

Exploring Factors Affecting Depression among Chinese Adolescents

Jiaqi Guo

St. Bernard's Academy, Eureka, CA, 95501, United States

carolspring2417@gmail.com

Abstract. In order to explore possible solutions to depression, this paper examined several causes of depression in adolescents. The researcher conducted an online questionnaire made by multiple surveys to examine the mental health state of the participants. They are BDI-21, explicitly self-report questions, and a self-developed survey about stressors and social support. The results showed that most of the participants had different levels of depression. Among all the factors tested, parental pressure had the worst effect on teenagers, followed by academic pressure and social relationships. Conversely, social support can positively impact adolescents' mental health. Furthermore, according to the data, females are more likely to have depression than males.

Keywords: Depression; Adolescent; Middle School and High School Students; Chinese; BDI-21; Gender.

1. Introduction

In contemporary society, depression has become one of the significant global afflictions. It ranks among the top four major diseases and is a prevalent mental health issues among adolescents (World Health Organization [WHO], 2021). Presently, it stands as a primary catalyst for suicidal tendencies among adolescents. This phenomenon can be attributed to the rapid progress of societal development, leading to heightened pressures and intensified lifestyles [Zhang et al., 2019; A Masood et al., 2018]. Notably, the demanding pursuit of excellence in academia, coupled with increased societal expectations, parental aspirations, peer influence, and broader social issues, inundates students with overwhelming burdens. Consequently, a significant proportion of teenagers worldwide grapple with psychological and mental challenges.

In the context of China, incidents of adolescent suicide linked to depression frequently make headlines. As the frequency of such tragic events continues to rise, public awareness regarding the mental well-being of young individuals has surged. Despite this heightened attention, a considerable number of Chinese individuals still exhibit resistance when discussing mental illnesses, resulting in a detrimental disregard for mental health. Several surveys have shown high public prejudice [Li et al., 2018; Liu et al., 2016; Huang et al., 2019] and low knowledge about depression [Wang et al., 2008; Wong et al., 2002]. These factors collectively contribute to the aggravation of severe complications. In our contemporary era of material abundance, the dearth of spiritual fulfillment has emerged as an urgent concern, with depression serving as an archetypal manifestation. Proactive prevention and effective treatment of depression hold the potential to salvage lives, enabling healthy and prosperous growth among affected individuals. Moreover, such measures contribute to the nation's progress and elevate the overall quality of life for humanity as a whole.

Depression is a common and serious medical illness that has a profound impact on how a person feels, thinks, and behaves. It is a condition that has biological roots and significant psychological and social implications. To receive a diagnosis of depression, symptoms must last at least two weeks and must represent a change in your previous level of functioning for a diagnosis of depression. For example, feeling sad or having a depressed mood, loss of interest or pleasure in activities once enjoyed (APA).

Globally, approximately 14% of individuals aged 10-19 are experiencing a mental health disorder (World Health Organization [WHO], 2021) High school students are at a stage of life where they are



experiencing rapid physical and behavioral changes [Louis-Jacques et al., 2011; Neinstein et al., 2008] that increase the risk of anxiety, depression, and other mental health problems [Hale et al., 2015; Ng et al., 2008; Emami et al., 2007]. In fact, many youth experience chronic stress so great that their ability to succeed academically is actually impaired, mental health functioning is impaired, and the incidence of risky behaviors is on the rise. In addition, this chronic stress from high school seems to persist into college and can lead to academic disconnection and mental health (National Ctr on Addiction, and Substance Abuse at Columbia University, 2003).

Multiple factors influence the level of depression, including stress related to academic stress, parental expectation related stress, social relationship and social support. Research shows that adolescents experiencing academic stress are 2.4 times more likely to suffer from depression to those without academic stress (P. Jayanthi et al., 2015). Another study found a positive association between high parental expectations and depression in adolescents (Ying ma et al., 2018). Negative aspects of social relationship, such as troubled friendships and romantic relationships have been found linked to depressive symptoms (Greca et al., 2010). Additionally, a perceived lack of social support has been shown to increase the prevalence of depression among adolescents (Kaltiala-Heino et al., 2001).

1.1. The Present Study

Based on the above-mentioned literature, the present study examined depression in a group of middle and high school students. Particularly, it explored awareness of depression and major causes, such as stress or pressure, as well as some demographic information, such as gender or age, for depression.

Based on previous research, three hypotheses were tested. *Hypothesis 1* is that the participants would show some degree of depression. *Hypothesis 2* is that gender would affect depression, such that females would show higher level of depression. *Hypothesis 3* is that participants would show academic stress, stress about parents' expectation, and stress related to social relationships (H3a), and more importantly those stressors would be related to more depression (H3b), and more social support would be related to less depression (H3c).

2. Method

2.1. Participants

The sample included 57 Chinese teenagers aged 15 to 18 (17 boys, 36 girls, 2 other genders; M age = 16.63 years old, SD = 0.94) who participated in the study. Participants were Han Chinese from different middle schools and high schools in China (students are from Beijing, Tianjin, Shandong and Inner Mongolia).

2.2. Measures

The participants are middle and high students who are aged 15 to 18 from different middle schools and high schools in China. The questionnaire used for the present study was created by multiple surveys, including BDI-21, explicitly self-report questions, and a self-developed survey about stressors and social support.

(1) Measures to assess depression. Two scales were used to measure students' depression. First, BDI-21 was used. BDI-21 is The Beck Depression Inventory (BDI) is a 21-item, self-report rating inventory that measures characteristic attitudes and symptoms of depression created by Dr. Aaron T. Beck (Beck, et al., 1961). Each question has a scoring scale 0-3. For example, one of the questions in BDI-21 is about emotion. 0--I don't feel sad; 1--I feel sad; 2--I feel sad all day, and I can't change this emotion; 3--I feel too sad or unhappy to withstand. The total score for each individual was calculated by adding the points of each question together. There are five possible outcomes. If their final score is 1-10, it means their emotion ups and downs are considered normal. If their final score is 11-16, it means they have mild mood disturbance. If their final score is 17-20, it means they have borderline clinical depression. If their final score is 21-30, it means they have moderate depression.

If their final score is 31-40, it means they have severe depression. If their final score is above 40, it means they have extreme depression.

Second, one question was asked to measure students self-report of explicit depression. A 10-point Likert Scale was used (1-not depressed at all, 5-neutral, 10-serious depression). A follow-up fill-in-the-blank question examined the reasons why they think they have depression or not.

(2) Survey to measure stressors and social relationship and social support. A self-developed survey was delivered to measure self-reported stressors and social support. A total of 15 questions were included, asking about academic-related stress, parent-related stress, and social-relationship-related stress. A 5-point Likert Scale was used (e.g., How do you feel about your grades over the past three months? 1- very bad; 2 – bad; 3 – so so, 4 – good; 5- very good). Additionally, students' initiative to find social support was also measured before the social-supported questions (e.g., When you feel depressed, will you seek help from Significant other in your life? Yes or No).

(3) Demographic questionnaire. Students' demographics, such as age (birthdate), gender, current living city, and SES (personal monthly living expense) were measured. It took students about 2 minutes to complete the demographic questions.

3. Results

To examine the Hypothesis 1 that participants would show depression, several analyses were conducted. The BDI-21 result showed that there was about 19.30% of all 57 Chinese middle school and high school students who are suffering from depression (BDI score equals and above 21), and about 14.04% of all 57 participants showed borderline clinical depression (BDI score between 17 to 20). Overall, 33.33 % of 57 students showed borderline or clinical depression. Additionally, a mean score was calculated, $M = 11.96$.

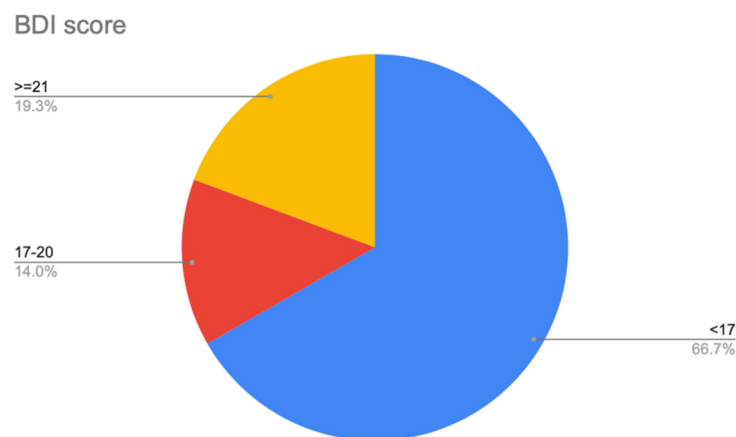


Figure 1. Distribution of the percentage of BDI scores

We also measured participants' explicit depression by self-reporting the probability of having depression. The mean score is 2.02. Boys and girls scores were calculated separately, $M_{boy}=1.24$, $M_{girl}=2.18$. These scores showed that girls are more likely than boys to have depression. Finally, a mean BDI score was calculated for boys and girls separately, $M_{boy}= 7.65$, $M_{girl} = 13.25$. The result again suggested that girls are more likely than boys to have depression. Conclusively, the findings are consistent with Hypothesis 2 that gender would affect depression, and females would show higher level of depression.

Regarding Hypothesis 3a that participants would show academic stress, stress about parents' expectation, stress related to social relationships, and those related to social support, we found that, the mean score of stress overall is about 3.22. Additionally, separate scores were calculated for four components, $M_{academic\ stress} = 3.17$, $M_{stress\ from\ parents} = 3.32$, $M_{social\ relationship} = 2.37$, $M_{social\ support} = 3.06$.

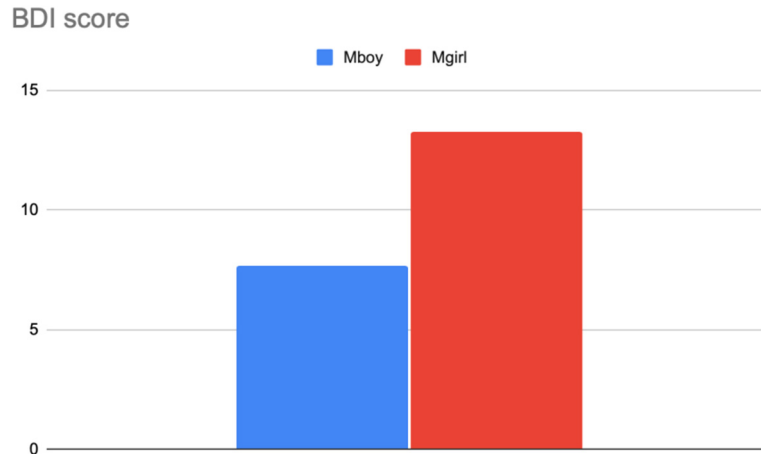


Figure 2. Mean BDI scores for boys and girls

To examine Hypothesis 3b that more stress would be related to higher levels of depression, a correlational analysis was conducted. The correlation (R) between the BDI-21 score and the stress level is 0.4223. This score showed that more stress was positively correlated with depression, suggesting that students who experienced more stress showed higher level of depression.

Lastly, regarding Hypothesis 3c, the same correlation analysis was performed. The correlation (R) between the BDI-21 score and the social support score is -0.24. The score showed that social support was negatively correlated with depression, suggesting that students who have more social support from others showed lower level of depression.

4. Discussion

This paper explores the prevalence and underlying factors contributing to adolescent depression in China. With the rapid societal development, academic pressures, parental expectations, peer pressure, and broader social issues converge to create overwhelming burdens for Chinese middle school and high school students. The study investigated the awareness of depression and its major causes, including academic stress, parental expectations, and social relationships. Through a sample of 57 Chinese teenagers aged 15 to 18, the research utilized the Beck Depression Inventory (BDI) and self-developed surveys on stressors and social support. The findings reveal a notable percentage of students experiencing depression, with gender differences indicating higher levels among females. Academic stress, parental expectations, and social relationship stress are identified as statistically significant contributors, positively correlating with depression. Conversely, social support demonstrates a negative correlation, suggesting a potential mitigating factor.

First of all, consistent with Hypothesis 1, participants showed some degree of depression. Specifically, the results presented indicate that about 19.30% of Chinese middle school and high school students are suffering from depression, with an additional 14.04% showing borderline clinical depression. Overall, 33.33% of students showed borderline or clinical depression. Noticeably, in the present study, 70.18% of all 57 participants all know have someone close to them who is suffering from depression. This finding is consistent with previous literature. Zgambo et al. (2012) demonstrated that the prevalence of depression symptoms in Chinese adolescents is high (Zgambo et al., 2021). Luo et al. (2020) demonstrated that 48.1% of adolescents in Henan, one of the most populous provinces, shows significant mental health problems. These students also performed with noticeable amounts depression symptoms (Luo et al., 2020).

As hypothesized, gender affect depression. Females presented higher level of depression than males. Moreover, the data suggested that females believed they are more likely to suffer from depression than males. The result is consistent with previous studies. Compared with males, females exhibited higher rates of depression and acuter depressive symptoms across age groups (Sun Y et al., 2023).

Another study also found that the prevalence of depression in adolescent females was approximately twice of adolescent males (Weaver A et al., 2018). In addition to difficult interpersonal relationships, higher levels of worry (Muris P et al., 2004; Sweeny K et al., 2019) may further explain gender differences in adolescent depression problems (Espinosa F et al., 2022). The current study also found that females face more stress, and it is very likely that they will perform passive behavior when they are under huge pressure (Griffith M.A. et al., 1993). Even when women and men face the same stressors, the gender differences still exist in the self-concept of males and females (Nolen-Hoeksema S et al., 1994), physiological responses (Nolen-Hoeksema S et al., 1994; Nolen-Hoeksema S et al., 1995), and coping styles (Nolen-Hoeksema S et al., 2001), which may lead to the fact that women are more likely to suffer from depression-related symptoms.

Lastly, participants showed academic stress and stress related to parental expectations and social relationships, and these stresses are related to high levels of depression. Additionally, more social support is related to less depression. This finding is consistent with previous literature. Chinese students are commonly perceived to shoulder a substantial academic load and experience pressure due to elevated parental expectations and intense competition with their peers (Sun et al., 2012). Students who experience more academic stress are more likely to suffer from various symptoms of mental distress such as depression (Boujut E et al., 2009; Feldman L et al., 2008; Huang N. et al., 2020; Reisbig AMJ et al., 2012). Undoubtedly, academic stress is a risk factor for adolescent mental health, and it is worth noting that high academic stress and peer pressure are triggered by parental expectations. In order to meet their parents' expectations, middle and high school students have to work hard compete with others to achieve success in academic performance, which may push them to the edge of depression or even suffer from depression (Pui et al., 2022). Ironically, one of the unwanted outcomes of depression is poor academic performance (Pui et al., 2022). However, social support has a therapeutic effect on depressive symptoms that are already developed (Henderson, A. S., 1992). Related study shows that receiving social support in mitigating subsequent depression was prominent only under high stress levels (Cheng C., 2006). Social support plays a positive role in the improvement of mental health by helping individuals to feel appreciated and connected with society. The feeling of being supported is related to lower levels of mental health issues and therefore acts as a protector against depression (Camara & Padilla, Citation2017; Dafaalla et al., Citation2016; Kugbey, Citation2015). Thus, all families should try to support their children as best as they can to prevent them from suffering from depression.

There are several limitations of this study that need to be acknowledged. For an instance, the limited sample size may limit the generalizability of the finding. In the future research, the researchers should recruit more participants to expand the diversity of the pool. Second, all participants filled out the survey online, and the survey was quite long. The possibility that they may lose patience and choose to fill in the answers carelessly cannot be ignored. Future survey would be more direct and shorter.

To conclude, this study explores the possible causes of depression in adolescents, and sheds light on the intricate dynamics of adolescent depression in China, emphasizing the urgent need for proactive prevention and effective intervention strategies to enhance the mental well-being of the younger generation. For an instance, it is crucial to develop thorough psychological counseling program in schools to provide help to the adolescents who suffer from mental stress, especially those associated with academic stress. Furthermore, all the parents, as well as the whole society, should pay attention to and care about the mental health of teenagers by providing significant support and reduce their expectations to relieve the burden on their children. Third, the Chinese government should implement practical measures to improve the mental health of teenagers, such as increasing the publicity of social mental health, letting parents know the depressive symptoms and help their children. The number of Chinese teenagers suffering from depression keeps rising every moment, and China still has a long way to go to improve the current negative state of mental health and find an efficient way to cure depression.

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Appendix

(1) Beck Depression Inventory (self-scored) BDI-21 items

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1.

- 0 I do not feel sad.
- 1 I feel sad.
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad and unhappy that I can't stand it.

2.

- 0 I am not particularly discouraged about the future.
- 1 I feel discouraged about the future.
- 2 I feel I have nothing to look forward to.
- 3 I feel the future is hopeless and that things cannot improve.

3.

- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see is a lot of failures.
- 3 I feel I am a complete failure as a person.

4.

- 0 I get as much satisfaction out of things as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

5.

- 0 I don't feel particularly guilty.
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6.

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7.

- 0 I don't feel disappointed in myself.

- 1 I am disappointed in myself.
 - 2 I am disgusted with myself.
 - 3 I hate myself.
- 8.
- 0 I don't feel I am any worse than anybody else.
 - 1 I am critical of myself for my weaknesses or mistakes.
 - 2 I blame myself all the time for my faults.
 - 3 I blame myself for everything bad that happens.
- 9.
- 0 I don't have any thoughts of killing myself.
 - 1 I have thoughts of killing myself, but I would not carry them out.
 - 2 I would like to kill myself.
 - 3 I would kill myself if I had the chance.
- 10.
- 0 I don't cry any more than usual.
 - 1 I cry more now than I used to.
 - 2 I cry all the time now.
 - 3 I used to be able to cry, but now I can't cry even though I want to.
- 11.
- 0 I am no more irritated by things than I ever was.
 - 1 I am slightly more irritated now than usual.
 - 2 I am quite annoyed or irritated a good deal of the time.
 - 3 I feel irritated all the time.
- 12.
- 0 I have not lost interest in other people.
 - 1 I am less interested in other people than I used to be.
 - 2 I have lost most of my interest in other people.
 - 3 I have lost all of my interest in other people.
- 13.
- 0 I make decisions about as well as I ever could.
 - 1 I put off making decisions more than I used to.
 - 2 I have greater difficulty in making decisions more than I used to.
 - 3 I can't make decisions at all anymore.
- 14.
- 0 I don't feel that I look any worse than I used to.
 - 1 I am worried that I am looking old or unattractive.
 - 2 I feel there are permanent changes in my appearance that make me look unattractive.

- 3 I believe that I look ugly.
- 15.
- 0 I can work about as well as before.
- 1 It takes an extra effort to get started at doing something.
- 2 I have to push myself very hard to do anything.
- 3 I can't do any work at all.
- 16.
- 0 I can sleep as well as usual.
- 1 I don't sleep as well as I used to.
- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
- 3 I wake up several hours earlier than I used to and cannot get back to sleep.
- 17.
- 0 I don't get more tired than usual.
- 1 I get tired more easily than I used to.
- 2 I get tired from doing almost anything.
- 3 I am too tired to do anything.
- 18.
- 0 My appetite is no worse than usual.
- 1 My appetite is not as good as it used to be.
- 2 My appetite is much worse now.
- 3 I have no appetite at all anymore.
- 19.
- 0 I haven't lost much weight, if any, lately.
- 1 I have lost more than five pounds.
- 2 I have lost more than ten pounds.
- 3 I have lost more than fifteen pounds.
- 20.
- 0 I am no more worried my health than usual.
- 1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
- 2 I am very worried about physical problems and it's hard to think of much else.
- 3 I am so worried about my physical problems that I cannot think of anything else.
- 21.
- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I have almost no interest in sex.
- 3 I have lost interest in sex completely.

Scoring scale:

Total Score _____ Levels of Depression

1-10---These ups and downs are considered normal

11-16---Mild mood disturbance

17-20---Borderline clinical depression

21-30---Moderate depression

31-40---Severe depression

over 40---Extreme depression

There is a Chinese version of BDI-21 items---- <https://www.wjx.cn/jq/110853770.aspx>

This version has the exact same scoring criteria as the English version.

One of the BDI-21 items in the questionnaire is about sadness. 0 is I do not feel sad; 1 is I feel sad; 2 is I am sad all the time and I can't snap out of it; 3 is I am so sad and unhappy that I can't stand it.

(2) Explicitly self-report

First, asking the respondents to grade themselves by intuition through 1-10, 1-not depressed at all, 5-neutral, 10-serious depression.

Then, according to the score to ask them why do they think they have depression or not.

(3) Likert scale 1-5

Academic stress---question a-d

a. How do you feel about your grades over the past three months?

1- very bad; 2 – bad; 3 – so so, 4 – good; 5- very good

b. How much do you worried about your grades?

1-not worried at all; 5-extremely worried

c. How often do you think about your college entrance examination?

1- not thinking at all; 5-thinking every day

d. How much do you worried about your future after senior year in high school?

1- not worried at all; 5- worried very much

Stress from parents---question e-f

e. How important it is to you to meet your parents' expectation?

1-not important at all; 5- extremely important

f. How much do you worry about not meeting your parents' expectation over the past one month?

1- not worried at all; 5- extremely worried

Social support from friends/relatives/significant others/psychologists--question g-q

g. How was your relationship with your classmates/friends in the school?

1- super good; 5- extremely bad

h. If you have a girlfriend/boyfriend, how was your relationship with her/him at present?

1- be deeply attached to each other; 5-extremely bad

i. What is the degree of distress this romantic relationship has caused you?

1- no influence at all; 5-super painful

j. To what extent do you feel cared for and helped by friends?

1- not be helped at all; 5- always

k. To what extent do your parents care and support you when you are in a bad mood?

1- not be cared at all; 5- very caring, and they loved me from the bottom of their hearts

l. How do you feel about your parents' support for you?

1- I can't feel anything at all; 5- I think they genuinely love me

m. When you are in a bad mood, how much do your relatives and friends care about you?

1- They don't care about me at all; 5- they really cared about me and my mentally and physically health

n. When you feel depressed, will you seek help from Significant other in your life?

Yes/No

o. How often do you seek help from significant other in your life?

1- Never; 5- everyday

p. Would you seek help from a psychologist or teacher when you are depressed? (Chat and Talk)

Yes/No

q. How often do you chat and confide with a psychologist/teacher?

1- Occasionally; 5- everyday