The Effect of Affective Empathy on Prosocial Behavior among College Students

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Abstract. Affective empathy is the response and feeling to others' emotions, it includes empathic concern and personal distress. In the real situation, empathy always occurs under certain specific circumstances and can develop into an individual's prosocial behavior. In this experiment, the relationship between the empathy state and prosocial behavior of college students was discussed using specific emotional materials. Batson's Empathy Adjective Scale and the revised Prosocial Behavior Scale were used. The results show that viewing specific emotional materials can stimulate different levels of emotional empathy. In a state of high emotional empathy, people have higher levels of prosocial behavior. Different emotional empathy states can only have a significant impact on some dimensions of prosocial behavior, including three dimensions of openness, compliance, and emotion. However, the three dimensions of anonymity, altruism, and urgency do not have a significant impact.

Keywords: Emotional empathy, prosocial behavior, college students, emotion.

1. Introduction

Empathy, is a major social ability that means reaching beyond our own confines to understand others and is inextricably important to our everyday lives, so to speak. There are two parts of empathy, emotional empathy and cognitive empathy, each with its own emphasis. Emotional empathy is an emotional response to another person's emotions, responding to and feeling emotions similar to those of another person. In psychological counseling, it is often mentioned that counselors should empathize with the visitors, which means counselors can feel the emotions of the visitors at this time. Of course, this emotion can be directed to others, and also can be directed to yourself, respectively, empathic concern and personal sadness.

As an individual matures, he can better control his own emotions and distinguish the emotional experiences of others more effectively. Thus, he can focus on the emotions of others, which is called empathic attention. A common practice in the study of emotional empathy is to present pictures or text stories about the emotional experience of others, such as the picture of the damaged building on the ruins after the earthquake and the sad and sad picture of the bleeding wounded, as well as the background information of the event represented by this picture. After reading the picture, the subjects should record their own subjective emotional experience through the self-report scale to judge the level of empathic attention. Alternatively, record the subjects' physiological indicators and neural response indicators to represent the objective level of emotional empathy.

2. Research Methods

2.1. Research Participants

A total of 103 college students were recruited as participants, including 53 males and 50 females, with an age range of 18 to 23 years old, healthy bodies and normal hearing, with no significant difference in abilities, who had not participated in similar experiments recently, and were given corresponding remuneration after the experiment.

2.2. Experimental Materials

2.2.1 Text and Picture Materials

This material includes a picture of the child's sad mood selected from the Internet, and the PPT content is presented in the form of text stories. The story is about a 9-year-old boy Henry who lost his mother [1], and now his father died in a car accident. It described the sad situation when he attended his father's funeral, with a total of 560 words.

2.2.2 State Empathic Response Scale

Batson's empathic Adjective Scale was used in this study to assess participants' emotional empathy, and a five-point scale was used to rate the extent to which they experienced empathic adjectives. The internal consistency coefficient of the empathy adjective scale was 0.91, among which the internal consistency coefficient of the empathy concern dimension was 0.85, and the internal consistency coefficient of the individual sadness dimension was 0.93, and the two dimensions had a high load on different factors, respectively.

The three questions used in Batson's research were used to test the validity of the opinion selection operation. However, the semantic ambiguity was found in the last question after many subjects were asked, so it was deleted, and only the first two data items were calculated.

2.2.3 Prosocial Behavior Tendency Scale

The revised prosocial tendency scale was selected in this experiment. There were 26 questions in the revised scale, including 6 subscales, which were open, altruistic, emotional, anonymous, compliant and urgent, respectively. The scale has good psychometric indicators and has been used for many times in experiments. The internal consistency reliability of the 6 subscales were 0.71, 0.76, 0.73, 0.78, 0.74, 0.56, and the correlation between each subscale and the total scale was 0.49, 0.80, 0.79, 0.76, 0.80, 0.80 [2-5].

2.3. Experimental Design

A single-factor intergroup design was used in this experiment. The independent variable was the empathy state of the subjects, including the high empathy state and low empathy state. The dependent variable was the level of individual prosocial behavior.

2.4. Experimental Procedure

Thirty university students were recruited to investigate the empathic attention and individual sadness of the subjects after watching the material in pre-experiment: (1) the method of individual measurement was adopted. After obtaining the consent of the subjects, they sat in front of the computer; (2) read the instructions and told the subjects that this was just a simple study about emotional feelings; (3) the subjects watched the PowerPoint Presentation material and read the story according to the instructions; (4) the subjects were instructed to complete the state empathy Response scale and the validity test of the operation; (5) thank the subject for cooperating with the experiment, briefly talk about the experience, eliminate inappropriate materials.

Formal experiment: A total of 103 subjects, 52 in the high-empathic emotional state group and 51 in the low-empathic emotional state group: (1) the method of individual measurement was adopted. After obtaining the consent of the subjects, they sat in front of the computer; (2) read the instructions and told the subjects that this was just a simple study about emotional feelings; (3) the subjects watched the PPT material and read the story according to the instructions; (4) the subjects were instructed to complete the state empathy Response scale and the validity test of the operation; (5) the subjects immediately took the prosocial inclination scale test; (6) thank the subject for cooperating with the experiment, briefly talk about the experience, eliminate inappropriate material.

2.5. Data Analysis

Statistical sorting of data, at the same time to eliminate invalid data and extreme data, using SPSS20.0 for processing, mainly including variance analysis and *t*-test.

3. Research Results

3.1. Validity Test of Emotional Empathy and Evaluation Results of Emotional Materials

There were 14 boys and 16 girls in the pre-experiment, with a total of 30 valid data. After the *t*-test, it can be seen from Table 1 that after watching specific emotional materials, subjects would stimulate different empathic emotional states due to different guidance and showed significant differences in empathic attention, individual sadness, emotional empathy and effectiveness ($t = 3.854$, $p < 0.05$; $t = 4.607$, $p < 0.05$; $t = 4.342$, $p < 0.05$; $t = 5.363$, $p < 0.05$). It was proved that subjects could be stimulated by a high empathic state and low empathic state with significant differences after watching certain emotional material.

Table 1. Paired T-test of high and low empathy samples.

	High empathy group (n = 15)	Low empathy group (n = 15)	t
Empathic attention	24.20 ± 3.61	17.47 ± 3.87	3.85**
Individual sadness	23.60 ± 4.27	16.13 ± 4.73	4.61***
Emotional empathy	47.80 ± 7.12	33.60 ± 7.82	4.34***
validity	10.13 ± 1.30	6.67 ± 1.99	5.36***

3.2. Influence of Different Empathic States on Individual Prosocial Behavior

There were 103 subjects in the formal experiment. After deleting three invalid data, a total of 100 valid data were collected, among which 50 were boys and 50 were girls. Then, after sorting out the data using SPSS20.0, an analysis of variance was conducted on the data first.

The results in Table 2 showed that subjects with different levels of empathy had significant differences in the total score of prosocial behavior ($F = 7.32$, $p < 0.05$), and the post-test indicated that subjects with high empathy had a higher level of prosocial behavior. On the six dimensions of the prosocial behavior scale, subjects with different emotional empathic states had significant differences on the three dimensions of openness, compliance, and emotion ($F(1,98) = 6.29$, $p < 0.05$; $F(1,98) = 4.66$, $p < 0.05$; $F(1,98) = 5.55$, $p < 0.05$), and the difference on the anonymous, altruistic and urgent dimensions was not significant ($F(1,98) = 0.30$, $p = 0.584 > 0.05$; $F(1,98) = 2.91$, $p = 0.091 > 0.05$; $F(1,98) = 2.17$, $p = 0.144 > 0.05$), indicating that different emotional empathic states had no significant influence on the anonymity, altruism and urgency of prosocial behavior.

Table 2. Analysis of variance between high and low empathy and prosocial tendencies.

	High empathy group (n = 50)	Low empathy group (n = 50)	F	df_1	df_2	p
open	13.40 ± 3.29	11.64 ± 3.72	6.29	1	98	0.014
anonymous	18.16 ± 3.71	17.80 ± 2.79	0.30	1	98	0.584
altruistic	15.98 ± 2.59	15.08 ± 2.69	2.91	1	98	0.091
compliant	18.02 ± 3.29	16.58 ± 3.38	4.66	1	98	0.033
emotional	17.86 ± 4.07	15.86 ± 4.41	5.55	1	98	0.020
urgent	14.22 ± 14.52	11.18 ± 1.51	2.17	1	98	0.144
Total score	97.64 ± 20.95	88.14 ± 13.32	7.32	1	98	0.008

The results of Table 3 show that emotional empathy is only irrelevant to the dimension of urgency in the prosocial tendency scale and is correlated with other dimensions. All dimensions of prosocial tendency are correlated, indicating that emotional empathy can have sufficient correlation effects on prosocial behavior, which is in line with the original hypothesis and previous studies. In addition to

the dimension of urgency, the anonymous and open dimensions of prosocial tendency have no correlation, and the altruistic dimensions of prosocial emotion and the individual distress dimensions of emotional empathy have no correlation.

Table 3. Correlation Analysis of Emotional Empathy and Prosocial Tendencies.

dimension	1	2	3	4	5	6	7	8	9	10
Empathic attention	-									
Individual sadness	.66***	-								
open	.47***	.26**	-							
anonymous	.27**	.24*	.19	-						
altruistic	.35***	.10	.47***	.43***	-					
compliant	.40***	.22*	.57***	.35***	.63***	-				
emotional	.48***	.36***	.50***	.39***	.47***	.54***	-			
urgent	.12	.04	.11	.14	.14	.12	.19	-		
Emotional empathy	.89***	.93***	.39***	.28**	.23*	.32**	.46***	.08	-	
Prosocial tendency	.45***	.26**	.59***	.52***	.63***	.66***	.69***	.71***	.38***	-

4. Discussion

4.1. Effects of State Empathy on Prosocial Behavior

The experimental results show that the manipulation of emotional empathy by specific emotional materials can affect participants' empathic state and subsequent prosocial behavior level.

Allowing the participants to experience the protagonist's experience in an imaginary scene can improve the level of empathy of the participants and can produce a significant difference from the low empathy group, indicating that individuals can temporarily improve their prosocial level by consciously imagining the situation of the other person.

In this experiment, Henry's story was presented in the form of negative situational material. In the empathic-altruistic hypothesis, people have empathic concern for others in unfortunate situations, which prompts people to pay attention to the well-being of others and produce altruistic behaviors aimed at improving their situation and interests, sometimes even at the expense of their own interests. In some donation activities for disaster relief, the host often picks out representative tragic cases and combs them into moving stories that make people weep. When the audience at the activity is in a sad atmosphere, they can be more generous for the consideration of others and then carry out such prosocial behaviors as donating money and goods.

Other studies have shown that when individuals are happy with others, they can significantly enhance their prosocial money-sharing behavior. That is, the experience of positive situations can promote the prosocial behavior of individuals. Compared with neutral and negative emotions, when the happy emotion of "me" can be changed into the happy emotion of "us", individuals are more likely to actively enter into the mood of others to understand others, thus stimulating the motivation to be friendly and helpful, and making prosocial behaviors [6]. Being happy alone is not as good as being happy with others. Being happy alone is not as good as being happy with others.

When a happy emotion can be brought from others to us, individuals are more likely to put down the barrier, so as to take the initiative to understand others and respond with friendly behaviors.

According to the emotional understanding system, an individual does not need to experience the situation directly to assess the emotional state of others. Empathizers can make inferences based on the clues provided and their own experience of social-emotional knowledge. This system can directly affect the empathic state of the empathic person and make him develop towards the direction of

empathy. In fact, many studies, including this experiment, manipulate participants' empathic states by providing emotional clues and material fragments to substitute them into emotional situations rather than indirectly making subjects deduce the content by themselves through event experience clues to achieve changes in the level of empathy. When people's cognitive level develops to a high degree of maturity, individuals can use their own reasoning ability to judge the development track and impact of an event, only based on simple imagination can quickly make an emotional judgment and behavioral response when they can understand others, then the process of empathy begins.

4.2. Differences in Formation of High Prosocial Behaviors

Short-term factors in the formation of high prosocial behavior levels. On the basis of experiments, emotional materials, scene simulation, positive music, and empathy training [7] can manipulate individuals' empathy levels in a relatively short time, thus affecting their prosocial behavior. By substituting imaginary scenes for subjects, experiencing the emotions of characters in stories, or actively training the ability to empathize with others, empathic behaviors can be promoted, thus temporarily improving individuals' altruistic desire to realize prosocial behaviors.

In some social situations, researchers have found that when individuals show awkward looks, bystanders will worry about the negative evaluation of others for not helping them, threaten their moral identity, cause psychological discomfort, and thus act more friendly, and their sense of trust, love and cooperation will be improved, and exhibit more prosocial behaviors, because most individuals hope to get better evaluations from others in their daily life [8]. In the case of choice, the prosocial behavior level of individuals to familiar people is significantly higher than that of strangers, and individuals are more inclined to show friendliness to familiar people. After all, generally speaking, individuals have a stronger favorable impression of familiar people and are more likely to consider the benefits of helping acquaintances. However, compared with the benefits of others, individuals are more willing to do prosocial behavior in the case to avoid the loss of others. It can be said that individuals will not instinctively do prosocial behavior by letting others gain benefits, and not damaging the interests of others is often our priority, which is a little closer to the meaning of "no merit but no fault". In response to the needs of strangers, individuals are more willing to perform prosocial behaviors when they are in a positive mood than when they are in a negative mood [9, 10]. It can be said that when they need help from others, they should also look at their faces, and they are more likely to be rejected by others when they are in a bad mood.

A high level of prosocial behavior is formed by individual factors. Prosocial behavior is significantly positively correlated with open personality traits among the Big Five personalities. Curious, novel, non-traditional, diverse and creative individuals are more capable of prosocial behavior, but not related to neurotic personality traits [11]. In terms of the relationship between individuals with self-identity style and prosocial behavior, individuals with a more mature style of identity development score higher on overall prosocial behavior [12], while those individuals with lower self-identity, such as street gangs and drug-taking organizations, are less likely to perform prosocial behavior. In terms of the relationship between morality and prosocial behavior, individuals with high moral identity tend to show greater moral concern for others and are more likely to narrow the psychological distance with others, and exhibit more prosocial behaviors [13], while individuals with low moral identity often criticize others, are not tolerant enough, and refuse to stay away from others. In foreign studies, researchers have found that emotional regulation ability plays a key role in the development of prosocial behavior during the growth of adolescents, and comprehensive emotional regulation ability can directly predict students' prosocial behavior [14], individuals with low emotional regulation are not able to control themselves well, let alone maintain goodwill towards others. Students with high jealousy tendencies have a negative predictive effect on adolescents' prosocial behavior. Individuals with good jealousy are difficult to get close to others, and the relationship between temperament jealousy and prosocial behavior is also regulated by individual self-esteem. Individuals with high self-esteem may aggravate the negative effects of temperament jealousy on prosocial behavior [15]. Those who are fully confident of themselves but easily jealous

of others will often attack others instead of being friendly, such as Zhou Yu, an arrogant and arrogant character in the Romance of The Three Kingdoms who died of three anger.

4.3. Limitations and Future Directions

This study discusses whether specific emotional materials can effectively stimulate individual emotional empathy and the relationship between individuals and prosocial behaviors under different levels of empathy. The main problem is that the sample size is relatively small, and most subjects are students of the same major, so many subjects cannot control the experimental environment well during the experiment. Moreover, only the short-term effect of emotional empathy is discussed, and it is not possible to conduct an in-depth study on the long-term relationship between emotional empathy and individual prosocial behavior. Secondly, in terms of the selection of research tools and subjects, emotional text materials, empathy adjective scale and prosocial behavior scale are mainly used.

Because the content of the story is in a foreign background, the subjects may not be able to substitute the characters well when reading the emotional materials. Therefore, the specific content of the story can be modified more in line with the national conditions in future experiments. The characters and other story information can be changed into domestic. At the same time, the selection range and number of college students can be expanded, including gender, household registration and other factors as the independent variables of the study. This study confirmed the hypothesis that emotional empathy could be stimulated by specific means and affect prosocial behavior, and further enriched the research materials on empathy and prosocial behavior. However, it failed to prove a more accurate quantified relationship between the roles of the two, and its specific effects can be the direction of future research.

5. Conclusion

Firstly, different states of emotional empathy can be triggered by viewing specific emotional material; Secondly, people with high emotional empathy have a higher level of prosocial behavior; Thirdly, different emotional empathic states only affect some dimensions of prosocial behavior.

References

[1] Demetriou, H. (2018). A Study of Empathy in the Early and Middle Childhood Years. In: Empathy, Emotion and Education. Palgrave Macmillan, London.

[2] An Lianchao, Geng Yanmeng, Chen Jinghan, Li Chunmei, & He Yingjuan. (2017). The relationship between empathy and prosocial behavior in college students. Chinese Journal of Health Psychology, 25(09), 1369-1371.

[3] Hong, Huifang, & Kou, Yu. (2008). Further study on the relationship between prosocial inclinationmand prosocial reasoning in college students with canonical correlation. Psychological Development and Education, 93(02), 113-118.

[4] Chen Chunyuan. (2011). The relationship between gratitude characteristics and prosocial tendency of secondary vocational students. Master dissertation, Yunnan Normal University.

[5] Liang Chen, Wen Liu, Xue Xia, & Xue Zhang. (2014). The Influence of moral self-regulation on prosocial tendencies and its age effect. Chinese Journal of Health Psychology, 22(08), 1240-1242.

[6] Li Yating. (2017). The influence ofpositive empathy on prosocial behavior. Master Dissertation.

[7] Wu X and Lu X (2021) Musical Training in the Development of Empathy and Prosocial Behaviors. Front. Psychol. 12:661769.

[8] Patrick, R. B., Bodine, A. J., Gibbs, J. C., & Basinger, K. S. (2018). What accounts for prosocial behavior? Roles of moral identity, moral judgment, and self-efficacy beliefs. The Journal of Genetic Psychology: Research and Theory on Human Development, 179(5), 231–245.

[9] Salovey, P., & Rosenhan, D. L. (1989). Mood states and prosocial behavior. In H. Wagner & A. Manstead (Eds.), Handbook of social psychophysiology (pp. 371–391). John Wiley & Sons.

[10] Hu Dongqin. (2016). The influence of social distance, task framework and emotional factors on prosocial decision-making. Master dissertation, Nanjing Normal University.

[11] Cong Wenjun. (2014). The Relationship between prosocial behavior and personality traits of college students. Jiangxi Social Sciences (2).

[12] Chen Xiao. (2013). The relationship between self-identity style, identity status and prosocial behavior of college students. Master Dissertation, Southwest University.

[13] Gibbs, John C. (2019). 'Moral Development, Moral Identity, and Prosocial Behavior', Moral Development and Reality: Beyond the Theories of Kohlberg, Hoffman, and Haidt, 4th edn (New York, 2019; online edn, Oxford Academic, 23 May 2019).

[14] Benita, M., Levkovitz, T., & Roth, G. (2017). Integrative emotion regulation predicts adolescents' prosocial behavior through the mediation of empathy. Learning and Instruction, 50, 14–20.

[15] Fu, X., Padilla-Walker, L. M., & Brown, M. N. (2017). Longitudinal relations between adolescents' self-esteem and prosocial behavior toward strangers, friends and family. Journal of Adolescence, 57, 90–98.