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The Moderating Effect of Prosocial Peers on the Relationships Between Peer Delinquency, Neutralization, and Violent Offending

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ABSTRACT AND ARTICLE INFORMATION

The goal of the current investigation was to determine whether prosocial peer associations can serve as protective factors by interacting with key components of the peer influence effect. A moderated mediation analysis performed on 2,474 youth (52% female) from the Gang Resistance Education and Training (GREAT) study (mean age = 12.13 years) revealed that Wave 2 prosocial peer associations moderated the peer delinquency–neutralization relationship. Alternately, Wave 3 prosocial peer associations moderated the neutralization–violent offending relationship. Hence, neutralization beliefs were disproportionately weaker in participants with fewer delinquent peer associations and more prosocial peer associations, whereas the effect of neutralization on delinquency was attenuated, though not eliminated, by strong prosocial peer associations. These results suggest that prosocial peer associations may serve a protective function at different points in the peer influence sequence and that they may be more than simply the converse of peer delinquency.

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There has been a great deal written about the role of social influence in promoting a delinquent or violent lifestyle. From family to friends and from schools to neighborhoods, there is no shortage of social stimuli for behavioral scientists to investigate. One of the more frequently examined social influences in research on delinquency and crime is the control that peers and age-mates have over a youth's involvement in antisocial behavior (Reynolds & Crea, 2015; Sijtsema & Lindenberg, 2018; Warr, 2002). Research on peers and delinquency has traditionally emphasized two themes. First, there is the large body of research on negative peer influence and deviant socialization to antisocial definitions of behavior (Brechwald & Prinstein, 2011; Gifford-Smith et al., 2005). Second, there is the equally large literature on negative peer selection and homophily between delinquent individuals (Gottfredson & Hirschi, 1990; Kiesner et al., 2003). There has been less research, however, on questions pertaining to the effect of positive or prosocial peers on delinquency. This trend is particularly pronounced in criminology, where the prospect of positive peer influence has only been studied as the flip side of the differential association notion of definitions favorable to violation of the law (Costello & Hope, 2016). The purpose of the current investigation was to assess the various means by which prosocial peer influence could potentially shape attitudes and behaviors inconsistent with a delinquent or violent lifestyle.

Literature Review

Social Development Model

The social development model is designed to explain youth involvement in antisocial behaviors like delinquency and drug use (Catalano & Hawkins, 1996; Hawkins & Weis, 1985). Conceptually, it is based on principles from social control (Hirschi, 1969) and social learning (Bandura, 1977) theories. The model assumes that individuals with an interest in conventional social activities, coupled with opportunities for involvement in these activities, will pursue a conventional lifestyle, whereas limited interest in or opportunity for involvement in conventional activities may draw a youth toward an antisocial lifestyle. The social development model places equal emphasis on risk and protective factors and postulates that behavior is the direct result of the combined action of these two influences (Cambron et al., 2019). Empirically, many of the hypotheses and predictions made by social development theory have been confirmed in research on child problem behavior, delinquency, and violence (Deng & Roosa, 2007; Fleming et al., 2002; Huang et al., 2001). Peer influence, which can be either positive or negative in social development theory, figures prominently in several of these hypotheses.

One of the earliest studies to examine the effect of peers on youth problem behavior did so as part of two more general social influence variables referred to by the authors as "interaction with those involved in problem behaviors" and "involvement in prosocial activities" (Catalano et al., 1996, pp. 439-440). According to the results of this study, positive socialization factors, to include prosocial peer associations, produced higher path coefficients than negative socialization factors like delinquent peer associations when it came to predicting substance misuse (Catalano et al., 1996). In a study focused exclusively on peers, Walters (2020b) determined that prosocial peer contact predicted low levels of substance misuse and property crime when controlling for negative peer associations for substance misuse and property offending, respectively. Although there was nothing in the results of the Walters (2020b) investigation to suggest that prosocial peer associations generated a protective effect by interacting with and neutralizing the effects of peer deviance on delinquent behavior, prosocial peer associations, nonetheless, produced both a risk effect (low prosocial peer scores leading to high levels of substance use and property offending) and a promotive effect (high prosocial peer scores leading to low levels of substance use and property offending).

Differential Association Theory

Sutherland's (1947) differential association theory offers a different approach to the relationship between delinquent and prosocial peers than social development theory. According to the differential association interpretation of delinquent and prosocial peer influence, prosocial peers supply the individual with definitions unfavorable to violation of the law, which then serve to counterbalance the definitions favorable to violation of the law provided by delinquent peers. It is, therefore, the proportion of definitions either favorable or unfavorable to violation of the law that determines a child's level of personal delinquent involvement. Proponents of differential association theory would argue that prosocial peers are not, in fact, ignored by modern day criminology but are instead incorporated into social learning theories and differential association as counters to definitions favorable to violation of the law. There is an impressive body of research supporting differential association theories of crime and the definitions theorem, which should not be ignored (Akers, 1998; McGloin & Thomas, 2019; Pratt et al., 2010). That

said, the idea that prosocial peer effects are fully represented by definitions unfavorable to violation of the law requires further study to determine whether or not there are additional mechanisms linking prosocial peer influence to delinquent peers and violent criminality.

In the current study, prosocial peer influences were assessed without reference to offending. As such, prosocial peer influence was evaluated using a scale composed of items that asked about friends' involvement in community, family, school, and religious activities, as well as if they were good students, got along with adults at school, obeyed school rules, and were honest. In a study comparing antisocial and prosocial peer influences in early adolescence, Kaufmann and colleagues (2007) determined that prosocial involvement was partially independent and partially overlapping with antisocial peer affiliations. When Farrell and colleagues (2017) examined mechanisms of peer influence in middle-school youth, they discovered that peer pressure for fighting and friends' delinquent behavior achieved unique associations with aggression, drug use, and delinquent behavior, whereas friends' prosocial behavior achieved unique associations with prosocial behavior. A third study, this one conducted on preschool children, revealed that interacting with prosocial peers led to enhanced positive emotionality and decreased negative emotionality (Fabes et al., 2012). Taken as a whole, these findings suggest that prosocial peer influences may be more than just the converse or flip side of peer delinquency and definitions favorable to violation of the law.

Mediated Peer Influence Effect

In conducting research on peers and delinquency, the peer influence effect can be conceptualized as a temporally ordered relationship in which delinquent peer associations precede participant delinquency. Whereas peer selection (Kiesner et al., 2003), projection bias (Young et al., 2013), routine activities (Haynie & Osgood, 2005), and co-offending/weak parental oversight (Dynes et al., 2015) have all been proposed as counter-interpretations of the peer influence effect, the nexus between peer delinquency and participant delinquency usually persists, often at an attenuated level, even when these variables are controlled (Matsueda & Anderson, 1998; McGloin, 2009; Walters, 2019). If a meaningful peer influence effect exists, then the next step in the research agenda should be to identify the variables or mechanisms responsible for this effect. In an attempt to address this issue, Walters (2015, 2016) compared proactive (planned, calculated, amoral) and reactive (impulsive, irresponsible, emotional) criminal thinking as mediators of peer influence and discovered that only proactive criminal thinking mediated the peer influence effect. A facet of proactive criminal thinking, neutralization beliefs (Maruna & Copes, 2005; Sykes & Matza, 1957), have been found to correlate positively with perceived delinquent peer influences and negatively with perceived prosocial peer influences (Carson, 2013).

Walters (2020a) recently explored the possibility that amorality mediates the peer influence effect. In constructing the research design for this study, prosocial peer associations were included as moderators of both paths of the mediated peer influence effect: specifically, the path running from delinquent peer associations to empathy and the path running from empathy to subsequent offending were moderated by prosocial peer associations. In contrast to the present study, empathy, another moral system variable, served as the mediating variable rather than proactive criminal thinking. Walters (2020a) adopted a moderated mediation methodology by incorporating moderation and mediation into the same design. According to the results of the Walters (2020a) investigation, prosocial peers predicted higher levels of empathy in individuals with fewer delinquent friends and lower levels of offending in youth with less empathy. This indicates the presence of a biphasic pattern in which prosocial peer associations strengthened the peer influence effect by promoting empathy in youth with few delinquent friends and weakened the peer influence effect by discouraging offending in youth lacking empathy. The current study sought to replicate these findings using a different sample and a different mediator (i.e., proactive criminal thinking in the form of neutralization beliefs instead of empathy).

The Present Study

The goal of the current study was to investigate the biphasic impact of prosocial peer associations on the peer influence effect. In the previous Walters (2020b) investigation, prosocial peer associations correlated inversely with future drug use and property offending, whereas in the previous Walters (2020a) investigation, prosocial peers predicted higher levels of empathy in youth with fewer delinquent friends and lower levels of delinquency in youth with lower levels of empathy. The current study built on Walters (2020b) by appending a mediator (neutralization beliefs) to the prosocial peer–drug use/delinquency relationship, and it added to Walters (2020a) by changing the mediator from empathy to neutralization beliefs. In an effort to control for viable alternative explanations of the results, covariates designed to control for projection bias (prior participant delinquency) routine activities

(unsupervised routine activities with friends), and weak parental oversight (parental knowledge) were added to the analysis. Because Waves 1-3 of the cohort used in the present study were included in the previous Walters (2020b) investigation, the current study shifted up one wave to Waves 2-4, although control and precursor variables were assessed at Wave 1.

The current study tested two hypotheses. The first hypothesis predicted that the relationship between Wave 2 peer delinquency and Wave 3 neutralization would be moderated by Wave 2 prosocial peers as indicated by a significant Wave 2 peer delinquency x prosocial peer interaction. The second hypothesis proposed that the relationship between Wave 3 neutralization and Wave 4 violent offending would be moderated by Wave 3 prosocial peers as indicated by a significant Wave 3 neutralization x prosocial peer interaction. The current study was designed, in part, to replicate the earlier Walters (2020a, 2020b) investigations, but where Walters (2020b) had no mediator, the current study used neutralization as a mediator, and where low empathy served as the mediator in Walters (2020a), neutralization served as the mediator in the current study. A related purpose in conducting this study was to measure the strength of association between the two peer variables (delinquent and prosocial) and ascertain how many participants exhibited moderate elevations (scores of .25 or more standard deviations above the mean) or moderate declinations (scores of .25 or more standard deviations below the mean) on both peer variables.

Method

Participants

Data for this study came from Waves 1 through 4 of the longitudinal Gang Resistance Education and Training (GREAT; Esbensen, 2002) study. Participants for the current study were 2,474 youth (1,184 males, 1,290 females) from the GREAT study who had complete data on 7 or more of the 13 variables included in this investigation. The longitudinal GREAT study began with 3,568 participants, but by Wave 4, over half of the participants had dropped out of the study or were no longer being followed. Participants for the current investigation ranged in age from 10 to 14 years (M = 12.13, SD = 0.64) and were enrolled in the sixth or seventh grade at the start of the study (i.e., Wave 1). Slightly less than half the sample was White (45.3%), with 21.7% Hispanic, 17.4% Black, 3.9% Asian/Pacific Islander, 3.4% Native American, and 8.1% mixed/other. The longitudinal portion of the GREAT study was conducted in six U.S. cities (Philadelphia, Pennsylvania; Portland, Oregon; Phoenix, Arizona; Omaha, Nebraska; Lincoln, Nebraska; and Las Cruces, New Mexico) between 1995 and 1999. Permission to conduct this secondary data analysis was approved by the Institutional Review Board at Kutztown University.

Measures

Independent Variable

Wave 2 peer delinquency served as the independent variable in this study as it is the first part of peer influence effect. Participants were asked to indicate how many of their friends (1 = *none of them*, 2 = *a few of them*, 3 = *about half of them*, 4 = *most of them*, 5 = *all of them*) were involved in the following 10 delinquent acts (destroyed property, stole < $50, stole > $50, went into building to steal, stole a motor vehicle, hit someone, attacked someone with a weapon, committed armed robbery, sold marijuana, and sold illegal drugs) over the past year. Once combined, these individual items generated a total score that could range from 10 to 50. The peer delinquency scale displayed excellent internal consistency in the current sample of participants (α = .92).[1]

Mediator Variable

Wave 3 neutralization, a facet of proactive criminal thinking, served as the mediator variable in this study. It was assessed with 11 items ("a small lie is okay if no one is hurt;" "it is okay to lie to keep friends out of trouble;" "it is okay to lie to keep you out of trouble;" "it is okay to steal from the rich who can replace the item;" "it is okay to take little things from stores;" "it is okay to steal if it is the only way to get it;" "it is okay to physically fight if you are hit first;" "it is okay to physically fight to protect your rights;" "it is okay to fight if someone threatens your friends/family;" "it is okay to beat up someone if they don't show respect;" "it is okay to beat up someone if they threaten you"), each of which was rated on a five-point Likert-type scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*). Summing the item ratings produced a total score that could range from 11 to 55, with higher scores denoting greater proactive criminal thinking or neutralizing tendencies. This scale also achieved excellent internal consistency in the current sample of participants (α = .90).

Moderator Variables

Two different administrations of a prosocial peer associations scale served as moderator variables in this study. Each item ("how many friends" … are involved in community activities; are involved in family activities; are involved in school activities; are

good students; get along with adults at school; obey school rules; are involved in religious activities; are honest) was rated on a five-point Likert-type scale (1 = *none of them*, 2 = *a few of them*, 3 = *about half of them*, 4 = *most of them*, 5 = *all of them*). The results for the 8 individual items were then summed to create a total score that could range from 8 to 40. The prosocial peer associations scale achieved good internal consistency at Waves 2 and 3 of the GREAT study (α = .84).

Dependent Variable

The dependent variable for this study was participant violent offending. Six delinquent acts (destroyed property, hit someone, attacked someone with a weapon, committed armed robbery, involved in a gang fight, shot someone) were evaluated as present or absent over the past six months. A variety score was then calculated by dividing the number of categories that were rated as "present" by the total number of categories (i.e., 6). This produced as score that could range from 0 to 1.00.

Control Variables

The current study made use of six control variables and two precursor measures. Three of the control variables were demographic in nature: age (in years), sex (1 = *male*, 2 = *female*), and race (1 = *white*, 2 = *non-white*). A fourth control variable asked whether the participant's class had received the GREAT curriculum at the beginning of the study. The GREAT curriculum was randomly assigned to half the classrooms in each site (1 = class did not receive curriculum, 2 = class received curriculum).

Unsupervised routine activities served as a fifth control variable in this study. This was done in order to rule out unsupervised routine activities with friends as an alternative explanation for the current results. Routine activities were assessed with a single 7-point scale: "how many hours per week do you spend hanging around with your current friends, not doing anything in particular, where no adults are present?" (0 = *no hours*, 1 = *one or two hours per week*, 2 = *three to five hours per week*, 3 = *six to ten hours per week*, 4 = *eleven to fifteen hours per week*, 5 = *sixteen to twenty hours per week*, 6 = *more than twenty hours per week*).

The sixth control variable included in this study was parental knowledge. This variable was added to the current study in an effort to control for weak parental oversight and/or awareness of child peer networks. This variable was assessed with two items ("parents know where I am;" "parents know who I am with"), each rated on a 5-point Likert-type scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*). The two items correlated highly with one another (*r* = .60).

Precursor measures of the two outcome measures (Neutralization-3 and Violence-4) were also included in the analyses. These precursor measures were assessed at Wave 1 of the GREAT study and helped establish the causal direction of variable effects. The Neutralization-1 scale comprised the first nine items included in the Neutralization-3 scale (the final two items, "it is okay to beat up someone if they don't show respect" and "it is okay to beat up someone if they threaten you," were not asked at Wave 1). Wave 1 participant violent offending was assessed with the same 6 items used to assess the dependent variable (i.e., Wave 4 violent offending).

Research Design

A dual-stage moderated mediation model was employed in the current investigation using four non-overlapping waves of data from the GREAT study (Waves 1-4). There was a 9- to 11-week gap between Waves 1 and 2 and all subsequent waves were separated by a year. The 8 control and precursor measures (group assignment, age, sex, race, unsupervised routine activities, parental knowledge, neutralization, and violent offending) were assessed at Wave 1, the independent (peer delinquency) and first-stage moderator (prosocial peers) variables were assessed at Wave 2, the mediator (neutralization) and second-stage moderator (prosocial peers) variables were assessed at Wave 3, and the dependent variable (violent offending) was assessed at Wave 4. The indirect effect is composed of two parts: the *a* path, which runs from the independent variable to the mediator variable, and the *b* path, which runs from the mediator variable to the dependent variable. Two interactions and three interaction effects were also examined. The interaction between Peer Delinquency-W2 and Prosocial Peers-W2 was included in the equations predicting Neutralization-W3 and Violence-W4 and the interaction between Neutralization-W3 and Prosocial Peers-W3 was included in the equation predicting Violence-W4. Centered variables were used to create the interaction terms.

Analytic Strategy

All analyses were performed with SPSS Version 26 (IBM, 2019) and Mplus 8.3 (Muthén & Muthén, 1997-2017). Descriptive, correlational, and collinearity analyses were computed with SPSS, and the dual process moderated mediation analysis was performed with Mplus. Participants in the GREAT study were nested within classrooms, and there was a moderate degree of missing data even after eliminating GREAT participants with excessive missing data from the study. The analysis was accordingly performed with Mplus using a complex model, a cluster variable (classroom), and a maximum likelihood with robust

parameters and standard errors (MLR) estimator that adjusted the standard errors using the Huber/White method. Hence, the analysis was clustered by classroom and contained 28 auxiliary variables (e.g., unsupervised routine activities, parental knowledge, peer delinquency, prosocial peers, PCT, offending). Although most mediation analyses are currently performed with bootstrapped confidence intervals, bootstrapping cannot be performed with a complex model and MLR estimator. As such, indirect effects were assessed with Preacher and Selig's (2012) Monte Carlo Method for Assessing Mediation (MCMAM).

Sensitivity testing was conducted to rule out omitted variable bias as an alternate explanation for the current results. Omitted variable bias, which entails a violation of the sequential ignorability assumption upon which causal mediation analysis is based (Imai et al., 2010), was tested using Kenny's (2013) "failsafe ef" procedure: $(r_{my.x})$ x $(sd_{m.x})$ x $(sd_{y.x})$ / (sd_m) x (sd_y). The coefficient produced by the "failsafe ef" procedure indicates how well an unobserved covariate confounder would need to correlate with the mediating and dependent variables, controlling for the mediator and independent variables in the case of the latter, to completely eliminate the significant coefficient along the *b* path (from mediator to dependent variable) of the indirect effect. Endogenous selection bias or a collider effect can lead to inflated path coefficients if an outcome variable is conditioned on a precursor measure, as was done in the current study (Elwert & Winship, 2014). A secondary analysis was performed without precursor measures in an effort to evaluate and rule out a collider effect. To further reduce the likelihood of endogenous selection bias, control and precursor measures were assessed at Wave 1, several weeks before the independent variables (Greenwood, 2003).

Missing Data

The sample used in the current investigation represents 69.3% of all participants who were enrolled in the original GREAT longitudinal study. Although members of the GREAT study who participated in the current investigation (n = 2,474) were significantly younger than non-participating members of the GREAT (n = 1,094), there were no significant group differences in sex or race. Non-participants also scored significantly higher on unsupervised routine activities ($p < .01$), but there were no Bonferroni-corrected group differences in peer delinquency, prosocial peers, neutralization, or violence. This would suggest a fair amount of similarity between those who participated in the current study and those who were removed because of excess missing data.

Of the 2,474 youth who participated in the current study, 40.3% had complete data on all 13 study variables, 13.3% were missing data on one variable, 32.3% were missing data on two or three variables, and 14.2% were missing data on four to six variables. Six variables had more than 10% missing data: Peer Delinquency-2 (10.6%), Unsupervised Routine Activities-1 (11.2%) Neutralization-3 (19.2%), Prosocial Peers-3 (35.9%), Neutralization-3 (35.6%), and Violence-4 (44.1%). Missing data were handled with full information maximum likelihood (FIML). FIML estimates parameters and standard errors from analyses conducted on all non-missing data and has been found to be less biased while producing more accurate results than traditional missing data procedures (Allison, 2012).

FIML is reasonably robust to violations of its basic assumptions (Collins et al., 2001). In order to enhance the precision of FIML further, 27 auxiliary variables (Wave 2 routine activities, Wave 3 routine activities, Wave 4 routine activities, Wave 5 routine activities, Wave 6 routine activities, Wave 2 parental knowledge, Wave 3 parental knowledge, Wave 4 parental knowledge, Wave 5 parental knowledge, Wave 6 parental knowledge, Wave 1 peer delinquency, Wave 3 peer delinquency, Wave 4 peer delinquency, Wave 5 peer delinquency, Wave 6 peer delinquency, Wave 1 prosocial peer, Wave 4 prosocial peer, Wave 5 prosocial peer, Wave 6 prosocial peer, Wave 2 neutralization, Wave 4 neutralization, Wave 5 neutralization, Wave 6 neutralization, Wave 2 violence, Wave 3 violence, Wave 5 violence, and Wave 6 violence) were added to the Mplus analysis. It should be noted that while auxiliary variables are included in the calculation of parameters and standard errors, they are not included in the analysis itself.

Results

Preliminary Analyses

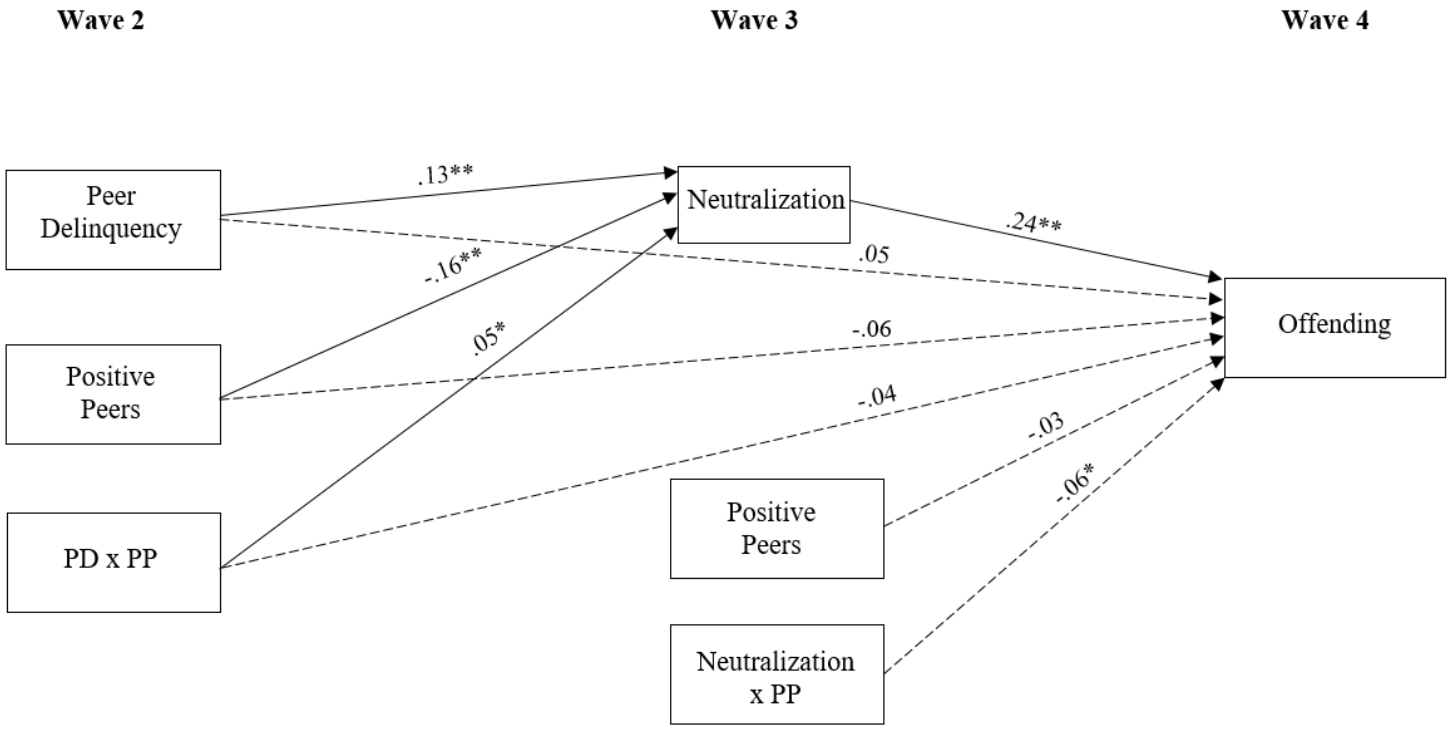
Means, standard deviations, ranges, and inter-correlations for the 13 variables included in this study are listed in Table 1. All of the correlations involving neutralization and peer delinquency were positive, and all of the correlations involving neutralization and prosocial peers were negative. Slightly more than half of all of the correlations in this study were statistically significant using a Bonferroni-corrected alpha level. Collinearity diagnostics performed on the two regression equations showed no evidence of multicollinearity between predictor variables: tolerance = .601–.903, variance inflation factor = 1.108–1.663.

Table 1: Descriptive Statistics and Correlations for the 13 Variables Included in the Current Investigation

Variable	*n*	*M*	*SD*	Range	2	3	4	5	6	7	8	9	10	11	12	13
1. Group	2474	1.53	-	1–2	.00	-.02	.07	.02	-.01	.05	-.02	-.04	.03	.02	.03	.01
2. Age	2470	12.13	0.64	10–14		-.10†	.04	.09†	-.06	.13†	-.09†	-.03	.16†	.11†	.11†	.01
3. Sex	2474	1.52	-	1–2			.06	-.06	.16†	-.19†	.05	.06	-.20†	-.25†	-.17†	-.21†
4. Race	2463	1.54	-	1–2				.04	-.07†	.08†	-.15†	-.12†	.18†	.12†	.08†	.08
5. Routine Activities	2198	1.51	1.77	0–6					-.13†	.26†	-.20†	-.13†	.32†	.21†	.32†	.17†
6. Parental Knowledge	2449	7.38	1.98	2–10						-.22†	.28†	.24†	-.26†	-.21†	-.22†	-.18†
7. Peer Delinquency-W2	2212	14.50	6.57	10–50							-.42†	-.29†	.45†	.39†	.46†	.31†
8. Prosocial Peers-W2	2236	26.02	6.49	8–40								.54†	-.42†	-.38†	-.29†	-.26†
9. Prosocial Peers-W3	1587	25.07	6.28	8–40									-.34†	-.46†	-.25†	-.26†
10. Neutralization-W1	2466	24.22	6.96	9–45										.57†	.46†	.31†
11. Neutralization-W3	1593	31.73	9.06	11–55											.34†	.40†
12. Violence-W1	2378	0.12	0.18	0–1												.35†
13. Violence-W4	1383	0.14	0.20	0–1												

Note. Group = participant's class received GREAT curriculum (2) or did not receive the GREAT curriculum (1); Age = chronological age in years at Wave 1; Sex = 1 (male) vs. 2 (female); Race = 1 (White) vs. 2 (Nonwhite); Routine Activities = degree of involvement in unsupervised routine activities with peers at Wave 1; Parental Knowledge = parental knowledge of child's whereabouts and activities at Wave 1; Peer Delinquency-W2 = perceived peer delinquency at Wave 2; Prosocial Peers-W2 = prosocial peer associations at Wave 2; Prosocial Peers-W3 = prosocial peer associations at Wave 3; Neutralization-W1 = neutralizing beliefs at Wave 1; Neutralization-W3 = neutralizing beliefs at Wave 3; Violence-W1 = violent offending variety score at Wave 1; Violence-W4 = violent offending variety score at Wave 4; *n* = number of non-missing cases; *M* = mean; *SD* = standard deviation; Range = range of scores in current sample.
†$p < .00064$ (Bonferroni-corrected alpha: .05/ 78 correlations).

Figure 1: Dual-stage moderated mediation analysis of the direct and indirect (via neutralization) effects of peer delinquency on participant offending with moderation by Wave 2 prosocial peer associations and Wave 3 prosocial peer associations.



Note. Standardized beta coefficients are reported; dashed lines = direct effects; solid lines = indirect effects; PD = peer delinquency, PP = prosocial peers, $N = 2,474$.
*$p < .05$; **$p < .001$.

It should be noted that Wave 2 peer delinquency and prosocial peer associations correlated -.34 and thus shared less than 12% of their variance in common. Moreover, 3.8% of the sample displayed modest or better elevations (0.25 or more standard deviations above the mean) and 12.7% displayed modest or better diminutions (0.25 or more standard deviations below the mean) on both Wave 2 peer delinquency and Wave 2 prosocial peers. What this means is that 16.5% of the sample displayed modest or better trends in the same direction for delinquent and prosocial peer associations.

Moderated Mediation

A dual-stage moderated mediation analysis was performed by including Peer Delinquency-2, Prosocial Peers-2, Prosocial Peers-3, Neutralization-3, Violence-4, and the Peer Delinquency-2 x Prosocial Peers-2 (PD x PP) and Neutralization-3 x Prosocial Peers-3 (N x PP) interactions in a two-equation linear regression. Collinearity diagnostics performed on the two regression equations showed no evidence of multicollinearity between predictor variables: tolerance = .601–.903, variance inflation factor = 1.108–1.663.

Prosocial Peers-2 and the PD x PP interaction correlated with Neutralization-3 and the N x PP interaction correlated with Violence 4 after controlling for Wave 1 age, sex, race, group assignment, unsupervised routine activities, parental knowledge, and neutralization (see Table 2 and Figure 1).[2] These findings provide support for both hypotheses: prosocial peers differentially reduced neutralization beliefs in youth with fewer antisocial peers (Hypothesis 1; see upper panel of Figure 2) and attenuated the effect of antisocial peers on subsequent delinquent behavior (Hypothesis 2; see lower panel of Figure 2).

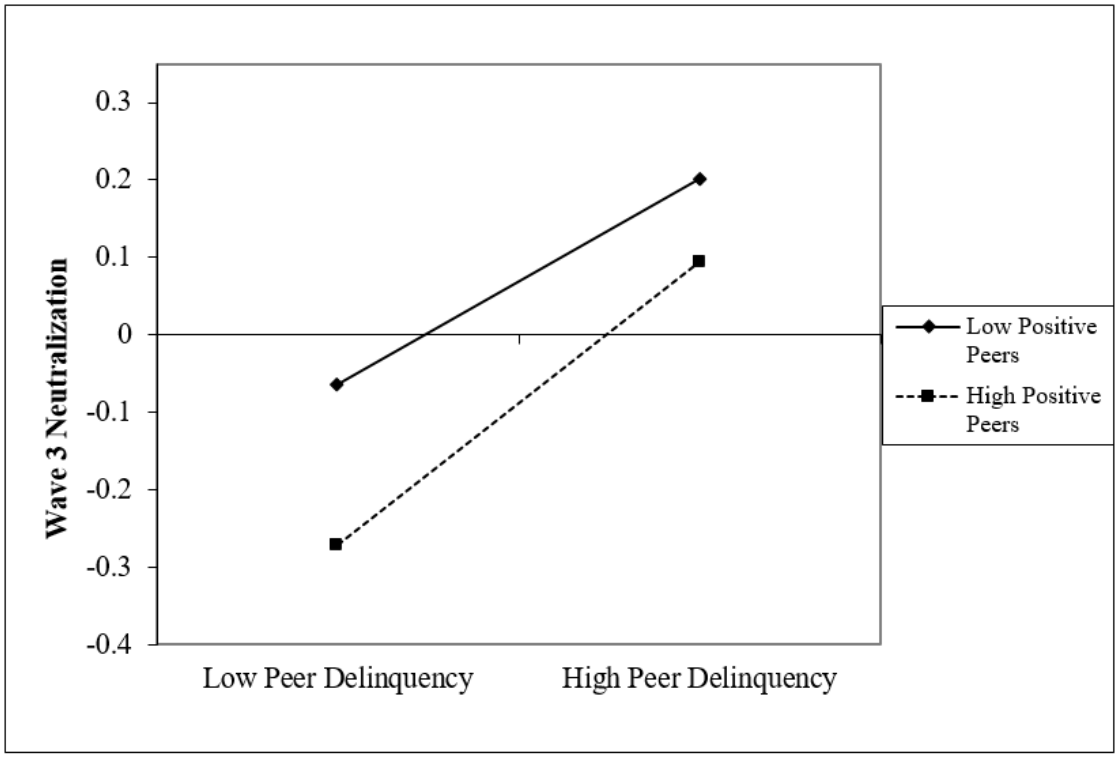
The 95% MCMAM confidence interval for the proactive criminal thinking-mediated peer influence effect (peer delinquency → neutralization → violence) achieved significance [0.0157, 0.0503], as did the prosocial peers-mediated counter-peer influence effect (prosocial peers → neutralization → violence) [-0.0546, -0,0230]. When the indirect peer influence effect was evaluated at different levels of the two moderators, it was found to be non-significant at lower levels of Prosocial Peers-2 and weaker but still significant at higher levels of Prosocial Peers-3 (see Table 3). These two patterns are reflected in the simple slopes for Prosocial Peers-2 moderation of the *a* path of the peer influence effect and for Prosocial Peers-3 moderation of the *b* path of the peer influence effect as outlined in Tables 4 and 5, respectively.

Table 2: Moderated Mediation Path Analysis

Predictor	β [95% CI]	se	*t*	*p*
Neutralization-W3 (Outcome)				
Group	0.004 [-0.037, 0.046]	0.021	0.20	.842
Age	0.034 [-0.005, 0.073]	0.020	1.70	.089
Sex	-0.115 [-0.155, -0.074]	0.021	-5.54	<.001
Race	0.020 [-0.019, 0.059]	0.020	1.02	.309
Routine Activities	0.007 [-0.047, 0.062]	0.028	0.27	.787
Parental Knowledge	-0.018 [-0.057, 0.022]	0.020	-0.87	.384
Peer Delinquency-W2	0.133 [0.071, 0.196]	0.032	4.17	<.001
Prosocial Peers-W2	-0.157 [-0.207, -0.106]	0.026	-6.07	<.001
PD x PP	0.050 [0.011, 0.090]	0.020	2.50	.013
Neutralization-W1	0.410 [0.357, 0.463]	0.027	15.20	<.001
Violence-W4 (Outcome)				
Group	-0.022 [-0.071, 0.027]	0.025	-0.87	.386
Age	-0.063 [-0.116, -0.009]	0.027	-2.29	.022
Sex	-0.107 [-0.159, -0.054]	0.027	-4.00	<.001
Race	0.042 [-0.003, 0.086]	0.023	1.84	.065
Routine Activities	0.020 [-0.045, 0.085]	0.033	0.59	.553
Parental Knowledge	-0.032 [-0.090, 0.026]	0.030	-1.07	.284
Peer Delinquency-W2	0.052 [-0.046, 0.150]	0.050	1.04	.298
Prosocial Peers-W2	-0.062 [-0.139, 0.015]	0.039	-1.59	.112
PD x PP	-0.038 [-0.115, 0.039]	0.039	-0.97	.331
Neutralization-W3	0.239 [0.177, 0.302]	0.032	7.53	<.001
Prosocial Peers W3	-0.029 [-0.085, 0.027]	0.029	-1.02	.307
Neutralization x PP	-0.058 [-0.109, -0.007]	0.026	-2.22	.027
Violence-W1	0.225 [0.144, 0.306]	0.041	5.45	<.001

Note. Neutralization-W3 (Outcome) = regression equation with Wave 3 neutralizing beliefs as the dependent variable; Violence-W4 (Outcome) = regression equation with Wave 4 violent offending as the dependent variable; Group = participant's class received GREAT curriculum (2) or did not receive GREAT curriculum (1); Age = chronological age in years at Wave 1; Sex = 1 (male) vs. 2 (female); Race = 1 (White) vs. 2 (Nonwhite); Routine Activities = degree of involvement in unsupervised routine activities with peers at Wave 1; Parental Knowledge = parental knowledge of child's whereabouts and activities at Wave 1; Peer Delinquency-W2 = perceived peer delinquency at Wave 2; Prosocial Peers-W2 = prosocial peer associations at Wave 2; Prosocial Peers-W3 = prosocial peer associations at Wave 3; Neutralization-W1 = neutralizing beliefs at Wave 1; Neutralization-W3 = neutralizing beliefs at Wave 3; Violence-W1= violent offending variety score at Wave 1; Violence-W4 = violent offending variety score at Wave 4; PD x PP = interaction between Wave 2 peer delinquency and Wave 2 prosocial peer associations; Neutralization x PP = interaction between Wave 3 neutralization beliefs and Wave 3 prosocial peer associations; β [95% CI] = standardized coefficient with 95% confidence interval [in brackets]; se = standard error; Z = Wald Z-test; *p* = significance level of Wald Z test; *N* = 2,149.

Figure 2: Effect of the interaction between Wave 2 peer delinquency and Wave 2 prosocial peers as a predictor of Wave 3 neutralization (upper panel) and the effect of the interaction between Wave 3 neutralization and Wave 3 prosocial peers as a predictor of Wave 4 violent offending (lower panel)



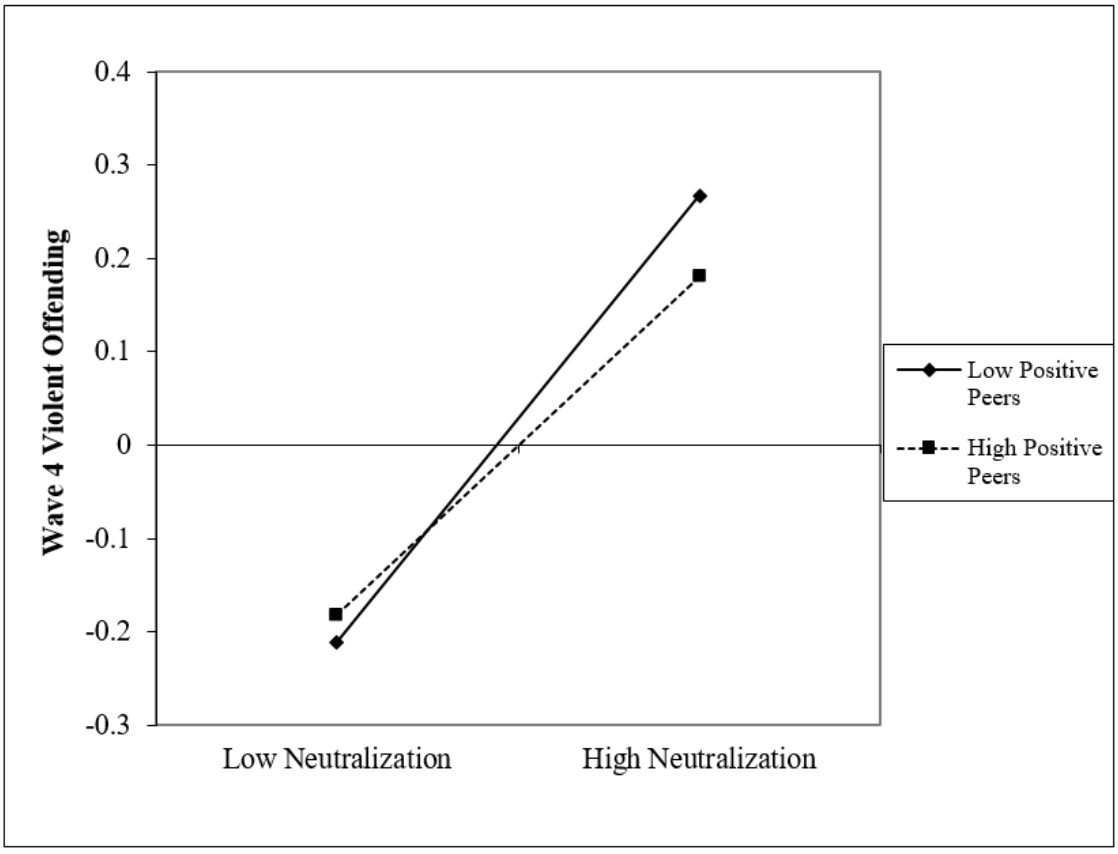


Table 3: Conditional Effects at Different Levels of the First- and Second-Stage Moderators on the Peer Influence Effect

Moderator Variables					
Prosocial -W2	Prosocial -W3	Effect [95% CI]	se	Z	*p*
Low	Low	0.019 [-0.003, 0.041]	0.011	1.66	.096
Low	Medium	0.014 [-0.003, 0.030]	0.008	1.65	.099
Low	High	0.009 [-0.003, 0.021]	0.006	1.46	.145
Medium	Low	0.043 [0.019, 0.068]	0.013	3.44	<.001
Medium	Medium	0.032 [0.015, 0.049]	0.009	3.68	<.001
Medium	High	0.020 [0.005, 0.035]	0.008	2.66	.008
High	Low	0.068 [0.027, 0.109]	0.021	3.24	.001
High	Medium	0.050 [0.022, 0.078]	0.014	3.54	<.001
High	High	0.032 [0.009, 0.055]	0.012	2.70	.007

Note. Prosocial-W2 = prosocial peer associations at Wave 2; Prosocial-W3 = prosocial peer associations at Wave 3; Effect [95% BCBCI] = effect coefficient with 95% bias-corrected bootstrapped confidence interval [in brackets]; se = bootstrapped standard error of the effect coefficient (5,000 replications); Z = Wald Z test; *p* = significance level of the Wald Z test; Low = 7th percentile of the moderator variable (1.5 standard deviations below the mean); Medium = 50th percentile of the moderator variable (at the mean); High = 93rd percentile of the moderator variable (1.5 standard deviation above the mean); *N* = 2,474.

Table 4: Simple Slopes of the *a* Path (Delinquent Peers to Neutralization Beliefs) at Different Levels of the First-Stage Moderator (Wave 2 Positive Peers)

Moderator Variable				
Prosocial Peers-W2	Effect [95% CI]	se	Z	*p*
Low	0.058 [-0.010, 0.125]	0.035	1.67	.095
Medium	0.133 [0.071, 0.196]	0.032	4.17	<.001
High	0.209 [0.107, 0.310]	0.052	4.04	<.001

Note. Prosocial Peer-W2 = prosocial peer associations at Wave 2; Effect [95% BCBCI] = effect coefficient with 95% bias-corrected bootstrapped confidence interval [in brackets]; se = bootstrapped standard error of the effect coefficient (5,000 replications); Z = Wald Z test; *p* = significance level of the Wald Z test; Low = 7th percentile of the moderator variable (1.5 standard deviations below the mean); Medium = 50th percentile of the moderator variable (at the mean); High = 93rd percentile of the moderator variable (1.5 standard deviation above the mean); *N* = 2,474.

Sensitivity Testing

Kenny's (2012) "failsafe ef" procedure was used to determine how robust the mediated peer influence effect was to omitted variable bias. Results revealed that an unobserved covariate confounder would need to correlate .25 with Neutralization-3 and .25 with Violence-4, controlling for Peer Delinquency-2 and Neutralization-3 in the case of Violence-4, to completely eliminate the significant b path of the neutralization-mediated peer influence effect. When precursor measures were removed from the two equations to test for endogenous selection bias, the path coefficients increased slightly to moderately, a sign that endogenous selection bias or a collider effect was probably not an issue in this study.

Table 5: Simple Slopes of the *b* Path (Neutralization Beliefs to Violent Offending) at Different Levels of the Second-Stage Moderator (Wave 3 Positive Peers)

Moderator Variable				
Prosocial Peers-W3	Effect [95% CI]	se	Z	*p*
Low	0.326 [0.215, 0.125]	0.057	5.76	<.001
Medium	0.239 [0.177, 0.196]	0.032	7.53	<.001
High	0.152 [0.067, 0.310]	0.043	3.51	<.001

Note. Prosocial Peer-W3 = prosocial peer associations at Wave 3; Effect [95% BCBCI] = effect coefficient with 95% bias-corrected bootstrapped confidence interval [in brackets]; se = bootstrapped standard error of the effect coefficient (5,000 replications); Z = Wald Z test; *p* = significance level of the Wald Z test; Low = 7th percentile of the moderator variable (1.5 standard deviations below the mean); Medium = 50th percentile of the moderator variable (at the mean); High = 93rd percentile of the moderator variable (1.5 standard deviation above the mean); *N* = 2,474.

Discussion

Both hypotheses tested in this study received support. The first hypothesis held that Wave 2 prosocial peer associations would moderate the *a* path of the neutralization-mediated peer influence effect (peer delinquency → neutralization). Paralleling results from a previous study (Walters, 2020a) where low empathy mediated the peer influence effect in a different sample of participants, low peer delinquency coupled with high prosocial peer associations offered augmented protection against future proactive criminality, as measured in the current study by neutralization beliefs. The second hypothesis predicted that Wave 3 prosocial peer associations would moderate the *b* path of the neutralization-mediated peer influence effect (neutralization → violence). Once again, the results replicated those from Walters (2020a) in which higher levels of prosocial peer association weakened but did not eliminate the criminogenic effect of low empathy on future delinquency in the Walters (2020a) study and of neutralization beliefs on future violent offending in the current study. These results provide support for the social development model's emphasis on the unanimity of risk and protective factors (Cambron et al., 2019). Evaluating conditional indirect effects and reviewing the simple slopes at low, medium, and high levels of each moderator demonstrated that while prosocial peer associations strengthened the peer influence effect at the first stage (*a* path) by enhancing

the inhibitory effect of low peer delinquency on neutralization beliefs, they weakened the peer influence effect, which was found to be moderately robust to the obfuscating effects of unobserved covariate confounders, at the second stage (*b* path) by impeding the criminogenic effect of neutralization beliefs on participant delinquency.

It is worth noting that the Wave 2 prosocial peer and Wave 2 delinquent peer scales shared less than 12% of their variance in common and that 16.5% of the sample displayed modest elevations or diminutions in the same direction for the two measures. These findings suggest that prosocial peer influence is something more than the absence of peer delinquency or what differential association theory refers to as definitions favorable to violation of the law (Sutherland, 1947). Although a portion of the prosocial effect may be the result of more definitions unfavorable than favorable to violations of the law (Akers, 1998), the current results indicate that something else may also be at work. Differential association theory's account of prosocial peer effects is not so much wrong, as it is incomplete. For the purposes of the current study, the prosocial peer variable was based on the perceived conventionality of one's peer group broadly conceived rather than on a narrow definition of involvement or lack of involvement in various delinquent activities. In the previously mentioned Fabes et al. (2012) study, it was determined that a principal effect of prosocial peers on children was to stimulate positive emotionality and suppress negative emotionality. It may, therefore, be that prosocial peer relations provide the individual with both a cognitive (definitions unfavorable to violation of the law) and affective (high positive emotionality and low negative emotionality) benefit, the combination of which leads to reduced future offending.

Implications

The present findings, when considered in tandem with prior research (Walters, 2020a, 2020b), suggest that prosocial peer associations are more than just the flip side of delinquent peer associations. To a certain extent, they have a life of their own, partially independent of negative peer influences. Moreover, their effect is manifold, complex, and multilayered. Two of the three studies revealed that prosocial peer associations protected youth against future offending by neutralizing the negative effects of low empathy (Walters, 2020a) and neutralization beliefs (current study); all three studies disclosed that prosocial peer associations can serve as both risk and promotive factors. The risk effect of prosocial peer associations suggests that individuals with few prosocial friends are at risk for future delinquency, perhaps because they are rejected by prosocial peers or attracted to negative ones. The promotive effect of prosocial peer associations can perhaps be traced to learning. Just as those who associate with negative peers have increased opportunities for learning antisocial attitudes and behaviors, those who associate with prosocial peers have increased opportunities for learning prosocial attitudes and behaviors. According to the results of both the present study and prior Walters (2020a) investigation, the protective effect of prosocial peer associations is biphasic. During the first stage, moderation by prosocial peers strengthens the moral attitudes (low neutralization, high empathy) of children with few negative peers and during the second stage, moderation by prosocial peers partially weakens offending and violent offending in children with anemic moral values (high neutralization, low empathy).

The moderated, mediated, and direct effects of prosocial peer associations on the peer influence effect can be conceptualized within the larger context of social learning theories of crime. According to this model, individuals learn prosocial and antisocial attitudes from one another. The focus of the current investigation was on the moral construct of proactive criminal thinking, as represented by one of its facets (i.e., neutralization beliefs), in which moral values are underdeveloped and compromised in the service of a delinquent or violent lifestyle. Conceptually, this not only borrows from social learning theories of crime (Akers, 1998; Bandura, 1977; Sutherland, 1947), but also takes direction from Sykes and Matza's (1957) neutralization perspective, social development theory (Catalano & Hawkins, 1996; Hawkins & Weis, 1985), and research on childhood emotionality (Fabes et al., 2012). The contribution the current study makes to the literature is that it fuses several different conceptual models, while highlighting the integrating role of a variable (i.e., prosocial peer associations) that some might argue has been largely neglected in the field of criminology. Thus, while the peer influence effect is more than projection bias, routine activities, or weak parental oversight, it is clearly subject to influence and modification from prosocial peer associations, a proposition consistent with social development theory. Consequently, social learning theories of crime need to be modified to account for the role of prosocial peer influences based on the results of three recent studies (Walters, 2020a, 2020b; current investigation), all of which suggest that prosocial and negative peer associations may be equal partners in the development of youth delinquency and antisocial behavior.

From a policy standpoint, the current results suggest that family and community efforts to initiate, promote, and expand prosocial peer influences in a child's life may be worth pursuing. Thus, while the

initial (first-stage) effect of prosocial peer associations was to reinforce moral values and reduce proactive criminal thinking in youth with low levels of delinquent peer contact, these associations also assisted with the moral development of youth who were surrounded by delinquent friends, although the effect was not as strong as it was for children with fewer delinquent friends. At the second or latter stage of the peer influence effect (i.e., *b* path), prosocial peer associations significantly reduced delinquency in morally challenged youth (i.e., low empathy and high neutralization). It is vital, therefore, that prosocial peer affiliations be encouraged and developed. Cost-benefit analyses and randomized control studies have shown modest to moderate effects for programs like Big Brothers/Big Sisters (Alfonso et al., 2019; Grossman & Tierney, 1998) and Project Alert (Ellickson & Bell, 1990; Gorman & Conde, 2010), both of which employ peer mentors who are slightly older than the children they are mentoring. After school programs that promote collective efficacy between same-age peers have also been found effective in reducing problem behaviors like drug use, vandalism, and theft (Smith et al., 2013). School retention may also play an important role in preventing problem behavior in that teachers and students report that prosocial peer influences are ordinarily found in school whereas negative peer influences are more often located outside of school (Karakos, 2014).

Limitations

There were several potentially serious limitations to the current study that need to be addressed. First, fewer than half the participants had complete data on all 13 variables included in this study. This implies that missing data may have been an issue with this sample. On the other hand, FIML is considered one of the better ways to handle missing data (Allison, 2012), and a large number of auxiliary variables were added to the analysis in order to increase the precision and efficacy of FIML further (Collins et al., 2001). Second, the peer influence effect has been criticized as being largely the result of perceived peer delinquency measures and the tendency of participants to project their own level of delinquency onto their friends and associates (Young et al., 2013). Walters (2019), in a test of the projection hypothesis, however, found that the peer delinquency → participant delinquency relationship persisted, although at a reduced level, in 21 out of 22 samples after controlling for prior participant delinquency. Third, the vast majority of variables included in the current study were self-report measures completed by the child. The problem here was that a single source of information could very well have injected mono-operational bias into the results (Shadish et al., 2002). Fourth, it should be noted that the effects were small and based on observational rather than experimental data. Although attempts were made to establish the temporal order and direction of the variables, the fact remains that alternate explanations of the results (e.g., delinquent peer associations moderate prosocial peer associations or both are moderated by delinquent behavior) need to be considered and ruled out in future research. The author's inability to use latent factor scores in place of summed score can also be considered a limitation in that latent scores are measured without error and are believed by some methodologists to be less biased than summed scores (McNeish & Wolf, 2020).

Conclusion

There is now evidence from three studies (Walters, 2020a, 2020b; current investigation) that prosocial peer associations may exert a moderating effect on peer influence and its three principal components—peer delinquency, amorality (low empathy and high proactive criminal thinking), and criminal offending. The next step will be to figure out the source of prosocial peer associations. Is it a matter of where one lives, what school one attends, what activities one participates in, or how much control parents exercise over one's behavior? Given that prosocial and antisocial peer influences from the current study shared less than 12% of their variance in common, it also seems likely that prosocial peers are something more than the converse or absence of a negative peer influence effect as proposed by Sutherland (i.e., definitions favorable to violation of the law vs. definitions unfavorable to violation of the law). In other words, a portion of the contribution prosocial peers make to social influence is independent of delinquent peer associations. Clarifying these issues could help advance theory and practice in criminology. After all, a theory of peer influence that does not include prosocial peer associations may be incomplete and a model of prevention that does not capitalize on the power of prosocial peers to neutralize negative peer influences may be missing out on important opportunities for change.

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Endnotes

[1] Two reviewers of an earlier draft of this paper recommended replacing the summed scores with latent variables. This was not done for two reasons. First, the design was complicated enough without the addition and complexity of latent variables, particularly since that would entail calculating and interpreting interactions between several latent factors, a methodological procedure with which the author is completely unfamiliar. Second, when just half the variables were converted to factors scores and the analyses run without interactions, Mplus failed to converge or reach a solution even after running the analysis multiple times over several hours.

[2] When regression equations predicting Positive Peers-3 and the Neutralization-3 x Positive Peers-3 interaction were added to the model, the results did not change. The simpler model was therefore retained for this study.