Happiness or Loneliness: Academic Emotional Responses and Coping Strategies of College Students during the COVID-19 Epidemic

Xiaoyang Li[1,a,*], Zhenyang Lyu[1,2,b]

[1]*Innovation Management College, Suan Sunandha Rajabhat University, Bangkok, Thailand*
[2]*Business School, Nanyang Vocational College, Nanyang, Henan, China*
[a]*Qinaidelv456@gmail.com, [b]oceanlyu@gmail.com*
[*]*Corresponding author*

Keywords: COVID-19; College students; Solitude; Happiness; emotion

Abstract: This article learned about the mood, loneliness and happiness of college students during the epidemic of novel coronavirus, and put forward suggestions for prevention and control of the epidemic and psychological intervention and counseling during the epidemic. Through the use of questionnaire survey method and questionnaire star, a total of 1100 questionnaires were collected from January 1 to June 30, 2022. After removing invalid questionnaires that were often too low in response, 1042 valid samples were obtained, with an effective rate of 94.7%. The questionnaire tools mainly include the Positive and Negative Emotion Scale (PANAS), Life Satisfaction Scale (SWLS), and Loneliness Scale (ULS-6). Using methods such as single factor analysis, correlation analysis, regression analysis, and structural equation modeling, it was found that subjective well-being can positively affect positive emotions. Both loneliness and subjective well-being have an impact on negative emotions, and subjective well-being has a negative impact on negative emotions. The article believes that during the prevalence of novel coronavirus infection, the negative emotions of college students are greater than the positive emotions, and the loneliness of college students is greater than the happiness. The government, community, family, school, and self should regulate social emotions and take measures such as intervention and counseling.

1. Introduction

Emotion is a long-term focus of social psychology. The essence of emotions has two dimensions: positive and negative emotions[1] [2]. It mainly reflects the level of pleasure, sadness, and pain that an individual feels and experiences in life or when a certain life event occurs[3]. Whether it is joy or pain, it shows a positive, positive, or negative, negative tendency. In the field of psychology, emotional assessment has been regarded as an important intervention tool, effectively reducing negative emotions among college students and striving to strengthen positive emotions, becoming an important means and strategy for dealing with individual mental health and behavior.

Subjective well-being is a very important term in psychology. Many scholars at home and abroad

have conducted long-term research on this and defined their own definitions. Cantr (1965) believes that subjective well-being is an individual's own perception and evaluation of their satisfaction with their own life. Bradburn (1969) believes that the main reason why individuals can experience happiness themselves is that they perceive positive emotions higher than negative emotions. And between positive and negative emotions, happiness plays a balancing role.

As a universal experience, loneliness is often considered a negative experience or state. When it comes to loneliness, people's first feeling is a state of loneliness or an unpleasant experience. Weiss (1973) started from a psychological perspective, Loneliness is defined as an emotional desire that arises when an individual feels alienated or rejected in the process of interacting with people of the same era. If this desire is not met, it can lead to a long-term psychological state that troubles and oppresses people[4]. Russell (1978) is believed that loneliness is a single dimension based on emotional reflection. Long term loneliness can lead to emotional disorders, thereby reducing people's health level and subjective well-being, and over time, it can lead to physiological or psychological symptoms[5]. Research has confirmed that emotions influence an individual's sense of happiness and loneliness, and conversely, loneliness and happiness also profoundly affect emotional changes. Life events, on the other hand, are an important carrier of individual emotions and happiness. Often, life events that occur within three months can have an impact on happiness, which gradually decreases until it completely disappears[6].

In December 2019, an epidemic of pneumonia caused by novel coronavirus (Corona Virus Disease 2019, referred to as "COVID-19") broke out in Wuhan, Hubei Province, and quickly spread to the whole country. It has become an unprecedented epidemic since the founding of the People's Republic of China[7] [8] [9].A COVID-19 has caused huge economic and social losses, especially the closure measures carried out in many places, so that college students can only "stay at home" and be isolated at home. The home quarantine policy has played a crucial role in the prevention and control of the epidemic, but it has also brought about changes in the psychological state of college students, which has had a significant impact [10] (Xia Hao, 2021). It may lead to negative emotions such as anxiety and depression [11] [12] (Qian Rong et al., 2022; Zuoyi, 2022), as well as emotional reactions such as restlessness and decreased interest [13] [14] (Xu Xiaojun, 2022; Zhang Dong, 2021). Since February 2022, with the continuous expansion and rise of the COVID-19, the changes of college students' feelings of isolation at home, loneliness and happiness have become the focus of this study. We aim to conduct a questionnaire survey to understand the social emotions, loneliness, happiness, and current situation of risk and uncertainty among college students during their home quarantine period, in order to provide reference for dealing with psychological interventions among college students in the post pandemic era. The relevant research results are reported as follows.

2. Objects and Methodology

2.1. Research object

The main object of this study is college students. The study used convenience sampling and snowball sampling methods through questionnaire stars. From January 1 to June 30, 2022, a total of 1100 questionnaires were collected, and invalid questionnaires with frequently low responses were excluded. 1042 valid samples were obtained, with an effective rate of 94.7%.

2.2. Research Tools

This study used three maturity scales to study social emotions, subjective well-being, and loneliness. Social emotions are mainly measured using the Positive and Negative Emotion Scale (PANAS) [15] [16], which was developed by Watson et al. in 1988. The scale consists of 20 items and

is a widely used tool for measuring emotions. Subjective well-being is mainly measured using Diener's Life Satisfaction Scale (SWLS) [17], which has 5 measurement items. The measurement of loneliness was carried out using the Loneliness Scale (ULS-6) revised by Zhou Liang et al. (2012) as a measurement tool [18]. The scale consists of 6 items. The risk and uncertainty questions are self-made questions. The Cronbach'a coefficients of reliability for the three questionnaires were 0.846 (PANAS), 0.807 (SWLS), and 0.882 (ULS-6), respectively.

2.3. Survey Methods

The questionnaire for this survey was entered into the questionnaire star by the author. After expert evaluation and pre research, relevant questions were adjusted and deleted, making the entire questionnaire simple and easy to understand for conducting research. The survey uses snowball sampling and convenience sampling, and is published on Weibo, WeChat official account, Friends Circle, Douban and other platforms, and provided by college students.

2.4. Quality Assurance

When conducting a survey, read the preface first, state the purpose and significance of the entire survey, and clearly state that those who are not interested in this study should not answer, in order to ensure the reliability of the entire questionnaire. When collecting questionnaires, IPs from the same address are only allowed to answer once. When the questionnaire is collected, the average time to answer the questions is calculated first, and questionnaires below the average time are deleted. Questionnaires with obvious filling errors are deleted, and questionnaires with consecutive identical answers are deleted.

2.5. Statistical Methods

SPSS 21.0 was used for statistical organization and analysis in this study. We mainly use narrative statistics, one-way analysis of variance (ANOVA), correlation analysis, regression analysis, and structural equation modeling to study the relationship between college students' emotions, loneliness, and subjective well-being. $P<0.05$ indicates a statistically significant difference.

3. Conclusions

3.1. General statistics

From a gender perspective, there are 398 males, accounting for 38.2%; There are 644 women, accounting for 61.8%. Among them, from the perspective of educational level, there are 155 college graduates, accounting for 14.87%; 621 undergraduate students, accounting for 59.6%; 231 master's students, accounting for 22.17%; 35 doctoral students, accounting for 3.36%;

In addition, this study also investigated the health status of the respondents. 14 people are very unhealthy, accounting for 1.34%; 167 people were slightly unhealthy, accounting for 16.03%; 619 people were relatively healthy, accounting for 59.4%; 242 very healthy individuals; Accounting for 23.22%. Indicates that the number of healthy individuals is significantly higher than the number of unhealthy individuals.

3.2. Related analysis

According to the commonly used Pearson correlation detection method, measure the direction

and degree of the linear relationship between two variables. Usually, the correlation coefficient is extremely strong between 0.8 and 1.0; Strong correlation between 0.6 and 0.8; Moderate correlation between 0.4 and 0.6; 0.2-0.4 weak correlation; 0.0-0.2 extremely weakly correlated or uncorrelated. In this correlation analysis test (see Table 1), the correlation coefficient between loneliness and emotion is 0.294, showing a positive weak correlation. The correlation coefficient between subjective well-being and emotions is -0.165, showing a weak negative correlation. Among the correlation coefficients between other control variables and emotions, gender is in an uncorrelated state. To further test its causal relationship, regression analysis is suitable for validation after correlation analysis.

Table 1: Summary Table of Correlation Coefficients

variable	emotion	Loneliness	happiness	Gender	age group	Health level	Education level
Loneliness	.294**	1					
happiness	-.165**	-.318**	1				
Gender	.041	-.062*	.025	1			
age group	-.076*	-.110**	.223**	-.031	1		
Health level	-.067*	-.129**	.121**	-.110**	-.033	1	
Education level	.101**	-.051	.028	.046	.116**	.142**	1

** There is a significant correlation at the. 01 level (bilateral). * There is a significant correlation at the 0.05 level (bilateral).

3.3. Regression analysis

In this study, in order to distinguish the positive and negative sides of emotions, we divided them into positive and negative negative emotions based on PANAS's scoring method, and used them as the dependent variable. During the research process, SPSS statistical software was used to use loneliness and subjective well-being as independent variables, and gender, age group, health level, and education level as control variables for regression analysis. The results of the analysis are shown in Table 2:

Table 2: Summary of coefficients for regression analysis

variable	Model 1 Positive Emotions			Model 2 Negative Emotions		
	β-value	*t-value*	*P-value*	*β-value*	*t-value*	*P-value*
(Constant)	1.698	9.475	.000***	2.317	8.945	.000***
Loneliness	.000	.012	.991	.373	11.458	.000***
Happiness	.168	5.940	.000***	-.296	-7.230	.000***
Gender	-.046	-1.178	.239	.191	3.374	.001**
Age group	-.049	-2.249	.025*	-.080	-2.504	.012*
Health level	.025	.876	.381	-.102	-2.430	.015*
Education level	.022	.871	.384	.145	3.920	.000***

Note: N=1042, * p<0.05, * * p<0.01, * * * p<0.001

Using SPSS 21.0 for regression analysis, it can be concluded that Model 1 has a total R=0.215, R square=0.046, and adjusted R square=0.039. In Model Anova, F=6.277, sig=0.000, showing a positive significant state, indicating that the model has good significance and explanatory power. Model 2 summarizes R=0.483, R-squared=0.234, adjusted R-squared=0.228, and in Model Anova,

F=39.346, sig=0.000, showing a positive significant state, indicating that the model has good significance and explanatory power. Comparing the adjusted R-squared values of the two models, it can be seen that Model 2 has stronger explanatory power, with an interpretable variance of 22.8% (much higher than Model 1's 3.9%)

In the analysis of regression coefficients, in Model 1, only subjective well-being can positively affect positive emotions. This indicates that people who feel happier have more positive emotions. In Model 2, which has stronger explanatory power, both loneliness and subjective well-being have an impact on negative emotions, β Values indicate that individuals with stronger feelings of loneliness have stronger negative emotions. However, subjective well-being has a negative impact on negative emotions, indicating that the less intense the sense of happiness, the greater the negative emotions.

3.4. Structural Equation Model Analysis

According to the method summarized by Fang Jie (2012) [19], using Hair (2019) [20] based on the principle of smart-pls [21], the data was analyzed to obtain the studied structural equation model (Figure 1) and path coefficients (Table3), as well as specific path coefficients. Using the Bootstrapping method to calculate the T-statistic of each path coefficient and test the significance level of path coefficient estimation (double tailed test), the statistical results show that all path coefficients are significant.
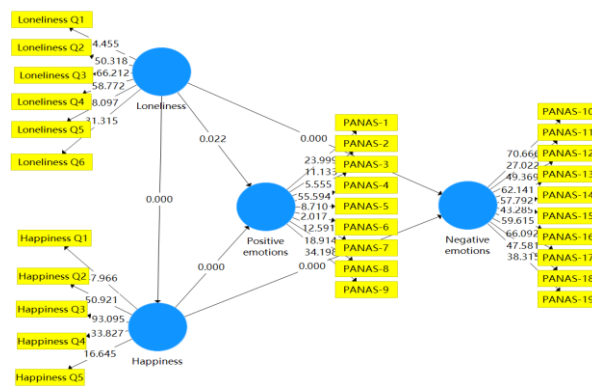

Figure 1: Structural equation model diagram

Table 3: Path coefficients and specific indirect effects

content	Initial Sample (O)	Sample Mea(M)	STDEV	T(|O/STDEV|)	P
Happiness -> Negative emotions	-0.211	-0.212	0.03	7.016	0.00***
Happiness -> Positive emotions	0.294	0.299	0.028	10.555	0.00***
Loneliness -> Happiness	-0.34	-0.34	0.027	12.367	0.00***
Loneliness -> Negative emotions	0.343	0.345	0.028	12.101	0.00***
Loneliness -> Positive emotions	-0.081	-0.082	0.035	2.308	0.021*
Loneliness -> Happiness -> Negative emotions	0.072	0.072	0.012	5.963	0.00***
Loneliness -> Happiness -> Positive emotions	-0.1	-0.102	0.013	7.689	0.00***

Note: N=1042, * p<0.05, * * p<0.01, * * * p<0.001

4. Suggestions

4.1. Current situation of college students' emotions during the prevalence of novel coronavirus

The survey shows that during the prevalence of novel coronavirus infection with pneumonia, the negative emotions of college students are greater than the positive emotions. The top five emotions are all negative emotions, followed by annoyance, sadness, sadness, disgust, and anger. The main reasons for these negative emotions are the opacity of information and the rampant spread of "gossip" and "rumors". It is the lack of such information and the malicious slander of rumors that lead to the negative emotions of college students. In addition, COVID-19 has a strong pathogenicity and transmissibility, causing uncertainty, which makes college students panic and worry about their own health. At the same time, the constant variation of the virus has had an impact on the lives of college students in the era of information explosion [22] (Lige, 2023). Secondly, the certain mortality rate of the virus and the closed nature of home quarantine have also brought panic to college students, leading to anxiety, sadness, and sadness. What is more terrifying than a virus is rumors, and what is more difficult to cure than a disease is restoring confidence. Therefore, it is recommended that the government, schools, and society increase positive publicity efforts to promote various measures for epidemic prevention and control, actively promote the latest research results of scientific researchers, and promote the correct understanding of the virus, in order to eliminate the psychological panic of college students, dispel rumors, establish confidence, and regulate negative emotions, effectively generate positive emotions, and eliminate the negative effects of negative emotions.

4.2. College students' sense of loneliness is greater than their sense of happiness during the prevalence of novel coronavirus

The research conclusion shows that during the epidemic period of novel coronavirus infection, the sense of loneliness is greater than the sense of subjective well-being. This is mainly due to the isolation at home during college growth, which leads to an increase in loneliness due to the enclosed, narrow, and special space. In addition, the spread of negative information during the epidemic has further enhanced the loneliness of college students in enclosed spaces. However, due to the lack of confidence, continuous isolation, and inconvenient life, the subjective well-being of college students decreases. Regression analysis also shows (Table 2) that there is a trade-off between happiness and loneliness. The less happy you are, the stronger your sense of loneliness. In the post pandemic era, the main focus is to strengthen psychological intervention measures, strengthen psychological counseling, and eliminate the loneliness of college students. College students can also relieve themselves and eliminate loneliness by watching movies, reading books, online videos, and chatting with friends. Universities should strengthen positive publicity efforts to enhance students' sense of pride and happiness.

4.3. Taking multiple measures to strengthen psychological counseling and intervention

A good psychological state cannot only resist physiological diseases, but also eliminate the negative impact of COVID-19 on normal life and learning. The emotional issues of college students cannot be underestimated, especially during the tight period of the epidemic, facing various risks, uncertainties, and information. The negative emotions of college students are not conducive to fighting the epidemic, and are even more detrimental to production and life after resuming work. From the research results, it can be seen that negative emotions among college students are leading

to increasingly severe depression [23] (Li Yiping, 2022). Therefore, it is recommended to take a series of intervention measures and methods:

(1) Cite and urge students to maintain normal rest and sleep every day, and moderately reduce their reading time for relevant information. (2) Enhancing indoor physical exercise can be achieved by engaging in fitness activities that do not require much space, such as yoga. (3) Universities should strengthen positive and active publicity. Through campus radio, television, newspapers and other media, the exemplary individual and typical deeds in the fight against the epidemic are vigorously publicized, so that positive energy can fill the society. (4) In terms of information management, timely disclosure and transparency of information should be achieved to avoid information overload. Because excessive information can not only directly affect the unintentional spreading behavior of college students, but also indirectly affect their unintentional spreading behavior through negative emotions (Hu Wei, 2022). (5) In family education, parents should pay attention to the psychological changes of their children. Firstly, parents should maintain a stable mindset, avoid panic or sadness, and face their children with a positive emotional state, guiding them to correctly face the confusion caused by the epidemic. (6) In terms of school management, schools should strengthen psychological monitoring of students, prioritize psychological education and counseling when conducting online classes, and strengthen online psychological counseling and intervention. At the same time, precise guidance is needed to enhance campus governance, channel students' emotions (Ji Xiaolin, 2022), and strengthen physical exercise (Mi Xiaoyan, 2022). (7) All sectors of society and higher education institutions should actively care and pay attention to the psychology of special groups such as doctors and police who participate in the fight against the epidemic, strengthen their guidance and intervention, and thus promote the guidance of students' mental health. (8) Universities should encourage college students to actively participate in service activities such as anti-epidemic volunteering, enhance their ability to cope with crises and setbacks (Zhu Weiwei et al., 2022), and promote their healthy development and growth.

Acknowledgements

References

[1] Tellegen, A., & Clark, W. L. A. (1999). On the dimensional and hierarchical structure of affect. Psychological Science, 10(4), 297-303.

[2] Russell, J. A. (2003). Core affect and the psychological construction of emotion. Psychological Review, 110(1), 145-172.

[3] Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: structural findings, evolutionary considerations, and psychobiological evidence. Journal of Personality and Social Psychology, 76(5), 820-838.

[4] Weiss, R. (1973). The study of loneliness. Loneliness the Experience of Emotional & Social Isolation.

[5] Russell, D., Cutrona, C. E., Rose, J., & Yurko, K. (1984). Social and emotional loneliness: an examination of weiss's typology of loneliness. Journal of Personality & Social Psychology, 46(6), 1313-1321.

[6] Suh, E., Diener, E., & Fujita, F. (1996). Events and subjective well-being: Only recent events matter: Erratum. Journal of Personality and Social Psychology, 71(5), 842.

[7] Zhu, N., Zhang, D., Wang, W., Li, X., & Tan, W. (2020). A novel coronavirus from patients with pneumonia in china, 2019. New England Journal of Medicine, 382(8).

[8] Cheng, V. C. C., Wong, S. C., To, K. K. W., Ho, P. L., & Yuen, K. Y. (2020). Preparedness and proactive infection control measures against the emerging novel coronavirus in china. Journal of Hospital Infection, 104(3), 254-255.

[9] Wu, A., Peng, Y., Huang, B., Ding, X., & Jiang, T. (2020). Genome composition and divergence of the novel coronavirus (2019-ncov) originating in china. Cell Host & Microbe, 27(3).

[10] Xia Hao (2021). Psychological problems and countermeasures of college students during the novel coronavirus pneumonia epidemic Industry and Technology Forum (19), 249-250

[11] Qian Rong&Chen Xinyuan (2022). The relationship between college students' anxiety and the comprehensive vitality of social emotions during the prevention and control of the COVID-19: the mediating effect of emotional resilience Journal of Shanxi Youth Vocational College (01), 27-32

[12] Zuo Fangyi&Wang Ning (2022). Research on the influencing factors of college students' anxiety and depression during the COVID-19-- Taking some universities in Beijing as examples Intelligence Exploration (01), 41-47

[13] Xu Xiaojun, Xiong Sen&Tan Jiangjing (2022). Psychological behavior of college students returning to school under the COVID-19 Journal of Higher Education (03), 5-9

[14] Zhang Dong and He Wenwen (2021). Analysis of mental health status of college students living at home under the COVID-19 Journal of Yangzhou Institute of Education (02), 73-76

[15] Qiu Lin, Zheng Xue, and Wang Yanfei (2008). Revision of the Positive and Negative Emotion Scale (PANAS) Applied Psychology (03), 249-254+268

[16] Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063–1070.

[17] Diener. (1984). Subjective well-being. Psychological bulletin, 95(3), 542-575.

[18] Zhou Liang, Li Zhi, Hu Mi&Xiao Shuiyuan (2012). Reliability and validity testing of the ULS-8 Loneliness Scale and its application Journal of Central South University (Medical Edition) (11), 1124-1128

[19] Fang Jie, Zhang Minqiang&Qiu Haozheng (2012). Methods for Testing Mediation Effects and Measurement of Effectiveness: Review and Prospects Psychological Development and Education (01), 105-111

[20] Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of pls-sem. European business review, 31(1), 2-24.

[21] Hair Jr, J. F., Hult, G. T. M., Ringle, C.M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook.

[22] Li Ge. Research on influencing factors of college students' health information avoidance behavior in the context of the COVID-19 [D]. Tianjin Normal University, 2023

[23] Li Yiping, Zhang Gaoyang, and Chen Runjian (2022). Investigation and countermeasures of college students' depression after the COVID-19 epidemic Psychological Monthly (23), 207-209+216