

What Causes the Stress Among Tenth-Grade

Students in China?

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Abstract

Previous research has demonstrated some factors to cause the stress among teenagers. However, there is no research to study the causes of stress for the tenth-grade students. This study is to measure sources of the stress among the tenth-grade students at high school. Based on the evidence and literature review of recent research, a Perceived Stress Scale (PSS) and a questionnaire survey were developed. A total of 96 tenth-grade students at a high school in China participated in this survey. The questionnaire survey includes three factors: academic pressure, parental expectation and sexual orientation. 20 students were interviewed. This study explored and analyzed how each source causes stress among tenth-grade students, which might add in-depth understanding of the sources of stress for high school students.

Introduction

The news (Winerman, 2017) reported that over 60% of college students suffered from stresses in USA, which were from family, academic performance and relationship problems.

According to the report from China Daily's news ("Chinese students under more stress", 2010), Chinese students experience more stress. In 2020, the population of the students who participated in China's National College Entrance Exam in June 7 to 9 each year, or "Gaokao", has increased to 10 million. It is the most important exam for the high school students because it literally determines their fate in the future. According to the ratio of the enrollment from previous years, an estimated 6 million students will have no opportunity to enter the four-year universities as undergraduates, and 1.6 million will have no opportunity to receive higher education, so there is intense competition for students in China.

It was reported by CNN news (Wakatsuki & Griffiths, 2018) that in Japan, the suicide rate of the youth has rose to the highest level in 2017. Japanese students also experience the stress, including bullying, family issues and school pressure.

On the whole, most students with different background are under the pressure in the world,

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including school work, bullying, family problems and mental health, so the stress is a serious and global problem.

Literature review

1. Definition of Stress

What is stress?

The Web MD's (Bhargava, 2020) definition of stress is: "Stress is your body's reaction to pressure from a certain situation or event. It can be a physical, mental, or emotional reaction. According to this definition, when experiencing the pressure, the body will have a physical, mental or emotional reaction.

The Cleveland Clinic's ("Chinese students under more stress", 2010) definition of stress is: "Stress is a normal reaction the body has when changes occur. It can respond to these changes physically, mentally, or emotionally." According to Cleveland Clinic, when experience changes, the body will have a physical, mental or emotional reaction.

The Medical News Today's (Sampson, 2020) definition of stress is: "Stress is the body's natural defense against predators and danger. It causes the body to flood with hormones that prepare its systems to evade or confront danger." According to this definition, in the event of difficulties and dangers, the hormones will increase to help the body confront the event.

According these definitions, when experiencing the changes, including travels, dangers and promotions, they will cause the body's reactions, which are the stress. For example, Raviv et al. (1990) studied moving house was related to stress among adolescents and pre-adolescents. They found girls became most sensitive to the level of stress when moving house. Especially, adolescents were more in stress and more

sensitive to face the new environment when moving from one city to another, comparing with moving within the same city. For example, McVicar (2003) studied workplace stress. The author found when nurses were overwhelmed by work, they would feel the pressure of work-related stress. However, there were positive aspects in "good" stress. It was necessary to increase good stress and decrease bad stress (Zulkifli & Siegel, 1995, Dhabhar, 2014). For example, Zulkifli & Siegel (1995) found that a certain degree of stress played an important role during the neonatal stage. The author also concluded that stress indicators promoted people to prepare for the work.

Stress is different between women and men because sexual differences in neuroendocrine, autonomic, or behavioral responses (Handa & Chung, 2019). For example, Saxena et al. (2014) claimed that males (82.2%) received more stress than females (61.8%). Academic stress was detected more in males while inter personal stress happens more frequently in females. Tangde et al. (2011) found that men suffered from more stress (62.9%) than women (60.1%). However, Matud (2004) examined gender difference in stress in sample size of 2816 people. The author found that women were more stress and women were more emotional than men in handling matters

2. Academic pressure

The academic pressure was found to be the most important source of the stress and it stated the test anxiety in some studies. For example, Hashmat et al. (2008) studied factors causing exam anxiety in medical students (n=120). The author used the questionnaire and seventeen questions, including life style, study style, psychological problems, and examination system. The author found the most important factors reported by the students, which were extensive course loads (90.8%), lack of physical

exercise (90%) and long duration of exams (77.5%). Also, the author found that most students did not have enough exam-taking and anxiety-reduction techniques (Hashmat et al., 2008).

Many researchers have done research on the relationship between academic pressure and stress. For example, Shah et al. (2010) researched perceived stress and sources among medical undergraduate in a Pakistani Medical school (n=200). The author used a 33-item questionnaire to assess sources of stress. The author found the most common sources were psychosocial concerns and academic in medical students. Also, the author found perceived stress and academic performance had a negative relationship.

Sansgiry and Sail (2006) researched the students' perceptions of course load and test anxiety (n=198). The authors used the survey that was self-administered to measure test anxiety, perceived course load and ability to manage time. They found that test anxiety was caused by the students' perceptions of course load.

Liu et al. (2006) discussed the relationship between test anxiety and personality, self-esteem. The authors used Test Anxiety Scale (TAS), Eysenck Personality Questionnaire (EPQ) and Self-Esteem Scale (SES) to investigate high school students. According to the results, the rate of the anxiety among the students was 65.2%. They found the test anxiety should have a correlation with the personality and self-esteem, especially when students are introversive, unstably emotional, having apparent psychoticism or low self-esteem, which causes the high test anxiety.

Xu et al. (2005) explored the effects of self-concept on the test anxiety among medical

college students. The author used the test anxiety questionnaire and the English-learning self-concept scale and found all the dimensions of self-concept were significantly related to test anxiety.

Putwain et al. (2010) studied personal of test anxiety of students. The authors found that perceived academic competence was related to worry and tension.

3. Parental expectation

According to Ma et al.'s (2018) definitions, parental expectation is the form of parents' belief, judgment and aspirations about their children's education, career and marriage. It is a way to influence children' behavior, thinking and actions. Also, it can be used as a form of requirement for children because they want their children to achieve their expectations, which causes stress among children. For example, Tangade et al. (2011) investigated perceived sources of stress among dental students and their parents. The author used the stress questionnaire to all dental students (n=304). Because of parents' interference, 69% of students were forced by their parents to choose the dentistry, ignoring student's own choice and interests. These parents' expectation is the judgment of students' career. Ang and Huan (2006) examined that parents' expectation was one source of stress among adolescent in Asian. Yeh and Huang (1996) discussed the expectation of parents was the Asian collectivistic cultures and found that the expectation of parents caused the pressure. In these studies, it is shown that parental expectation is associated with the stress among students.

4. Sexual orientation

Rankin (2005) researched that lesbian, gay, bisexual, and queer college students respondents were less likely to feel very

comfortable or comfortable with the overall campus climate and they were more likely to observe others staring, someone being deliberately ignored or excluded. The author studied not only gay, lesbian, bisexual, and transgender experienced stress to achieve their academic, but also other LGBT faculty, staff, and administrators can suffer stress to achieve their career goals. 41% of the respondents found that their university didn't solve the problem about sexual orientation or gender identity, among 44% of administrators, 46% of gay individuals and 42% of transgender people.

Schneider & Dimito (2010) examined 119 lesbian, gay, bisexual, and transgender (LGBT) students. The questionnaire's results stated that LGBT had an impact on career and academic choices. Also, the authors found that gay males were the most likely to feel a negative impact.

According to these studies, lesbian, gay, bisexual, and transgender (LGBT) experienced more stress due to their sexual orientation. This stress has the negative influence on their academic and work. It is difficult for them to blend into the campus. Also, it is hard for them to present their sexual orientation. They are most likely to receive a peculiar look from the university or college.

5. Objectives of this study

From these studies, the authors have studied that the factors that cause stress, including academic, family and students' personality pressures among high school and university students. The stress is an increasing serious problem. However, there is scarce research about the stress of students with different age groups at high school.

In order to minimize the anxiety and decrease the stress, it is necessary to examine what

factors cause the stress of the students in the tenth-grade at high school.

Methods

Participants

There were 96 tenth-grade students at Chengdu High School by using opportunity sampling. Among them, there were 53 males and 43 females. The age ranged from 14-15 years old.

Procedure

Design

Part 1. The design included the Perceived Stress Scale (PSS) to help measure the stress levels using sample size of 96 tenth-grade students. I chose PSS as a tool to measure because it is a classical assessment instrument. There were 10 questions to help them understand how different situations affect their feelings and perceived stress. These questions in this scale asked about students' feelings and thoughts. Students were asked to answer fairly quickly. Their answers were rated to measure the stress, on four type scale. The objective of PSS is to show the stress level of the participants with the scores.

For each question choose from the following alternatives:
 0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

- 1. In the last month, how often have you been upset because of something that happened unexpectedly?
- 2. In the last month, how often have you felt that you were unable to control the important things in your life?
- 3. In the last month, how often have you felt nervous and stressed?
- 4. In the last month, how often have you felt confident about your ability to handle your personal problems?
- 5. In the last month, how often have you felt that things were going your way?
- 6. In the last month, how often have you found that you could not cope with all the things that you had to do?
- 7. In the last month, how often have you been able to control irritations in your life?
- 8. In the last month, how often have you felt that you were on top of things?
- 9. In the last month, how often have you been angered because of things that happened that were outside of your control?
- 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Figure 1. Perceived Stress Scale (PSS)

Part 2. In this design, a questionnaire was administrated to the students. Survey questionnaire consisted of three main subscales:

1. Academic pressure
2. Parents pressure
3. Sexual orientation

Part 3. Interview

In order to further discuss the different reasons of stress, I chose the interview method. My interview mainly includes the following questions:

1. Which stress are you often troubled by?
2. Why do you have such stress?
3. How the factor cause stress?

Data processing

I analyzed the data by using correlation, using PEARSON function in excel, which was, calculating the means of the scores of the academic stress, parental expectation, sexual orientation; and the stress level, then comparing them. (The higher the scores were, the more severe the situation was.) The data was shown in Table 1.

In addition, I divided the data into groups according to the stress scores and analyzed them responsively. Those were: low, medium, high, and very high. (Table 2)

Pilot Study

A small-scale study was tested with five students. Comments and feedback were proposed by students in the following aspects:

1. Clarifying the objective, identifying ambiguous choices, and choices hard to understand
2. Difficulties with technical problems
3. Response to each questions
4. Time needed to finish the questionnaire

Results

First, I calculated the correlation coefficients by using the PEARSON function. As the data shown in Table 1, all the three factors: academic stress, parental expectation, sexual orientation, were significantly correlated with depression level ($r=0.55$, $r=0.76$, $r=0.63$).

Factors	Academic -stress	Sexual Orientation -stress	Parental expectation -stress
Correlation coefficient (r)	0.626054005	0.759373565	0.550003296

Table 1 The correlation coefficients

Among these answers given by 96 middle school students, the scores in part 4, stress level, ranged from 7 to 35. I divided the data collected into four groups (Table 2) according to PSS scale (Figure 1).

Table 2 The percentages of participants at different stress levels

Risk	Range of scores on stress level	Percentage of participants (correct to 4 significant numbers)
Low	7-19	86.46%
Medium	20-24	7.292%
High	25-29	2.083%
Very High	30-35	4.167%

As can be seen, about 86.46% of the results were allocated within the range between 7 to 19

and there were only 4.167% of the results above 30.

Table 3 The average total scores of each part (in groups)

	Parental expectation (f)	Sexual orientation(s)	Academic stress (a)	Depression level (d)
Low (7~19)	7.14	6.83	11.6	10.8
Medium (20~24)	8.71	8.71	19.4	22.3
High (25~29)	17	10	14.5	25
Very High (30~35)	11	12.25	17.5	19.4

Table 3 is the average total scores of each part in every groups. As it could be seen, academic stress was the most significant factor in almost every group of participants and parental expectation was the strongest in the High-level group (f=17).

The most common problem they were facing was academic stress. According to the data shown in Table 3, the total score on academic stress was always the highest. Especially in the medium group (scored 20~24), the average total score on academic stress reached 19.4. This was followed by that in the Very High group (scored 30~35), which was 17.5.

Discussion

1. Academic pressure

Academic pressure is the main factor among the tenth-grade students. These students are forced to study on several subjects and most of them choose 4-5 subjects, including Chinese, Math, English, Physics, Chemistry. In China, the grades and academic achievements are highly valued. Tao & Hong (2000) referred that Chinese culture had a relationship with

academic achievement. In order to achieve the high goals, the students have to stay up late to complete homework because they want to achieve their goals. Also, they need to attend the quizzes and monthly tests constantly. In Gaokao, students try to get as high as scores to enter their dreamed university, which is

critically important for Chinese students. Furthermore, the education resource is limited while the number of high school students taking Gaokao has been increasing in the last decade (Figure 2) (National College Entrance Examination number trend statistics and admission rate over the years, 2020). That's why these students are full of workload and experience the stress to achieve the academic goal.

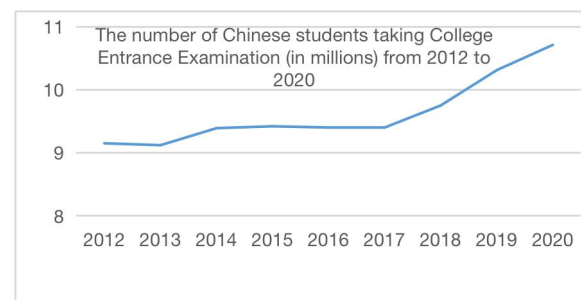


Figure 2. The number of Chinese students taking College Entrance Examination (in millions) from 2012 to 2020

From the interview for the academic stress, 40% students talked about they feel anxiety before the test. This result is consistent with previous studies. Liu et al. (2006) found that test anxiety was a serious problem among university students. For instance, they discovered that

15%-20% of students became impaired and nervous in a “modest” to “high” degree. In China, acquiring knowledge is the first. China cares about ranking and testing scores, so schools announce ranks from the highest to lowest according to students’ test scores in public, which causes severe competition at school. If students failed the exam, and fell to the lower end of the ranking, they will feel extremely upset and depressed.

Another 60% students noted, they experience the over workload. The school time was from 7:30 am to 8:00 pm on weekdays. They mostly finish homework until 10 pm later, so they can’t sleep for 8 hours every day. They have no time to play with friends after school. Most of their time was spent on extracurricular classes on weekends.

2. Parental expectation

Parents’ expectation has also made tenth-grade students feel stressful. It had the highest average value in the High group ($25 \leq d \leq 29$), the mean of total score on family conflicts was 17. Academic goals among students in China are very important and parents pay more attention to their study, so they feel stressful to achieve the goals with high expectation. Also, some studies have found that parents exerted their expectation on students in Asian countries. For example, Tan & Yates (2011) found that great emphasis was placed on education in Asia, so parents’ expectation was one source of stress to students. Also, the "Academic Expectations Stress Inventory" (AESI) was developed by Ang and Huan (2006) to measure parents’ expectations as main sources of academic stress in Asian adolescents.

Chinese parents’ expectations focus on the education and academic performance. There was no study that examined the association between parental expectations of European

American families. However, there were consistent studies for Asian. For example, Ma et al. (2018) have demonstrated that parental expectation was beneficial for adolescents’ academic performance. However, high parental expectation caused adolescents’ depression.

From the interview for the academic stress, 80% students acknowledge that their parents expect them to enter a good university to get a higher degree. Their parents think higher education has great value to change the fates. It can help children to find a good enough standard job and live in a comfortable life. Also, the current competitive system is a force to push parents to engage in the education. In order to achieve it, their parents push their children study hard and study well. Also, they try their best to provide for their children to study in university. From the world of Chinese, it showed, Chinese parents often rent an apartment near the school to accompany their children to study, known as peidu. Only 20% students said their parents were motivated to participate in the education by cultural tradition. Their parents respected their ideas and education.

3. Sexual orientation

Sexual orientation is the most stressful issue since they were the most common stress between the students with Very High risks ($30 \leq d \leq 35$). See Table 3, the average total score on sexual orientation in the Very High group ($30 \leq d \leq 35$) was 12.25. If students find they are not heterosexual, but they are afraid to admit it. In China, public prejudice about homosexuality and homosexual marriage is not legalized, so these students feel stressed. It is consistent with Xie & Peng’s (2017) study, which researched that Chinese people had an unfriendly attitude toward homosexuality and 78.53% people of the respondents believed that it is wrong behavior. Oswalt & Wyatt (2011) studied that gay, bisexual and unsure students

experienced more stress in mental health than heterosexual students and caused more negative influence on academic in college students. Balsam et al. (2005) examined the mental health of 553 heterosexual, 558 lesbian or gay males, and 163 bisexual participants. They found sexual orientation had a high risk in suicidal ideation, suicide attempts, and self-injurious behavior.

From the interview for Sexual orientation, students are scared to talk with their parents about their Sexual orientation. On one hand, many families lack sex education and parents hardly talk with their children about sexuality because Chinese society holds a conservative view for sexual activities. On the other hand, students don't know how to communicate with their parents because their parents rarely talk about sex with them. It is arduous to make parents understood them. It is consistent with Lin's (2016) study that Chinese students' attitudes toward homosexuality and traditional culture.

Limitations

This study has some limitations. First, this study only relied on data from students and the sample size was not large. Future research should include ratings from parents and teachers and increase the sample size. In addition, in present study, there was no actual test scores of academic performance. Future research should utilize a standardized assessment to measure academic performance, which determines the quantitative relationship between academic performance and stress more accurately. Secondly, the sample of the present study depends on volunteers to respond to the questionnaire. This may induce some self-selected sampling bias. In order to enhance the generalizability of the current results, it is advised to research on a more random sample to confirm the results in the future. This study was

researched in China, so the result can only apply to this region, not other countries.

In addition, the future studies are suggested to focus on how to help the high school students, parents and teachers to cope with stresses. For instance, for the students, how to recognize, manage and get rid of the feelings of stress and anxiety, and for the parents and teachers, how they can provide more support and give more freedom and choices to the high school students.

Conclusions

Based on analysis of the results from the surveys mentioned above, three key factors were identified which cause the stress among tenth-grade students at high school:

- 1) Academic pressure
- 2) Parental expectation
- 3) Sexual orientation

The academic pressure mainly comes from Gaokao, the National College Entrance Exam, which often determines the students lifelong fate. Parents who expect their children to stand a better chance in the fierce competition in Gaokao and job markets also urge their children to study very hard and get high scores in Gaokao. Additionally, the ten-graders who are experiencing drastic biological growth also have troubles in confirming their sexual identity. Among all the stresses, these are the three most prominent sources of stress for the ten-grade students in China.

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