

RESEARCH ARTICLE

Effect of prosocial behavior on school bullying victimization among children and adolescents: Peer and student–teacher relationships as mediators

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Funding information

Beijing Social Science Fund

Abstract

Introduction: In this study, we examined the relationship between prosocial behavior and school bullying victimization in children and adolescents. We also tested the mediating effects of peer alienation and student–teacher closeness, as well as the moderating effect of the educational stage.

Methods: In total, 538 children and adolescents were recruited from three suburban schools in Beijing, China (252 boys, 286 girls; mean age = 12.47; 237 elementary school students, 101 middle school students, and 200 high school students). The participants were asked to complete the measures of prosocial behavior, peer alienation, and student–teacher closeness at the initial time point and reported school bullying victimization 3 months later.

Results: We found that prosocial behavior was directly and negatively associated with traditional bullying victimization (i.e., physical, nonphysical, and relational); however, it had no direct association with cyberbullying victimization. Prosocial behavior was indirectly associated with school bullying victimization (except in the relational dimension) via peer alienation, but no indirect effect of student–teacher closeness was found. Besides, the associations between prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization were found equally among elementary, middle, and high school students.

Conclusions: The findings suggest that prosocial behavior is an important factor associated with decreased school bullying victimization, and peer relationships play a mediating role in this association. Our study extends the current understanding of prosocial behavior primarily as a consequence of child and adolescent development to an antecedent (of school bullying victimization), which contributes to a more comprehensive view of prosocial behavior.

KEYWORDS

peer alienation, prosocial behavior, school bullying victimization, student–teacher closeness

1 | INTRODUCTION

Globally, bullying and physical violence affects around one in three children (United Nations Educational, Scientific and Cultural Organization, UNESCO, 2018). Convincing evidence shows that bullying victimization at school is a public health issue. It has been associated with adverse developmental outcomes, such as poor general physical health, anxiety, depression, nonsuicidal self-injury, and suicide attempts (Moore et al., 2017). In addition to physical and mental health problems, bullying victimization is also linked with an increased risk of behavioral problems among children and adolescents, such as

cigarette smoking, binge drinking, illicit drug use, video game addiction, and school dropout (e.g., Baiden & Tadeo, 2019). Therefore, identifying the antecedent factors of school bullying victimization should be a public health priority.

Bullying victimization is defined as repeated exposure to negative actions over time from one or more people and involves a power imbalance between the perpetrator(s) and the victim (Olweus, 1994). Despite increased attention on the part of both scientists and the public, the literature on antecedents of school bullying victimization has mainly been focused on risk factors, such as being seen as weak, having low self-esteem, or not getting along well with peers (Alfonso-Rosa et al., 2020). By contrast, much less attention has been paid to the positive factors that might help to reduce and prevent school bullying victimization. Generally, children and adolescents who have better relationships with their peers and teachers behave in a more inclusive way at school and are less likely to be bullied (Hansen et al., 2012). Prosocial behavior can be an efficient way of building and maintaining positive relationships with others, including peer and student–teacher relationships (Fu et al., 2018; Padilla-Walker & Carlo, 2015). Therefore, the current study examines whether prosocial behavior is negatively associated with school bullying victimization and whether this link can be mediated by peer and student–teacher relationships, as well as the moderating effect of the educational stage.

1.1 | School bullying victimization as a multidimensional construct

In general, there are three traditional dimensions of school bullying victimization, that is, physical, nonphysical, and relational (Moore et al., 2017). Physical bullying victimization refers to being bullied through direct physical aggression (e.g., being hit or pushed); nonphysical bullying victimization refers to being bullied by nonphysical aggression (e.g., verbal taunting); and relational bullying victimization means one's feeling of inclusion being significantly damaged (e.g., being intentionally excluded by a group of peers; Ostrov et al., 2015). In recent years, as the digital sphere has expanded and technology has advanced, cyberbullying victimization has emerged as a significant problem (Navarro et al., 2018). In this form of victimization, an aggressive, intentional act is carried out by an individual or a group, using electronic forms of contact against a victim repeatedly and over time (Tokunaga, 2010).

Although there seems to be some overlap between cyberbullying victimization and traditional nonphysical/relational bullying victimization, such as spreading rumors about the victim, the two are distinct constructs (Gini et al., 2017). First, unlike traditional nonphysical and relational bullying victimization that happens in the real world, cyberbullying victimization can happen at any time and can originate from any place in the virtual world. As such, victims may not be able to escape the bullying aggression without cutting themselves off from their communication networks entirely (Cassidy et al., 2013). Second, due to the anonymous nature of the virtual world, cyberbullies often have lower levels of public self-awareness and are thus less aware of the consequences of bullying in the absence of direct feedback for their actions, resulting in disinhibition in their cyberbullying (Kokkinos & Antoniadou, 2019). Third, people can read harassing messages repeatedly and easily share them with others at the click of a button. The persistence and reproducibility of online communication may result in an enlarged audience for cyberbullying and repeated harm to the victims (Kowalski et al., 2014). Therefore, cyberbullying victimization is different in nature from traditional nonphysical/relational bullying victimization, and can often have significantly graver consequences. Although there is a high degree of co-occurrence among these different forms of bullying victimization (e.g., Padmanabhanunni & Gerhardt, 2019; J. Wang et al., 2012), their antecedents and underlying mechanisms may differ. Hence, this study investigates the differing relationships between prosocial behavior and the listed four dimensions of bullying victimization.

1.2 | Role of prosocial behavior on school bullying victimization

Prosocial behavior is defined as a social behavior that benefits other people or society as a whole, including helping, sharing, donating, cooperating, and volunteering behaviors (Eisenberg et al., 2006). From a developmental point of view, children and adolescents who display prosocial behaviors frequently are likely to benefit from attendant, positive interactions, thus increasing the opportunities for them to practice prosocial behaviors. Those children and adolescents who initially display less prosocial behaviors are subsequently less likely to benefit from this positive socialization cycle (Wentzel & McNamara, 1999). Prosocial behavior is known to play a crucial role in boosting the positive development of children and adolescents, including promoting academic achievement (Caprara et al., 2000; Carlo et al., 2018); enhancing friendship quality (Son & Padilla-Walker, 2020); improving relationships with parents, peers, and teachers (e.g., Eron & Huesmann, 1984; Padilla-Walker et al., 2015); and shaping character strengths (e.g., persistence, gratitude; Padilla-Walker et al., 2020).

Moreover, research has identified negative associations of prosocial behavior with psychological and behavioral problems among children and adolescents. For instance, a 22-year longitudinal study showed that prosocial behavior was negatively related to aggression from middle childhood to adulthood (Eron & Huesmann, 1984). A 3-year longitudinal study found that

teens' prosocial behaviors toward their family and strangers were predictive of fewer problem behaviors (i.e., aggression, delinquency, and deviant peer association) 2 years later (Padilla-Walker et al., 2015). More recently, another longitudinal study found that prosocial behavior toward strangers was indirectly associated with depressive symptoms via self-esteem during adolescence (Padilla-Walker et al., 2020). A meta-analysis has also shown that higher levels of prosocial behavior were significantly associated with lower levels of externalizing behaviors and internalizing symptoms during adolescence (Memmott-Elison et al., 2020).

To conduct further research, we chose to examine whether prosocial behavior would be negatively associated with school bullying victimization among children and adolescents. To the best of our knowledge, only one field study has suggested an impact of prosocial behavior on school bullying victimization. That study implemented an intervention that was designed to prevent bullying and victimization among elementary school students by prompting and rewarding prosocial behavior in the class. For 6 consecutive weeks, Monday to Friday, teachers asked students to observe other students' prosocial behaviors (in the terms of the intervention, "actively caring") and to submit stories about this active caring. On each school day during this period, the teachers read out loud three of these stories and provided recognition for one of these and the two associated students (i.e., the observer and the performer), providing both with a wristband engraved with "Actively Caring for People." Across six consecutive Fridays, students reported their observations of bullying and victimization. These weekly surveys revealed reductions in both being bullied and bullying others (McCarty et al., 2016). Together with the above evidence showing the negative associations of prosocial behavior in relation to psychological and behavioral problems, it is reasonable to speculate that prosocial behavior is negatively associated with school bullying victimization among children and adolescents.

1.3 | Mediating roles of peer and student-teacher relationships

Despite the growing number of studies that have begun to focus on the role of prosocial behavior in child and adolescent psychological and behavioral development, a significant research gap remains in terms of understanding its internal mechanism. Because prosocial behavior is an integral part of human social interaction that contributes to positive interpersonal relationships (Fu et al., 2018), and positive interpersonal relationships at school can protect children and adolescents against bullying victimization (Hansen et al., 2012), we proposed that peer and student-teacher relationships could be potential mediators in the links between prosocial behavior and different forms of bullying victimization. In the context of the current study, we focused specifically on peer alienation and student-teacher closeness.

Peer alienation occurs when a child or adolescent becomes isolated from the peer group (Brown et al., 2003), and student-teacher closeness refers to a warm affective relationship between the student and a teacher that promotes the student's positive attitudes about and engagement with school (Drugli, 2013). Research shows that engaging in prosocial behavior contributes to decreased peer alienation and increased student-teacher closeness. For example, longitudinal studies have shown that children who exhibit more prosocial behaviors during the first year of elementary school were more accepted and less rejected by their classmates 1 year later (Caputi et al., 2012), but being less prosocial was related to higher levels of peer rejection for students from age 10 to 14 (Di Giunta et al., 2018). In addition, kindergartners' prosocial behavior was positively correlated with first-grade teacher-child closeness and negatively with first-grade teacher-child conflict (Birch & Ladd, 1998). More recently, a prosocial behavior intervention was found to be able to effectively improve fifth-grade students' peer and student-teacher relationships (Yao & Wong, 2020).

Research has found that peer and student-teacher relationships are critical predictors of school bullying victimization (Hansen et al., 2012). For instance, a cross-sectional study found that lacking supportive friends or being rejected by peers was strongly related to bullying victimization among students in the third to seventh grades (Hodges et al., 1997). Another cross-sectional study demonstrated that classrooms with better teacher-student relationships were associated with lower levels of victimization in Grades 7 and 8 (Di Stasio et al., 2016). An investigation conducted among students in Grades 6-8 found that peer-relationship problems predicted becoming a victim of bullying, and students who experienced higher student-teacher conflict were more likely to be victims (Marengo et al., 2018).

Generally, children and adolescents who affiliate well with their peers and have close relationships with their teachers are comfortable talking about their feelings and problems (including being bullied) at school and approaching peers and teachers for help when necessary (You et al., 2008). Thus, better peer and student-teacher relationships can be a source of social support and a safety system for children and adolescents, which can be useful against bullying victimization. Combined with the above empirical evidence showing significant associations between prosocial behavior, peer and student-teacher relationships, and school bullying victimization, we speculated that peer alienation and student-teacher closeness mediates the relationships between prosocial behavior and different forms of bullying victimization.

1.4 | Educational stage as a potential moderator

To more closely examine the associations between prosocial behavior and different forms of bullying victimization from a developmental perspective, we attempted to test the educational stage as a conceptually relevant moderating factor that may strengthen or weaken the associations. Educational stages are subdivisions of formal learning, typically covering early childhood education (also called preschool), primary education (or elementary school), secondary education (including, roughly, middle school and high school), and tertiary education (Gajda, 2016). A body of research has described the relationships between the educational stage and prosocial behavior, peer and student–teacher relationships, and bullying victimization, respectively. For instance, a longitudinal investigation found that prosocial behavior remained stable from elementary to high school (i.e., in the 4th–12th grades; Flynn et al., 2015). A cohort-sequential study covering the stages of middle and high school found that prosocial behavior gradually decreased in the 7th–11th grades with a slight rebound in the 12th grade, and the quality of peer and parent–child relationships increased slightly during this period (Carlo et al., 2007). Other longitudinal studies have found that perceived conflict with teachers decreased during the transition from middle to high school (Longobardi et al., 2016), and self-reported victimization decreased during the transition from elementary to middle school (Pellegrini & Bartini, 2000).

However, few studies have assessed whether educational level moderates the relationships between variables. This study extends past work by examining whether the associations between prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization would differ across the three stages of elementary, middle, and high school within the Chinese education system. It should be noted that, in China, education is divided into basic, higher, and adult education. Basic education includes preschool education (usually 3 years), primary education (6 years, usually starting at the age of 6), and secondary education (6 years). These three stages are all part of basic education (Xin & Kang, 2012).

1.5 | The current study

This study examines the relationships between prosocial behavior and different forms of school bullying victimization. It also investigates the mediating effects of peer alienation and student–teacher closeness and the moderating effect of the educational stage. We hypothesized that prosocial behavior is negatively associated with physical, nonphysical, relational, and cyberbullying victimization among children and adolescents. We further hypothesized that prosocial behavior would be negatively (positively) correlated with peer alienation (student–teacher closeness), which, in turn, would be positively (negatively) associated with the above four forms of bullying victimization. The relative dearth of work studying the moderating effects of the educational stage and the exploratory nature of our analysis prevented us from composing a specific hypothesis about whether these associations would differ across the three stages of elementary, middle, and high school. When testing the hypotheses, the participant's gender, age, monthly family income, and subjective family economic status were controlled.

2 | METHODS

2.1 | Participants

The sample was from three suburban schools (one elementary school, one middle school, and one high school) in southwest Beijing, China. According to the census data of Beijing for 2019, the mean years of schooling was 12.64 (from the elementary school stage onwards), the annual per capita disposable income was 67,756 RMB (=9824.62 USD in 2019), and approximately 83.1% of jobholders worked in the tertiary sector industries (Beijing Municipal Bureau of Statistics & NBS Survey Office in Beijing, 2020). Overall, the residents of Beijing belonged to the middle and upper classes in China. Beijing is the educational center of the country, where children attend schools equipped with state-of-the-art facilities and well-trained teachers. In 2019, Beijing had the lowest student–teacher ratios in the country for middle and high schools (middle schools: Beijing = 8.33, the national average = 12.88; high schools: Beijing = 7.41, the national average = 12.99), and one of the lowest student–teacher ratios for elementary schools (Beijing = 13.58, the national average = 16.85; Ministry of Education of the People's Republic of China, 2020).

In total, 538 children and adolescents were recruited at Time 1 in September 2019, and 438 of them participated at Time 2, approximately 3 months later. Because 21 questionnaires could not be paired due to errors in coding (3.90%), there were 417 valid questionnaires at Time 2, resulting in an attrition rate of 22.49%. Among the 538 participants, there were 237 elementary school students (44.05%; 162 fifth-graders [30.11%] and 75 sixth-graders [13.94%]), 101 middle school students (18.77%) studying in the seventh grade, and 200 high school students (37.17%) studying in the 10th grade. There were 252 boys and 286 girls ($M_{\text{age at Time 1}} = 12.47$ years, $SD_{\text{age at Time 1}} = 2.19$, $\text{range}_{\text{age at Time 1}} = 10\text{--}17$ years). Other demographic

information is shown in Table 1, including parental education level, monthly family income, and subjective family economic status.

2.2 | Procedure

Convenience sampling was used to obtain the study sample. Before data collection, we explained the purpose of our study to the principals of the target schools and obtained school approval. We invited a teacher at each of the three schools using a personal social network to introduce our survey to the students in class. Students were told that the survey concerned their interactions with others, and they were informed of the confidentiality of the survey data. Those students who agreed to take part in the survey provided parental written informed consent. At both junctures of the study, the participants were group tested in quiet classrooms in the presence of a research assistant responsible for data collection and maintaining order in the classroom. At the end of the survey, the participants were debriefed and given small gifts (i.e., notebooks) in appreciation of their participation. At each time point, the survey took approximately 15 min. It should be noted that for the measures (i.e., prosocial behavior, peer alienation, student–teacher closeness, and traditional bullying victimization) originating in English, we hired two English major graduates to translate and back translate them (translation-back-translation method; Brislin, 1970). One graduate translated the scales from English to Chinese, while the other student back-translated them so as to ensure translation accuracy.

2.3 | Measures

2.3.1 | Prosocial behavior

Prosocial behavior was measured at Time 1 using a modified version of the kindness and generosity subscale within the values in the action inventory of strengths (Peterson & Seligman, 2004). There are seven items (e.g., “when someone is in trouble, I will try my best to help him/her”). The participants rated each item on a 5-point scale ranging from 1 (*very much unlike me*) to 5 (*very much like me*). Higher mean scores indicated higher levels of prosocial behavior. The value for Cronbach's α was .85 in the study sample. A latent variable for prosocial behavior was created, and the model fit of confirmatory factor analysis was acceptable, $\chi^2(7) = 22.21$, $p = .002$, comparative fit index (CFI) = 0.989, Tucker–Lewis index (TLI) = 0.968, root mean square error of approximation (RMSEA) = 0.064, and standardized root mean square (SRMR) = 0.021. Factor loadings ranged from 0.53 to 0.81.

TABLE 1 Demographic information of the participants ($N = 538$)

Variable name	Number (%)	Variable name	Number (%)
<i>Fathers' education</i>		<i>Monthly family income</i>	
Middle school diploma or lower	74 (13.75)	Less than ¥5000 (=725 USD)	55 (10.22)
High school diploma or similar educational level	143 (26.58)	¥5000–¥10,000 (=1450 USD)	201 (37.36)
College degree	139 (25.84)	¥10,000–¥20,000 (=2899 USD)	188 (34.94)
Bachelor's degree	132 (24.54)	¥20,000–¥30,000 (= 4349 USD)	57 (10.59)
Master's degree or higher	50 (9.29)	¥30,000–¥40,000 (=5798 USD)	23 (4.28)
Missing	0 (0)	More than ¥40,000	9 (1.67)
<i>Mothers' education</i>		Missing	5 (0.93)
Middle school diploma or lower	91 (16.91)	<i>Subjective family economic status</i>	
High school diploma or similar educational level	116 (21.56)	Extremely poor	3 (0.56)
College degree	123 (22.86)	Poor	23 (4.28)
Bachelor's degree	175 (32.53)	Average	371 (68.96)
Master's degree or higher	28 (5.20)	Rich	125 (23.23)
Missing	5 (0.93)	Extremely rich	10 (1.86)
		Missing	6 (1.12)

Note: The figures in brackets represent percentages.

To examine the measurement invariance of prosocial behavior across educational stages, we first conducted an unconstrained multigroup model, $\chi^2(33) = 88.70$, $p < .001$, CFI = 0.963, TLI = 0.929, RMSEA = 0.097, and SRMR = 0.055. Then, we used a constrained multigroup model, in which factor loadings were set equal across educational stage, $\chi^2(45) = 102.17$, $p < .001$, CFI = 0.962, TLI = 0.946, RMSEA = 0.084, and SRMR = 0.086. According to the guidelines proposed by Cheung and Rensvold (2002) and Chen (2007), invariance is achieved if CFI changes no more than 0.01 and RMSEA changes no more than 0.015 for the constrained model relative to the unconstrained model. For prosocial behavior, invariance was seen across educational stages in the current sample ($\Delta\text{CFI} = -0.001$ and $\Delta\text{RMSEA} = -0.013$).

2.3.2 | Peer alienation

Peer alienation was assessed at Time 1 using five items taken from the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). Sample items included “I feel alone or apart when I am with my friends” and “my friends don't understand what I'm going through these days.” Participants responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Higher mean values indicated higher levels of peer alienation (Cronbach's $\alpha = .73$). A latent variable was created for peer alienation, and the model fit for confirmatory factor analysis was acceptable, $\chi^2(4) = 5.77$, $p = .217$, CFI = 0.997, TLI = 0.992, RMSEA = 0.029, and SRMR = 0.014. Factor loadings ranged from 0.43 to 0.76. To identify the measurement invariance across educational stages, we developed an unconstrained model, $\chi^2(20) = 41.17$, $p = .004$, CFI = 0.960, TLI = 0.940, RMSEA = 0.077, and SRMR = 0.048. Then, a constrained model was conducted, $\chi^2(28) = 51.95$, $p = .004$, CFI = 0.955, TLI = 0.952, RMSEA = 0.069, and SRMR = 0.062. The model comparison result showed that invariance was achieved ($\Delta\text{CFI} = -0.005$ and $\Delta\text{RMSEA} = -0.008$).

2.3.3 | Student–teacher closeness

Participants reported on student–teacher closeness at Time 1 using five items adapted from the student–teacher relationship scale (Pianta et al., 1995). Sample items included “I am close with my teachers” and “I share my feelings and experiences with my teachers.” The participants responded on a 5-point Likert scale ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*). Higher average scores suggested higher levels of student–teacher closeness (Cronbach's $\alpha = .83$). A latent variable was then created, and the model fit of confirmatory factor analysis was found to be acceptable, $\chi^2(5) = 14.84$, $p = .011$, CFI = 0.988, TLI = 0.976, RMSEA = 0.060, and SRMR = 0.020. Factor loadings ranged from 0.64 to 0.79. Measurement invariance was examined across educational stages. We conducted an unconstrained model, $\chi^2(23) = 37.63$, $p = .028$, CFI = 0.983, TLI = 0.977, RMSEA = 0.060, and SRMR = 0.033, and a constrained model, $\chi^2(31) = 42.67$, $p = .079$, CFI = 0.986, TLI = 0.987, RMSEA = 0.046, and SRMR = 0.057. The model comparison result indicated that invariance was achieved ($\Delta\text{CFI} = 0.003$ and $\Delta\text{RMSEA} = -0.014$).

2.3.4 | Traditional bullying victimization

To measure participants' experiences of being bullied over the semester, the scale of frequencies of physical, nonphysical, and relational bullying victimization (Sterzing et al., 2020) was administered at Time 2. This scale includes three dimensions, that is, physical victimization (seven items; e.g., “another person shoved or pushed you”), nonphysical victimization (five items; e.g., “another person gave mean looks to you”), and relational victimization (five items; e.g., “another person spread a false rumor about you”). Participants rated each item from 0 (*never*) to 3 (*often*) on a 4-point Likert scale. Higher scores indicated greater levels of being bullied. The data exhibited good consistency for each dimension (physical: $\alpha = .84$; nonphysical: $\alpha = .92$; and relational: $\alpha = .84$). Three latent variables were created, and the model fit for confirmatory factor analysis was found to be acceptable, $\chi^2(105) = 252.17$, $p < .001$, CFI = 0.940, TLI = 0.922, RMSEA = 0.051, and SRMR = 0.044. The factor loadings ranged from 0.34 to 0.87 for physical victimization, from 0.79 to 0.90 for nonphysical victimization, and from 0.69 to 0.81 for relational victimization. Measurement invariance measured across educational stages was examined. We conducted an unconstrained model, $\chi^2(343) = 425.41$, $p = .002$, CFI = 0.949, TLI = 0.939, RMSEA = 0.037, and SRMR = 0.087, and a constrained model, $\chi^2(371) = 463.81$, $p = .001$, CFI = 0.942, TLI = 0.937, RMSEA = 0.037, and SRMR = 0.106. The model comparison result showed that invariance was achieved ($\Delta\text{CFI} = -0.007$ and $\Delta\text{RMSEA} = 0$).

2.3.5 | Cyberbullying victimization

Participants reported their cyberbullying victimization at Time 2 through a single self-created item (i.e., “have you been cyberbullied in the past month?”). Responses ranged from 1 (*never*) to 5 (*always*). Higher scores indicated greater levels of being cyberbullied.

2.4 | Data analyses

Missing data and attrition analyses were conducted to identify whether the data were missing completely at random (MCAR) and whether the 417 retained participants differed from the 121 respondents absent at Time 2. Second, descriptive statistics and correlation analyses were executed for the key variables using SPSS (version 26). Third, multiple imputations for study variables with missing values was carried out using Bayesian analysis with Mplus (Version 8.3). Ten imputed datasets were created for subsequent analyses. Fourth, confirmatory factor analysis was performed, and measurement invariance across educational stages was investigated separately for each latent construct. Fifth, a structural model was employed to test the research hypotheses. Later, the mediating effects were estimated using 1000 biascorrected bootstraps. Finally, the potential moderating effect of the educational stage was tested via multigroup modeling and comparison.

3 | RESULTS

3.1 | Missing data and attrition analyses

In the analytic sample ($N = 538$), the missing values of the study variables ranged from 0% to 23.42%, totaling 11.05% missing data. Little's MCAR test was performed, and our missing data showed a significant deviation from MCAR ($\chi^2(1302) = 1656.35, p < .001$). Subsequently, t -tests and χ^2 tests were executed to identify whether the 417 retained participants differed from the 121 respondents who were absent at Time 2. Results showed that participants with younger age ($p < .001$), with better educated parents (fathers: $p = .016$; mothers: $p = .014$), or currently studying in elementary school ($p < .001$), were more likely to fail to provide responses at Time 2. Regarding the other demographic factors (i.e., gender, monthly family income, and subjective family economic status), no significant differences were observed between the two groups ($ps \geq .191$).

Regarding key variables assessed at Time 1, those participants absent at Time 2 reported less closeness with their teachers ($p = .010$) than the retained participants, but there were no significant differences between the two groups for the other key variables (prosocial behavior: $p = .222$; peer alienation: $p = .171$). In sum, the sample became older, more skewed in favor of less educated families and middle and high school students, and exhibited more closeness with teachers but did not experience differential attrition in terms of gender, monthly family income, subjective family economic status, prosocial behavior, and peer alienation.

3.2 | Descriptive statistics and correlations

The descriptive statistics and correlations for the key variables are presented in Table 2. It was found that students' prosocial behavior at Time 1 was negatively associated with peer alienation at Time 1, positively associated with student-teacher closeness at Time 1, and negatively associated with physical, nonphysical, relational, and cyberbullying victimization at Time 2. Peer alienation at Time 1 was negatively associated with student-teacher closeness at Time 1, and it was positively associated with physical, nonphysical, relational, and cyberbullying victimization at Time 2. Student-teacher closeness at Time 1 was negatively associated with physical, nonphysical, relational, and cyberbullying victimization at Time 2.

3.3 | Structural model

A structural model was used based on the ten data sets created via multiple imputations. In this model, we included prosocial behavior at Time 1 as the predictor, peer alienation and student-teacher closeness at Time 1 as the mediators, physical, nonphysical, relational, and cyberbullying victimization at Time 2 as the outcomes, along with using gender, age, monthly family income, and subjective family economic status at Time 1 as the control variables. Maximum likelihood estimation was used in the analysis, and the final model fit the data adequately, $\chi^2(645) = 1087.14, p < .001$, CFI = 0.931, TLI = 0.922, RMSEA = 0.036, and SRMR = 0.050.

As shown in Figure 1, the direct effect of prosocial behavior on physical bullying victimization was marginally significant ($\beta = -.15, p = .071$). The direct effects of prosocial behavior on nonphysical and relational bullying victimization were significant (nonphysical: $\beta = -.19, p = .003$; relational: $\beta = -.15, p = .044$). However, the direct effect of prosocial behavior on cyberbullying victimization was not significant ($\beta = -.09, p = .219$). Moreover, participants' prosocial behavior was negatively correlated with peer alienation ($\beta = -.25, p < .001$), which, in turn, was positively associated with physical ($\beta = .19, p = .002$), nonphysical ($\beta = .20, p = .003$), relational ($\beta = .17, p = .015$), and cyberbullying victimization ($\beta = .19, p = .001$). Prosocial behavior was positively correlated with student-teacher closeness ($\beta = .52, p < .001$), which however, was not significantly

TABLE 2 Descriptive statistics and correlations for the study variables ($N = 538$)

Variable	1	2	3	4	5	6	7
1. Prosocial behavior (1)							
2. Peer alienation (1)	-.20***						
3. Student–teacher closeness (1)	.48***	-.20***					
4. Physical bullying victimization (2)	-.20***	.26***	-.20***				
5. Nonphysical bullying victimization (2)	-.21***	.26***	-.17***	.74***			
6. Relational bullying victimization (2)	-.17***	.26***	-.19***	.76***	.82***		
7. Cyberbullying victimization (2)	-.12*	.20***	-.10*	.41***	.51***	.48***	
<i>M</i>	3.98	1.60	3.69	0.16	0.26	0.16	1.14
<i>SD</i>	0.66	0.66	0.85	0.33	0.55	0.39	0.59

Note: All the means, standard deviations, and correlations were estimated using SPSS (version 26). (1) Time 1; (2) Time 2.

* $p < .05$; *** $p < .001$.

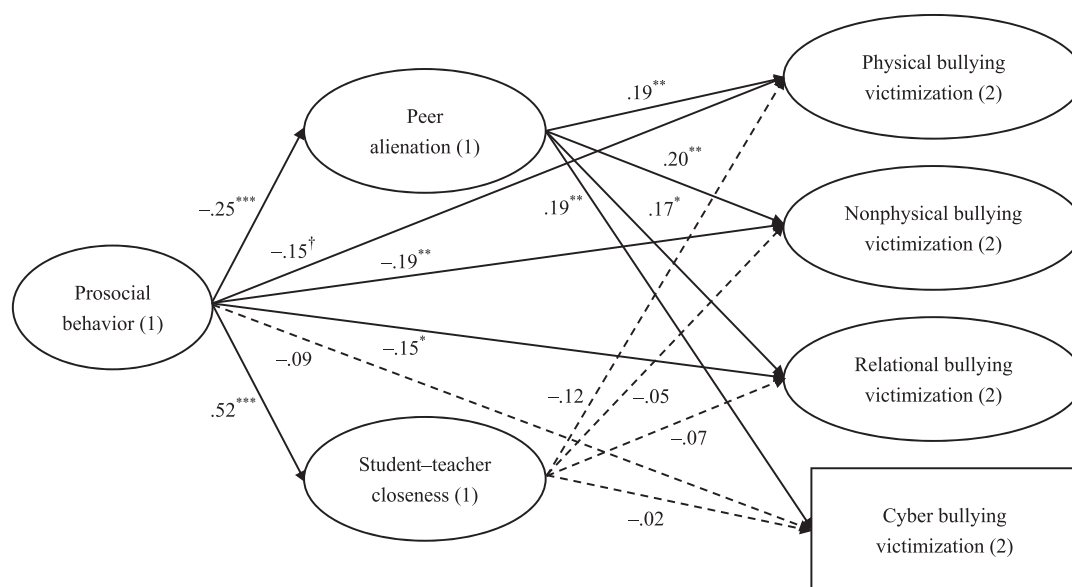


FIGURE 1 Role of prosocial behavior in school bullying victimization via peer alienation and student–teacher closeness. Note: Values presented are standardized coefficients. The dash lines represent Nonsignificant paths. Endogenous error correlations and control variables are not shown for parsimony. $\chi^2(645) = 1087.14$, $p < .001$, CFI = 0.931, TLI = 0.922, RMSEA = 0.036, SRMR = 0.050. (1) Time 1; (2) Time 2. CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square; TLI, Tucker–Lewis index. $^{\dagger}p = .071$; * $p < .05$; ** $p < .01$; *** $p < .001$.

associated with physical ($\beta = -.12$, $p = .184$), nonphysical ($\beta = -.05$, $p = .463$), relational ($\beta = -.07$, $p = .347$), or cyberbullying victimization ($\beta = -.02$, $p = .714$).

Additionally, the indirect effects of prosocial behavior on physical and nonphysical victimization via peer alienation were significant (physical: $\beta = -.05$, $p = .047$ and nonphysical: $\beta = -.05$, $p = .044$). For relational victimization, the indirect effect via peer alienation was not significant ($\beta = -.04$, $p = .086$), whereas for cyber victimization, it was marginally significant ($\beta = -.05$, $p = .064$). However, the indirect effects from prosocial behavior to all forms of bullying victimization via student–teacher closeness were not significant (physical: $\beta = -.06$, $p = .197$; nonphysical: $\beta = -.03$, $p = .469$; relational: $\beta = -.04$, $p = .339$; and cyber: $\beta = -.01$, $p = .753$). In summary, prosocial behavior was indirectly associated with school bullying victimization (except in the relational dimension) via peer alienation rather than via student–teacher closeness.

For the control variables, girls reported less physical and relational victimization than boys did (physical: $\beta = -.14$, $p = .004$ and relational: $\beta = -.10$, $p = .034$). Age was negatively correlated with physical ($\beta = -.20$, $p < .001$), nonphysical ($\beta = -.18$, $p < .001$), and relational ($\beta = -.20$, $p < .001$) bullying victimization. Monthly family income was not significantly correlated with any form of victimization ($ps \geq .321$). Subjective family economic status was negatively correlated with

relational victimization ($\beta = -.10$, $p = .044$), and had a marginal negative association with cyber victimization ($\beta = -.09$, $p = .053$).

3.4 | Test of group differences across educational stages

Multigroup modeling and comparison were performed to examine whether the abovelisted associations differed across the three stages of elementary, middle, and high school. We first conducted an unconstrained multigroup model, in which all of the paths specified between study variables were identical to those in the earlier structural model, $\chi^2(2047) = 2277.76$, $p < .001$, CFI = 0.956, TLI = 0.953, RMSEA = 0.025, and SRMR = 0.082. We then conducted a constrained multigroup model, in which the paths between study variables were set equal across educational stages, $\chi^2(2109) = 2377.35$, $p < .001$, CFI = 0.948, TLI = 0.946, RMSEA = 0.027, and SRMR = 0.094. According to the guidelines of the model comparison proposed by Cheung and Rensvold (2002) and Chen (2007), the constrained model was equivalent to the unconstrained model ($\Delta\text{CFI} = -0.008$ and $\Delta\text{RMSEA} = 0.002$). It suggested that the associations between prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization applied equally to elementary, middle, and high school students.

4 | DISCUSSION

4.1 | Effect of prosocial behavior on school bullying victimization

As hypothesized, earlier prosocial behavior was directly and negatively predictive of subsequent traditional bullying victimization (i.e., physical, nonphysical, and relational), although no such association between prosocial behavior and cyberbullying victimization was found. Generally, performing frequent prosocial behaviors, such as doing small favors for peers, volunteering for service at school, and cheering up others who seem sad, has been identified as an effective way to fit in school for children and adolescents (Padilla-Walker & Carlo, 2015). Students who are prosocial in this way are more likely to be accepted and liked within their peer group, and hence they are less likely to be chosen as victims by their peers (Coleman & Byrd, 2003). In addition to the benefit of positive peer interactions, prosocial students are more likely to have friends capable of defending them when facing bullying victimization, which enables a protective function against school victimization (Hodges et al., 1997). The children and adolescents who have more prosocial behaviors were found to be less likely to become victims of physical, nonphysical, and relational bullying in the present study.

By contrast, no significant association between prosocial behavior and cyberbullying victimization was found. This may be due to the distinctiveness of cyber victimization from traditional victimization. Unlike traditional victimization, in which the bully and the bullied usually know each other or relate to each other to some extent, in cyberspace, the bully and the victim in cyberspace could be complete strangers (Festl & Quandt, 2016). When someone becomes the victim of cyberbullying, more and more strangers may join the bullies in a short time. In this regard, students' earlier prosocial behavior at school may not be credited to them in cyberspace and hence might fail to function as a safety wall against cyber victimization. Besides, bullying toward prosocial targets might put the bullies at greater social risk of disapproval and punishment, but due to cyber anonymity, the bullies can conceal their identity, and thus are little exposed to the social risk involved in cyberbullying, which may makes it uniquely difficult to mitigate the bullying with victim's prosocial behavior alone. Nevertheless, only one single item was used to measure cyber victimization in the present study, which might result in a null association. Future research with a more robust measurement of cyberbullying victimization would be helpful to address this issue.

4.2 | Mediating effect of peer alienation

As per our findings, prosocial behavior was indirectly associated with bullying victimization (except in the relational dimension) via peer alienation rather than via student–teacher closeness. This finding provides evidence for the group socialization theory, a theory of personality and behavior development proposing that children are primarily socialized by their peers and that the influences of parents and teachers are filtered through children's peer groups (Harris, 1995).

As for the significant mediating effect of peer alienation, it was consistent with previous research suggesting that prosocial children and adolescents were less likely to experience dislike, exclusion, and ostracism within their peer relationships (e.g., Caputi et al., 2012; Chow et al., 2013), and that peer alienation was negatively related to being bullied (e.g., Pellegrini & Bartini, 2000; You et al., 2008). Prosocial acts, such as providing physical assistance, encouraging others, and standing up for others (Bergin et al., 2003), help children and adolescents strengthen their social connections, leaving them less likely to be alienated by their peers, which comes with lower risk of being bullied in its turn (Sentse et al., 2015).

Children and adolescents who have good peer relationships can obtain several forms of support from peers, including protection against bullying (Son & Padilla-Walker, 2020); thus, they are less likely to become targets of bullying. By contrast, lacking protection from peers and in the absence of other forms of peer support, alienated children and adolescents are more likely to be chosen as victims by one or more aggressors (Beran & Violato, 2004). In other words, social support from peers for prosocial students who are embedded in social networks is probably an important deterrent for bullies, which puts prosocial students at a lower risk of being bullied. Therefore, prosocial behavior was found to be indirectly associated with physical, nonphysical, and cyber victimization via peer alienation in the present study.

However, our data did not provide evidence that peer alienation served as a mediator in the relationship between prosocial behavior and relational bullying victimization. This may be because this indirect path was double-edged. On the one hand, social support from peers for prosocial students who were less likely to be alienated was probably an important deterrent for the bullies (Pellegrini & Bartini, 2000), which put those prosocial students at lower risk of being relationally bullied. On the other hand, enhanced social status among peers via prosocial acts may threaten the social status of potential bullies (Kraft & Mayeux, 2018), which compelled the bullies to use relational aggression to undermine those prosocial students' peer status and to maintain their own status (S. Wang et al., 2015). In summary, these two opposing effects that counteracted each other might result in the failure of peer alienation to mediate the relationship between prosocial behavior and relational bullying victimization.

4.3 | Nonsignificant mediating effect of Student–teacher closeness

The indirect paths from prosocial behavior to physical, nonphysical, relational, and cyber victimization via student–teacher closeness were nonsignificant. Consistent with previous research (e.g., Yao & Wong, 2020), prosocial behavior was positively correlated with student–teacher closeness, which however was not predictive of subsequent school bullying victimization. This finding could be explained with the following three considerations.

First, students are often reluctant and ashamed to report victimization to teachers, even those with whom they are close, because they are worried that doing so might leave a negative impression on the teacher (Mishna & Alaggia, 2005). This is especially the case in Chinese, a culture that emphasizes expressive suppression (Soto et al., 2011). Unlike those students with Western cultural values, Chinese students are more worried that their improper actions may harm interpersonal relationship; therefore, they are more inclined to suppress their emotions, especially negative feelings in social situations (Matsumoto et al., 2008). Those prosocial students may be quite concerned about keeping harmonic interpersonal relationships (even with the bullies) and making a good impression, which may impede the disclosure of victimization, resulting in a nonsignificant mediating effect of student–teacher closeness.

Second, bullying and victimization occur not only at school, but also out of school, such as on the way home from school, and frequently happen online (Tokunaga, 2010). In these situations, teachers are seldom able to intervene in bullying incidents in time. In this regard, no matter how close the student is to a teacher, it is impossible to obtain immediate and effective help against bullying outside of school. In other words, the low accessibility of teacher interventions for out-of-school bullying and victimization may explain the nonsignificant mediating effect of student–teacher closeness.

Thirdly, teacher intervention in bullying and victimization is a complex matter that may not always result in the desired outcome. For instance, teachers might underestimate the severity of bullying and victimization, and this may be exacerbated for prosocial students who tend to report experiences of victimization in the less harsh language (Kochenderfer-Ladd & Pelletier, 2008). In this regard, teacher interventions would be inadequate. Besides, teacher intervention may provoke retaliatory attacks from the associated bullies. Prosocial students who are close with teachers might be labeled as “teachers' pets” and may be mistaken for snitches if they disclose victimization, which may lead to more retaliatory aggression from the associated bullies (Mishna & Alaggia, 2005). In short, ineffective teacher intervention might impede prosocial students' disclosures of victimization in spite of their close relationships with teachers, which could account for the nonsignificant mediating effect of student–teacher closeness.

4.4 | Invariance across educational stage

As per our findings, associations between prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization were noted to be the same across elementary, middle, and high school. This invariance may be due to the homogeneity of education systems in these three stages. The stages of elementary, middle, and high school are all part of basic education and thus show very similar school structures, such as similar school hours, similar student–teacher ratios, class sizes, and class formats (e.g., teachers of different subjects rotating daily). More importantly, basic education ends with the *Gaokao* (i.e., the National Higher Education Entrance Examination), which is the most influential and most difficult examination within this phase (Ogunniran, Hou, & Adu, 2019). Achieving good grades in the *Gaokao* to be admitted to a

better university/college becomes the ultimate goal of many students, and preparing their children/students for the *Gaokao* becomes the main goal of most parents/schools throughout the basic education phase (João Pires, 2019; Xin & Kang, 2012). Accordingly, elementary, middle, and high school share similar educational philosophies, instructional approaches, and school culture related to the *Gaokao*. Thus, though prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization may change with age, these variables play the same roles for children and adolescents across elementary, middle, and high school.

4.5 | Limitations, contributions, and implications

This study has some limitations. First, this study focused on a sample of Chinese children and adolescents; thus, the results may be culturally specific and not applicable to other cultures. In particular, the emphasis on expressive suppression in Chinese culture may discourage students from disclosing victimization to teachers, resulting in a nonsignificant mediating effect of student–teacher closeness. Therefore, it is essential to examine the generalizability of our findings across different cultures. Second, the study variables were measured using questionnaires with data from a single source (i.e., child or adolescent rating). These self-report measures are vulnerable to response bias (e.g., recall bias and social desirability bias), and the effects might therefore be overestimated due to common method variance. In future studies, it would be desirable to combine self-report measures with other methods, such as peer nomination techniques. Third, prosocial behavior was measured as a unidimensional construct, while recent research has highlighted its multidimensional nature, which allows for more in-depth research and provides a contribution to more specific and effective related interventions (e.g., Fu et al., 2017; Padilla-Walker & Carlo, 2015). Therefore, it would be beneficial to incorporate both overall and multidimensional measures of prosocial behavior in future research.

Despite these limitations, this study has both theoretical and empirical contributions. From the theoretical point of view, our study extends the current understanding of prosocial behavior, primarily as a consequence of child and adolescent development to an antecedent (of school bullying victimization), which may contribute to a more comprehensive view of prosocial behavior. Empirically, our findings suggest that prosocial behavior is an important factor that is associated with decreased school bullying victimization, and peer relationships play a mediating role in this association. In addition, the present study advances our understanding of the relationship between prosocial behavior and school bullying victimization, including multiple forms of victimization, focusing on Chinese children and adolescents from a cultural perspective and examining the moderating effect of the educational stage from a developmental perspective.

The findings of this study provide practical implications as well. First, given the significant direct effect of prosocial behavior on traditional bullying victimization, educators and caregivers should raise awareness of the importance of prosocial behavior in bullying victimization and take steps to promote students' prosocial development. Second, as prosocial behavior was indirectly associated with victimization (except within the relational dimension) via peer alienation, optimizing school peer networks via prosocial behavior interventions may be an effective strategy for preventing and reducing victimization. Third, because the associations between prosocial behavior, peer alienation, and bullying victimization vary with the form of victimization, targeted educational programs and intervention projects for different forms of bullying victimization are recommended for future work.

5 | CONCLUSIONS

The present study has examined the relationship between prosocial behavior and school bullying victimization among children and adolescents. Additionally, we tested the mediating effects of peer alienation and student–teacher closeness, as well as the moderating effect of the educational stage. Drawing on two waves of data collected approximately 3 months apart, we found that prosocial behavior was directly and negatively associated with traditional bullying victimization (i.e., physical, nonphysical, and relational), but it had no direct association with cyberbullying victimization. Prosocial behavior was indirectly associated with school bullying victimization (except relational dimension) via peer alienation, while no indirect effect of student–teacher closeness was found. Further, the associations between prosocial behavior, peer alienation, student–teacher closeness, and bullying victimization were found equally in elementary, middle, and high school students.

ACKNOWLEDGMENT

This study was supported by the 2017 Beijing Social Science Fund (17JYC017): “Psychological Causes and Prevention of School Bullying in Beijing.”

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study can be found in the Supporting Information of this article.

ETHICS STATEMENT

The procedure followed by this study was approved by the Institutional Review Board of the Central University of Finance and Economics and was in accordance with the ethical guidelines of the American Psychological Association. Parental written informed consent was obtained from all the participants.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Fu, X., Li, S., Shen, C., Zhu, K., Zhang, M., Liu, Y., & Zhang, M. (2023). Effect of prosocial behavior on school bullying victimization among children and adolescents: Peer and student–teacher relationships as mediators. *Journal of Adolescence, 95*, 322–335. <https://doi.org/10.1002/jad.12116>