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Relationship between empathy level, emotional health and prosocial behavior

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Abstract
The purpose of this study is to explore the correlation among empathy, positive emotion and prosocial behavior of college students. A questionnaire survey was conducted in colleges and universities across the country by using convenient sampling method, and a total of 145 subjects were investigated. In this study, empathy scale, positive emotion scale and college students' prosocial behavior scale were used to investigate the relationship between them and prosocial behavior. At the same time, gender, origin, only child and other factors are also considered, and the following conclusions are obtained: empathy affects prosocial behavior tendency. The higher the level of empathy, the higher the motivation of helping others and altruistic behavior, and the stronger the prosocial behavior tendency. Emotional health level will affect individual prosocial behavior tendency. The results show that the tendency of prosocial behavior is stronger when the positive emotion of individuals is high. And prosocial behavior also has significant gender differences, that is, male college students' prosocial tendency is lower than female college students; There are also significant differences in students' places, and the prosocial tendency of students with urban household registration is lower than that of students with rural household registration.

Keywords
Empathy; Emotions; Self-esteem; Prosocial behavior

1.Introduction

Empathy is an understanding of other people's emotions and a state of empathy, which plays an important role in psychological counseling, pedagogy and other fields. At present, it is widely believed that empathy is a combination of cognitive ability and emotional response, and it is the ability or tendency of individuals to put themselves in other people's feelings and observe other people's emotional state (Gu Liangfeng, 2015). In the field of education, when implementing educational policies, thinking from the perspective of students can establish effective communication, gradually improve the relationship between teachers and students, and arouse students' enthusiasm for learning (Zhao Longlong, 2018). In addition, in psychological counseling, it is necessary to gain the trust of visitors through empathy (Chen Shiping, Le Guoan, 2002). Jia Xiaoying (2014) pointed out that individuals usually prefer to get along with those who can resonate with themselves in social interaction, and improving empathy can improve the quality of interpersonal relationships.

Shen Lide, a psychologist, showed in his research that one of the reasons for teenagers' psychological development defects is their low empathy. The more teenagers who can think from the standpoint of others, the better the situation of peer relationship, because individuals will participate in group activities more optimistically and cultivate diversified abilities and qualities. Teenagers are the object of social concern. Apart from paying

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attention to teenagers' health, they are easily disturbed by the external environment due to lack of social experience, which may lead to bad behaviors of attacking others. Therefore, psychological growth is also the focus of attention.

Prosocial behavior refers to all behaviors that meet social expectations and are beneficial to society. The main ways are volunteer activities, donation, sharing, helping others and cooperation (Wang Hong, 2018). According to Campbell's evolutionary theory in 1965, prosocial behavior is one of the genetic components of human nature, which contributes to the continuity of human society. As long as individuals with prosocial behavior genes survive, the genes can be passed down. Therefore, after thousands of years of evolution, prosocial behavior has innate factors.

According to the theory of reciprocal altruism, individuals are willing to help people who have no social relationship with themselves, mainly expecting to get help from others when they encounter similar difficulties. Therefore, in the view of this theory, prosocial behavior is equivalent to an investment. When the benefits of getting help from others are less than helping others, individuals may not have prosocial behaviors. This is a good explanation for individual altruistic behavior.

Homans, a sociologist, put forward the theory of social exchange, which holds that all human activities and interpersonal relationships are essentially exchanged with each other, and only through the balance of mutual benefit can the relationship be maintained. Prosocial behavior can also lead to good interpersonal relationships (Penner, Dovidio, Piliavin & Schroeder, 2005). Therefore, this theory can well explain our motives for doing behaviors that are beneficial to strangers.

For college students, the results show that high empathy of college students in interpersonal performance is better and will show more prosocial behavior. At present, there are the following theories to explain prosocial behavior and empathy behavior:Empathy theory: Hoffman believes that when an individual is in a real sad situation of others, he will also feel sad, and this kind of empathy will make the individual show his desire to help others. This is the motivation of empathy. In addition, when we see others in grief in reality, we will also have sympathy for them, which will also trigger our moral beliefs and trigger prosocial behaviors. Empathy-altruism hypothesis: Batson believes that in some situations, empathy can be triggered, which is related to the happiness of others, which will lead individuals to produce prosocial behaviors to solve difficulties for others. Therefore, when individuals pay more and more attention to the interests of others, they will gradually shift to prosocial behaviors in the future.

In order to verify the previous theories and research results, this study puts forward hypotheses.

H1: Empathy level has a positive effect on prosocial behavior.

Emotion is a psychological activity mediated by individual wishes and needs (Jin Xia, 2015). Research shows that emotional factors have a significant impact on individual prosocial decision-making and prosocial behavior. Positive emotions can promote prosocial behavior. Scholars analyze that the main reason is that people tend to look at the beautiful side of things in a good emotional state, and at the same time help others maintain this good mood, that is, "positive emotional effect". Therefore, this study puts forward the

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second confirmatory hypothesis.

H2: Individuals with positive emotions are more likely to show prosocial behavior.

The research on the demographic differences of prosocial behavior shows that the motivation of women to make prosocial behavior is greater than that of men, and the main reasons are also analyzed from the perspective of male and female personalities. Men tend to think rationally and women tend to think sensibly, so women's prosocial behavior tendency is higher than that of men. The relevant research on the origin of students shows that rural students will show more prosocial behaviors. The main difference between them lies in economic level and education level. As for the study of whether the only child or not, this study thinks that partnership may be a factor affecting individual prosocial behavior. Children from non-only child families, who play games with their brothers and sisters from an early age, are more likely to form a good partnership, and will think from each other's point of view and consider problems for each other, thus showing greater prosocial behavior tendency. Therefore, the third hypothesis of this study is put forward.

H3: The prosocial behavior tendency of only children is lower than that of non-only children.

2.Research objects and methods

2.1 Subjects of study

In this study, the convenient sampling method was used to randomly select the subjects on the network. A total of 154 questionnaires were collected, and those with incomplete or contradictory answers were excluded. There are 145 valid questionnaires, and the effective rate of questionnaires is 90.6%. The ratio of male to female is balanced, with 73 males and 72 females.

2.2 Tools

Empathy scale: It is divided into four dimensions: fantasy, personal pain, empathy and empathy. The scale was scored by Rickett's 5-point score. Topics such as: "I can feel other people's emotions well" and so on. The Cronbach's α coefficient of the scale ranged from 0.71 to 0.77.

Positive emotion scale: This scale mainly measures the state of positive emotion of subjects, and those with low scores show that their emotions are more MoMo; Those with high scores represent that the subjects are more energetic and have a higher state of positive emotions. The scale was scored by Rickett's 5-point score. Topic content for example: "I am in a positive emotional state" and so on. The Cronbach's α coefficient of this scale is 0.72, which has good internal consistency.

Prosocial Behavior Rating Scale for College Students: The revised version of Prosocial Behavior Tendency Scale of Cod Mi was used in this study (Kou Yu, Hong Huifang, Tan Chen, Li Lei, 2007). The scale contains six dimensions, such as "I will only help others in public". The Cronbach's α coefficients of each dimension ranged from 0.70 to 0.82, showing good internal consistency.

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3.Results

3.1 Descriptive Statistics

The descriptive statistical results in this study are shown in Table 1.

Table 1 Mean and standard deviation of each st*udy* variable (N=145)

Empathy scale	*M* ± *SD*	Prosocial behavior scale	*M* ± *SD*	Positive emotion	*M* ± *SD*
General empathy	88.89 ± 8.38	Total score of prosocial behavior	73.01 ± 10.16	Positive emotion	31.97 ± 6.60
Fantasy	21.97 ± 3.42	Urgency	10.39 ± 1.92		
Empathy thinking	23.34 ± 2.97	Openness	11.68 ± 2.51		
Empathy and concern	21.37 ± 2.74	Anonymity	16.12 ± 3.11		
Personal pain	22.21 ± 2.80	Altruism	15.42 ± 2.43		
		Compliance	6.29 ± 1.50		
		Emotional	13.12 ± 2.46		

3.2 Correlation analysis of empathy, emotional health and prosocial behavior

Table 2 Correlation among empathy scale, positive emotion and prosocial *be*havior (N=145)

	Prosocial behavior	Emotional	Compliance	Altruism	Anonymity	Openness	Urgency
General empathy	0.43**	0.40**	0.20*	0.41**	0.18*	0.30**	0.40**
Fantasy	0.34**	0.31**	0.19*	0.29**	0.17*	0.22**	0.32**
Empathy thinking	0.33**	0.29**	0.16	0.26**	0.19*	0.14	0.41**
Empathy and concern	0.33**	0.30**	0.18*	0.35**	0.03	0.35**	0.26**
Personal pain	0.19*	0.22**	0.02	0.23**	0.09	0.13	0.12
Positive emotion	0.28**	0.24**	0.16	0.21*	0.16	0.25**	0.18*

Correlation analysis showed that there was a significant correlation between general empathy score and pro-social behavior tendency ($r = 0.43$, $p < 0.001$); The four dimensions of empathy scale: fantasy dimension ($r = 0.34$, $p < 0.01$), empathy dimension ($r = 0.33$, $p < 0.001$), empathy dimension ($r = 0.33$, $p < 0.01$) and personal pain dimension ($r = 0.19$, $p < 0.05$) were significantly correlated with prosocial behavior tendency; There was a significant correlation between positive emotion score and prosocial behavior tendency ($r = 0.28$, $p < 0.01$).

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3.3 A Regression Study of Empathy, Positive Emotion and Prosocial Behavior

The relationship among empathy, positive emotion and prosocial behavior was analyzed by stratified regression. Gender, domicile and whether the only child as control variables into the first layer, empathy dimensions and positive emotions into the second layer, prosocial behavior scores as dependent variables. The results are shown in Table 3.

Table 3 Effects of empathy dimensions and positive emotions on prosocial behavior

Variable	Model 1			Model 2		
	β		t	β		t
Gender	0.15		1.80	0.12		1.59
Household registration	-0.21		-2.40*	-0.19		-2.36*
Is it an only child	0.02		0.17	-0.001		-0.01
Fantasy dimension				0.21		2.44*
Empathy thinking				0.14		1.70
Empathy and concern				0.12		1.46
Personal pain				0.09		1.15
Positive emotion				0.24		3.33***
F		3.85**			7.43***	
ΔR^2		0.06			0.26	

According to the results of stratified regression analysis, only fantasy dimension and positive emotion can significantly predict prosocial behavior. Empathy, empathy and personal pain exit the regression equation. Further regression analysis shows that the combination of fantasy dimension and positive emotion can explain prosocial behavior by 23% (Table 4).

Table 4 The influence of fantasy dimension and positive emotion on prosocial behavior

Variable	Model 1			Model 2		
	β		t	β		t
Gender	0.15		1.80	0.12		1.67
Household registration	-0.21		-2.40*	-0.21		-2.61**
Is it an only child	0.02		0.17	-0.003		-0.04
Fantasy dimension				0.34		4.59***
Positive emotion				0.26		3.56***
F		3.85**			9.68***	
ΔR^2		0.06			0.23	

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3.4 Gender Differences in Empathy, Emotional Health and Prosocial Behavior Tendency

Table 5 Differences in research variables among college students of different genders

	Gender	*M*	*SD*	*t*
Empathy ability	Male	88.08	9.17	-1.15
	Female	89.68	7.50	
Positive emotion	Male	32.07	7.04	0.19
	Female	31.86	6.18	
Prosocial behavio r	Male	71.15	11.08	-2.22*
	Female	74.85	8.87	

Table 5 shows the comparison of the level of empathy, positive emotion and prosocial behavior of college students of different genders. It can be seen that the level of prosocial behavior of girls is significantly higher than that of boys ($t=-2.22$, $p < 0.05$)

3.5 Comparison of empathy, emotional health and prosocial behavior tendency of college students from urban and rural areas

Table 6 Differences of empathy, emotional health and prosocial behavior tendency between urban and rural college students

	Household r egistration	*M*	*SD*	*t*
Empathy ability	City	89.03	7.20	0.17
	Rural	88.79	9.16	
Positive emotion	City	32.45	5.81	0.74
	Rural	31.62	7.11	
Prosocial behavior	City	75.82	9.90	2.86**
	Rural	71.04	9.93	

According to the results of Table 6, it can be seen that there are significant differences in the prosocial behavior level of students with different household registration types ($t = 2.86$, $p < 0.01$), and the prosocial behavior tendency of students from urban areas is higher than that of students from rural areas.

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3.6 Comparison of empathy, emotional health and prosocial behavior tendency of college students with only child or not

Table 7 Differences in research variables between subjects who are only children or not

	Is it an only child	*M*	*SD*	*t*
Empathy ability	Yes	88.76	7.93	-0.12
	No	88.94	8.59	
Positive emotion	Yes	31.69	5.44	-0.32
	No	32.08	7.04	
Prosocial behavior	Yes	74.10	8.62	0.82
	No	72.57	10.74	

From the results in Table 7, it can be seen that there is no significant difference in empathy, positive emotions and prosocial behaviors among college students who are only children or not.

4.Discussion

4.1 Relationship between empathy level, positive emotion and prosocial behavior

The results of correlation analysis show that the higher the level of empathy, the higher the level of positive emotions, and the higher the level of prosocial behavior, which is consistent with most domestic research results. This means that empathy level has a significant positive correlation with prosocial behavior. The results of the Positive Emotion Scale show that there is a significant positive relationship between positive emotion and prosocial behavior. This is because individuals in positive emotions tend to look at the positive side of things and are willing to help others, and their deep purpose is to maintain their positive emotional level. At the same time, this study also carried out regression analysis on empathy, positive emotion and prosocial behavior. The results of multiple regression show that the fantasy dimension of general empathy and positive emotion have the strongest explanatory power for prosocial behavior, and the combination of them can explain 23% of the variation of prosocial behavior.

4.2 Gender Differences in Empathy, Positive Emotion and Prosocial Behavior of College Students

According to the results of T-test, we can see that the prosocial behavior level of girls is significantly higher than that of boys. In view of the differences between men and women, we analyze the reasons as follows: (1) There are differences in the innate thinking ways between men and women. Men tend to think rationally, while women tend to think sensibly. Therefore, women's empathy level is higher than that of men, and their prosocial behavior motivation is higher. (2) There are also social role cognitive differences between genders. Men give people more feelings of "masculinity and strength", while women are often regarded as "gentle and dependent on others". This difference is more likely to lead to women's tendency to have more prosocial behaviors.

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4.3 The relationship between college students' different places of origin and empathy level, positive emotion and prosocial behavior

According to the results, the prosocial level of college students with urban hukou is higher than that of rural college students, showing significant differences. The research thinks that there are the following reasons: (1) There are differences in economic level between rural students and urban students, which leads to some students' "more heart than strength" in helping others. Helping others can only be realized with a certain material basis, because helping others needs to consume personal resources, whether it is time, energy or money, and people who lack materials are often people who lack resources, so even if they have the motivation to help others, it is difficult to convert them into helping others. (2) There are differences in educational resources between urban and rural areas. Urban students are rich in educational resources, diversified in leisure time and rich in information sources, while rural students are lacking in this respect. (3) Different sub-cultural environments also affect the two groups of people. Students who grow up in rural environment will have a strong concept of closeness. When facing an object, the student will judge the distance from the object according to his blood relationship, so he will take different attitudes towards it. Therefore, for rural students, strangers who do not have any natural relationship are at a relatively far psychological distance, which also has a certain impact on prosocial behavior.

4.4 Differences in the number of children in families compared with empathy level, positive emotion and prosocial behavior of college students

Table 7 shows that there is no significant difference in empathy level and prosocial behavior among college students with only child or not, which deviates from the previous hypothesis of this study. The study assumes that the prosocial tendency of non-only children is higher than that of only children, so this study thinks that the main reason for this unexpected result may be the limited sample size. Among the 145 subjects, there are only 42 college students who are only children, and 102 students who are not only children. The only child accounts for 28% of the total sample, so there may be some deviation in this sampling, which leads to unexpected results.

This study explores the relationship among empathy, emotional health and prosocial behavior. Through data analysis and discussion, the following results are obtained: (1) The higher the empathy level, the higher the emotional health and the stronger the prosocial behavior tendency. (2) Positive emotion has a certain predictive effect on prosocial behavior, and fantasy dimension, empathy dimension and positive emotion have the greatest explanatory power on prosocial behavior in general empathy. (3) Female students and urban students have greater prosocial behavior tendency than male students and rural students.

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