

Chinese Adolescents' Peer Attachment, Prosocial Behaviors: The Mediating Role of Empathy

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Abstract. The goal of this current study was to explore whether the link between peer attachment and prosocial behaviors was mediated by empathy. The Chinese version of the Inventory of Parent and Peer Attachment, the Prosocial Tendencies Measure, and the Interpersonal Reactivity Index were distributed to one thousand one hundred and eighty-seven Chinese adolescents from junior and senior high schools in Zhengzhou Henan Province (Mean age=15.93 years, SD=0.88 years; 43.6% male, 56.4% female) to measure the level of peer attachment, prosocial behaviors, and empathy. The results showed that all three variables were positively correlated with each other. Peer attachment affected prosocial behaviors with the partial mediating effect of empathy. These findings suggested that better peer relationships directly fostered the appearance of adolescents' prosocial behaviors. Empathy mediated the relation between peer attachment and prosocial behaviors. All in all, findings for this current study highlighted the importance of peer attachment and empathy skill on the altruistic and prosocial tendencies.

Keywords: Peer Attachment; Prosocial Behaviors; Empathy; Mediation Effect.

1. Introduction

Adolescents' ability to show sympathetic or prosocial behaviors towards others plays an important role in their personal development or even in their lives (Yoo et al., 2013). Prosocial behaviors refer to a range of voluntary actions intended to benefit other individuals or groups (Carlo & Randall, 2002; Eisenberg et al., 2006), which has gained increasing attention in the past decades (Brittian & Humphries, 2015). Penner and Finkelstein (1998) defined it as "an enduring tendency to think about the welfare and rights of other people, to feel concerned and empathy for them, and to act in a way that benefits them" (p. 526). Such behaviors include positive interactions with others, such as sharing, offering help, rescuing, and cooperating (Piotrowski et al., 2015; Hammond et al., 2015). Different external and internal factors showed to impact the prosocial orientation, including parenting (Day & Padilla-Walker, 2009), culture (Hasenfratz & Knafo, 2015), gene (Knafo-Noam et al., 2015), video game (Anderson et al., 2010). Peer attachment and empathy have been proved to have a critical influence on prosocial behaviors.

1.1 The Association of Peer Attachment, Empathy, and Prosocial Behaviors

Attachment refers to the enduring connectedness and bond between human beings (Jones & Bowlby, 1970). As infants grew into adolescents, they become less dependent on their parents/caregivers. Instead, they prefer to turn to their friends/peers for emotional and social support (Oldfield et al., 2016). The level of well-being predicts the level of attachment security. Love et al. (2009) stated that students with greater peer attachment security would report better psychological well-being. Studies have showed that peer attachment could positively predict the prosocial tendencies and has critical impact on developing the skills benefited for others (Oldfield et al., 2015). Furthermore, being closeness and sustaining a strong connection with peers also improve the prosocial behavior through "social comparison, direct feedback, the development of mutual expectations and goals, and observational learning" (McGinley & Evans, 2020). A secure peer attachment can be positively related to sympathetic and prosocial behaviors as stated by Meredith and Alexandria (2020).

Besides, empathy, or the ability to accurately experience and perceive others' feeling/thoughts, is another critical factor affecting the help behaviors (Chow et al., 2013). Developmental theorists have proved a strong link between emotional empathy and prosocial tendencies, considered empathy as a

“motivating factor” for promoting prosocial behaviors. Furthermore, study has proved that empathy-related traits not only would promote the voluntary behaviors that intend to benefits others, but also would largely decrease the emergence of antisocial or aggressive behaviors among adolescents (Sze et al., 2012). Empathy helps adolescents to actively feel others’ feelings and make them willing to lend a hand when notice someone in trouble. Empathy not only has impact on prosocial behavior, but also related with peer attachment and friendship. Adolescents with higher empathy level, are able to uninfluenced by the bias perspectives, “the egocentric viewpoints” when perceive others (Chow et al., 2013).

1.2 The Present Study

Although the prior researches have consistently yielded evidence about the relationship between prosocial behavior, peer attachment, and empathy, it is unclear how peer attachment interacts with empathy to influence adolescents’ prosocial behaviors. Given the link between empathy and prosocial behaviors, and the established relationship between peer attachment and prosocial behaviors, the current study aimed to examine: (1) the demographic factors affecting adolescents’ peer attachment, prosocial behavior and empathy, (2) whether empathy can mediate the association between peer attachment and prosocial behavior (Fig.1). We hypothesized that the secure peer attachment would be positively and directly associated with the prosocial behaviors. Empathy would also positively relate to prosocial behaviors but would through exerting the partial mediation effect on the link between peer attachment and prosocial behaviors. The predicted mediating model could be seen in Figure 1.

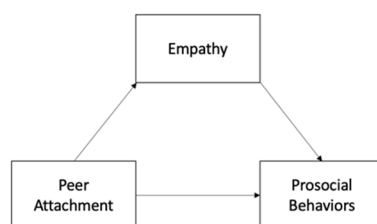


Figure 1. The proposed mediating model

2. Methods

2.1 Participants and Procedures

Students from junior and senior high schools in Zhengzhou Henan Province, located in the central region of China, were invited to participate in this present study. Take the class as a unit, all the participants were told to fill out the questionnaires anonymously before they started and sealed their questionnaires into the envelop, we provided after they completed all the questions. With the consent of school faculties and students, totally 1187 participants were recruited and completed the questionnaires voluntarily. Owing to the incomplete and invalid questionnaires, twelve students were excluded, leaving 1175 participants aged 14-18 years ($M_{age} = 15.93$, $SD = 0.88$) as the final sample. Among them, 56.4% were females with an average of 15.96, 43.6% were males with an average of 15.90. Beside age, gender and grades, family status was also measured. 108 participants (9.2%) were the only children and 1067 (90.9%) were non-only children.

2.2 Measures

2.2.1 Peer Attachment

Adolescent peer attachment was measured generally using the Inventory of Parent and Peer Attachment (IPPA) which was a self-report instrument used in adolescents (Armsden & Greenberg, 1987). We used the simplified Chinese version of the Inventory of Parent and Peer Attachment (IPPA-R) in this present study. The revised measure (IPPA-R) has been proven to have reliability and

validity among Chinese youths aged 12-20 years (Zhang, et al., 2011). The scale of IPPA-R includes three sub-scales: peer attachment scale, father-child attachment scale, and mother-child attachment scale. We only included peer attachment scale which contains 25 items with three dimensions: trust (10 items, e.g., “My friends understand me”), communication (8 items, e.g., “I like to get my friend’s point of view on things I’m concerned about”), and alienation (7 items, e.g., “Talking over my problems with friends makes me feel ashamed or foolish”) (reversely scored). This scale is answered on a 5-point Likert scale ranged from 1 (almost never) to 5 (almost always). Final score is calculated by summing up all the items’ responses. Participants with higher total scores means they have a higher attachment quality (Yang et al., 2016).

2.2.2 Prosocial Behavior

Adolescents’ prosocial behavior was measured with the Prosocial Tendencies Measure (PTM) (Carlo & Randall, 2002), which was translated into Chinese and revised by Wenjun Cong. This version has been showed good validity and reliability (Cong, 2008). The scale contains 23 items with 6 dimensions: public (4 items, e.g., “I can help others best when people are watching me”), anonymous (5 items, e.g., “I prefer to donate money anonymously”), dire (3 items, e.g., “I tend to help people who are in a real crisis or need”), emotional (4 items, e.g., “It is most fulfilling to me when I can comfort someone who is very distressed”), compliant (2 items, e.g., “When people ask me to help them, I don’t hesitate”), and altruism (5 items, e.g., “I think that one of the best things about helping others is that it makes me look good”), measured through a 5-point Likert scale ranged from 1(not true) to 5 (certainly true). All the items were scored positively and summed up. This present study used the total score to show the prosocial behavior among Chinese adolescents.

2.2.3. Empathy

Adolescents’ empathy was assessed with the Interpersonal Reactivity Index (IRI), a self-report questionnaire included 28 items with 4 dimensions: fantasy (7 items, e.g., “I daydream and fantasize, with some regularity, about things that might happen to me”), empathetic concern (7 items, e.g., “When I see someone being taken advantage of, I feel kind of protective towards them”), personal distress (7 items, e.g., “I sometimes feel helpless when I am in the middle of a very emotional situation”), and perspective-taking (7 items, e.g., “I try to look at everybody’s side of a disagreement before I make a decision”) (Davis, 1983). Participants rated themselves on a 5-point Likert scale ranged from 1(does not describe me well) to 5(describes me very well). Items’ number 3, 7, 12, 13, 14, 15, 18, 19 are scoring reversely.

2.3 Data Preparation and Analysis Plan

In this current study, SPSS software version 23.0 and Process were used to conduct the data analyses. We analyzed: (1) how gender affecting adolescents’ peer attachment, prosocial behavior and empathy, (2) whether empathy could mediate the association between peer attachment and prosocial behavior. First, Independent-Samples T Test was conducted to analyze the how gender and number of children in own family affected peer attachment, prosocial behavior and empathy. Second, correlation analysis was conducted to analyze the association between three main variables. Next, we conducted a multiple-linear regression to find out how the Peer attachment and Empathy affected dependent variable. Finally, we test the mediating effect of empathy through conducting the mediating model between the three main variables.

3. Results

3.1 Preliminary Analysis

Table 1 showed the descriptive statistics of all study variables. Gender difference was measured among the three main variable. The correlation between peer attachment, empathy, and prosocial behaviors were statistically significant. An independent-samples t-test was conducted to compare the

three main variables between different genders. The peer attachment scores of females and male were compared. On average female respondents ($M=3.5965$, $SD=0.4815$) had higher peer attachment scores than male respondents ($M=3.5057$, $SD=0.498$). The results of an independent-samples T test showed that this difference was statistically significant, ($t=-3.157$, $p=<0.005$, $sig=0.02$). For empathy, significant difference ($t=-8.638$, $p=<0.05$, $sig=0$) was also seen between male participants ($M=3.3841$, $SD=0.3791$) and female participants ($M=3.5745$, $SD=0.3713$). The prosocial behaviors scores of female respondents and male respondents were also compared, but the results didn't show statistically significant difference ($t=0.449$, $p=>0.05$, $sig=0.653$). Gender did not show significant difference ($t=0.449$, $p=>0.05$, $sig=0.002$) in prosocial behaviors.

Table 1. The descriptive statistics of all study variables

	<i>Gender</i>	<i>Mean</i>	<i>t</i>	<i>df</i>	<i>p</i>
IPPA	male	3.5057	-3.157	1173	0.002
	female	3.5965			
IRI	male	3.3841	-8.638	1173	0
	female	3.5745			
PTM	male	3.2406	0.449	996.606	0.653
	female	3.2269			

3.2 Correlational Analysis

The results of the Pearson's r data analysis were presented in Table 2. We found that peer attachment was positively correlated with empathy, $r=0.302$, $n=1113$, $p=0$, and was also positively correlated with prosocial behaviors, $r=0.330$, $n=1102$, $p=0$. In addition, the results revealed a positive correlation between prosocial behavior and empathy, $r=0.495$, $n=1131$, $p=0$. Based on the results, we concluded that peer attachment, empathy, and prosocial behaviors were all positively correlated with each other.

Table 2. Correlational Analysis

		<i>IPPA</i>	<i>IRI</i>	<i>PTM</i>
	Pearson Correlation	1	.302**	.330**
IPPA	Sig. (2-tailed)		.000	.000
	N	1128	1113	1102
	Pearson Correlation	.302**	1	.495**
IRI	Sig. (2-tailed)	.000		.000
	N	1113	1159	1131
	Pearson Correlation	.330**	.495**	1
PTM	Sig. (2-tailed)	.000	.000	
	N	1102	1131	1146

Note. ** $p < 0.01$

3.3 Regression Analysis

A multiple linear regression was conducted to predict whether peer attachment and empathy could significantly predict participants' prosocial behaviors. The results were shown in Table 3. For the analysis, the dependent variable was prosocial behaviors, and the independent variables were peer attachment and empathy. The results of regression analysis showed that 28.3% of the variance was explained by peer attachment and empathy which were the significant predictor of prosocial behaviors, $F(2, 1086) = 213.915$, $p < 0$. Participants predicted prosocial behaviors were equal to $y = 0.006 + 0.437$ (empathy) + 0.2 (peer attachment). (As shown in table 3).

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.532 ^a	.283	.281	.84633230

3.4 Mediation Effect Analysis

Finally, in order to test whether the link between peer attachment and prosocial behaviors was mediated by the empathy variable, a mediating model was conducted. The principle was shown in Figure 2, $Y = PTM_{new}$, $X = IPPA_{new}$, $M = IRI_{new}$. First of all, we tested the total effect of the independent variable peer attachment on the dependent variable prosocial behaviors, which was the coefficient c in the test equation $Y=0.329X+ 0.28$ ($C=0.329$, $e1=0.28$, $p=0$). The results showed a statistically significant relationship between peer attachment and prosocial behaviors. Secondly, we used PROCESS which shown $M=0.2938X+0.29$, $p=0$, showing a statistically significant relationship. Combined these two equations and we found out $Y=0.2002X+0.4375M+0.269$, $p=0$. The mediation effect coefficient was $a=0.2938$, $b=0.437$, $c=0.329$, $c'=0.2002$. The results indicated that not only direct effect was existed between peer attachment and prosocial behaviors, the indirect effect was also existed, which concluded as partial mediation effect with the confidence interval $[0.0993,0.1623]$. Therefore, it is also proved that there was a partial mediation effect. Through calculation, it showed that the mediation effect of empathy on prosocial behaviors accounted 39.05% of the total effect.

4. Discussion

Most of the prior studies on the topic of Attachment, Empathy, and Prosocial behaviors were tended to focus on testing how the security level of attachment including parent attachment and peer attachments influences their prosocial tendencies; how the adolescent’s empathetic ability affects their prosocial behaviors under their own family contexts. It is rare to see the studies tested on the link between these three main elements attachment, empathy, and prosocial behaviors. Moreover, there is lack of evidence proving how empathy exerts the influence on the association between peer attachment and prosocial behaviors. In an attempt to enrich the evidence in this knowledge area, the present study was aimed to firstly examine how gender affected adolescents’ peer attachment, prosocial behaviors and empathy, and secondly examined whether empathy could mediate the association between peer attachment and prosocial behavior. We analyzed the correlation of peer attachment, empathy, and prosocial behaviors, and also analyzed the mediating effect of empathy exerted on prosocial behaviors. The following discussion was based on these results.

All in all, the results of this current study supported the prior established relationships between adolescents’ peer attachment and empathy; the relationships between adolescent’s empathy and prosocial behaviors, and adolescents’ peer attachment and prosocial behaviors. For instance, it has confirmed that adolescents who show higher empathy level and have more empathetic concern tended to be more willing to help others. Adolescents showed higher closeness with peers were also more likely to show prosocial behaviors.

Followed with children’s growth, peers tended to exert greater impact on adolescents than parents. Adolescents spent more times with their friends, or their peers and tended to be less dependent on their parents. Gender was a crucial demographic factor that would have effects on the three main variables. Our findings indicated that gender contributed more to the peer attachment on female than that on male. Female appeared a higher level of peer attachment degree compared with male. This might because female is more emotional than male. Moreover, gender difference also contributed greater to the empathy level on female than male. The findings also showed that although peer attachment impacted prosocial behavior directly, empathy contributed to partial of the relationship. Empathy exerted a partial mediation effect on the link between adolescents’ peer attachments and prosocial behaviors.

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