pressure and sleep quality is not a simple "one-to-one" linear relationship, but is affected by a series of mediating variables and moderating variables.

Mediating mechanisms reveal how academic stress impacts sleep quality. Zhang *et al.*'s study developed a chain mediation model, demonstrating that internet addiction first weakens students' self-control, leading to academic procrastination and heightened stress. The resulting academic pressure and disrupted sleep patterns (part of poor sleep quality) further exacerbate internet addiction, creating a vicious cycle<sup>[2]</sup>. In this framework, sleep quality and self-control act as bridges connecting internet addiction and academic stress. Hua *et al.*'s research focused on psychological capital, finding that it partially mediates the relationship between psychological stress and academic performance<sup>[18]</sup>. Although this study did not directly measure sleep quality, it suggests that students with higher psychological capital may mitigate the detrimental effects of stress on sleep through more effective emotional regulation and problem-solving strategies.

Regulatory mechanisms explain under what conditions academic stress influences sleep quality. Guo *et al.*'s study proposed a "synergistic regulation" model, revealing that academic self-efficacy combined with proactive coping strategies can effectively mitigate the negative impact of academic stress on mental health<sup>[4]</sup>. This buffering effect likely extends to sleep regulation: students who believe in their academic capabilities (high self-efficacy)

and know how to seek help or adjust their mindset (proactive coping) experience relatively less sleep disruption even under stress. Mao *et al.*'s research further supports the moderating role of psychological capital, where high psychological capital acts like a mental "immune system" that helps students maintain internal stability during stressful periods and protects sleep from severe disturbances<sup>[13]</sup>.

In addition to these psychological mechanisms, demographic and environmental factors also play an important role in the relationship between academic stress and sleep quality.

Regarding individual factors, gender differences have been repeatedly confirmed. Tapia *et al.* found that women not only experience higher academic stress but also suffer from poorer sleep quality<sup>[3]</sup>. Grade-level differences are equally significant. Zhou noted that senior students, facing the immense uncertainty of graduation and employment, experience more pronounced negative impacts of academic stress on sleep<sup>[8]</sup>.

Regarding environmental factors, the research by Su and Yang jointly emphasizes the importance of "support systems." Academic support from teachers, peers, and family can significantly reduce students' academic burnout and stress levels, thereby indirectly improving sleep quality<sup>[14,15]</sup>. Conversely, learning environments lacking support and characterized by excessive competition amplify the negative effects of stress. Zhu's study also found that a strong social support network serves as a crucial external resource for college students to cope with various pressures, including academic stress<sup>[5]</sup>.

## **5. Suggestions for adjusting the relationship between academic pressure and sleep quality**

For college students, good sleep quality is crucial. We can build a multi-level and systematic intervention framework from the individual, group, and social levels to adjust the negative impact of academic pressure on sleep quality. Individual-level interventions empower students to enhance their intrinsic resilience<sup>[19,20]</sup>. The core of these interventions lies in strengthening students' psychological resources and coping skills, enabling them to become proactive stress managers rather than passive stress bearers<sup>[21-23]</sup>. Group-level interventions optimize environments and build support networks. Focusing on students' immediate surroundings—including classrooms, dormitories, and campus culture—these efforts aim to create a low-stress, high-support atmosphere<sup>[24]</sup>. Social-level interventions involve macro-level guidance to foster a healthy ecosystem. By addressing broader policy frameworks and cultural orientations, such interventions cultivate an external environment conducive to the healthy development of college students.

## **6. Conclusion**

College students, as a special group in society, are in a critical stage of rapid physical and psychological development. The cultivation of their health literacy is of great significance for individual growth and social development. The impact of academic pressure on sleep quality among college students is a major issue related to individual well-being and national talent training quality. Future research needs to be more rigorous in methods, more diverse in perspectives, and more practical in practice. By building a comprehensive prevention and control system integrating scientific research, policy support, and campus practice, we can help college students achieve academic excellence while also having a healthy and quiet night, realizing the harmonious development of body and mind.

## Disclosure statement

The authors declare no conflict of interest.

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