



Comparing Stress Levels and Coping Mechanisms of American and Chinese High School Students: A Literature Review

Claire Li



Abstract

The education systems of American and Chinese high schools are formatted very differently. American high schools are more focused on supporting well-rounded students and Chinese high schools are more focused on academic achievement. These systems create different stressors and also offer different support systems for stress. It's important for educators and researchers to understand how these stressors impact students' mental health and ability to function and achieve their goals, and how peers and teachers support and encourage coping strategies in response to stress. Stress is processed on both a psychological level and a biological level, so it's helpful to study both together. Thus, we will include measures of students' self-reported stress and their levels of neurological responses to stress (e.g., brain activity in the limbic system, and cortisol and oxytocin levels). We will review published papers on self-reported academic stress and collect descriptive statistics about self-reported academic stress, and biological response to stress, in high school American and Chinese students. We will also summarize the impact that school peers and teachers have on students' willingness to engage in coping strategies. Based on the literature, we will also provide evidence-based strategies for students to cope with stress tailored to their cultural background.

Keywords: adolescence, stress, cross-cultural comparison, coping strategies



The Comparison of Stress Levels and Coping Mechanisms of American and Chinese High School Students: A Literature Review

The high school academic experience is a pivotal period in adolescent development. It is a time of key changes in academic achievement, hormonal development, and social relationships for adolescents, which can altogether create periods of intense stress. The impact of academic environments on individual students' stress levels and stress management varies greatly across cultural and educational contexts. In both American and Chinese high schools, the structure of the education system and cultural values shape how students experience and respond to pressure. While some stress can motivate achievement, chronic academic stress can lead to anxiety, burnout, and even depression (Almarzouki et al., 2024). Understanding both the psychological and biological effects of stress and the roles of peers, teachers, and parental expectations offers a full picture of how students can best cope. This literature review will compare the psychological and biological effects of academic stress among American and Chinese high school students and evaluate how cultural and educational contexts shape their respective coping behaviors. By comparing these factors across the two cultures, researchers and educators can identify more effective, culturally aware strategies to support students' well-being and academic success.

Key terms

To better understand how academic stress operates across cultural contexts, it is essential to define several key terms used in this analysis. Academic stress refers to the psychological pressure students experience when they perceive academic demands that they perceive to exceed their ability. This stress can stem from grades, exams, and expectations (Anjala, 2024). Psychological stress responses describe the mental and emotional reactions, such as anxiety, worry, or decreased motivation (Zhang et al., 2022). While it can stem from many locations, we will be focusing on academic stress in this literature review. Because psychological stress can't be measured objectively by observing someone, researchers use self-report scales (such as the Likert-scale questionnaires) and interviews to assess a person's perceived level of stress. For example, The Perceived Stress Scale, a widely validated measure, asks participants to rate how often in the past month they have felt they were in control of their life, able to handle unexpected problems, and cope with difficulties (Cohen et al., 1983).

Intertwined with psychological stress is the body's stress response. Biological stress responses involve the body's physical reactions to stress, including hormonal changes such as elevated cortisol levels or fluctuations in oxytocin, and heightened or dysfunctional brain activity in the limbic system, specifically the amygdala and hypothalamus. Together, these definitions highlight that stress operates on multiple levels—mental and biological—which interact to shape how students function and cope. Understanding these terms allows for a more complete analysis of how American and Chinese students experience and manage academic stress within their respective educational systems.



Comparison of School Systems and Culture

The stress that Chinese and American high school students experience is heavily shaped by their educational systems and cultural norms. China's education and grading system emphasizes exam performance, long study hours, and preparation for the gaokao, the highly competitive university entrance test. Taken at the end of students' 12th year of school, the standardized 2-4 day long cumulative exam is the most important factor in determining which university one gets into (Zhao et al., 2023). It spans all of the subjects (math, science, literature, history), with the small exception of specific professions like art or performance. More than 10 million students from China take it each year, competing for one of the 500,000 slots at top universities. The gaokao is calculated precisely, where one point lost, no matter the subject, could knock you down several tiers. There are rarely any other factors considered in college applications other than a student's score on the gaokao (*The Gaokao Exam — Harvard University Press*, 2025).

Family and peer expectations reflect this sentiment in China, a result of the intense competition to perform well. The societal expectation to excel on the Gaokao creates a culture of high academic achievement, where students and families invest time, money, and resources into preparation. This pressure can strain family relationships and lead to a singular focus on academic success at the expense of extracurricular activities and personal development (Fu et al., 2024). They place more emphasis on good grades and consistent studying (Fu et al., 2024). For students from a rural background, this could be their one ticket to easily integrate into corporate China (*The Gaokao Exam — Harvard University Press*, 2025).

American students also face academic stress, but it is often coupled with social and identity-related stressors, such as navigating peer dynamics, fitting into diverse school environments, or managing extracurricular involvement alongside academics. (Zhou et al., 2023). While exams and grades still matter a lot in the U.S., college admissions also value a student's extracurricular activities, leadership, and athletic performance. Thus, students' stress spans from more sources, distributing among academics, sports, and other activities rather than focusing primarily on test scores. Most American students' stress stems from self-requirement and juggling different activities, while Chinese students are most stressed about academic scores and their future (Zhou et al., 2023).

Some studies (Córdova et al., 2023) suggest that American students often report stress related to self-imposed expectations and the challenge of juggling competing responsibilities, whereas Chinese students more commonly identify academic performance and future educational or career outcomes as their primary stressors.

However, these patterns should not be interpreted as universal. Students' experiences vary widely based on socioeconomic status, region, school environment, and cultural or ethnic background. For example, American students attending highly competitive or well-resourced schools may feel intense pressure related to grades and college admissions, similar to the exam-focused stress often associated with Chinese education. Similarly, students from lower socioeconomic backgrounds in the U.S. may experience additional stress related to financial insecurity, limited access to resources, or family responsibilities. Likewise, Chinese students' stressors can differ depending on whether they attend urban or rural schools or the differing

expectations of families. It is important to acknowledge this variability, to highlight how stress is shaped by a complex interaction of cultural context and individual circumstances rather than nationality alone.

Still, cultural values strongly shape the way students in different educational systems experience and respond to academic expectations. In the United States, the education system often reflects individualistic values, emphasizing personal growth, creativity, and self-expression. Students are encouraged to pursue diverse interests and measure success through individual achievement and self-fulfillment. American (non-educational) culture also makes a point of personal freedom and self-expression (Triandis 1995). In contrast, China's education system is rooted in collectivist cultural values, which prioritize harmony, familial honor, and social responsibility. Academic success in China is often viewed not only as a personal goal but also as an extension of one's family and community (Zhao et al., 2015).

By extension, the culture around parenting is different too. Chinese parents tend to have a significant influence over their children's education and lives and the children have a high respect and obedience for them as well (Wangshuo et al., 2025). In contrast, American children typically pursue more independent lives after high school. Parents start to have less and less relative influence, and respect from children to parents is expressed in a more equal relationship (Wangshuo et al., 2025).

These differing cultural orientations influence how students perceive pressure and define success: American students experience more stress related to personal failure or not meeting self-imposed goals, while Chinese students may feel stress from external expectations to uphold familial and societal standards. Other research indicated that both groups of students, however, have been found to receive equal stress and pressure from parents (Hu et al., 2017), due to the equal amount of pressure and worry parents allot toward their children's futures. Understanding these values helps explain why the sources and expressions of academic stress differ across these contexts, even when the overall levels appear similar.

Notably while cross-cultural research suggests that self-reported stress levels of Chinese and American students tend to be relatively the same, the sources of this stress tend to differ between the groups. According to Hu et al., 2017, despite Chinese students spending more time on homework and less time devoted to sports and sleeping, their levels of perceived stress did not significantly differ from their American counterparts. Using the Likert Scale, American students reported about 3.48 on study stress and 3.31 on college stress, while Chinese students reported 3.12 on study stress and 2.82 on college stress (Hu et al., 2017). Additionally, due to different cultural contexts, both groups of students perceive and report their stress differently. Evidence suggests that Chinese people may attend less to internal emotional experiences than Americans (Liu et al., 2010). Still however, more than 15% of students had severe anxiety and 7% had depression, and the vast majority (70-90%) had some milder form of depression or anxiety (Zhu et al., 2021). American students also reported high levels of stress and anxiety, with depression rates similarly estimated around 20% (Verlenden et al., 2024). These studies differ in a few ways which are notable for their conclusions. Zhu et al. (2021) studied a specific region in China, whereas Verlenden (2024) examined students across all 50 states of the U.S. Additionally, the Zhu et al. (2021) paper uses validated questionnaires known to measure

students' experiences of stress (the Educational Stress Scale for Adolescents), anxiety (the Generalized Anxiety Disorder - 7 Scale) and depression (the Patient Health Questionnaire - 9), that all ask specific and detailed questions about their respective symptoms. However, the Verlenden (et al., 2024) study primarily used binary (yes or no) indicators, or broad Likert-scale items to indicate poor mental health. Together, this suggests that while the triggers of stress differ, the overall prevalence of mental health challenges among students is comparable, however future studies should replicate these findings across different regions of China and using the same validated measures.

Emotional and Cognitive Symptoms of Stress

Stress can have powerful emotional and cognitive consequences that shape students' motivation and performance. High levels of pressure may initially motivate students to work harder, but over time, prolonged stress often leads to anxiety, reduced focus, and burnout. These effects can interfere with memory, decision-making, and emotional regulation, ultimately hindering academic success and well-being (Mariotti et al., 2015).

The self-reported results from Chinese students taking the gaokao (Table 1; Fu et al., 2024) show that more than half of them dealt with anxiety and burnout. In this case, the stress manifested into physical symptoms as well—headaches and trouble sleeping.

Since sleep is extremely crucial to memory, judgment and mood (American Psychological Association, 2013), this can propel a student to a vicious cycle of sleep disturbances affecting their performance, which in turn causes further sleep deprivation and worse academic performance.

Table 1. Common Mental Health Issues Reported by Gaokao Students (Table adapted from Fu et al., 2024):

Mental Health Issue	Percentage of students reporting
Anxiety	65%
Depression	45%
Physical symptoms (e.g. headaches, stomachaches)	60%
Low Self-Esteem	35%

Underlying anxiety, depression, burnout, insomnia, and stress are intricate biological and psychological processes. Thus, in order to fully understand how cultural and educational differences impact students' stress responses, it is helpful to examine the research on how students experience stress on biological and neural levels.

Physiological and Neural Stress Responses:

In addition to self-reported stress, researchers also observe the body's physical and internal reactions in order to fully understand how students experience stress (Alkhaldeh et al., 2023). Stress itself is a biological response designed to protect someone from a threat and maintain homeostasis during challenges. When a person (or in this case a student) perceives a situation as threatening or overwhelming, the body's hypothalamic-pituitary-adrenal axis is activated, releasing cortisol, the body's primary stress hormone. Cortisol boosts energy and sharpens attention for a short time, which is meant to help the body focus hard on the challenge at hand. However, chronic activation disrupts normal functioning, impairing memory and learning (Ramanathan et al., 2022).

Stress research often measures levels of cortisol, the hormone associated with the stress response, through hair and saliva, and oxytocin, which promotes social bonding and stress recovery. The limbic system of the brain, particularly areas like the amygdala, also become more active under stress, influencing emotional processing and alertness, and providing yet another method of identifying stress biologically. No study to date has examined whether the educational systems of China and America correlate to differences in high school students' neural or physiological stress responses, however studies have independently researched American students and Chinese students' cortisol levels and academic stress. Although no study has directly compared neural or hormonal stress responses between Chinese and American high school students, individual research conducted in each category suggests that there are few inherent biological differences in cortisol functioning across populations.

Studies have found that while moderate stress can enhance academic performance by motivating students and improving focus, excessive stress has a detrimental impact on cognitive functions and overall academic outcomes. In terms of emotional changes, chronic stress can lead to burn out and depression because of the overload of cortisol and adrenaline (Fu et al., 2024) that the sympathetic nervous system releases, producing the "fight-or-flight" response associated with threats, which leads to an elevated heart rate, rapid breathing, and a spike in blood pressure. While these responses can be helpful in short bursts, keeping a person in this state long term is harmful to their health. Constant activation of cortisol is often seen in students under repetitive academic stress, and can take a toll on both mental and physical health (Almarzouki et al., 2024).

Stress hormones like cortisol and adrenaline not only define the physical response, but also influence how the students think and feel in academic settings. When they remain activated, they can disrupt memory formation and concentration, overall harming motivation (Wirth et al., 2011). So while these cognitive burdens accumulate over time, many students find that it becomes harder and harder to manage that on their own, which highlights the importance of seeking support, whether from family, peers, or services.

Cross-Cultural Differences in Coping Strategies

For this paper, we grouped coping strategies into emotion-focused, problem-focused, and avoidance-based approaches. Emotion-focused coping involves changing the way a person views stress, while problem-focused coping involves taking direct steps to reduce or solve the

stressor itself. Avoidance or distraction-based coping includes strategies such as entertainment, sleep, or procrastination.

Strong social support has been found to help people become more resilient to stress and lessens the negative outcomes such as depression and anxiety. It is also seen to physically reduce cortisol levels and cardiovascular activity that are triggered by stress (Ozbay et al., 2007). When students share their worries with friends, family, or mentors, the resulting release of oxytocin can buffer the effects of cortisol, helping the body return to balance (McGonigal et al., 2013). This connects closely with emotion-focused coping strategies, which involve reframing negative thoughts and discussing stress with social support.

A cross-comparison study found that 70% of American high school students' and 90% of Chinese students' top coping method was listening to music (Hu et al., 2017). Most Chinese students had problem-focused strategies, like studying harder. Secondary (avoidance) coping is also common among the two groups, such as watching TV, reading a book, or engaging in passive entertainment that temporarily ignores stress (Hu et al., 2017).

However, the findings of Zheng et al., 2015, highlight that coping strategies are not universally effective across ethnic groups and situations. According to the study, primary coping helped non-Asians but worsened outcomes for Asians under stress and secondary coping benefited both groups at low to moderate stress levels.

Chinese students have been found to experience significant stress in their daily lives and have exercised unhelpful coping strategies, as seen in a Zhou et al., 2023. Participants (both students and teachers) reached a consensus that they did not have the skills needed to cope. There is a demonstrated need for interventions that focus on improving coping skills (Zhou et al., 2023) because Chinese students have less outlets, due to their parents being added forces of stress, but more importantly, the competitive environment they learn in. Because of how exams are ranked, peers often feel at competition with each other, which can lead to more tentative connections and less coping methods (Zhao et al., 2015).

American high school students often access social support more readily, since school culture encourages peer interaction, teamwork, and openness about mental health. In contrast, the highly competitive environment in Chinese schools can make it harder for students to lean on peers, as classmates are often viewed more as competitors than allies (Zhou et al., 2023). While many Chinese students rely on family or self-support, peer-based oxytocin release may be less utilized compared to their American counterparts.

Cross-Cultural Differences in Use of Counseling & Mental Health Services:

There is a notable gap between awareness of mental health and its practical implementation in both the U.S. and China. American schools tend to place more emphasis on mental health, offering students access to resources such as counselors and helplines. While Chinese schools also have these resources in place, a study of 137 Chinese students (Shi et al., 2014) found that less than half the students went to see counselors, and never more than 5 times a year. Still, studies indicate that across both American and Chinese students, many are not adequately equipped to handle the amount of stress that comes with school (Zhou et al., 2023).



Another problem was the gender imbalance and stigma in seeking help. Significantly more female students interacted with counselors than male students. Additionally, the school counselors were rated well on approachability but lower on college prep (Shi et al., 2014). A survey in a midwestern American high school (Gallant & Zhao, 2011) revealed similar conclusions, but with slightly different reasoning. While female students still rated school counselors' availability significantly higher than male students did, specific standards like college prep were not being met due to a large proportion of students not visiting, not due to lack of knowledge of the counselors themselves.

Both studies conclude that while school counselors are sufficiently kind and supportive, the rest of the steps are up to the students to advocate for themselves. Some ways to make this easier are to spread knowledge of the resource and remove the gendered stigma surrounding it. It might also be helpful if the school counselors found creative ways of engaging students (Gallant & Zhao, 2011), especially male students who are less likely to seek counseling services. By shifting some responsibility away from students having to self-advocate, these strategies could make mental health and workload management more accessible to all students.

Conclusion and Recommendations:

While there are no major statistical differences in the levels of stress Chinese and American high schoolers face, there are differences in their sources and methods of coping. Students in China face the stress of the gaokao exams and rankings that are huge deciding factors in college, and students in America face the stress of juggling extracurriculars and choosing their path. Due to the cultural stigma around being different in China, more students cope privately with the stress they perceive, while in America, there are more opportunities to share it with others. These factors are very important to study not only to understand how students are feeling, but in hopes of creating a better, less stressful learning environment for them.

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