



The Relationship between Academic Stress and Sleep Quality in Chinese High School Students

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Abstract. In order to understand the relationship between high school students' academic stress and sleep quality, 100 high school students in Beijing were tested by PSS Perceived Stress Scale, Pittsburgh Sleep Quality Index and Big Five Personality Test. The results showed that there was a positive correlation between academic stress and sleep quality. There was a positive correlation between academic stress and neuroticism in the Big five.

Keywords: Stress, Sleep quality, Personality.

1 Introduction

As high school is the most stressful period in one's life, and is also an important period for physical development, a good sleep plays an immeasurable role in the healthy development of the body. This study investigated the relationship between academic stress and sleep quality in high school students through a questionnaire survey. Sleep is an indispensable physiological activity of human beings, and people spend about 1/3 of their life time in sleep. Sleep is an important part of the body's recovery, integration and consolidation of memory, and is the guarantee of maintaining human health. At the same time, sleep pituitary anterior lobe growth hormone secretion significantly increased, conducive to promoting the growth of the body, and increase the synthesis of nuclear protein, conducive to memory storage [1]. Lack of sleep or do not add, there will be dizziness, memory, thinking, imagination, creativity and attention decline, emotional disorders, make people in anxiety, depression, irritability, but also increase, will also lead to immune system disorders, resistance to decline, increased risk of disease. Visceral function is mussily [2] show for palpitation, shortness of breath, lack of power, appetite drops, digestive function is mussily. Stress is generally considered as an important risk factor affecting individual physical and mental health. The widely accepted definition of psychological stress is when an individual's internal stability is threatened by an external stimulus. A stressor is any experience or situation that makes you feel threatened or overwhelmed.

2 Academic Stress

Academic stress refers to the reflection or subjective feeling of learners to the academic and external environment requirements that are beyond their ability to cope with or may threaten them. Academic pressure is the most important "pressure source" for senior high school students in China. According to a study on the Relationship between Stressors and Coping styles in High School students, 80% of high school students consider academic pressure as the main source of stress, 13% consider interpersonal pressure as the main source of stress, and 7% consider family environment pressure as the main source of stress. In the comparison between China, The United States, Japan and South Korea: The Pressure of High school students in China tops the list, the academic pressure of high school students in China, the United States, Japan and South Korea is compared. The proportion of Japanese high school students finishing homework within 2 hours is the highest (89.2%), followed by South Korea (86.9%), the United States (59.8%) and China ranks the last (44.7%). There is no uniform regulation on the amount of homework for senior high school students in China. More than half of Chinese high school students spend more than two hours on homework every day, the highest proportion among the four countries. Among them, nearly 27% use two to three hours a day, 16.3% use three to four hours, and 12.1% use more than four hours a day. As a result, Chinese high school students had the highest proportion of feeling stressed, with 81.3 percent feeling stressed, followed by 75.9 percent in the United States, 68.6 percent in Japan, and 65.2 percent in South Korea. Humphrey J.H. (1985) believes that academic pressure mainly comes from the pressure of competition among students, anxiety about exams, and anxiety about subjects they are not good at [3].

3 Sleep Quality

Sleep quality is a comprehensive evaluation index of sleep process and its effect. It is an evaluation result based on objective sleep situation and focusing on subjective feelings. He is one of the important indicators of students' physical and mental health development, which has been paid more and more attention by modern medicine and psychology. A meta-analysis of sleep quality over a 15-year period from 1994 to 2009 found that adolescents had poorer sleep quality than normal adults, with higher detection rates of sleep disorders, especially among college and high school students, ranging from 13.93 percent to 44.48 percent. Literature since 2009 showed that the detection rate of sleep disorders among adolescents ranged from 14.3% to 34.38%. Previous studies have confirmed that sleep quality is closely related to academic stress [4]. Although other regional factors work together to affect sleep quality, academic stress can also be a factor affecting sleep quality when it reaches a high enough level. Williams used the Pittsburgh Sleep Quality Inventory and the Big Five Personality Questionnaire to investigate the relationship between sleep quality and personality among freshmen from 17 us colleges and universities. She found that neuroticism was negatively correlated with sleep quality, and life events moderated the relationship [5]. Guifang Jiang et al. found that neuroticism and psychoticism were positively correlated

with sleep quality by studying the Pittsburgh Sleep Quality Scale scores and EPQ personality test results of 4538 primary and middle school students in China [6].

4 Relationship between Stress and Sleep

In the research of "High School Students sleep Quality Survey and Improvement Strategies", it is believed that academic stress is negatively correlated with sleep quality. In addition, the effects of stress on sleep quality in High School Students: a Moderated Mediation Model, high school students' stress level directly predicts sleep quality. Liu Xiancheng, Guo Xiugi et al. believe that study pressure is one of the main reasons affecting and leading to students' sleep quality decline [7]. Bernert proposed that the examination anxiety of middle school students has a significant impact on sleep quality, which also includes the comprehensive impact of school stress, family stress and other factors on sleep quality. The quality of sleep also increased test anxiety [8]. Can be seen in the existing information, study of the relationship of academic stress and sleep quality, roughly two ideas, one is that academic stress and family stress and so on other factors combined, can have a significant impact on sleep, academic pressure is large enough that can be enough, can affect morpheus quality alone. It can be seen from these studies that with the increasing academic burden and pressure of students, their physical and mental health and sleep quality are also increasingly affected. Many scholars have college students' pressure and academic stress and sleep quality was studied, or the foreign scholars have done similar research, but given has cultural differences between east and west, the Chinese high school students academic stress and sleep quality may be different, and the relationship between study is less, this study will explore senior high school students academic stress and sleep quality. We hypothesized that academic stress is negatively correlated with quality, and high neuroticism leads to poor sleep quality.

5 Research Methods and Assumptions

Participants :100 high school students, including international and high school students, 50 girls and 50 boys. A total of 100 questionnaires were sent out, 87 were recovered and 62 were valid.

Research tools:

Sleep Quality Study. The Pittsburgh Sleep Quality Index (PSQI) [9] with 18 self-rated questions in the questionnaire were graded into seven categories: sleep quality, sleep duration, sleep duration, sleep efficiency, sleep disorders, hypnotics and daytime dysfunction. Each ingredient is rated on a scale of 0 to 3. PSQI scores range from 0 to 21, with higher scores indicating poorer sleep quality. $PSQI \geq 8$ indicates poor sleep quality, 5-7 indicates average sleep quality, and less than 5 indicates good sleep quality. Pass The Big Five personality test. ^[10] Neuroticism reflects an individual's emotional regulation process, the tendency to experience negative emotions and emotional in-

stability. Highly neurotic individuals are prone to psychological pressure, unrealistic ideas, excessive demands and impulses, and are more prone to anger, anxiety, depression and other negative emotions. Their response to external stimuli is more intense than ordinary people, and their emotional regulation and coping ability is poor, often in bad emotional state. They are less capable of thinking, making decisions and responding effectively to external pressures. In contrast, those who scored low on the neuroticism scale were less upset, less emotional, and more calm. The Big Five has five dimensions: openness, extraversion, conscientiousness, agreeableness and neuroticism. Perceived stress scale, [11] Between 14 and 28, people in this range have enough control over their current life and do not feel uneasy or panic about emergencies. Scores ranged from 29 to 42 years old, classified as moderately stressed, with occasional periods of excessive or excessive stress. But they quickly calm down, so the stress they face doesn't pose any threat to their health. Need to do some relaxation exercises; 43-56, high perceived stress. The high levels of stress you are currently experiencing may be having a negative impact on your physical and mental health and need to take appropriate steps to adjust; 57-70 feeling stressed, you are under too much pressure, your body may have some symptoms, need to de-stress, need to seek professional help.

6 Results

According to the experiment, the pressure of high school students is generally high. There are 20 students in the medium stage of pressure, accounting for 32% of the total, 40 students in the high stage of pressure, accounting for 65% of the total, and 2 students in the high score of pressure, accounting for 3%. As shown in Table 1 below the average result of the Pittsburgh Sleep Quality Index was 43.77 The stress perception scale is 6.32 Big Five personality neuroticism is 12.64.

Table 1. Average of three scale

Scale	Average
PSS	43.77
PSQI	6.32
Neuroticism	12.65

Table 2. Average of MALE and female in PSS and PSQI scales

Gender	PSS	PSQI
Male	45.6	5.45
Female	47.1	6.32

From Table 2 we can see that women's sleep quality and perceived stress are greater than men's. From this graph, we can see that women's sleep quality and perceived stress are greater than men's. The average score of the stress perception scale was 45.6 for men and 47.1 for women The average result of the sleep quality scale for women is 6.32, while that for men is 5.45.

Table 3. The r value of the relative scale

Relative scale	r value	Level significance
PSQI and PSS	0.317*	0.05
PSQI and Neuroticism	0.375**	0.01

From Table 3 which through the correlation study [12], the analysis shows that the correlation coefficient between the stress perception scale and the sleep quality scale is 0.317, and shows a level significance of 0.05, which shows that there is a significant positive correlation between stress and sleep quality. Through the correlation study, the analysis shows that the correlation coefficient between sleep quality scale and big five personality neuroticism is 0.375, and shows a level significance of 0.01. Therefore, it shows that there is a significant positive correlation between sleep quality and neuroticism.

7 Discussion

The PSS scale shows the average number of high school students. The calculated average pressure value is 43.77, which belongs to the category of medium pressure, that is, high school students are under too much pressure for a period of time, occasionally it may be a temporary exam, small problems in getting along with friends, it may be how to study in the study, the pressure can be relieved by some relaxation training. The average value of PSQI scale of high school students is about 6.32, indicating that the sleep quality of high school students is at a medium level, which may be due to the study pressure during the day, or the high score of neuroticism and anxiety in the Big Five personality before going to bed every day, leading to the delay of sleep time and the decline of sleep quality. Students who took the test were emotionally stable, with an average score of 12.65, according to the Big Five Personality Inventory. Table 2 shows that men feel more pressure than women, which may be due to parental expectations for their children or concerns about their own future. It can also be seen that women sleep better than men. From the figures in Table 3, we can see that study stress is positively related to sleep quality. As the stress value increased, the sleep quality test score increased, indicating that the sleep quality decreased. Stress is positively correlated with neuroticism. The higher the neuroticism score, the more stressed you feel.

8 Conclusion

With the increase of grades, the improvement of academic requirements and students' expectations, parents' expectations for students' future and problems in learning may make students feel pressure. Through experiments, it can be concluded that students' pressure is generally in a medium state, but some students have higher neuroticism scores. Compared with students with lower scores, they are more likely to experience anxiety and depression, and experience more pressure. In addition, too much stress will reduce the quality of sleep, the brain can't rest, and the next day without spirit, learning pressure will accumulate. The greater the pressure, the worse the sleep.

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