

Study on the Correlation between Empathy Ability, Psychological Resilience and Negative Emotion

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Abstract

In order to explore the relationship between empathy, psychological resilience and stress and anxiety, this study conducted a questionnaire using Interpersonal Reactivity Index-C(IRI-C), Connor-Davidson Resilience Scale(CD-RISC) and The Depression Anxiety Stress Scale(DASS-21). The results showed that cognitive empathy was significantly positively correlated with resilience, and the ability of empathy could positively predict stress and anxiety, and resilience negatively predicted stress and anxiety.

Keywords

Empathy; Psychological resilience; Stress; Anxiety.

1. Introduction

Empathy means that the individual produces the same emotional state through observation, imagination, or inference under the premise that his or her own feelings originate from others[1]. It is divided into emotional empathy and cognitive empathy. In short, emotional empathy refers to experiencing and sharing others' emotions, and cognitive empathy refers to understanding others' emotions. In the adolescent group, the more emotional empathy ability, the more vulnerable to the negative emotions of others[2]. Studies have found that emotional empathy was a positive predictor of depression in college students[3].

Psychological resilience, also known as psychological resilience, refers to the individual's ability to cope with and recover during experiencing negative events or being in negative emotions, which can protect and promote individual mental health[4]. Individuals with strong psychological resilience are more likely to respond actively to difficulties and do not repeatedly think repeatedly about negative events that lead to depression. Psychological resilience can largely predict depression. Adolescents with strong psychological resilience have less suicidal ideas[5].

At present, there are not many studies on empathy and psychological resilience together in China, and most of the existing studies are aimed at teenagers and the elderly. In addition, depression is only one type of negative emotion. Negative emotions can also include stress, anxiety and even suicidal ideation, etc. Therefore, in this work, this researcher based on numerous previous studies on depression, and studied the group of college students on the relationship between empathy and psychological resilience and stress and anxiety.

2. Research Design

2.1. Participants and Methods

Using questionnaire method for college students aged 18-25.

The questionnaire was distributed to college students from all over the country through online questionnaire platform, wechat and other social platforms by means of convenient sampling.

There were 76 questions in the questionnaire. The whole questionnaire included demographic information survey and scales about the three factors. All three scales have been tested for reliability and validity and have been widely used in domestic and foreign professional researches, and detailed introduction is as follows. Demographic information related to gender, age, place of origin, grade, major and relationship status. In particular, the research group of this study was college students, so the question of age used a fill-in-the-blank format, so as to exclude the subjects who were older than the university age group (such as people who took part in the postgraduate entrance exams while on the job). The others were single choice questions. In the middle and end of the questionnaire, the researchers also inserted two attention test questions to test whether the respondents were careful in answering the questions, such as "please choose option 4 for this question", and "If you promise that you answered the whole question carefully, choose the maximum option for this question." In the stage of data sorting and screening, the answers to these two questions were also important screening criteria. If the answers were wrong, the whole questionnaire would be eliminated. For the exclusion criteria, confidence intervals of three-sigma σ -guideline were used to exclude outliers for answer time and scores for each factor, leaving the available data finally.

2.2. Research Tools

A total of three qualified scales were used in this study.

The Interpersonal Reactivity Index-C (IRI-C) includes four dimensions: opinion selection, imagination, compassion concern and personal sadness. The first two dimensions are called cognitive empathy, and the last two dimensions are called emotional empathy. The Cronbach's α coefficient was 0.75, with good credit validity and was suitable for Chinese people to use [6].

The Connor-Davidson Resilience Scale (CD-RISC) is divided into three dimensions: toughness, power and optimism. The Cronbach's α coefficient was 0.91 for the Chinese population [7].

The Depression Anxiety Stress Scale (DASS-21) includes depression, anxiety and stress. Its internal consistency reliability was 0.89, which was tested for college students in mainland China [8]. Only two subscales of stress and anxiety were used in this study.

2.3. Statistical Methods

Statistical analysis of the questionnaire data was performed using the SPSS25.0. The relationship between empathy, psychological resilience, and stress, and anxiety was analyzed by using independent sample T-test, Pearson correlation analysis, and multiple regression analysis.

3. Results

3.1. Test of the Common Method Biases

Questionnaires were distributed to college students through the online questionnaire platform. Totally 250 questionnaires were collected, including 211 were valid, with an effective rate of 84%. The Harman's single-factor test was used to test common method biases in the study, which showed that the KMO was 0.64, and the chi-square value of Bartlett test of sphericity was 692.34 ($p < 0.001$). There were 3 factors with an eigenvalue bigger than 1, which were cumulatively 38.25% of variance, less than 40%, so there was no serious common method biases in this study.

3.2. Descriptive Statistics

Table 1. Descriptive statistics of the demographic variables

	Frequency	Percent(%)
Male	62	29.4
Female	149	70.6
Urban area	107	50.7
Rural area	104	49.3
Liberal arts	119	56.4
Science	92	43.6
Graduation grade	79	37.4
Non-graduation grade	132	62.6
Single	136	64.5
Non-single	75	35.5

Table 2. Descriptive statistics of the scores for each factor

	Min.	Max.	Mean	S.D.
Toughness	0.46	4	2.33	0.60
Power	0.88	4	2.67	0.60
Optimism	0.50	4	2.56	0.63
Cognitive empathy	13	42	28.20	5.60
Emotional empathy	11	42	27.04	5.02
Psychological resilience	0.80	4	2.47	0.55
Empathy	27	82	55.24	8.71
Stress	0	38	16.13	9.69
Anxiety	0	36	13.08	9.29

The statistics of demographic variables are shown in Table 1. In addition, the mean age of all subjects was calculated to be 22 years old. The average value of psychological resilience and empathy among college students was in medium levels, and there were great differences between the extreme values of stress and anxiety status, but the above factors had a certain universality in the subject group.

3.3. Correlation Analysis

Table 3. Correlation of scores for each factor

	①	②	③	④
Empathy	1			
Psychological resilience	0.12	1		
Stress	0.23**	-0.20**	1	
Anxiety	0.20**	-0.15*	0.86***	1

Annotation: * indicates $p < 0.05$, ** indicates $p < 0.01$, and *** indicates $p < 0.001$

Table 4. Correlation of each factor dimension

	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Cognitive empathy	1								
Emotional empathy	0.34***	1							
Empathy	0.84***	0.80***	1						
Toughness	0.30***	-0.10	0.14	1					
Power	0.26***	-0.16*	0.08	0.81***	1				
Optimism	0.22**	-0.08	0.09	0.54***	0.62***	1			
Psychological resilience	0.30***	-0.13	0.12	0.95***	0.93***	0.71***	1		
Stress	0.12	0.28***	0.23**	-0.14*	-0.24***	-0.17*	-0.20**	1	
Anxiety	0.07	0.28***	0.20**	-0.09	-0.20**	-0.15*	-0.15*	0.86***	1

Annotation: * indicates $p < 0.05$, ** indicates $p < 0.01$, and *** indicates $p < 0.001$

The chart shows that psychological resilience and stress, empathy and anxiety, and anxiety, but there was no significant correlation between empathy and resilience.

Cognitive empathy was significantly positively associated with resilience and its three dimensions, while emotional empathy was significantly negatively associated only with the power dimension of resilience. The cognitive empathy was not significantly associated with the dependent variable dimensions, while emotional empathy was significantly associated with the dependent variable. Toughness in resilience was significantly negatively related to stress, but had no significant correlation with anxiety. The correlation between power and both stress and anxiety was significant. And optimism was also significantly negatively associated with stress and anxiety.

3.4. Regression Analysis

The results of the multiple regression analysis showed that the VIF value of 1.015 was much less than 10, indicating that there was no serious multicollinearity problem between the independent variables. The Durbin-Watson values were respectively 1.613 and 1.701, indicating that the autocorrelation between the variables was not serious.

Table 5. The regression results of empathy, psychological resilience and stress and anxiety

	Adjusted R ²	F	Unstandardized Coefficients		Standardized Coefficient	t	
			B	Std. Error	Beta		
1	0.097	12.23***	Empathy ability	0.262	0.066	0.262	3.961***
Psychological resilience			-0.227	0.066	-0.227	-3.437**	
2	0.064	8.144***	Empathy ability	0.225	0.067	0.225	3.338**
Psychological resilience			-0.179	0.067	-0.179	-2.656**	

Annotation: The dependent variable of Model 1 is stress, and the dependent variable of Model 2 is anxiety. * indicates $p < 0.05$, ** indicates $p < 0.01$, and *** indicates $p < 0.001$

Table 6. The stepwise regression results of specific dimensions and stress and anxiety

		Adjusted R ²	F	Unstandardized		Standardized	t
				Coefficients		Coefficient	
				B	Std. Error	Beta	
1	Emotional empathy	0.110	13.948***	0.245	0.066	0.245	3.724***
	Power			-0.206	0.066	-0.206	-3.118**
2	Emotional empathy	0.093	11.774***	0.251	0.067	0.225	3.770***
	Power			-0.162	0.067	-0.179	-2.429*

Annotation: The dependent variable of Model 1 is stress, and the dependent variable of Model 2 is anxiety. * indicates $p < 0.05$, ** indicates $p < 0.01$, and *** indicates $p < 0.001$

4. Conclusion and Discussion

This study found that empathy positively predicted stress and anxiety, psychological resilience negatively predicted stress and anxiety, and also found that the correlation between empathy and psychological resilience was not significant. No significant differences in empathy in grade, major, and relationship status were found, so it may be considered that college students have similar characteristics in the level of empathy. A significant positive correlation between cognitive empathy and psychological resilience appeared, but the study did not obtain significant correlation between emotional empathy and psychological resilience, nor did a significant mediation effect be found. The correlation between cognitive empathy and stress and anxiety was not significant, while the positive correlation between emotional empathy and stress and anxiety was very significant.

Empathy is a good psychological quality that allows individuals to better communicate their feelings with others. But some foreign researchers have pointed out that this ability also has certain drawbacks and risks[9], making people easy to be affected by other people's bad emotions. College students should treat their own and others' life events objectively, view various situations dialectically, and learn to appropriate empathy and adjust their mentality in the face of others' emotions.

5. Deficiencies and Prospects

As for shortcomings, one of them is the number of the questionnaire in this study did not reach the optimal quantity. On the other hand, there are many widely used scales, which can be evaluated and compared with the results. In addition, empathy and psychological resilience belong to the level of individual psychological traits that are related to many external factors, so these can be investigated more carefully in the future.

References

- [1] De Vignemont, F., Singer, T. (2006). The empathic brain: How, when and why? *Trends in Cognitive Sciences*, 10(10): 435-441.
- [2] Yan Zhiqiang, Zeng Xiao, Zhu Shou, Chen Lu (2022). The relationship between affective empathy and depression in adolescent: A Chain mediating effect of shame and resilience. *Chinese Journal of Clinical Psychology*, 30(01): 77-80.
- [3] Yan Zhiqiang, Li Shan (2021). The association of empathy on depression: The moderating effect of peer-relationship. *Studies of Psychological and Behavioral Research*, 19(03): 424-430.
- [4] Zhou Jiquan, Chen Qingping (2018). Correlation between ruminant thinking, resilience and depression in college students. *Health Education and Health Promotion*, 13(05): 398-401.

- [5] Tang Huilin, Wang Siyi, Hu Yongheng (2022). The relationship between social support, resilience and suicidal ideation in adolescents. *Psychological Monthly*, 17(10): 26-28+55.
- [6] Zhang Fengfeng, Dong Yi, Wang Kai, Zhan Zhiyu, Xie Lunfang (2010). Reliability and validity of the Chinese version of the Interpersonal Reactivity Index-C. *Chinese Journal of Clinical Psychology*, 18(02): 155-157.
- [7] Yu Xiaonan, Zhang Jianxin (2007). A comparison between the Chinese version of Ego-Resiliency Scale and Connor-Davidson Resilience Scale. *Psychological Science*, 30(05): 1169-1171.
- [8] Gong Xu, Xie Xiyao, Xu Rui, Luo Yuejia (2010). Psychometric properties of the Chinese versions of DASS-21 in Chinese college students. *Chinese Journal of Clinical Psychology*, 18(04): 443-446.
- [9] Tone, E. B., & Tully, E. C. (2014). Empathy as a “risky strength”: A multilevel examination of empathy and risk for internalizing disorders. *Development and Psychopathology*, 26(4pt2): 1547-1565.