Managing Threat: Do Social-Cognitive Processes Mediate the Link Between Peer Victimization and Adjustment Problems in Early Adolescence?

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Peer victimization has been linked concurrently and over time with multiple adjustment problems. However, the reasons for this multi-finality in victimization are not well understood. The current study examines social-cognitive processes (hostile attributions, social perspective awareness, and interpersonal skills) as mediators of the relations between subtypes of peer victimization (relational, physical) and depression and anxiety, social withdrawal, and physical aggression in early adolescence. The overall pattern of associations among subtypes of victimization, social-cognitive processes, and adjustment converged with expectations that victimization biases adolescents’ cognitions about peers in conflict situations and skills relating to peers. In turn, these cognitions and skills differentially compromised their ability to regulate diverse emotions or limit reticent behaviors in response to peer threats. Modest gender differences in these associations were found.

Research has identified two primary forms of peer victimization. _Relational victimization_ damages adolescents’ relationship ties through the manipulation of social status and friendships. _Physical victimization_ threatens adolescents’ feelings of safety and power among peers through physical assaults and verbal threats of harm (Crick & Grotpeter, 1996). While

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peer victimization, assessed as a global construct, is related to several different adjustment problems (Kochenderfer-Ladd & Ladd, 2001), the implications of subtypes of victimization for specific problems are understudied. Some evidence indicates that relational victimization contributes independently to internalizing problems, such as depression and withdrawal whereas physical victimization relates uniquely to externalizing problems, such as physical aggression, but these findings are mixed and can differ by gender (e.g., Crick & Grotpeter, 1996; Prinstein, Boergers, & Vernberg, 2001). Multifinality in the harm initiated by victimization raises questions about domain specificity in the costs of subtypes of victimization and about the processes that link victimization to adjustment. Social-cognitive processes appear to mediate the relation between victimization, assessed globally, and adjustment in middle childhood (Troop-Gordon & Ladd, 2005). However, the role of social-cognitive processes in the context of subtypes of victimization in early adolescence is unclear.

Drawing from social-cognitive theories (Crick & Dodge, 1994; Selman, 1980), we reason that subtypes of victimization trigger expectations of hostility in relationally or instrumentally provocative interactions and undermine the use of age-appropriate social perspective and interpersonal skills, contributing to diverse adjustment problems. See Figure 1. Theory on relational stress and internalizing problems (see Leadbeater, Blatt, & Quinlan, 1995) guides our reasoning that relational victimization relates most prominently to feelings of sadness, anxiety, and shy, socially avoidant behaviors because such experiences damage adolescents’ social status through exclusion and rebuffs. Relationally victimized adolescents’ may ruminate extensively over their poor social status and be preoccupied with maintaining peer relationships and limiting behaviors that could jeopardize their relationships, such as aggression. Such distress over relationships may encourage inferenc- es of peer hostility in relationally provocative interactions, such as not receiving a party invitation, beliefs that one cannot gauge peers’ thoughts and feelings, and to difficulty establishing new friendships, contributing to depression, anxiety, and withdrawal (Crick, Grotpeter, & Bigbee, 2002; Rudolph & Clark, 2001; Troop-Gordon & Ladd, 2005).

On the other hand, theory on the etiology of externalizing problems (see Cicchetti & Rogosch, 2002; Crick & Zahn-Waxler, 2003) leads us to propose that physical victimization relates most robustly to physically aggressive, volatile behaviors because such experiences threaten adolescents’ feelings of safety and power in the peer group through physical assaults, threats of harm and personal property damage. Physically victimized adolescents may show poor impulse control for retaliatory aggression, be preoccupied
with self-protection and dominance, and less focused on preserving relationships. Self-protective concerns may promote assumptions of hostility in instrumentally provocative interactions, such as when a valued possession is ruined, and limit the motivation to understand peers’ perspectives in conflicts or to resolve conflicts mutually, contributing to physical aggression (Crick et al., 2002; Lochman & Dodge, 1998).

In sum, we expected that: (1) relational victimization would relate most robustly to depression, anxiety, and social withdrawal whereas physical victimization would relate most prominently to physical aggression; (2) relational attributions, social perspective, and interpersonal skills would mediate the influence of relational victimization on depression, anxiety, and withdrawal; and (3) instrumental attributions, social perspective, and interpersonal skills would partially mediate the influence of physical victimization on aggression. Gender differences in these associations were assessed as evidence suggests that girls are overly distressed by relational victimization because of a heightened concern over peer evaluation and loss of relationships. On the other hand, boys may find physical victimization more hurtful because of well-defined social hierarchies and tendency toward social dominance (Rose & Rudolph, 2006). Moreover,
gender differences in depression emerge in adolescence, with girls showing greater vulnerability than boys (Leadbeater et al., 1995). Alternatively, gender differences in physical aggression begin to converge as levels increase for girls and decrease for boys (Crick & Zahn-Waxler, 2003) and are inconsistent for withdrawal (Rubin, Burgess, & Coplan, 2002).

**METHOD**

**Participants**

Participants were 337 adolescents in Grades 6 (52.5%) and 7 at a suburban middle school in British Columbia (BC), Canada (57.3% girls; mean age = 12.5 years, range 11.5–13.9 years). Adolescents’ racial status was 80% European–Canadian (n = 269) and 20% visible minority (East and South East Asian, Aboriginal; n = 68) and 76% lived in a two-parent household. Of parents, 17% had a high school diploma or less, 46.6% had college or technical training, and 36% had a bachelor degree or higher. According to Statistics Canada 2001 profiles, the average annual income of the school district ($33,859) was slightly higher than BC’s average ($31,544).

**Procedure**

Information packages including the study’s purpose, parental consent forms, and a demographics questionnaire were sent home with all grades 6 and 7 students. Students received a snack item as an incentive to return their consent forms, regardless of whether parents granted consent. Homerooms received $1 for each consent form returned for a class activity. Of eligible students, 68% returned consent forms (364 of 537 students) and consent was received for 62.9% (N = 339); 6.8% (n = 25) of parents refused consent or students refused assent. The final sample included 62.5% (N = 337) of eligible students (data for two students were not collected).

Data were collected from students and homeroom teachers during class time, about 40 minutes per class. Students completed questionnaires assessing victimization, hostile attributions, social perspective and interpersonal skills, depression and anxiety, and aggression in class groups of 12–27 students. One research assistant read the questions aloud and two others circulated to answer questions and ensure that students completed the questionnaires correctly. Students who were absent during data collection completed the questionnaires with a research assistant at a later
date. Nonparticipants read or worked on a class activity at their desks quietly. Teachers \((n = 19)\) completed questionnaires rating students’ interpersonal skills, withdrawal, and aggression.

*Depression and anxiety* (oversensitivity, worries, sadness, hopelessness) were assessed from self-reports on the Youth Self-Report (YSR; Achenbach, 1991). The 13 items are rated on a three-point scale \((0 = \text{not true to} 2 = \text{very or often true})\). Internal consistency was \(\alpha = .84\).

*Social withdrawal* (shyness, social avoidance) was measured from teacher-reports on the Behavioral Assessment System for Children (BASC; Reynolds & Kamphaus, 1998). The seven items are rated on a four-point scale \((0 = \text{never to} 3 = \text{almost always})\). Internal consistency was \(\alpha = .81\). We asked teachers to report on withdrawal rather than depression as teachers may be better able to rate behavioral indicators of internalizing problems than covert feelings (Rubin et al., 2002).

*Physical aggression* (physical hostility, destructive behaviors, defiance) was assessed via teacher-reports on the BASC (Reynolds & Kamphaus, 1998) and self-reports on the YSR (Achenbach, 1991). The 14 BASC items are rated on a four-point scale and the 19 YSR items are rated on a three-point scale. Internal consistencies were \(\alpha = .95\) and \(.84\), respectively. The subscales correlated moderately \((r = .46)\) and were standardized and averaged to create a composite index.

*Relational victimization* (social exclusion, friendship control) and *physical victimization* (physical harm, threats of harm) were measured from self-reports on the Social Experiences Questionnaire (Crick & Grotpeter, 1996). The subscales contain five items each rated on a five-point scale \((0 = \text{never to} 4 = \text{all the time})\). Internal consistencies were \(\alpha = .86\) and \(.83\), respectively.

*Hostile attributions* were assessed from adolescents’ self-reports on the Why Kids Do Things Questionnaire (Crick et al., 2002). Five vignettes describe relational provocations (e.g., a party invitation has not been received) and five depict instrumental provocations (e.g., a prized possession is broken). Adolescents select whether the provocateur’s intent is hostile \(= 1\) (e.g., possession was broken purposely) or benign \(= 0\) (e.g., possession was broken accidentally) and meant to be mean \(= 1\) or not mean \(= 0\). Internal consistencies were \(\alpha = .73\) and \(.82\), respectively.

*Social perspective awareness* was measured from self-reports on a five-item questionnaire developed for the current study to assess adolescents’ awareness of peers’ thoughts and feelings in conflicts. All items begin with “When another student…” and include: (1) “understands a story differently from me, I think they’re wrong;” (2) “apologizes for hurting me, I can’t tell whether to believe them;” (3) “does something I disagree with, it is hard for me to understand why they did it;” (4) “and I disagree about
something, it is hard for me to get them to understand my point of view;” and (5) “does something that hurts me, it is hard for me to figure out whether they did it on purpose.” Items are rated on a 5-point scale (0 = never to 4 = all the time). Internal consistency was \( \alpha = .63 \). One-week retest reliability was \( r = .76 \) with a random sample of 10% of participants.

**Interpersonal skills** were assessed from teacher-reports of leadership (problem solving skills, ability to work well with peers), and social (social acceptance, success relating to peers) skills on the BASC (Reynolds & Kamphaus, 1998). These subscales contain 9 and 11 items, respectively, rated on a 4-point scale. Internal consistencies were \( \alpha = .93 \) and .95, respectively. The subscales correlated highly \( (r = .81) \) and were averaged to create a composite variable.

**RESULTS**

Analyses are presented in three sections. First, descriptive statistics are outlined by gender. Second, path analyses testing the hypothesis that victimization interferes with the development of social-cognitive skills that, in turn, contribute to adjustment problems are presented and gender differences in these associations are examined. A competing theory that adjustment problems influence social-cognitive biases that, in turn, contribute to victimization is tested last.

**Descriptive statistics** are shown in Table 1. Boys showed significantly higher mean levels of aggression \( (F[1, 335] = 10.15, p < .01) \), physical victimization \( (F[1, 335] = 37.37, p < .01) \), and instrumental attributions \( (F[1, 335] = 22.67, p < .01) \) and moderately more withdrawn behaviors \( (F[1, 335] = 3.06, p = .08) \) than girls. Girls showed moderately higher levels of depression and anxiety \( (F[1, 335] = 3.42, p = .06) \) and significantly more interpersonal skills \( (F[1, 335] = 12.20, p < .01) \) than boys. Correlations of relational and physical victimization with the social-cognitive processes and adjustment were in the expected directions, but physical victimization did not correlate significantly with withdrawal for girls or boys or with relational attributions for boys. According to Fisher’s z-tests, the association between social perspective and depression was reliably higher \( (p < .05) \) for girls whereas correlations of relational victimization with withdrawal and of interpersonal skills with social perspective and withdrawal were higher \( (p < .05) \) for boys.

**Path analyses** assessing the hypothesis that social-cognitive processes mediate the link between victimization and adjustment were examined with Amos 5.0 (Arbuckle, 2003). Model fit was examined using the \( \chi^2 \) statistic, comparative fit index (CFI), and root mean square error of approximation (RMSEA). The CFI compares the specified model with a
<table>
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<tr>
<th>Variables</th>
<th>1</th>
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<td>.33**</td>
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<td>.20**</td>
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<td>.34**</td>
<td>.64**</td>
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<td>.8 (.80)</td>
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<td>.36(.29)*</td>
<td>2.47(.60)</td>
<td>1.37(.71)*</td>
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Note. *Correlations or mean levels differ reliably (p < .05) between girls and boys.

*p < .05; **p < .01.

Girls: N = 193; boys: N = 144; R, relational provocations; I, instrumental provocations.
model where all variables are assumed to be uncorrelated. The RMSEA adjusts for model complexity so that evaluation of fit is not overly influenced by number of parameters. CFI values of .95 or greater and RMSEA values of .05 or less are considered indicative of adequate fit (Kline, 2005).

Mediation was evaluated by examining the contributions of victimization to the social-cognitive processes (path A) and adjustment (path C), and the contributions of social-cognitive processes to adjustment (path B). See Figure 1. To meet the criteria for mediation, victimization should relate significantly to the social-cognitive processes and adjustment and the influence of victimization on adjustment should decrease after the social-cognitive processes are included in the model (Baron & Kenny, 1986). Mediation was evaluated further by calculating the confidence interval (CI) around the product of the unstandardized coefficients of paths A and B (CI \(\pm SE\)). The standard error (SE) for path AB was computed by taking the square root of the sum of the squared coefficients from paths A and B, each multiplied by the squared SE of the other (\(SE_{AB} = \sqrt{SE_A^2B^2 + SE_B^2A^2}\)). CIs that do not include zero suggest that the mediated path AB is greater than expected by chance (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Multiple-group analysis was used for all models to assess gender differences in the path coefficients. Structural invariance in the models was tested by comparing a model with all path parameters constrained to be equal across girls and boys against a model with all parameters freed to vary. A \(\chi^2\) difference test determined whether allowing the paths to vary across girls and boys provided a better fit to the data than constraining the paths to be equal. Residual variances between relational and physical victimization and between relational and instrumental attributions were allowed to correlate to assess their unique effects and because of shared method bias (measure, reporter).

**Depression and anxiety.** The unique influence of relational and physical victimization on depression and anxiety (path C) without the mediators was examined first. Relational (\(B = .21, SE = .03, \beta = .49, p < .01\)) and physical (\(B = .08, SE = .03, \beta = .13, p < .05\)) victimization both contributed to depression and anxiety. The social-cognitive processes were added to the model next. See Figure 2. Model 1a with all parameters constrained to be equal across girls and boys fit well: \(\chi^2 (df = 24, N = 337) = 40.30, p < .05; CFI = .970; RMSEA = .045\). As expected, the influence of relational (\(B = .18, SE = .03, \beta = .42, p < .01\)) and physical (\(B = .06, SE = .03, \beta = .10, p < .05\)) victimization on depression and anxiety declined with the inclusion of the social-cognitive processes (path AB). Social perspective awareness contributed to lower levels of depression and anxiety (\(B = -.14, SE = .03, \beta = -.24, p < .01\)) and, according to the test of
mediation, partially mediated the influence of relational and physical victimization on depression and anxiety ($z's = 3.20$ and $2.64$, $p < .01$, respectively). Attritions and interpersonal skills were not significant.

With the path parameters freed to vary across girls and boys, Model 1b ($\chi^2[df = 10, N = 337] = 21.94$, $p < .05$; CFI = .978; RMSEA = .060) fit marginally better than Model 1a ($\chi^2[df = 14] = 21.44$, $p < .10$), suggesting some gender differences in the paths. Tests of the path coefficients to identify the source(s) of model variance indicated that the path estimates from social perspective ($p < .10$) and interpersonal skills ($p < .05$) to depression and anxiety were higher for girls relative to boys. With these paths freed to vary and all other paths were set to be invariant, Model 1c ($\chi^2[df = 22, N = 337] = 33.49$, $p = .06$; CFI = .979; RMSEA = .039) fit significantly better than Model 1a ($\chi^2[df = 2] = 6.81$, $p < .05$) and explained 44.8% of the variance in depression and anxiety for girls and 36.2% for boys. Tests of the indirect paths indicated that social perspective awareness partially mediated the paths from relational and physical victimization to depression for girls ($z's = 3.25$ and $2.67$, $p < .01$, respectively) and boys ($z's = 2.21$ and $1.99$, $p < .05$, respectively). See Figure 2.

Social withdrawal. The unique influence of relational and physical victimization on withdrawal without the mediators was assessed first.

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**FIGURE 2**  Standardized estimates of the direct and mediated paths from peer victimization to social-cognitive processes to depression and anxiety by gender. Note. Model 1c: $\chi^2(df = 22, N = 337) = 33.49$, $p = .06$; comparative fit index = .979; root mean square error of approximation = .039. Standardized path coefficients shown for girls (on right) and boys (on left). *Significant gender differences in the estimate for that parameter. Dashed lines indicate nonsignificant paths. $p < .10$, *$p < .05$, **$p <.01$. 

Relational victimization contributed to more withdrawn behaviors ($B = .19, SE = .04, \beta = .32, p < .01$) whereas physical victimization related marginally to less withdrawal ($B = -.09, SE = .05, \beta = -.11, p = .07$). The social-cognitive processes were added next. See Figure 3. Model 2a with all parameters constrained to be equal across girls and boys fit well: $\chi^2(df = 24, N = 337) = 47.74, p < .01; CFI = .954; \text{RMSEA} = .054$. As expected, the estimate of relational victimization on withdrawal decreased with the addition of the social-cognitive paths ($B = .14, SE = .04, \beta = .23, p < .01$), but the effect of physical victimization increased ($B = .11, SE = .04, \beta = -.12, p < .01$). Interpersonal skills contributed to fewer withdrawn behaviors ($B = -.40, SE = .03, \beta = -.54, p < .01$), and partially mediated the path from relational victimization to withdrawal ($z = 3.42, p < .01$). Attributions and social perspective awareness were not significant.

With the path parameters freed to vary across girls and boys, Model 2b ($\chi^2(df = 10, N = 337) = 21.94, p < .05; CFI = .977; \text{RMSEA} = .060$) fit the data significantly better than Model 2a ($\chi^2(df = 14) = 26.30, p < .01$), indicating gender differences in the paths. Tests of the coefficients indicated that the paths from relational victimization ($p < .01$), relational attributions ($p < .05$) and interpersonal skills ($p < .01$) to withdrawal were reliably higher for boys relative to girls. With these three paths allowed to vary and all other paths was set to be invariant, Model 2c ($\chi^2(df = 21, N = 337) = 34.58, p < .05; CFI = .973; \text{RMSEA} = .044$) fit significantly better than Model 2a ($\chi^2(df = 2) = 13.16, p < .01$), and explained 27.3% of the variance in withdrawal for girls and 48.2% for boys. Interpersonal skills partially mediated the link between relational victimization and withdrawal for both girls and boys ($z's = 3.23$ and $3.35, p < .01$, respectively). See Figure 3.

Physical aggression. Test of the unique influence of relational and physical victimization on aggression indicated that relational ($B = .15, SE = .06, \beta = .17, p < .05$) and physical ($B = .33, SE = .08, \beta = .27, p < .01$) victimization related positively to aggression. The social-cognitive processes were added next. See Figure 4. Model 3a with all parameters constrained to be equal across gender fit well: $\chi^2(df = 24, N = 337) = 31.45, p = .14; CFI = .984; \text{RMSEA} = .030$. As expected, the influence of relational ($B = .03, SE = .06, \beta = .03, p = .69$) and physical ($B = .26, SE = .07, \beta = .21, p < .01$) victimization on aggression decreased with the estimation of the social-cognitive paths. Instrumental attributions related positively ($B = .38, SE = .16, \beta = .13, p < .01$) and social perspective awareness ($B = -.19, SE = .07, \beta = -.17, p < .01$) and interpersonal skills ($B = -.38, SE = .06, \beta = -.36, p < .01$) related negatively to aggression. Instrumental attributions ($z = 2.03, p < .05$), social perspective awareness ($z = 2.42, p < .05$), and interpersonal skills ($z = 3.16, p < .01$) mediated the
path from relational victimization to aggression. Social perspective awareness partially mediated the link between physical victimization and aggression ($z = 2.15$, $p < .05$). Model 3a explained 30.9% of the variance in aggression for girls and 24.2% for boys. Gender differences were not significant. See Figure 4.

**Alternative models** testing the proposition that adolescents with adjustment problems hold social-cognitive biases that, in turn, contribute to victimization were assessed last in three separate models. In Model 4, social perspective awareness and interpersonal skills partially mediated the influence of depression on relational ($z$’s = 2.45 and 2.51, $p < .01$, respectively) and physical ($z$’s = 3.06 and 2.24, $p < .01$, respectively) victimization: $\chi^2 (df = 24, N = 337) = 43.55, p < .01$; CFI = .964; RMSEA = .049. In Model 5, interpersonal skills partially mediated the influence of withdrawal on relational ($z = 2.08$, $p < .05$) and physical ($z = 3.36$, $p < .01$) victimization: $\chi^2 (df = 24, N = 337) = 61.47, p < .01$; CFI = .927; RMSEA = .068. In Model 6, instrumental attributions partially mediated the link between aggression and relational victimization ($z = 1.96$, $p < .05$), and social perspective awareness and interpersonal skills partially mediated the paths from aggression to relational ($z$’s = 3.78 and 3.14, $p < .01$, respectively) and
physical ($z's = 3.68, p < .01$ and $2.04, p < .05$, respectively) victimization: $\chi^2 (df = 24, N = 337) = 38.97, p < .05$; CFI = .968; RMSEA = .043. Gender differences were marginal ($p < .10$) for withdrawal only; paths from withdrawal to relational and physical victimization were higher ($p < .05$) for boys. These three alternative models suggest that concurrent relations between victimization and adjustment work reciprocally via social-cognitive processes. However, the cross-sectional structure of these data provide limited support for the sequencing of these associations. According to the Akaike Information Criterion (AIC) estimate of the difference of fit statistics between nonnested models where smaller values indicate better fit, the alternative depression (AIC = 135.55), withdrawal (AIC = 152.55), and aggression (AIC = 130.97) models fit moderately less well than the primary depression (AIC = 129.49), withdrawal (AIC = 132.58) and aggression (AIC = 123.45) models shown in Figures 2–4.

**DISCUSSION**

Most significantly, the current study extends understanding of the processes by which subtypes of victimization contribute to diverse
adjustment problems in early adolescence and identifies intervening points for prevention. The overall pattern of associations among subtypes of victimization, social-cognitive processes, and adjustment converged with expectations that subtypes of victimization both bias adolescents’ cognitions about peers’ beliefs in conflict situations and skills relating to peers. In turn, these beliefs and skills differentially compromised their ability to regulate feelings of depression, anxiety or anger or limit reticent behaviors in response to peer threats.

Relational victimization related uniquely to each social-cognitive construct whereas physical victimization related uniquely to social perspective awareness only, suggesting that relational victimization manipulates a wider range of social-cognitions that culminate in diverse adjustment problems than physical victimization. Relationally victimized adolescents may be overly concerned with preserving their relationships but be apprehensive about eliciting peers’ point of view in conflicts because they fear rejection or lack confidence in their ability to resolve conflicts effectively, culminating in depression and anxiety (Rudolph & Clark, 2001; Troop-Gordon & Ladd, 2005). They may also be too inhibited to initiate interactions because peers often rebuff their social bids, promoting withdrawal (Rubin et al., 2002). Relational victimization may also reinforce beliefs that peers are conspiring against them and retaliatory aggression may be an automatic response to reduce the threat. Alternatively, these appraisals may reflect actual peer antagonistic behaviors rather than cognitive distortions (Troop-Gordon & Ladd, 2005).

Physically victimized adolescents more consistently showed less awareness of peers’ perspectives in conflicts. Physical victimization may prompt retaliatory aggression when adolescents are preoccupied with their own feelings, physical safety, and dominance status. These adolescents may be unmotivated to understand peers’ point of view in arousing negative interactions because they overestimate peer-directed aggression, are angered by peers’ threats, and cannot evaluate the long-term consequences of their own or peers’ actions (Crick et al., 2002; Lochman & Dodge, 1998; Rudolph & Clark, 2001). Retaliatory aggression may also be normative in aggressive groups and be a sanctioned way to deal with perceived threats, leading to a vicious cycle of victimization and aggression (Crick & Dodge, 1994). On the other hand, feelings of depression and anxiety may occur when adolescents are fixated with peers’ thoughts and understanding why they are targeted physically by peers, particularly for girls.

Modest gender differences were found. Subtypes of victimization were more likely to elicit depression and anxiety by interfering with estimates of peers’ perspectives and skills relating to peers among girls than boys. Girls might be more concerned with peer approval and abandonment, and
engage in more ruminative coping in response to peer threats than boys, possibly due to girls’ greater empathy skills. Girls may also be victimized more in the context of fragile dyadic relationships than boys, intensifying relational concerns and leaving few allies for support (Leadbeater et al., 1995; Rose & Rudolph, 2006). On the other hand, compromised interpersonal skills were more likely to prompt relationally victimized boys to withdraw from peers, possibly because they believe that removing themselves physically from the peer group will alleviate the problem. Boys who are ostracized relationally may also be neglected by peers because negative peer interactions carry greater social costs when they violate gender role expectations or because they do not endorse the agentic or dominance goals typically valued by boys (Rose & Rudolph, 2006; Rubin et al., 2002). While boys showed a higher rate of physical victimization, aggression, and instrumental attributions than girls, gender differences in the aggression model were not found. This suggests that victimized girls and boys who perceive peers as inherently malicious, dismiss peers’ perspectives, and resolve conflicts in self-interested ways cope by retaliating aggressively.

The alternative models tested suggest transactional associations between victimization and adjustment that operate via social-cognitive biases, but fit of these alternative models was more modest than the proposed models. Longitudinal research is needed to confirm the dynamic transactions that these concurrent associations allude to and to establish the directionality of the models proposed here. Reliance on self- and teacher-report data may inflate some of the findings because of shared method variance among constructs. Latent constructs composed of self, peer, and teacher reports may yield stronger support for the proposed models. The limited mediation findings for relational attributions may reflect differences in adolescents’ inferences of well-liked versus disliked peers in response to the hypothetical social scenarios; well-liked peers’ intent may be granted more latitude than disliked peers’ intent (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006). Hypothetical social scenarios might also provoke less anxiety or wariness than actual negative experiences among adolescents than among younger children.

Overall, our findings suggest that both relationally and physically victimized adolescents hold characteristically negative cognitions about peers and highlight the importance of coaching these adolescents in more adaptive ways of interpreting peers’ intentions and beliefs in conflicts, resolving problems with peers, and coping with peer stress. More in-depth understanding of the ways that victimized adolescents interpret their relationships is needed to better inform programs designed to interrupt the diverse costs of subtypes of victimization. This study advances
this goal by identifying social-cognitive skills as promising targets for prevention in adolescence.

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REFERENCES


