

Study on International Students' Anxiety and Related Factors Under COVID-19

Jing Zeng¹, Xuanchen Jin¹, Zhenwen Xie², Han Zeng³, Khaing Wut Yi Hla⁴, Jiayu Lyu⁵, Jun Ma⁶
(^{1,2,3}School of Clinical Medicine, Wenzhou Medical University, China
⁴School of International Studies, Wenzhou Medical University, China
⁵Department of Psychiatry, Wenzhou Ouhai Yining Geriatric Hospital.
⁶Department of Pathology, The First Affiliated Hospital of Wenzhou Medical University, China)

Abstract: To investigate the correlation between anxiety and related factors among international students in Wenzhou during the COVID-19 epidemic, international students from Wenzhou were selected as subjects for our research. We administered a self-developed questionnaire on anxiety among our subjects in question during the specific time of the COVID-19 epidemic, in which a self-assessment scale was included. Overall, an anxiety questionnaire for international students studying in Wenzhou during the outbreak of COVID-19, a self-rating anxiety scale, and statistical methods were utilized to conduct our research. During the COVID-19 epidemic, international students in Wenzhou experienced varying degrees of anxiety, which were related to concerns about contracting the virus, exam-related stress, and differences in living standards. Therefore, intervention is crucial.

Keywords: Psychological Stress; Language Barriers; Virus Anxiety; Examination Stress; Cultural Difference

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1 Introduction

Since the first case of a novel coronavirus in Wuhan, Hubei province in December 2019, it has spread rapidly (Lu et al., 2020; Wu et al., 2020). Due to the characteristics of fast onset and strong infectivity of the virus, the state has taken preventive and control measures for a class infectious disease (Li et al., 2020; Wang et al., 2020). As Wenzhou international students have increased in recent years, the international students' psychological pressure problem has been noticed by experts, prominently in the current year due to the spread of the virus. Due

to variation in temperature in China and their home country, language barriers, diversity in cultures, and much more, critical information is not received in time, disordering the implementation of the policies, which eventually leads to trouble in epidemic prevention and control work. Therefore, giving attention to the psychological stress of international students and taking some measures for psychological intervention is not only a crucial task but also a vital part of psychological health education in colleges and universities. Therefore, the stress study of international students as subjects in Wenzhou is expected to provide valuable materials.

1 Aim of the Study

A total of 120 international students in Wenzhou were selected as subjects. The researchers distributed online English questionnaires and collected them. All the respondent's English level was sufficient to understand the questionnaires and answer them accordingly. A total of 120 questionnaires were distributed, and 108 effective questionnaires were recovered, with a recovery rate of 90%. Among them, 50 (46.3%) were male students, and 58 (53.7%) were female students. Age: 94 students were aged 18-25 (87.0%) and 14 were aged 26-30 (13.0%).

2 Survey Methods

2.1 Anxiety questionnaire for international students studying in Wenzhou during the outbreak of COVID-19

Based on the life event scale (Tang et al., 2015) and other relevant scales, the author compiled a questionnaire on the anxiety sources of international students in Wenzhou during the outbreak of COVID-19, with a total of 15 questions, to investigate the main stressors faced by international students during their education in Wenzhou. Mainly includes basic information such as gender, age, origin, the anxiety of getting infected by COVID-19, concern about whether they will be infected by remaining in Wenzhou, stress due to the outbreak of the

virus, education (examination pressure, school and teachers support), lifestyle (language barrier, dietary differences, religious customs).

Criteria for severity are introduced as:

- 1 - No stress,
- 2 - Mild stress
- 3 - Moderate stress,
- 4 - Extreme stress.

2.2 Self-rating anxiety scale

Zung's self-rating anxiety scale (SAS) (Lindsay et al., 1988) was used to evaluate the anxiety level of international students during the COVID-19 outbreak. The SAS mainly evaluated the subjective feelings of the respondents, including 20 items.

Four score of the level was adopted, with :

- 1 - indicating no or little time,
- 2 - meaning sometimes,
- 3 meaning most of the time
- 4 - meaning all of the time (Liu et al., 2020).

Fifteen of them were scored in reverse and five in forward. The total score of the main statistical indicators of SAS is the initial score when the scores of each item are added up, and the standard score is obtained when the initial score is multiplied by 1.25. According to the results, a score of 51-60 is mild, 61-70 is moderate, and above 71 indicates that the anxiety tendency is severe.

The scale reliability consistency Cronbach's alpha coefficient of 0.777, 1/2 coefficient of 0.757. The validity of using exploratory factor analysis scale structure validity, Kaiser - Meyer - Olkin (KMO) value of 0.788, Bartlett ball test (Bartlett's test of sphericity, BTS) showed $P < 0.001$ (Chan et al., 2017), reliability and validity of to assess visitors anxiety scale results score height, the higher the score, the higher the degree of anxiety (Löwe et al., 2010) SAS can better reflect the subjective opinions of the anxiety tendency of the seekers and has been widely

recognized and applied.

2.3 Statistical methods

The numbers of Statistical Package for The Social Sciences (SPSS) 20.0 statistical software for the variable’s descriptive statistics and counting data were calculated by frequency and percentage. Measurement data with the average + / - standard deviation according to measurement data comparison between the two groups using a t-test. More than 3 groups and 3 measurement data comparisons have been used to analyze variance between groups considering anxiety score as the dependent variable. Multiple linear stepwise regression analysis confirmed significant statistics $P < 0.05$.

3 Result

3.1 Anxiety scores of the respondents

were compared with the national norm.

The results showed that the anxiety score of 108 subjects was (48.94 ± 13.36) higher than that of the norm (29.78 ± 0.46) , and the difference was statistically significant ($P < 0.05$). (Himmelfarb et al., 1984)

3.2 Single factor analysis of anxiety symptoms in international students.

The overall information on the investigated objects is shown in Table 1. One-way analysis of variance showed that there were statistically significant differences in anxiety scores among different genders, various origins, anxiety that they would be infected, concern about whether they will be infected by remaining in Wenzhou, examination pressure, school, and teacher support, language barrier and cultural differences ($P < 0.05$).

Table 1: Univariate analysis of anxiety symptoms of international students under COVID-19 (n = 108)

Content	Classification	n/%	Anxiety Average	Standard deviation	f/t	P
Gender	Man	50(46.3%)	39.56	11.72	12.83	<0. 01
	Woman	58(53.7%)	57.86	11.72		
Age	18-25 years old	94(87.0%)	49.75	11.25	0.568	0.571
	26-30 years	14(13.0%)	51.05	12.25		
Origin	Africa	40(37.0%)	34.2	3.99	170.1	<0. 01
	Asia	56(51.9%)	58.36	4.9		
	Europe	12(11.1%)	58.17	5.42		
Time in Wenzhou	1 year	13(12.0%)	49.76	12.46	0.735	0.482
	1-3 years	53(49.1%)	53.42	8.834		
	3 years	42(38.9%)	50.45	11.4		
Anxiety about getting infected by COVID-19	Yes	18(16.7%)	55.08	11.95	4.64	<0. 01
	No	90(83.3%)	34.87	2.99		
concern about being infected by COVID-19 while studying in Wenzhou	Yes	36(33.3%)	62.81	1.92	3.93	<0. 01
	No	72(66.7%)	41.73	11.7		
The number of COVID-19 infections in Wenzhou hurts you	Yes	62(57.4%)	43.91	13.69	1.55	0.138
	No	46(42.6%)	53.28	12.39		
Examination stress	Yes	76(70.4%)	52.28	13.1	3.21	<0. 01
	No	32(29.6%)	34.67	3.5		

Content	Classification	n/%	Anxiety Average	Standard deviation	f/t	P
Support for school teachers	Yes	96(88.9%)	63	4.78	5.3	<0.01
	No	12(11.1%)	40.14	10.32		
Language differences	Yes	76(70.4%)	53.61	12.61	3.85	<0.01
	No	32(29.6%)	34.71	3.19		
Dietary differences	Yes	82(75.9%)	49.92	14.59	1.51	0.15
	No	26(24.1%)	40.16	9.26		
Cultural/Life differences	Yes	73(67.6%)	43.53	12.81	2.12	0.048
	No	35(32.4%)	57.4	11.99		

3.3 Multivariate regression analysis of anxiety level of international students

Taking the anxiety level score as the dependent variable, we comprehend multivariate linear stepwise regression analysis ($\alpha_{in} = 0.05$, $\alpha_{out} = 0.10$) that was used to analyze the statistically significant and substantially significant variables in the single factor analysis as independent variables. For ordinal variables, when the regression equation is vague, or the suspicion effect is not equidistant between the various grades, the dummy variables are processed

for regression analysis (See Table 2 for variable assignments). The results show that the anxiety about whether you have COVID-19, examination pressure, and life differences in the regression equation can explain the coefficient of variation of the anxiety level of international students is 67.4% (See Table 3). By comparing the standard regression coefficients, it can be seen that the order of significant influence on the anxiety level of international students is COVID-19 anxiety, examination stress, and life.

4 Discussion

Table 2: Variable assignment description

Variable	Assignment Description
Age (Years)	18-25 = 1, 26-30 = 2
Origin	No = 1; Mild = 2; Moderate = 3; Extreme = 4
Anxiety about getting infected by COVID-19	No = 1; Mild = 2; Moderate = 3; Extreme = 4
Anxiety about getting COVID-19 while studying in Wenzhou?	No = 1; Mild = 2; Moderate = 3; Extreme = 4
Examination stress	No = 1; Mild = 2; Moderate = 3; Extreme = 4

Table 3: Multiple Linear Regression Analysis of Anxiety Levels

Items	Regression coefficient	Standard error	Standard regression coefficient	T	P
Constant	49.429	8.61		5.739	<0.01
Life differences	-3.714	5.34	-0.49	-4.12	<0.01
Examination stress	19.714	13.23	1.2	4.645	<0.01
Anxiety about getting infected with COVID-19	-13	7.3	-1.64	-2.9	<0.01

Note: Rs 0.821; Rs2 0.674; adjust R 22 0.668; Ps/lt 0.01; F 107.5.

4.1 Analysis of influencing factors of anxiety

4.1.1 *International Students*

International students in Wenzhou are mainly from North America, Europe, Asia, and Africa continents, which include the United States, India, Italy, Canada, Germany, Portugal and Spain, Bahrain, Iran, South Korea, South Africa, Ghana, Nigeria, and many other countries. The severity of the COVID-19 outbreak is different in each country. As of 16 March 2020, COVID-19 in Italy and Spain was an epidemiological pandemic, and the World Health Organization (WHO) declared COVID-19 a global pandemic on 12 March 2020. Through analysis, it was found that COVID-19 in the country of origin of international students would have a significant impact on students' anxiety. Currently, the number of patients diagnosed in Asia, Europe, and the United States has risen sharply, which is much higher than that in African countries. The anxiety level of international students in Europe, North America, and Asia is significantly higher than that in African countries. The greater the number of international students from the same country of origin, the higher the chance and frequency of communication and scientific understanding of the virus and the tendency of relative anxiety to ease. Also, the early period of this outbreak was during the winter vacation in January, and the epidemic of COVID-19 in China was more severe than that in other countries. Therefore, most international students chose to return to their countries of origin because of the epidemic situation, which caused high psychological anxiety to the few remaining international students who stayed in school and Universities.

4.1.2 *COVID-19 Outbreak*

Wuhan was more severe than Wenzhou at the beginning of the epidemic. Due to the constant increase in the number of new cases reports and suspected patients in China, international students sensed anxiety and panic. Overcrowded places

like schools and universities were among the main concerns for international students about getting infected more quickly and easily. Another critical reason for international students was the lack of vital information regarding the outbreak due to the language barrier. Under such circumstances, many international students went back to their home countries due to extreme anxiety and stress.

4.1.3 *Examination Stress*

Examination stress as an evaluation index of international students is one of the critical barriers to their current and future studies. Most of the students are outside China in their home country studying online. Online learning has many issues, such as differences in time zones, inability to interact, lack of internet access, unavailability of learning applications or software, inappropriate environment for studies, some courses requiring laboratory work that cannot be done online, and many more difficulties (Han et al., 2022). Many students cannot handle immediate change in the method of study, from traditional interaction with the teacher and other students to an entirely new online learning method leading to extreme stress or anxiety (Pan et al., 2022).

4.1.4 *Cultural Difference and Language Barrier*

There are still some barriers for people studying abroad, due to the differences in terms of cultures and customs. International students have difficulty in linguistic communication and different eating habits and also in daily shopping.

4.2 Measures to reduce the psychological predicaments of international students

Due to the increased numbers of Wenzhou international students studying in recent years, the students' significant psychological health problem has been noticed by experts. Because of the language barrier, cultural background differences, anxiety about being infected, and many more stressors are expected to produce psychological problems such as anxiety, depression, and confusion (U et al., 2019).

Therefore, paying attention to international students' mental health status and taking some measures for psychological intervention is not only a crucial task but also an essential part of psychological health education in colleges and universities. The study on the stress and anxiety of international students in Wenzhou provides valuable material for international students' mental health.

Therefore, we suggest the following measures to reduce the psychological predicaments of international students:

(1) Pay attention to the psychological dynamics of international students, through the network to maintain two-way communication and to provide one-to-one psychological support for students with a higher degree of anxiety.

(2) Carry out online courses in mental health education to guide students to develop strategies and methods of self-regulation during epidemic prevention and control, learn to relax, and diminish anxiety levels.

(3) A correct and objective understanding of the current epidemic situation requires looking at the epidemic situation from the data released by the government.

Adjust your thoughts and keep them rational, comprehensive, and flexible. Be sure to not stress each other out, rather redirect your energy to better

communication to establish firmer understanding and bond. When confronted with mistakes or misfortunes, try to communicate, learn, and find ways to solve problems with a combined effort. If the communication isn't working and the timing is not appropriate, distance yourself from other people's negative vibes. When students cannot solve the problem by themselves, instead of blaming and accusing the unfairness all the time, they should take the initiative to provide psychological assistance to ease and prevent the psychological distress caused by the epidemic and prevent the occurrence of unfortunate events.

5 Conclusion

Through the standardized psychological scale, this study aims to understand the mental health status of international students in Wenzhou and provide scientific guidance for the mental health education of international students. Schools should offer mental health courses to international students so that they can adequately understand their situation and know where to start to relieve anxiety. Furthermore, for students with typical psychological problems, awareness lectures, and group psychological activities should be organized to improve their overall mental health level and help them maintain a good psychological state to study.

Footnotes

Abbreviations:

- SAS: Self-rating Anxiety Scale;
- KMO: Kaiser - Meyer - Olkin value;
- BTS: Bartlett Ball Test (Bartlett's test of sphericity);
- SPSS: Statistical Package for The Social Sciences software;
- WHO: World Health Organization.

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Ethics approval and consent to participate

I solemnly declare: that I abide by academic ethics, advocating a rigorous style of study. The paper is

the result of my team and I. This paper does not contain any published or written content by others, except as expressly indicated and quoted in the paper.

Competing interests

The authors declare that they have no competing interests

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Conflict of Interest

Jing Zeng, Xuanchen Jin, Zhenwen Xie, Han Zeng, Khaing Wut Yi Hla, Jiayu Lyu, and Jun Ma have nothing to disclose.

Availability of data and materials

Not Applicable

Author contributions

Jing Zeng and Xuanchen Jin – Conceptualization, Methodology and both contributed equally to this research; Zhenwen Xie and Han Zeng – Investigation; Jiayu Lyu and Khaing Wut Yi Hla– Software, Formal Analysis and Validation; Jun Ma – Reviewing and Editing.

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