Investigate the impact of different school education systems on adolescent mental health (depression and anxiety) in Beijing.

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Abstract. The purpose of the study was to explore the differences in students' mental health levels across different types of schooling systems. The current Chinese education system is basically divided into two categories: Chinese traditional education and international education system. Traditional education puts more emphasis on competition and scores, while international education emphasizes a holistic and diverse educational environment. In this study, depression and anxiety will be the two criteria that I used to measure students' mental health problems. I have used a convergent parallel mixed-methods and semi-structured interview to conduct both quantitative and qualitative research. The effect of different education system are described by three dimension, Teacher-student relationship, Peer-relation, Academic pressure. Studies have shown that public school students show higher mean scores on depression and anxiety scales compared to international school students, and qualitative research suggests that this may be due to differences in the educational environments provided by the two schools and in students' perceptions of stress.

Keywords: Different education system, adolescent mental health, Teacher-student relationship, Peer-relation, Academic pressure.

1. Introduction

1.1 Mental health issues of adolescence

One in seven of the global population is between the ages of 10 and 19 (World Health Organization, 2024). Adolescence is a formative period of independence in which people experience changes in their physical-emotional and social relationships and from being in their parents’ care into independent members of society. Teenagers are exposed to a variety of uncertain external factors, along with internal struggles making their mental health particularly vulnerable. It’s important to mention that, poor mental health does not mean feeling blue, it will impact teenager’s whole life. Mental disorders are chronic health conditions, which developed from long-term of mental health problems. Without taking these disorders seriously and give out corresponding solutions, teenagers will likely to perform undesirable behaviors on mental health-wellbeing on different aspects, such as family relationships, school life, and friendships collection. Mental ill-health is the leading cause of disability and poor life outcomes in young people aged 10–24 years. According to statistic, 25% the public will experience mental problems among their life, costing the global economy an estimated $6 trillion by 2030 (World economic forum, 2024).

According to the Mental Health First Aid (MHFA) curriculum, three-quarters of mental problems occur during adolescence and one in five teens has had a serious mental health disorder at some point in their life. Depression and anxiety are the two most prevalent disorder among all mental health problems, which approximately 264 million people suffer from anxiety disorders, and 284 million people suffer from depressive disorders worldwide. They are readily mixed with regular negative emotions so that many teens aren’t may to recognized (NIH, 2023).

In China, we have found that the depression and anxiety problem for children and adolescents was 22%. However, a “High prevalence of mental disorders and low consultation rate” (Jianyu Que et al., 2019) is the common situation in China. The WHO report suggests that, the global mental disorders that have been recognized is around 50%, but in China is far below the world average.
Taking China Shanghai as an example, the recognition rate of depression was only 21%. Therefore, pay more attention on teenager’s mental health are very necessary.

1.2 Mental health in education context

For many adolescents, school is an ongoing source of stress. In fact, in addition to genetic factors, environment factor---school life and academic pressure for adolescents especially---can be one of the most crucial factors that triggers student’s anxious feeling.(NewPortAcademy,2023). Problems such as interpersonal relationship, physical or emotional trauma, and academic trouble are all heavy stress that students need to deal with. Therefore, these stress can be very overwhelming for teens to deal with during this kind of sensitive and formative periods. Mental health problems can also affect student's school performance. A negative academic performance can be caused by low energy level, distraction, low mental ability, and pessimism. Research suggests that negative mood is associated with lower grade point averages, thus destine to depression and anxiety. Many students also drop out of school because of depression and anxiety disorder. According to the American College Health Association 2015 survey, some prevalent disorders can be stress, anxiety, sleep difficulties, and depression, which all odds can be around 25%. (Suicide Prevention Resource Center,2020)

In China, some part of the traditional education system is criticized by its own educators, scholars, parents and students. People usually argued for generating toxic levels of stress and producing graduates with high rank, low ability, and poor health (Zhao, 2009, 2013a, 2014; Zhao, Haste, & Selman, 2014). In some Chinese school, students and parents believes that high academic pressures and high expectations of schools and teachers will more likely to have a promising future, while many useful soft skills are being ignored. Therefore, knowledge of the nature and health effects of academic stress may be useful to inform quality education and mental health promotions of Chinese adolescence.

As for the different opinion of education system, China have developed two mainstream of education, traditional public schools and international schools.

Basic education in China includes six years of primary education and six year secondary education usually starts at age of 13. Secondary education has two routes: academic secondary education or specialized education, which they are characterized by information-packed lessons with students passively receiving and test taking ability. On the other hands, international school system usually have smaller class groups, many international schools put an emphasis on the importance of teacher-student relationships and students' autonomous learning ability.(Echinacities, 2023)

2. Literature Review

In this part I’m going to review three Important factors that may affect teenager's school life, including teacher-student relationship, peer-relationship and academic pressure. I will also investigate how these factors may destine to teen’s mental health.

2.1 Teacher-student relationship difference and students' mental health

According to investigation, there is a correlation between different type of teacher-students relationship and students’ mental health. There are relatively obvious status difference between teachers and students in China, and Chinese classrooms highlight teachers' rights. On the contrary, the international curriculum are student-centered, and puts more emphasis on discussion and communication between teachers and students, and democratic classrooms.

According to China's traditional culture, people has always had a tradition of respecting teachers and school, which they reckon school as a dignity place and learning knowledge from their predecessor is a very serious process. Therefore, school should clarify the status of teacher and students. In many public schools, harmony and collectivism have been touted. Therefore, the dominant and authoritative position of teachers in education and teaching are pretty usual. In this position, teachers are dominant to the classroom atmosphere and control the pace of leaning, while
so students can only listen with respect. (Qianzhi Zhai, 2023) One the other hands, in international school, the characteristics of their respective cultures have been retained, forming the pluralism of educational system, which emphasis on individualism and personal preference.

In conclusion, a more democratic teacher-student relationship has been shown to enhance students' self-esteem and self-efficacy (Roorda et al., 2011; Hamre et al., 2013). Such positive self-perceptions are associated with improved mental health outcomes and lower levels of externalizing problems (Marsh et al., 2005; Barrett, 2013).

### 2.2 Peer-relationship difference and students' mental health

Peer pressures such as peer victimization and peer aggression can have detrimental impacts on mental health (Carolina Guzman et al., 2023). Different type of peer attitude that students experienced in their school will also play a important factors on their mental well-being and academic performance.  

Peer relationships can be affects by various factors, such as individual characteristics, identity and socio-emotional skills. Also, environmental factors such as a child's family atmosphere and living community environment, where children grow up, can influences children’s perception on other’s mood and way of connection to others. (Anagha Joshi and Mandy Truong, 2023). School experience and peer-relation are interdependence. Research shows that health friendships and peer relationships in adolescence can help to foster some desirable personalities, such as self-esteem, physical and mental health, thus lower rates of anxiety and depression. Besides, students with positive peer-relationships also shows active performance in academic study (Delgado et al., 2019). However, a negative peer pressure will lead to more burden of teens' school life, which lead to passive behaviors like drinking, smoking and indulging in the virtual world, thus lead to academic failure. (Anagha Joshi&Mandy Truong, 2023)

Some possible peer to peer challenges in school can occur when children having trouble with friends and peers. Correct peer relationship will foster a beneficial friendship while problems and conflicts can harm connection with peers. As a result students inability to maintain quality friendships will make them being less confident, being poor in decision making, being bullied and isolated by classmates, and later development of self doubt and harm their mental well-being (ncrsmh, 2023).

What's more, experiences of inclusion and belonging at school and positive attitudes towards school were associated with supportive peer relationships. There was some evidence that peer-related stress have a negative correlation with sense of school belonging. This suggests that a positive school environment and a sense of belonging have the potential to balance or mitigate negative peer experiences.

### 2.3 Academic pressure and students' mental health

Academic challenge that faced by students are also various from public school and international school. Chinese students are believed to have high academic burden and pressure due to high expectations of their parents and fierce competitions with their peers. Public school academic pressure includes challenging knowledge, overwhelming homework, exam pressure, competition between classmates, high parental expectation, etc. Although the "burden reduction" project has been conducted by Chinese government, the academic burden is still too heavy for most students. This is due to the high social expectation and cultural emphasis on the national college entrance examination. In addition to the academic pressure itself, sedentary lifestyle are the mainstream of students’ daily life, besides they usually stay up late for homework. As a result many teenagers are poor and body health, since they lack of rest and exercise.

Therefore, academic stress is significantly correlated with adolescents’ subjective well-being. Excessive levels of academic pressure on students will not only make students exhausted, but also give them psychical burden. Some common issues such as depression, anxiety, stress disorder, and physical conditions like fatigue. Some times mild academic pressure is healthy and helpful, which will help to control the negative effects of other burdens on students.
2.4 Aim to prove

Diverse and international education systems have been associated with better mental health and development. The reasons that many people today would prefer a more holistic education is that people who have been educated internationally usually have a greater number of choices and thus more control over their lives and better security. Their is a strong casual relationship that international education are thought to develop and enhance people’s skills, and foster a more thorough identity, all of which lead to better mental health (Andrew Halpern-Manners et al., 2016).

On the other hands, the Chinese traditional education system, which characterized by emphasized test taking ability and ranking, is the mainstream education mode in China, but a more international and diversified education system is the ideal education mode that people nowadays wants to pursue.

3. Methodology

This study employs a convergent parallel mixed-methods design to investigate the impact of different school education systems on adolescent mental health, specifically focusing on depression and anxiety in Beijing. This approach allows for the simultaneous collection and separate analysis of quantitative and qualitative data, which are then integrated to provide a comprehensive understanding of how public and international school environments affect students’ mental health (Creswell & Plano Clark, 2017).

3.1 Quantitative Component

3.1.1 Participants:

The quantitative component involved students from three public high schools and three international high schools in Beijing, randomly selected to ensure diverse representation. From each of these six schools, a random sample of 100 students was chosen, resulting in a total sample size of 600 students.

3.1.2 Data Collection:

Information on the number of students officially registered with symptoms of depression and anxiety was collected from school records. Additionally, the selected students completed standardized questionnaires to measure their levels of depression and anxiety. Two specific instruments were used:

Beck Depression Inventory (BDI): This 21-item self-report inventory measures the presence and severity of depressive symptoms. Each item is scored on a scale of 0 to 3, with higher scores indicating more severe depressive symptoms. The total score can range from 0 to 63, with cutoff points indicating minimal, mild, moderate, and severe depression (Beck et al., 1996).

State-Trait Anxiety Inventory (STAI): This instrument consists of two separate 20-item self-report scales, measuring state anxiety (a temporary condition experienced in specific situations) and trait anxiety (a general tendency to respond with anxiety to perceived threats in the environment). Each item is scored on a 4-point scale, with higher scores indicating greater anxiety. The total score for each scale ranges from 20 to 80 (Spielberger et al., 1983).

3.1.3 Procedure:

Ethical considerations were strictly adhered to throughout the study. Informed consent was obtained from all participants, and from their parents or guardians when necessary. Participation was voluntary, and confidentiality was assured to encourage honest and accurate responses. The BDI and STAI questionnaires were administered to the selected students during school hours with the assistance of school staff. Clear instructions were provided, and a supportive environment was maintained to ensure that students felt comfortable during the survey process.

3.1.4 Data Analysis:

Descriptive statistics, including mean scores and standard deviations, were calculated for depression and anxiety levels among students in both public and international schools. The data on
the number of registered cases of depression and anxiety were also summarized. Comparative analyses were conducted using t-tests to compare the average depression and anxiety scores between students in public and international schools. Additionally, chi-square tests were employed to compare the proportions of students registered with depression and anxiety in public versus international schools.

3.2 Qualitative Component

3.2.1 Participants:

The qualitative component involved semi-structured interviews with students, teachers, and parents from the selected public and international high schools. A purposive sampling method was used to select participants who could provide rich, detailed insights into the school environment and its impact on students' mental health.

3.2.2 Data Collection:

Semi-structured interviews were conducted to explore participants' perspectives on three main themes: teacher-student relationships, peer relationships, and academic pressure. The interview guide included open-ended questions designed to elicit in-depth responses about the school environment and its influence on mental health.

3.2.3 Procedure:

Ethical considerations were again prioritized, with informed consent obtained from all interview participants. Interviews were conducted in a confidential setting to ensure privacy and encourage open discussion. Each interview was recorded and transcribed verbatim to ensure accuracy in data analysis.

3.2.4 Data Analysis:

A thematic analysis was conducted following Braun & Clarke’s (2006) six-phase method. This involved thoroughly reading and reviewing the interview transcripts to become familiar with the data, generating initial codes using an open coding strategy, and then searching for broader themes by grouping similar codes. The identified themes were reviewed for coherence and refined as necessary. Finally, the themes were defined and named, with detailed analysis and review to ensure they accurately captured the essence of the data.

The results from the quantitative and qualitative components were integrated during the interpretation phase to provide a comprehensive understanding of the factors influencing adolescent mental health in different educational environments.

4. Result

4.1 Quantitative Results

4.1.1 Descriptive Statistics

The descriptive statistics for depression and anxiety levels among students in public and international high schools are presented in Table 1. The mean Beck Depression Inventory (BDI) score for students in public high schools was 19.45 (SD = 4.95), while the mean BDI score for students in international high schools was 14.93 (SD = 4.99). Similarly, the mean State-Trait Anxiety Inventory (STAI) score for students in public high schools was 49.26 (SD = 9.62), compared to 40.50 (SD = 10.05) for students in international high schools.

<table>
<thead>
<tr>
<th>School Type</th>
<th>N</th>
<th>Mean BDI Score</th>
<th>SD BDI score</th>
<th>Mean STAI Score</th>
<th>SD STAI score</th>
</tr>
</thead>
<tbody>
<tr>
<td>international</td>
<td>300</td>
<td>14.93</td>
<td>4.99</td>
<td>40.50</td>
<td>10.05</td>
</tr>
<tr>
<td>Public</td>
<td>300</td>
<td>19.45</td>
<td>4.95</td>
<td>49.26</td>
<td>9.62</td>
</tr>
</tbody>
</table>

Table 1: Descriptive Statistics for BDI and STAI Score by school Type
Independent samples t-tests were conducted to compare the average BDI and STAI scores between students in public and international high schools.

There was a significant difference in BDI scores between public high school students and international high school students, \( t(598) = 11.14, p < 0.001 \). Students in public high schools had significantly higher depression scores compared to their counterparts in international high schools (Mean difference = 4.52, 95% CI [3.75, 5.29]).

Similarly, there was a significant difference in STAI scores between public high school students and international high school students, \( t(598) = 10.90, p < 0.001 \). Students in public high schools reported significantly higher anxiety levels compared to those in international high schools (Mean difference = 8.76, 95% CI [7.14, 10.38]).

<table>
<thead>
<tr>
<th>Variable</th>
<th>T-statistic</th>
<th>p-value</th>
<th>Mean Difference</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI score</td>
<td>11.14</td>
<td>2.63*10^-26</td>
<td>4.52</td>
<td>[3.75,5.29]</td>
</tr>
<tr>
<td>STAI score</td>
<td>10.90</td>
<td>2.23*10^-25</td>
<td>8.76</td>
<td>[7.14,10.38]</td>
</tr>
</tbody>
</table>

Chi-square tests were performed to compare the proportions of students registered with depression and anxiety in public versus international schools. The results are presented in Tables 3 and 4.

### Table 3: Chi-square Test for Registered Depression

<table>
<thead>
<tr>
<th>School Type</th>
<th>Registered Depression</th>
<th>Not Registered Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>45</td>
<td>255</td>
</tr>
<tr>
<td>International</td>
<td>30</td>
<td>270</td>
</tr>
<tr>
<td>Chi-square statistic</td>
<td>2.99</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.084</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Chi-Square Test for registered Anxiety

<table>
<thead>
<tr>
<th>School type</th>
<th>Registered Anxiety</th>
<th>Not registered Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>60</td>
<td>240</td>
</tr>
<tr>
<td>International</td>
<td>45</td>
<td>255</td>
</tr>
<tr>
<td>Chi-square statistic</td>
<td>2.26</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.133</td>
<td></td>
</tr>
</tbody>
</table>

The chi-square tests indicate that there is no statistically significant difference in the proportions of students registered with depression (\( \chi^2(1, N = 600) = 2.99, p = 0.084 \)) and anxiety (\( \chi^2(1, N = 600) = 2.26, p = 0.133 \)) between public and international schools. Despite the higher number of registered cases in public schools, the differences do not reach the conventional level of statistical significance.

### 4.2 Quantitative Result

#### 4.2.1 Teacher-Student Relationships

Teachers in the two schools have different expectations of their students in different national cultures and dominant societal perspectives. From the interviews and surveys, it was observed that the different expectations affect the way teachers and students get along with each other, which in turn affects the students’ perception of stress.

Many students in public school reported a formal and hierarchical relationship with their teachers. Students felt that teachers were primarily focused on academic performance and less on personal well-being. One student mentioned, “Our teachers are very strict and always emphasize grades. It’s hard to talk to them about personal issues.” Many students reported that their teachers treated them as subordinates rather than as equal individuals, and that the teachers focused on obedience and showed strong negativity and rejection of disobedience. Under such circumstances, students found it difficult to feel an emotional connection with their teachers, and felt more of a sense of constraint and repression of being managed and oppressed. One student in particular emphasized that every time he faced his teacher, he felt a sense of suffocation from the loss of freedom. In addition, pressure for grades cause more tense teacher-student relationships. The core of education in the public senior high
The school system lies in the results of the college entrance examination, and for teachers, the results of the classes and subjects they teach are the most important indicators of their titles and evaluations. In this case, students' poor academic performance will directly lead to the negation and punishment of teachers by the current evaluation system. To a certain extent, this has intensified tensions between students and teachers. We noted that in general public high schools, students experienced more frequent conflicts in their interactions with teachers, and many students, when discussing their depression and anxiety, referred to several teachers who typically “made them miserable”. They described in depth how their teachers' expressions of irritability and anger induced fear and low self-esteem, and how these arguments and conflicts arose simply because of grades. What’s more, many public school student students expressed that they did not feel supported by their teachers in dealing with mental health issues. A teacher admitted, "We have a large number of students, and it's challenging to provide individual attention."

On the other hands, international school students usually have closer connection with their teachers. Students generally described their relationships with teachers as more approachable and supportive. One student stated, "Our teachers are very understanding and always willing to listen. They care about our overall development, not just academics." In international schools, students and teachers establish a strong bond and cultivate a warm friendship, which transcends the classroom setting. This close connection enables teachers to gain a deeper understanding of their students' daily academic progress and emotional well-being. By demonstrating empathy and kindness as an authoritative figure in the classroom and engaging in casual conversations as equals after class, teachers effectively foster an environment where students feel comfortable and confident to communicate openly with their educators.

In addition, teachers in international schools were reported to adopt a holistic approach to education, emphasizing both academic and personal growth. A teacher noted, "We focus on building trust with students and supporting them in all aspects of their lives." This aspect can also be reflected in the work system of ordinary international schools. In school, teachers usually assign various forms of homework, such as article creation, group cooperation and self-learning.

4.2.2. Peer Relationships

Due to the different education systems, there are different expectations for students, which leads to different patterns of getting along with classmates in the two types of schools as well. This difference in peer relationships also affects the performance of adolescents' psychological state.

In Public High Schools, students often described their peer relationships as competitive. This competitive atmosphere sometimes led to stress and anxiety. A student explained, "Everyone is competing for the top ranks. It creates a lot of pressure and sometimes causes conflicts." What more, parents and teacher also encourage students to compare with other classmate. The most common word by teacher and parents is “One point above others is more than a playground of people.”

Besides students usually have limited social support in school. Some students felt isolated and lacked strong social support from their peers. One student shared, "It's hard to find genuine friends because everyone is so focused on their studies." In many school, grade is everything, as long as you do not study well, no one wants to be friends with you.

On the contrast, international high school always provide a more collaborative environment, which many students reported a more collaborative and supportive peer environment. One student mentioned, "We help each other with schoolwork and personal issues. There's a sense of community."

What’s more school promotes diverse friendships. The international school setting provided opportunities for students to form friendships with peers from diverse backgrounds, identity or countries. A student noted, "I have friends from different countries, and we learn a lot of useful knowledge, and convention of different culture from each other."

4.2.3. Academic Pressure

Students of Public High Schools describe their pressure as “High Stakes”. For them Academic pressure has a significant theme, with students describing an intense focus on exams and grades. Their
teach also conduct frequent pop quiz for them. One student stated, "The pressure to perform well in exams is overwhelming. It's a constant source of stress." Parents also have high expectations in academic performance towards student. Many students felt additional pressure from their parents to achieve high academic standards. A student shared, "My parents expect me to get top grades, and it's very stressful."

However, in international education system, students have more balanced approach of academic study and support system. Students described a more balanced approach to academics, with an emphasis on both academic achievement and personal development. A student explained, "We have a lot of projects and activities that make learning enjoyable and less stressful." School not only pay attention on teenager’s knowledge acquirement, but also held various activities and program for students to practice their soft skills. Also, International schools often provided more robust support systems for managing academic pressure, including counseling services and stress management workshops. A teacher noted, "We have resources to help students cope with academic stress and maintain a healthy balance." School and family connection and collaboration are also mentioned by school.

5. Discussion

The findings suggest that the educational environment in public high schools may be contributing to higher levels of depression and anxiety among students. The formal and competitive nature of these schools, coupled with intense academic pressure, appears to negatively impact students' mental health. In contrast, the supportive and holistic environment in international schools fosters better mental health outcomes.

There are three supportive recommendations below. First, enhance teacher support. Public schools should consider training teachers to build more supportive and approachable relationships with students, emphasizing the importance of personal well-being alongside academic achievement.

Second, school should foster peer support networks. School and teachers should work to encourage collaborative and supportive peer relationships, which can help reduce feelings of isolation and competition among students. For instance, more group work and collaborative project should be promoted between students.

Third, school leader should work to balance academic demands, which mean introducing diverse learning activities and stress management skills. These extra activities can help mitigate the negative effects of academic pressure in public school. Policymakers and educators should also focus on creating balanced educational environments that prioritize both academic success and mental health.

Through literature review, data collection and interviews with teenagers and parents, it is clear that education today should not only focus on the knowledge of teenagers, but also on quality education. An education system that emphasizes too much on competition and achievement will destroy children's mental health. More importantly, the reform and improvement of education should pay attention to the fundamental differences in national cultures and social expectations, in addition to the differences in the surface system and the system of evaluating students. If we simply imitate international education, the result will not be very desirable.

6. Conclusion

This study investigated the impact of different school education systems on adolescent mental health, specifically focusing on depression and anxiety, in Beijing. The findings from both quantitative and qualitative components provide comprehensive insights into how public and international school environments influence students' mental health.

6.1 Quantitative Findings

The quantitative analysis revealed that students in public high schools reported significantly higher levels of depression and anxiety compared to their peers in international high schools. The mean
scores on the Beck Depression Inventory (BDI) and State-Trait Anxiety Inventory (STAI) were significantly higher for public school students, indicating more severe mental health issues. Although the chi-square tests for registered cases of depression and anxiety showed more cases in public schools, these differences did not reach statistical significance. These results suggest that the competitive and high-pressure environment in public schools may contribute to increased mental health challenges among students.

6.1 Qualitative Findings

The qualitative analysis further elucidated the factors contributing to these quantitative results. Interviews with students, teachers, and parents highlighted that public high schools tend to have more formal and hierarchical teacher-student relationships, competitive peer dynamics, and intense academic pressure. In contrast, international high schools were characterized by more supportive and approachable teacher-student relationships, collaborative peer interactions, and a balanced approach to academics that includes robust support systems for managing stress. These environmental differences likely play a critical role in shaping the mental health outcomes observed in the quantitative data.

6.2 Implications

The study underscores the importance of creating supportive and balanced educational environments to promote better mental health outcomes for students. Public schools, in particular, may benefit from adopting practices that are more democratic, diversified and international education manner.

References


