Mental Health Problems, Symptoms of Insomnia, Psychological Resilience, and Perceived Social Support among Chinese College Students

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Abstract

In order to evaluate the mental health status and related factors of college students during the pandemic, researchers conducted online surveys on mental health problems, insomnia symptoms, psychological resilience, and perceived social support in three universities in Shandong Province, China. A total of 296 people completed the questionnaire. Psychological health problems and insomnia symptoms among college students are positively correlated with age and academic year, while negatively correlated with resilience and perceived social support. Education managers should focus on improving the psychological resilience and understanding social support of college students to promote mental health.

Keywords

COVID-19, Psychological resilience, Perceived social support, Mental health problems, Insomnia.

1. Introduction

The vast majority of people worldwide have been impacted by coronavirus disease (COVID-19). In addition to millions of people infected with the disease, local and national governments have also required billions of people to change their behavior patterns. Previous studies of epidemic or traumatic events have shown that this can lead to profound behavioral and mental health changes. In the first half of 2020, the evaluation of the mental health of Chinese and American college students showed that the degree of anxiety and depression increased after the pandemic[1-3]. However, specific studies on the relationship among college students' psychological resilience, mental health problems and perceived social support remain lacking.

2. Methods

2.1. Participants

Three cities (Jinan, Qingdao, Yantai) were randomly selected from 16 cities in Shandong Province, and one university was selected from each of these cities for this survey. One class was chosen from each university for Freshman, Sophomore, and Junior levels of two majors (medical and non-medical). The exclusion criteria were as follows: in other grades; mental disorders; cognitive impairment; not proficient in using smart devices.

For the convenience of unified management, each class selected for the university has its own WeChat group, which includes all undergraduate students. All participants in the survey came from these WeChat groups, and no one was infected with COVID-19. According to the purposeful sampling, researcher recruited volunteers of corresponding grades from three

randomly selected universities to participate in an online survey of College Students' mental health problems, insomnia, resilience and social support.

2.2. Measures

Patient Health Questionnaire-9 (PHQ-9) This was the tool used in measuring college students' mental health in terms of symptoms of depression. 9 items were scored on a four point scale of 0 to 3, and the participants' scores reflected the depression experienced in the previous two weeks (0-not at all, 1-A few days, 2-more than half of the two-week period, almost 3 every day). In this study, the Cronbach's α coefficient of the scale was 0.930, which indicated good reliability and validity.

Generalized Anxiety Disorder Scale (GAD-7) This was the standardized test used in measuring college student's mental health in terms of anxiety. 7 items were scored on a four point scale of 0 to 3, and the participants' scores reflected the anxiety experienced in the previous two weeks (0-not at all, 1-A few days, 2-more than half of the two-week period, almost 3 every day). The Cronbach's α coefficient of the scale was 0.941, which indicated good reliability and validity.

Insomnia Severity Index (ISI) This was the standardized test employed in determining the presence of insomnia symptoms among medical and non-medical college students. Insomnia symptoms were assessed by the ISI, a seven item self-report index that evaluates the severity of initial, intermediate, and late insomnia, the interference of sleep problems with daily functions, satisfaction with current sleep patterns, the significance of disorders caused by sleep problems, and concerns about sleep problems. These items were scored on a five point scale of 0 to 4, and participants rated sleep related experiences in the previous two weeks. The total score ranges from 0 to 28 (0-7: no insomnia, 8-14: mild insomnia, 15-21: moderate insomnia, 22-28: severe insomnia). In this study, the Cronbach's α coefficient of the scale was 0.924, which indicated good reliability and validity.

Connor-Davidson Resilience Scale (CD-RISC) The Connor-Davidson Resilience Scale (CD-RISC) is a self-rating scale that was currently translated into multiple versions and was widely used for the measurement of psychological resilience in different populations and different situations (Tourunen A et al.,2021; Blanco V et al.,2019; Xie et al.,2016). Chinese investigator Yu (2007) translated the scale into a Chinese version with internal consistency reliability of 0.91 and Cronbach's α ranging between 0.60 and 0.88. In this study, the Cronbach's α coefficient of the scale was 0.962, which indicated good reliability and validity.

Perceived Social Support Scale (PSSS) The perceived social support scale (PSSS) was compiled by Blumenthal in 1987, and then translated and modified by Jiang Qianjin. The Zimetm perceived social support scale (PSSS) was formed into a Chinese version. The perceived social support scale has 12 items and 3 subscales, including dimensions such as family support, friend support and others' support. In this study, the Cronbach's α coefficient of the scale was 0.944, which indicated good reliability and validity.

2.3. Procedure

The researcher began to administer the tests by sending a mini program with questionnaires to the WeChat group, notifying each student and welcoming them to participate in the online survey. Before replying, all students were informed of the purpose of the survey, aimed at better understanding the mental health status of college students related to the COVID-19 pandemic. Participants who fail to complete the survey will receive warnings from online mini programs for unanswered questions. Online mini programs do not issue warnings to those who give up. As a result, the participants were those who voluntarily participated in the online survey and completed all the questions in the questionnaire.

2.4. Statistical Analysis

Statistical analysis was performed using SPSS version 26.0. In describing the profile of the respondents, frequency and percentage were use while in measuring the mental health problems of the respondents in terms of depression, anxiety, insomnia symptoms, psychological resilience and perceived social support, weighted mean was used. In testing the differences of the variables based on the profile of the respondents, analysis of variance (ANOVA) was employed. In addition, since correlation among the variables of the study was measured, Pearson correlation analysis (Pearson r) was utilized.

3. Results

3.1. Respondent's Demographic Profile

Majority of the respondents are females, 18 years old, and non-medical college freshmen from urban areas which means that education in Shandong province in China was dominated by female non-medical students.

Table 1. Respondent's Demographic Profile (n= 296)

	f	%
Sex		
Male	144	48.6
Female	152	51.4
Age		
18 years old	142	48.0
19 years old	80	27.0
20 years old	54	18.2
21 years old	15	5.1
22 years old	5	1.7
Major		
Medical	124	41.9
Non-medical	172	58.1
Class Year		
Freshman	173	58.4
Sophomore	101	34.1
Junior	22	7.4
Residence		
Urban	209	70.6
Rural	87	29.4

3.2. Symptoms of Depression

There are statistical differences in depression scores among college students aged 21, 20, 19, and 18(P=0.000), and the older the age, the higher the depression score. Freshmen scored lowest on depression, followed by sophomores and highest among juniors (P=0.000). And non-medical students have lower depression scores than medical students (P<0.05). College students from urban families were less depressed than college students from rural families (P<0.05).

Table 2. Difference on the Respondents' Symptoms of Depression
when compared according to Profile (n= 296)

	t/f	p-value	Interpretation
Age	15.153	.000	Significant
Sex	-.387	.699	Not Significant
Major	2.246	.025	Significant
Class Year	23.381	.000	Significant
Residence	-2.173	.031	Significant

Legend: Difference is significant at 0.05 alpha level; Those highlighted in green is considered significant

3.3. Anxiety Symptoms

Age was found significant to anxiety of the respondents as shown by computed t or f and p-values of 9.420 and .000. Freshmen scored lowest on anxiety, followed by sophomores and highest among juniors (P<0.001). There were no p-value lower than 0.05 suggesting concerning of other profile.

Table 3. Difference on the Respondents Anxiety when compared according to Profile (n= 296)

	t/f	p-value	Interpretation
Age	9.420	.000	Significant
Sex	-.134	.894	Not Significant
Major	.369	.712	Not Significant
Class Year	12.199	.000	Significant
Residence	-1.609	.109	Not Significant

Legend: Difference is significant at 0.05 alpha level; Those highlighted in green is considered significant

3.4. Insomnia Symptoms

Age and class year are positively correlated with insomnia scores (P<0.001), while rural areas are negatively correlated with insomnia scores (P=0.003). Freshmen scored lowest on insomnia, followed by sophomores and highest among juniors (P<0.001). College students from rural families had less insomnia than college students from urban families (P<0.01).

Table 4. Difference on the Respondents Insomnia when compared according to Profile (n= 296)

	t/f	p-value	Interpretation
Age	8.956	.000	Significant
Sex	.854	.394	Not Significant
Major	1.739	.083	Not Significant
Class Year	12.502	.000	Significant
Countryside	-2.963	.003	Significant

Legend: Difference is significant at 0.05 alpha level; Those highlighted in green is considered significant.

3.5. Perceived Social Support

Only age of the respondents has significant statistical differences on the respondents' perceived social support ($P<0.05$). Perceived social support scores decrease with age. There were no differences in the scores of perceived social support among sex, class year, major, and residence.

Table 5. Difference on the Respondents Perceived Social Support
when compared according to Profile (n= 296)

	Friends		Family		Significant Other		Overall Perceived Social Support	
	t/f	p-value	t/f	p-value	t/f	p-value	t/f	p-value
Age	-4.278	.002	-2.185	.071	-2.781	.027	-2.969	.020
Sex	-.871	.384	-.843	.400	-.632	.528	-.439	.661
Major	.637	.525	.513	.608	.216	.829	.343	.732
Class Year	1.642	.195	.202	.817	.634	.531	.665	.515
Residence	.783	.434	-.665	.507	.047	.963	.531	.596

Legend: Difference is significant at 0.05 alpha level ; Those highlighted in green is considered significant

3.6. Psychological Resilience

Age of the respondents has significant statistical differences on the respondents' perceived social support ($P<0.01$), which decreases with age. There is a significant sex difference in psychological resilience of Chinese college students, with male students having significantly higher levels of psychological resilience than female students. At the same time, the differences in toughness and strength dimensions have also reached a very significant level ($P<0.001$). Non-medical college students have higher psychological resilience than medical college students ($P=0.001$).

Table 6. Difference on the Respondents Psychological Resilience
when compared according to Profile (n= 296)

	Optimism		Strength		Tougness		Overall Resilience	
	t/f	p-value	t/f	p-value	t/f	p-value	t/f	p-value
Age	3.831	.005	6.145	.000	6.215	.000	6.392	.000
Sex	3.298	.001	3.074	.002	4.334	.000	3.997	.000
Major	-2.562	.011	-2.763	.006	-3.836	.000	-3.489	.001
Class Year	7.451	.001	8.698	.000	13.186	.000	11.992	.000
Residence	.979	.328	.641	.522	1.894	.059	1.436	.152

Legend: Difference is significant at 0.05 alpha level ; Those highlighted in green is considered significant

3.7. Relationship between Resilience, Perceived Social Support and Mental Health Problems

College students' perceived social support had a significantly positive correlation with resilience ($P=0.000$), with a correlation coefficient of 0.493. College students' perceived social support had a significantly negative correlation with depression, anxiety and insomnia ($P=0.000$). Resilience also had a significantly negative correlation with depression, anxiety and insomnia ($P=0.000$).

Table 7a. Correlation Matrix of the Variables of the Study
(Depression, Anxiety, Insomnia and Perceived Social Support) (n= 296)

	Friends		Family		Significant Others		Perceived Social Support	
	rxy	p-value	rxy	p-value	rxy	p-value	rxy	p-value
Psychological Resilience								
Optimism	.311**	.000	.441**	.000	.451**	.000	.430**	.000
Strength	.449**	.000	.478**	.000	.524**	.000	.520**	.000
Tenacity	.350**	.000	.408**	.000	.469**	.000	.446**	.000
Overall Resilience	.395**	.000	.459**	.000	.510**	.000	.493**	.000
Depression	-.365**	.000	-.329**	.000	-.325**	.000	-.356**	.000
Anxiety	-.455**	.000	-.421**	.000	-.386**	.000	-.445**	.000
Insomnia	-.344**	.000	-.238**	.000	-.220**	.000	-.291**	.000

Legend: Relationship is significant at 0.05 alpha level; Those highlighted in green is considered significant

Table 7b. Correlation Matrix of the Variables of the Study
(Depression, Anxiety, Insomnia and Resilience) n=296

	Optimism		Strength		Toughness		Overall Resilience	
	rxy	p-value	rxy	p-value	rxy	p-value	rxy	p-value
Depression	-.351**	.000	-.441**	.000	-.421**	.000	-.440**	.000
Anxiety	-.347**	.000	-.387**	.000	-.369**	.000	-.392**	.000
Insomnia	-.277**	.000	-.349**	.000	-.305**	.000	-.332**	.000

Legend: Relationship is significant at 0.05 alpha level; Those highlighted in green is considered significant

4. Discussion

Since the rapid spread of the COVID-19 pandemic as a public health emergency of international concern, governments around the world have quickly taken quarantine measures and strict measures to limit it. However, the mass quarantine had numerous detrimental impacts on college students' mental health, including anxiety, depression, and alcohol addiction [4].

This study shows that the symptoms of depression, anxiety, and insomnia in college students are positively correlated with age and academic year, while psychological resilience and perceived social support are negatively correlated with age and class year. Younger college students tend to have lower class years, less academic pressure, and less worries about future

employment, resulting in lower levels of negative emotion. It has been found that psychological resilience can reduce depression associated with childhood trauma [5].

There is a significant sex difference in psychological resilience of Chinese college students, with male students having significantly higher levels of psychological resilience than female students. At the same time, the differences in toughness and strength dimensions have also reached a very significant level (P<0.001). This may be because, influenced by the local culture of China, boys are given high expectations and demands from society and their families. For example, boys are expected to grow into brave and resilient men, making them more resilient and resilient in the face of difficulties and setbacks. At the same time, they are also able to flexibly utilize current social resources to help themselves better cope with these challenges. In addition, compared to girls, boys have stronger logical thinking abilities, making them more rational and composed when facing difficulties and setbacks. These characteristics lead to a significant level of psychological resilience in boys higher than girls.

Non-medical college students have higher psychological resilience than medical college students (P=0.001), and have lower depression scores than medical students (P<0.05). This is different from research results of Guo K et al [6], as non-medical college students have higher mental health issues and developmental risk factors than medical college students. This is mainly because medical students are more academically stressful. At the same time, the subjects are mainly freshmen, and they have not yet mastered enough medical knowledge that is helpful for the understanding of the pandemic.

College students' perceived social support had a significantly negative correlation with mental health problems (P=0.000). This result shows that college students with high social support are less likely to suffer from psychological problems such as depression, anxiety and insomnia. Another study about people without pre-pandemic mental disorders showed higher levels of social support decreased the odds of GAD [7].

Perceived social support can not only alleviate individual anxiety and depression, and directly develop towards a positive direction of happiness, but also affect happiness through some intermediary effects of social adaptation and basic psychological needs [8]. Good social support can reduce the symptoms of mental pain to a certain extent.

5. Conclusions

During the pandemic, college students faced many changes in their learning styles and lifestyles, enduring great pressure and experiencing many negative emotions. College students who experience more social support and those with better psychological resilience have fewer negative emotions. Education managers can take measures to enhance the perceived social support and psychological resilience of college students, helping them improve their mental health.

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