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Effects of School Attendance Time and Sleep Duration on Depression and Anxiety of High School Students

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Abstract: High-quality sleep can help people relieve psychological problems such as depression and anxiety. However, currently Chinese students generally face the problem of lack of sleep and psychological stress. This paper aims to investigate the effects of school attendance time and sleep duration on the depression and anxiety among high school students. This article analyzes the sleep time and psychological state of Chinese students through the research method of questionnaire survey. The conclusion is that the earlier the school time leads to shorter the sleep time, thus making student more anxious . In addition, the study found that the type of high school also had an effect on school attendance, sleep duration and anxiety.

Keywords: school attendance, sleep duration, adolescent anxiety, adolescent health, study efficiency

1. Introduction

Sleep plays a critical role in the growth, development, and health of adolescents [1][2]. Sleep is an ecologically adaptive response through which organisms recover their physical strength and maintain a good state of activity [3]. Adolescents tend to stay up later at night as they get older, but they still need to wake up early enough to attend classes on school days [4]. That might cause the lack of sleep in adolescents. In the majority of studies reviewed later, school start times were associated with greater adolescent psychological health [1]. Now in China, there are indeed a lot of children suffering from psychological diseases, including depression and anxiety. According to the Chinese National Mental Health Report issued by the Chinese Academy of Sciences in 2021, the detection rate of depression among teenagers is as high as 24.6 percent, which means one in five children may be depressed. In China, the number of teenagers suffering from anxiety disorder is close to 11% of the total number of teenagers, equivalent to 11 out of every 100 teenagers suffering from anxiety disorder. That's a scary statistic, but it's the truth.

Mental illness and anxiety may lead to a decrease in students' learning efficiency [5]. Having to get up early to go to school with a lack of sleep can be stressful for students, which in turn can cause anxiety [6][7][8][9]. This study aimed to investigate the relationship between school time and sleep time, and the effect of school time on student anxiety [10]. It is hoped that academic staff and schools will take the adequate sleep that students need seriously and adjust the course time. While reducing students' anxiety, it can also allow students to improve their learning efficiency. This

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paper uses a combination of experimental methods for the questionnaire and quantitative and qualitative analysis.

2. Methodology

2.1. Questionnaire

The experiment is mainly to conduct a questionnaire survey on high schools across China in 2022. The participants are all studying in China, and they are from different types of high schools. In order to ensure the efficiency of the sample, the participants will be evaluated for anxiety first, which is helpful for the author in measuring the relationship between anxiety and sleep time. The final sample size consisted of 209 high school students, of whom 101 participants were female, accounting for 48.33%. The age of the participants ranged from 14 to 19 years old, with an average age of about 16.5 years (M = 16.47). In addition, 62.2% of the participants are from key high schools. 23.44% of the participants came from regular high schools, 28.71% from district-key high schools, 24.88% from municipal-key high schools, 8.61% from provincial-key high schools, and 14.35% from international high schools. Grade-one students accounted for 34.45% of the students in grade one, 32.54% in grade two, and 33.01% in grade three. In the questionnaire survey, all participants answered all the questions covered by the questionnaire, so the effective sample size was 209, that is, the questionnaires of all participants were valid data and included in the research scope.

The author collects information about the time to school, sleep time, and mental state by asking questions in a questionnaire. These results were used to determine the relationship between school attendance, sleep duration, and anxiety.

2.2. Ethical Aspects

The questionnaire was conducted voluntarily by students and with the knowledge of their parents. In addition, the students answered the questionnaire anonymously.

2.3. Results

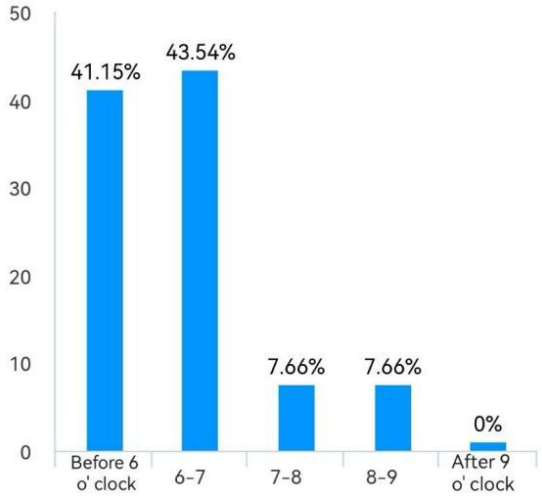


Figure 1: The time when does the school require the students to arrive at school.

According to the results of the students' questionnaire, 41.15% of the students' schools require students to be at school before 6 AM (Figure 1). Second, 43.54% of the students are in schools that

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require students to arrive at school from 6-7 in the morning, and 7.66% require them to arrive at school from 7 to 8. And 7.66% of the students are in schools that require students to arrive at school between 8AM and 9AM. Schools requiring students to arrive after 9 a.m. did not receive corresponding information in the survey.

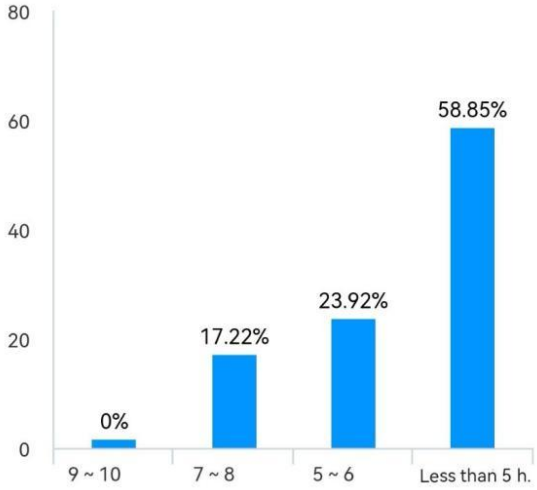


Figure 2: The sleep time of the students was investigated.

58.85% of the students sleep less than 5 hours, 23.92% of the students sleep 5-6 hours, 17.22% of the students sleep 7-8 hours, and no students sleep 9-10 hours. But according to experts, teenagers should sleep between 8 and 10 hours to ensure their physical and mental health and healthy growth.

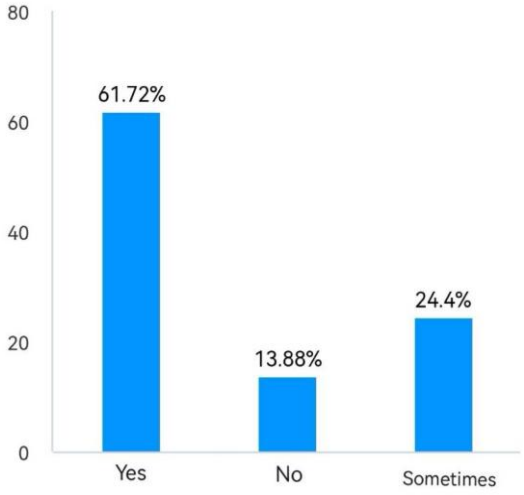


Figure 3: The number of students who feel anxious.

Among the participants, 61.72% of the students felt anxious, 13.88 of the students felt no anxiety, and 24.4% of the students felt anxious only occasionally, as figure 3 shows.

Moreover, 91.8% of the students who choose anxiety feel that their study efficiency is not high in the morning, they feel sleepy or can't concentrate on study.

The authors compared and screened the question options in the questionnaire. After screening, it was found that only 11.62% of the students who went to school before 6 o'clock had 7-8 hours of

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sleep, and 24.42% of the students had 5-6 hours of sleep. 63.95% of students sleep less than 5 hours.

Students who go to school at 6-7 AM and sleep for 7-8 hours account for 20.88%, those who go to school at 6-7 PM and sleep for 5-6 hours account for 21.98%, and those who go to school at 6-7 PM and sleep for less than 5 hours account for 57.14%. 17.85% of students who go to school at 7-8 o' clock sleep for 7-8 hours, 25% of those who go to school at 7-8 o' clock sleep for 5-6 hours, and 56.25% of those who go to school at 7-8 o' clock sleep for less than 5 hour. It can be see that the earlier school starts, the less sleep you get.

3. Discussion

The authors found that about 66.67% of the students who slept 7-8 hours felt anxious, 33.33% of the students who slept 7-8 hours did not feel anxious, and the rest of the students sometimes felt anxious. 60% of students who slept 5-6 hours felt anxious, 14% who slept 5-6 hours did not feel anxious, and the rest felt anxious at times. 60.98% of the students who slept less than 5 hours felt anxious, about 13% of the students who slept less than 5 hours did not feel anxious, and the rest of the students sometimes felt anxious. So it can be concluded that the less sleep you get, the more anxious you are.

62.79% of students who go to school before 6 o'clock feel anxious, 12.79% are not anxious, and the rest are sometimes anxious. 60.44% of the students feel anxious when going to school at 6-7 o'clock, 13.19% of the students do not feel anxious, and the rest of the students sometimes feel anxious. 50% of the students who go to school at 7-8 o'clock feel anxious, 31.25% of the students do not feel anxious, and the rest of the students sometimes feel anxious. The data also shows that the earlier the school starts, that is, the earlier the class starts, the more likely students are to feel anxious.

This paper analyzes the sleep situation of students and school class time. The conclusion is that the earlier the school time and the shorter the sleep time, the more anxious the students are. It was also found that the type of high school also had an effect on school attendance, sleep duration and anxiety.

4. Conclusion

This paper investigate that relationship between sleep duration and adolescent anxiety.There are many researches on the effect of sleep time on students' anxiety, but few researches on the effect of school arrival time on students' anxiety. Therefore, this research fills the gap.

This paper used the method of questionnaire, and found that students who started school earlier slept less, and those who slept less were more likely to suffer from anxiety, which can lead to less effective learning in the morning. It can be inferred that students who start school early are less productive in the morning. It comes after research found that sleep deprivation can cause anxiety in teenagers. Other studies have found that school arrival times affect sleep duration. Based on these studies, this research studied the effect of school arrival time on adolescent anxiety.

This paper points out the direction for future researches on adolescent development.And it contributes to school decision-making and youth development.My research pointed out the irrationality of the school arrival time set by some schools in China and found a part of the reason for the lack of sleep among students. However, this research forms part of the basis for advancing research on the impact of school rules and decisions on adolescent development.

But there are still some shortcomings in this research. But instead of using an accurate self-anxiety scale, this study directly asked students if they were anxious. This may lead to some

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students' inaccurate judgment of whether they are anxious or not.Future studies can use the anxiety scale to conduct more accurate studies.

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