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Depressive Symptoms Following Coping with Peer Aggression: The Moderating Role of Negative Emotionality

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Abstract

The way in which children cope with peer aggression may determine their subsequent adjustment, but different forms of coping may be more or less effective for particular children. This research examined whether the contribution of children's coping to subsequent depressive symptoms was contingent on children's temperament (i.e., level of negative emotionality; NE) and gender. Children (N = 235, 102 boys, 133 girls, M = 7.94 years, SD = .33) reported on exposure to peer victimization. Parents rated children's NE and depressive symptoms, and teachers rated children's coping. For girls with high NE, problem solving protected against depressive symptoms whereas seeking retaliation heightened risk for depressive symptoms. Advice seeking protected children with low NE against depressive symptoms whereas ignoring protected children with high NE against depressive symptoms. Humor predicted fewer depressive symptoms in boys with high NE but more depressive symptoms in boys with low NE. This research helps to elucidate individual differences in the effects of coping on adjustment, and has implications for interventions aimed at reducing risk resulting from exposure to peer aggression.

Keywords

Coping; temperament; depressive symptoms

Exposure to peer aggression is a prevalent stressor (Solberg & Olweus, 2003) with many adverse consequences (for a review, see Ladd, 2005). Learning how to cope effectively with such stressors is a key developmental task that may set the stage for coping and adjustment later in life (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001). Failure to cope effectively with peer aggression is reflected in compromised emotion regulation (Rudolph, Troop-Gordon, & Flynn, 2009) and various forms of adjustment difficulties, including depressive symptoms (Brendgen, et al., 2011; Hanish & Guerra, 2002; Keenan, et al., 2010; Prinstein, Boergers, & Vernberg, 2001; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998; Snyder et al., 2003). Unfortunately, little is known about which forms of coping are most effective in protecting children against depressive symptoms in the context of exposure to peer aggression (for exceptions, see Kochenderfer-Ladd, 2004; Kochenderfer-Ladd & Skinner, 2002; Visconti & Troop-Gordon, 2010) or about individual differences in the effects of coping. The present study examined: (a) the contributions of children's coping with peer aggression to subsequent depressive symptoms;

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and (b) whether the nature of these contributions differed by children's temperament (i.e., negative emotionality) and their gender.

Coping × Temperament Framework

According to Bolger and Zuckerman's (1995) differential coping-effectiveness model, personality traits may influence the effectiveness of particular coping behaviors. Indeed, research suggests that coping differentially predicts adjustment depending on the temperament of children (Blair, Denham, Konchanoff, & Whipple, 2004) and adolescents (Miller et al., 2009; Wadsworth & Berger, 2006). Consistent with this model, we hypothesized that the consequences of coping with peer aggression would be amplified (for better or for worse) in children with a temperamental vulnerability (i.e., high negative emotionality). Temperament is defined as relatively stable, constitutionally based individual differences in emotional, motor, and attentional reactivity and self-regulation (Rothbart & Bates, 2006). In particular, negative emotionality refers to a susceptibility to experiencing heightened negative emotions (e.g., anger/frustration, sadness; Rothbart, Ahadi, Hershey, & Fisher, 2001), difficulty being soothed once aroused, and sensitivity to negative environmental cues (Rothbart & Bates, 2006). Given considerable evidence that negative emotionality contributes to depressive symptoms (Lonigan, Phillips, & Hooe, 2003; Windle, 1989), we focused on how this temperamental trait moderated the effects of coping on depression. Children with high negative emotionality experience heightened negative emotions in response to stress; when faced with peer aggression, they may feel overwhelmed and distressed, thereby promoting depressive symptoms. Children with this temperamental vulnerability may therefore have the most to gain from using adaptive coping (i.e., experience fewer depressive symptoms) and the most to lose from using maladaptive coping (i.e., experience more depressive symptoms). Thus, we anticipated that negative emotionality would moderate the contribution of coping to subsequent depressive symptoms. Drawing from a prominent conceptualization of coping (Causey & Dubow, 1992), which has been specifically adapted to examine children's coping with peer aggression (Kochenderfer-Ladd & Pelletier, 2008), this study focused on five types of coping: problem solving, advice seeking, ignoring, humor, and retaliation.

Problem solving and teacher advice seeking

Children may deal with peer aggression by solving the problem independently or by seeking advice from others, such as teachers. Both of these approaches may help resolve conflicts and improve relationships, thereby protecting the victims of aggression against depressive symptoms. Indeed, in the context of peer aggression in kindergarten and elementary school children, problem solving and advice seeking predict fewer internalizing symptoms, including depression, over time (Kochenderfer-Ladd, 2004). Also in the context of social stress, primary control engagement coping (e.g., problem solving) is associated with fewer internalizing symptoms in college students (Connor-Smith, Compas, Wadsworth, Harding Thomsen, & Saltzman, 2000). Problem solving also is associated with fewer depressive symptoms in high school students when coping with generally stressful situations (Windle & Windle, 1996). Overall, therefore, problem solving and advice seeking generally appear to be adaptive forms of coping with social stress.

Problem solving and advice seeking may be particularly useful for children with high negative emotionality. These types of coping reflect well-planned and constructive ways of dealing with peer aggression. Having a specific plan of action and gaining support from teachers may help children with high negative emotionality perceive a greater sense of control and feel less overwhelmed by their emotions, thereby protecting them against depressive symptoms. Thus, we hypothesized that problem solving and teacher advice seeking would predict fewer depressive symptoms over time and this effect would be stronger in children with high than low negative emotionality.

Humor and ignoring

Children also may deal with peer aggression by using humor or even ignoring the situation. Such coping behaviors may have either beneficial or harmful effects. Laughing about a stressful situation or ignoring aggressive peers may de-emphasize the seriousness of the problem, perhaps reducing feelings of sadness and buffering children against depressive symptoms. Indeed, research reveals that using humor predicts fewer depressive symptoms in early adolescents over time (Plancherel & Bolognini, 1995). When coping with peer victimization, high self-efficacy for ignoring predicts fewer depressive symptoms in pre- and early adolescents (Singh & Bussey, 2010). However, using humor or ignoring peer aggression may prevent children from dealing effectively with the situation, potentially leaving the problem unresolved and contributing to depressive symptoms. In fact, one study with college students revealed that disengagement coping (denial, wishful thinking, avoidance) in response to social stress was associated with more internalizing problems (Connor-Smith et al., 2000). In the context of peer victimization in fourth grade children, ignoring is associated with more anxiety-depressive symptoms in boys (Kochenderfer-Ladd & Skinner, 2002). Also, self-defeating humor (e.g., laughing along with peers when being ridiculed to enhance one's relationship with others; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) is associated with more depressive symptoms in high school and college students (Martin et al., 2003) and early adolescents (Erickson & Feldstein, 2007).

We anticipated that the effects (whether positive or negative) of humor and ignoring would be amplified in children with high negative emotionality. On the one hand, humor and ignoring may be especially helpful to children with high negative emotionality by preventing them from dwelling on the problem and their negative emotions, thereby reducing their experience of depressive symptoms over time. Indeed, Bolger and Zuckerman (1995) found that escape-avoidance was more beneficial to college students with high neuroticism and more detrimental to those with low neuroticism (as reflected in stress reactivity and negative emotionality). On the other hand, if humor and ignoring prevent children from actively dealing with peer aggression, this type of avoidant behavior could be maladaptive in the long-run. Avoidance may generate an accumulation of sadness, distress, and self-blame, fostering depressive symptoms, particularly in children with high negative emotionality.

Retaliation

One of the most common coping responses to peer aggression among elementary school children is retaliation (Tapper & Boulton, 2005). Unfortunately, attempts to seek revenge on

an aggressor are likely to exacerbate the conflict, thereby heightening future risk for depressive symptoms. Indeed, one study with an elementary school sample reveals that retaliation in response to peer victimization predicts more internalizing problems over time (Visconti & Troop-Gordon, 2010). Retaliation may be particularly detrimental to children with high negative emotionality. Because retaliation exacerbates problems with peers (Kochenderfer-Ladd, 2004), children with high negative emotionality may become even more overwhelmed and distressed, thereby amplifying depressive symptoms. Thus, we hypothesized that retaliation would predict more depressive symptoms over time in children, particularly those with high negative emotionality. Although retaliation may lead to short-term problems in children with low negative emotionality, their reactions may be less intense and less long-lasting; thus, retaliation may not predict depressive symptoms as strongly in these children over time.

Moderating role of gender

We further hypothesized that the proposed coping-by-temperament effects would be moderated by gender. The limited existing research suggests differential effects of coping on adjustment for girls and boys in elementary (Kochenderfer-Ladd & Skinner, 2002) and middle school (Sontag & Graber, 2010). Problem solving and advice seeking may be particularly beneficial to girls with high negative emotionality. Compared to boys, girls show a stronger focus on connection-oriented social goals (Rose & Rudolph, 2006) and perceive greater threats when their relationships are compromised, especially if they are highly connection-oriented (Little & Garber, 2004). When their relationships are compromised by peer aggression, girls with high negative emotionality may find it especially stressful. Problem solving may provide them with a sense of control, and advice seeking may enhance their sense of being supported by teachers, thus reducing their risk for subsequent depressive symptoms. On the other hand, retaliation may be especially detrimental to these girls. Because retaliation is not aimed at repairing the compromised relationship and yet keeps one's mind preoccupied with the problem, negative emotions may become chronic, thereby fostering depressive symptoms.

Moderating role of victimization

It also is possible that children's level of exposure to victimization moderates the longitudinal association between coping and depressive symptoms. Theory and research suggest that the effects of coping on adjustment may differ depending on the controllability of the stressor (Carver, Scheier, & Weintraub, 1989; Losoya, Eisenberg, & Fabes, 1998; Osowiecki & Compas, 1999). If children are severely victimized and there is little they can do to change the situation, the coping strategies that are generally thought to be adaptive may not necessarily predict better adjustment. For instance, in one study with fourth grade students, problem solving was associated with higher peer preference in boys with low levels of victimization but lower peer preference in boys with high levels of victimization (Kochenderfer-Ladd & Skinner, 2002). In another study with an elementary school sample, seeking teacher support predicted less aggression in children with low but not high levels of victimization (Visconti & Troop-Gordon, 2010). Thus, we examined whether the interaction between coping and temperament was further moderated by children's exposure to victimization.

Study Overview

In sum, this research examined the hypothesis that negative emotionality and gender would moderate the effects of coping behaviors on depressive symptoms. A conservative longitudinal design was used, predicting subsequent levels of depressive symptoms after adjusting for prior symptom levels. We hypothesized that (a) adaptive coping (problem solving and advice seeking) would more strongly predict lower levels of depressive symptoms in children, particularly girls, with high than low negative emotionality; and (b) retaliation would more strongly predict higher levels of depressive symptoms in children, particularly girls, with high than low negative emotionality. Although we also hypothesized that the effects of humor and ignoring would be amplified in children with high compared to low negative emotionality, we did not hypothesize the specific direction of these effects. Preliminary analyses considered children's level of exposure to peer victimization by (a) adjusting for victimization exposure; and (b) examining whether victimization exposure moderated the effects of coping or coping × temperament interactions.

This study examined the interactive contribution of coping and negative emotionality to depressive symptoms from second to third grade. During this developmental period, children begin to interact within a wider range of unsupervised social contexts (Rubin, Bukowski, & Parker, 2006), thereby demanding more independent negotiation of peer conflict. Thus, children's coping behavior may exert an increasingly important effect on their reactions to peer aggression. Also, cognitive and emotional development during this time drives the growth of self-regulatory capacities (Shiner, 1998); individual differences in regulation of emotion, as reflected in temperamental negative emotionality, may therefore be particularly influential on adjustment at this time.

Method

Participants and Procedures

Participants were 235 second graders (102 boys, 133 girls; *M* = 7.94 years, *SD* = .33) from several Midwestern towns. The sample included children from various ethnic groups (76.6%, White, 14.0 % African American, 9.4% other) and socioeconomic backgrounds (32.3% received a subsidized school lunch). Consent forms were sent home through schools and were distributed at parent-teacher conferences. Parents provided written consent, and children provided oral assent. Participants completed the questionnaires twice, one year apart. Child measures were administered aloud in classrooms during the second and third grades. Parent surveys were distributed and returned by mail or home visits. Teachers returned their surveys in a locked box at their school or in person. All the procedures were approved by the Institutional Review Board of the University of Illinois.

Of the 494 eligible children, 373 (76%) received parental consent to participate. Participants and nonparticipants at Wave 1 (W_1) did not significantly differ in gender, $\chi^2(1) = .25$, *ns*, age, $t(492) = .13$, *ns*, ethnicity (white vs. minority), $\chi^2(1) = .01$, *ns*, or school lunch status (full pay vs. subsidized), $\chi^2(1) = .16$, *ns*. Of the 373 participants, W_1 parent data were available for 300 children (80%). Children with parent data reported a higher proportion of problem solving than children without parent data (*M* = .26 vs. .24, *t* = 2.43, *p* < .05). The

two groups did not significantly differ in any other variables included in the analyses. Of the 300 children with W_1 parent data, 235 (78%) had longitudinal data for inclusion in the analyses. Attrition was mainly due to families moving out of the area (with loss of contact information) or failing to return surveys. Children with parent data who were included in and excluded from the longitudinal analyses did not significantly differ in demographic or W_1 study variables, suggesting a representative longitudinal sample.

Measures

Table 1 provides descriptive and psychometric information for the measures. All of the measures showed strong internal consistency.

Peer victimization—Children completed a revised version (Rudolph, Troop-Gordon, Hessel, & Schmidt, 2011) of the Social Experiences Questionnaire (Crick & Grotpeter, 1996) to assess exposure to victimization. Eleven items were added to the original measure to provide a more comprehensive assessment. Children checked a box indicating how often they experienced each type of victimization on a 5-point scale (1 = *Never* to 5 = *All the Time*). Scores were computed as the mean of the items, with higher scores reflecting more exposure to victimization (e.g., “How often do you get teased by another kid?”, “How often does a friend spread rumors about you because they are mad at you?”). Self-reports of victimization correspond to reports by peers (Graham & Juvonen, 1998), parents (Bollmer, Harris, & Milich, 2006), and teachers (Ladd & Kochenderfer-Ladd, 2002). This revised version has strong reliability and predictive validity (Rudolph et al., 2011).

Coping—Teachers completed a revised version (Kochenderfer-Ladd & Pelletier, 2008) of the Self-Report Coping Scale (Causey & Dubow, 1992), adapted for teacher report. Teachers reported on how children respond when peers are mean to them. Because teachers may not be able to report accurately on advice seeking from family members, this subscale was omitted. Six items were added to assess the use of humor as a response. Teachers rated how often children engaged in each type of coping on a 5-point scale (1 = *Not True* to 5 = *Very True*). Predictive validity of these subscales has been established (Kochenderfer-Ladd & Skinner, 2002). Supporting its validity, teacher report of coping is correlated with peer sociometrics (Eisenberg, Fabes, Bernsweig, Karbon, Poulin, & Hanish, 1993) and observed behavioral responses to emotion-inducing situations (Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994).

To investigate the factor structure, the 30 items were subjected to a principal axis factor analysis. Because the factors were expected to be correlated (Kochenderfer-Ladd & Skinner, 2002), an oblimin rotation was used. This analysis yielded six factors with eigenvalues greater than one that explained 74% of the variance. All of the items loaded > .49 on their primary factors. The factors mapped onto those from prior studies (Kochenderfer-Ladd & Pelletier, 2008; Kochenderfer-Ladd & Skinner, 2002), with the addition of the humor factor: problem solving (seven items; e.g., “Change things to keep it from happening again.”), teacher advice seeking (two items; e.g., “Ask the teacher what s/he should do.”), humor (six items; “Make a joke to diffuse the situation,” “Do something funny as a distraction technique,” “Laugh off the situation and try not to take it personally,” “Try to laugh about it

so that it won't seem so bad," "Try to see the funny side to the situation," "Laugh to him/herself in order to feel better."), ignoring (three items; e.g., "Act like nothing happened."), retaliation (six items; e.g., "Hurt the kid back."), and passive/internalizing (six items; e.g., "Blame him/herself for doing something wrong."). We dropped the passive subscale because several items reflected subjective perceptions (which teachers may have difficulty rating) rather than overt behavior and overlapped somewhat with depressive symptoms. Cross-loadings were low (average = |.07|). The highest cross-loadings were found for the item "Tells the mean kid s/he doesn't care," which loaded on retaliation (.49), problem solving (.17), humor (−.27), and passive (.19) factors. Few other high cross-loadings were found (all < .23) and there was no particular pattern overall in cross-loadings.

Consistent with recommendations from prior research (Connor-Smith et al., 2000; Osowiecki & Compas, 1999), to account for differences in the overall use of coping, proportion scores were computed for the other five subscales. First, the mean score for each subscale was calculated and multiplied by the number of items on each subscale. This score was the subscale coping score. Then, the average of these subscale coping scores was multiplied by the total number of items on the measure. This score was the total coping score. Each subscale coping score was then divided by the total coping score.

Temperament—Parents completed the negative emotionality scale of the Temperament in Middle Childhood Questionnaire (Simonds, Kieras, Rueda, & Rothbart, 2007; Simonds & Rothbart, 2004). This scale includes 24 items reflecting the tendency to show intense negative emotions, including sadness (e.g., "Becomes tearful when tired.") and anger (e.g., "Gets angry when s/he has trouble with a task."), as well as low soothability (e.g., "Is very difficult to soothe when s/he has become upset."). Parents rated each item on a 5-point scale (1 = *Almost Always Untrue* to 5 = *Almost Always True*). Scores were computed by averaging across the relevant items within subscale (reverse coded as needed). Parent reports of temperament are reliable and stable (Rothbart et al., 2001). Validity has been established through correlations with child report (Lengua, 2003; Simonds & Rothbart, 2004) and behavioral observations (Wilson, 2006). Based on a confirmatory factor analysis, the negative emotionality subscale shows a unitary structure and factorial invariance across waves; analyses also support the distinction between negative emotionality versus depressive symptoms (Sugimura & Rudolph, 2012). This distinction is further supported through minimal content overlap in the items and differential stability (i.e., higher stability for negative emotionality, a dispositional trait, than for depressive symptoms; Sugimura & Rudolph, 2012).

Depressive symptoms—Parents completed the Short Mood and Feelings Questionnaire (Angold et al., 1995). This measure includes 13 items describing children's depressive symptoms (e.g., "My child felt unhappy or miserable."). To provide a format similar to other questionnaires, the response options were changed from a 3-point to a 4-point scale (1 = *Not at All* to 4 = *Very Much*; see also, Lau & Eley, 2008). Scores were computed by averaging across items. Reliability and validity have been documented (Angold, et al., 1995), and this measure differentiates depression from other psychiatric diagnoses (Thapar & McGuffin, 1998). Both parent and child reports of depression are valid in young children, and parent

reports are equally or more reliable than child reports (for a review, see Rudolph & Lambert, 2007); parent reports also show concordance with clinician-rated diagnoses (Jensen et al., 1999). Alphas for the current sample are comparable to that reported in previous research using the original 3-point scale (.87; Angold et al., 1995)

Results

Descriptive and Correlational Data

Table 1 presents descriptive data for girls and boys. A multivariate repeated-measures analysis of variance was conducted with Gender as a between-subjects factor and Wave as a within-subjects factor. This analysis revealed a significant multivariate main effect of Gender, $F(8, 224) = 6.21$, $p < .001$, a significant multivariate main effect of Wave, $F(8, 224) = 2.59$, $p < .05$, and a nonsignificant Gender × Wave interaction, $F(8, 224) = .52$, *ns*. Univariate analyses revealed significant main effects of wave for victimization, $F(1, 231) = 10.57$, $p < .001$ ($d = .43$), and problem solving, $F(1, 231) = 8.13$, $p < .01$ ($d = .37$), reflecting higher victimization scores at Wave 1 and higher problem solving scores at Wave 2. Univariate analyses also revealed significant main effects of gender for problem solving, $F(1, 231) = 8.48$, $p < .01$ ($d = .39$), and advice seeking, $F(1, 231) = 11.01$, $p < .01$ ($d = .44$), reflecting higher scores for girls than for boys, as well as significant main effects of gender for humor, $F(1, 231) = 21.18$, $p < .001$ ($d = .61$), and negative emotionality, $F(1, 231) = 5.25$, $p < .05$ ($d = .30$), reflecting higher scores for boys than for girls. These findings are consistent with prior research in this age group (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006; Giesbrecht, Leadbeater, & MacDonald, 2011, Hankin, et al., 1998; Kochenderfer-Ladd, 2004; Phelps & Jarvis, 1994; Skinner & Zimmer-Gembeck, 2007).

Table 2 presents second grade intercorrelations among the variables for girls and boys. These intercorrelations are presented for descriptive purposes but were not interpreted given that the hypotheses focused on interactions between coping and negative emotionality in the prediction of depressive symptoms over time.

Hierarchical multiple regression analyses were conducted to examine the interactive contribution of second grade coping and negative emotionality (NE) to third grade depressive symptoms, after accounting for second grade depressive symptoms. Second-grade depressive symptoms were entered at the first step. The mean-centered main effects of coping, NE, and gender (−1 = boys, 1 = girls) were entered at the second step, the two-way interactions (coping × NE, coping × gender, and NE × gender) were entered at the third step, and the three-way interactions (coping × NE × gender) were entered at the fourth step. Significant three-way interactions were interpreted by using formulas provided by Cohen, Cohen, West, and Aiken (2003) and Preacher, Curran, and Bauer (2006). Simple slopes were estimated at low (−1 *SD*) and high (+ 1 *SD*) levels of NE (Aiken & West, 1991). To examine whether significant moderation of coping was limited to boys or girls, when three-way interactions were detected, follow-up two-way interactions also were examined within each gender. When the three-way interactions were not significant, follow-up regressions were conducted collapsing across gender. One-tailed *t*-tests were used when we had directional hypotheses (for problem solving, advice seeking, and retaliation); two-tailed *t*-tests were used when we did not have directional hypotheses (for humor and ignoring). The

results from the analyses using the method suggested by Cohen et al. (2003) and Preacher et al. (2006), which include the three-way interactions, are reported in the text. Table 3 presents results from the follow-up analyses examining two-way interactions conducted either in girls and boys separately (when the three-way interaction was significant) or in the combined sample (when the three-way interaction was nonsignificant).[1]

Preliminary analyses were conducted (a) adjusting for level of exposure to victimization; and (b) examining the moderating role of victimization exposure. The results were highly similar with and without adjusting for victimization, and there were no significant two-way (coping × victimization) or three-way (coping × NE × victimization) interactions[2]. For the sake of parsimony and to maximize power, analyses are presented without victimization in the models.

Problem solving—The regression predicting depressive symptoms from problem solving and NE revealed a nonsignificant main effect of problem solving (B = −.32, *SE* = .23, *t*(230) = −1.39, *ns*), a significant positive main effect of NE (B = .14, *SE* = .03, *t*(230) = 4.62, *p* = .000), and a significant Problem Solving × NE × Gender interaction (B = −.70, *SE* = .38, *t*(226) = −1.84, *p* = .034). None of the two-way interactions was significant. As shown in Figure 1a, decomposition of this interaction revealed that problem solving predicted fewer depressive symptoms in girls with high (B= −.94, *SE* = .37, *t*(128) = −2.57, *p* = .01) but not low (B= .34, *SE* = .47, *t*(128) = .81, *ns*) NE. There were larger differences in depressive symptoms between the two groups at low than high levels of problem solving. Problem solving did not predict depressive symptoms in boys with high (B= −.03, *SE* = .48, *t*(97) = −.07, *ns*) or low (B= −.46, *SE* = .58, *t*(97) = −.78, *ns*) NE. Regression analysis conducted separately in girls and boys confirmed a significant Problem Solving × NE interaction in girls but not in boys (Table 3).

Advice seeking—The regression predicting depressive symptoms from advice seeking and NE revealed a nonsignificant Advice Seeking × NE × Gender interaction (B= −.10, *SE* = .81, *t*(226) = − .13, *ns*). Follow-up analyses collapsing across gender revealed a nonsignificant main effect of advice seeking, a significant positive main effect of NE, and a significant Advice Seeking × NE interaction (Table 3). As shown in Figure 1b, decomposition of this interaction revealed that advice seeking predicted fewer depressive symptoms in children with low (B= −2.05, *SE* = .72, *t*(230) = −2.86, *p* = .003) but not high (B = .38, *SE* = .62, *t*(230) = .62, *ns*) NE. There were larger differences in depressive symptoms between the two groups at high than low levels of advice seeking.

Humor—The regression predicting depressive symptoms from humor and NE revealed a nonsignificant main effect of humor (B = .16, *SE* = .30, *t*(230) = .53, *ns*), a significant positive main effect of NE (B = .15, *SE* = .03, *t*(230) = 4.86, *p* < .001), a significant Humor

[1]Analyses also were conducted using mean scores on the coping measure. The results were highly similar to the results using proportion scores. In these analyses, all of the significant two-way interactions remained significant (Bs > .06, *t*s ≥ 2.30, *p*s ≤ .023). In terms of 3-way interactions, the Retaliation × NE × Gender and Problem Solving × NE × Gender interactions remained significant or marginal (B = .07, *t*(226) = 2.57, *p* = .006 and B = −.05, *t*(226) = −1.53, *p* = .064, respectively). Across all the analyses, the only difference was that the Humor × NE × Gender interaction, previously marginal, became nonsignificant (B = .04, *t*(226) = .98, *p* = .164).

[2]This was the case regardless of whether we used proportion scores or mean scores.

× NE interaction (B = −1.84, *SE* = .61, *t*(227) = −3.02, *p* = .003), and a marginally significant Humor × NE × Gender interaction (B = 1.01, *SE* = .61, *t*(226) = 1.66, *p* = .098). As shown in Figure 2a, decomposition of this interaction revealed that humor did not predict depressive symptoms in girls with high (B= −.29, *SE* = .73, *t*(128) = −2.55, *ns*) or low (B= . 70, *SE* = .66, *t*(128) = 1.06, *ns*) NE. Humor predicted fewer depressive symptoms in boys with high NE (B= −1.69, *SE* = .66, *t*(97) = −2.55, *p* = .011) and more depressive symptoms in boys with low NE (B= 1.76, *SE* = .65, *t*(97) = 2.72, *p* = .001). There were larger differences in depressive symptoms between the two groups at low than high levels of humor. Regression analysis conducted separately in girls and boys confirmed a significant Humor × NE interaction in boys but not in girls (Table 3).

Ignoring—The regression predicting depressive symptoms from ignoring and NE revealed a nonsignificant Ignoring × NE × Gender interaction (B = −.96, *SE* = .60, *t*(226) = −1.62, *ns*). Follow-up analyses collapsing across gender revealed a nonsignificant main effect of ignoring, a significant positive main effect of NE, and a significant Ignoring × NE interaction (Table 3). As shown in Figure 2b, decomposition of this interaction revealed that ignoring predicted fewer depressive symptoms in children with high (B = −1.00, *SE* = .46, *t*(230) = −2.20, *p* = .029) but not low (B = .39, *SE* = 56, *t*(230) = .70, *ns*) NE. There were larger differences in depressive symptoms between the two groups at low than high levels of ignoring.

Retaliation—The regression predicting depressive symptoms from retaliation and NE revealed significant positive main effects of retaliation (B = .39, *SE* = .19, *t*(230) = 2.04, *p* = .043) and NE (B = .14, *SE* = .32, *t*(230) = 4.49, *p* = < .001), a marginally significant Retaliation × NE interaction (B = .60, *SE* = .32, *t*(227) = 1.86, *p* = .064), and a significant Retaliation × NE × Gender interaction (B = 1.01, *SE* = .33, *t*(226) = 3.11, *p* = .001). As shown in Figure 3, decomposition of this interaction revealed that retaliation predicted more depressive symptoms in girls with high (B= 1.28, *SE* = .32, *t*(128) = 4.03, *p* < .001) but not low (B= −.39, *SE* = ,39, *t*(128) = −1.00, *ns*) NE. There were larger differences in depressive symptoms between the two groups at high than low levels of retaliation. Retaliation did not predict depressive symptoms in boys with high (B= −0.15, *SE* = .34, *t*(97) = −0.43, *ns*) or low (B= 0.65, *SE* = .52, *t*(97) = 1.27, *ns*) NE. Regression analysis conducted separately in girls and boys confirmed a significant Retaliation × NE interaction in girls but not in boys (Table 3).

Discussion

This study examined the idea that the consequences of specific types of coping with peer aggression (relative to others) differ depending on children's temperament and gender. Consistent with the differential coping-effectiveness model (Bolger & Zuckerman, 1995), results suggested that the consequences of both adaptive and maladaptive coping were amplified by children's temperamental vulnerability but the nature of these interactions often differed between girls and boys. This research helps to elucidate individual differences in the effects of coping on subsequent depressive symptoms in the context of peer aggression. Below, findings are discussed for each type of coping behavior. Because coping behaviors were assessed using proportion scores (i.e., how much children used each type of

coping relative to their total use of coping), it should be noted that findings refer to the relative rather than absolute use of each type of coping.

Problem solving and advice seeking

Consistent with our hypotheses, problem solving predicted fewer depressive symptoms over time in girls with high but not low negative emotionality. Girls who are easily overwhelmed by their emotions may particularly benefit from engaging in strategic coping to change the situation or prevent recurrence of the problem. It also is possible that greater use of problem solving relative to other coping behaviors creates a sense of control, which in turn reduces negative emotions and cognitions and consequent depressive symptoms.

As anticipated, advice seeking predicted fewer depressive symptoms a year later; however, this effect emerged in children with low rather than high negative emotionality. There are a couple of possible explanations for this finding. First, it may be that children with low negative emotionality are able to implement advice from teachers more effectively than children with high negative emotionality. As shown in Figure 1b, children with high negative emotionality showed more depressive symptoms regardless of how much they sought advice from teachers relative to other ways of coping. Their ability to effectively implement teachers' advice may be compromised by intense negative feelings. Second, children with high negative emotionality may be engaging in maladaptive advice-seeking behavior (seeking advice when unnecessary; Newman, 2008). If they rely on teachers excessively without trying to resolve the problem on their own, they may never learn effective ways to deal with peer aggression, which may in turn prolong depressive symptoms.

Humor and ignoring

Over time, humor predicted fewer depressive symptoms in boys with high negative emotionality but more depressive symptoms in boys with low negative emotionality. It is possible that this pattern results from differences in the type of humor. Boys with high negative emotionality may use humor to de-emphasize the seriousness of peer aggression. Using humor may keep them from becoming overwhelmed or may prevent self-blame, low self-worth, or hopelessness, thus reducing depressive symptoms. On the other hand, using more humor in comparison to other adaptive coping behaviors may keep boys with low negative emotionality from taking necessary action to resolve the situation, resulting in prolonged stress and eventually putting these boys at risk for depressive symptoms. Alternatively, boys with low negative emotionality may be using self-defeating humor to sustain a relationship with or gain favor of the aggressor. As found in adolescents (Erickson & Feldstein, 2007), this type of humor is associated with more depressive symptoms. Further research that attempts to disentangle these different types of humor is necessary to fully understand its costs and benefits.

Ignoring predicted fewer depressive symptoms over time in children with high negative emotionality. By not facing peer aggression directly, children who are prone to negative emotions may shift their attention from the experience of peer aggression and prevent negative emotions and cognitions associated with depressive symptoms. As mentioned

earlier, research suggests that the effectiveness of coping strategies may depend on the perceived controllability of the stressor (Carver, et al., 1989; Losoya, et al., 1998; Osowiecki & Compas, 1999). Ignoring may be more adaptive in dealing with a stressor that is perceived as uncontrollable. In fact, in one study, ignoring predicted lower levels of anxiety in children when dealing with marital conflict (O'Brien, Margolin, & John, 1995). Thus, when children perceive peer aggression as uncontrollable, more ignoring relative to other coping behaviors may be adaptive and reduce the likelihood of future emotional difficulties. Ignoring incidents of peer aggression also may convey a message to aggressors that their efforts are ineffective, and thus may discourage further aggression. Supporting this idea, one study found that children viewed nonchalance as a constructive way to stop aggression for boys (Salmivalli, Karhunen, & Lagerspetz, 1996). If aggression by peers diminishes, children may be less likely to develop depressive symptoms.

Retaliation

Consistent with our expectations, retaliation predicted more depressive symptoms in girls with high but not low negative emotionality a year later. Retaliation aims at getting back at the aggressor rather than resolving the conflict, which could exacerbate the situation (Kochenderfer-Ladd, 2004). Exposure to peer aggression is associated with self-blame and lowered self-worth (Graham & Juvonen, 1998), and more retaliation relative to other ways of coping may prolong girls' focus on the experience of peer aggression, thereby perpetuating their negative cognitions about themselves and setting the stage for depressive symptoms. In contrast, girls with low negative emotionality showed low levels of depressive symptoms regardless of their relative use of retaliation. These girls may not react to peer aggression with intense emotions. Thus, even when they engage in retaliation, they may stay calm and may not become preoccupied with the problem, thereby reducing the long-lasting effects of retaliation. In contrast, in boys there was no main or interactive effect of retaliation on depressive symptoms. Because boys are not as connection-oriented as girls (Rose & Rudolph, 2006), engaging in more retaliation relative to other ways of coping, and thus failing to mend compromised relationships, may not have as much impact on their depressive symptoms as it does in girls.

Implications, Limitations, and Future Directions—Supporting the differential coping-effectiveness model (Bolger & Zuckerman, 1995), this study revealed that temperamental differences contribute to individual variation in the contribution of coping with peer aggression to depressive symptoms one year later. Our findings are consistent with research on the independent effects of coping (Kochenderfer-Ladd, 2004; Plancherel & Bolognini, 1995; Singh & Bussey, 2010; Visconti & Troop-Gordon, 2010) and temperament (Lonigan et al., 2003; Windle, 1989) on adjustment difficulties but build on theory and prior research by elucidating their interactive effects.

Although this study makes a substantive contribution to research on coping with peer aggression, some limitations should be mentioned. First, although we did not find evidence for coping × NE × victimization interactions, we did not test four-way interactions with gender due to power issues. It is possible that children's level of exposure to victimization would interact differentially with coping and temperament across gender. However, our

findings suggest that how children cope with everyday peer aggression makes an important contribution to subsequent depressive symptoms. Second, in addition to moderating the consequences of coping, temperament may influence individuals' choice of coping strategies (Bolger & Zuckerman, 1995). It is possible that children with high negative emotionality engage in less adaptive coping behavior and more maladaptive coping behavior in the face of peer aggression. Indeed, theory and research suggests that temperamental traits influence coping (Compas, Connor-Smith, & Jaser, 2004; Lengua & Long, 2002). Yet Table 2 suggests that these associations were small and inconsistent; thus, there is likely considerable variability in the coping behavior of children with similar temperamental traits, perhaps due to parent or teacher socialization efforts. Third, many of our findings were relatively small. However, given that the results generally were consistent with theory and prior research and that interactions are difficult to detect with continuous variables (Aiken & West, 1991), we believe that these novel findings are quite notable. Fourth, the mean levels of depressive symptoms were relatively low as is often the case with representative school samples. Indeed, all of the studies reviewed in this paper involved community samples. It will be important to extend these findings to children with more severe symptoms.

Beyond providing novel theoretical insights and empirical findings regarding developmental models of coping, with further research and replication this study has practical implications for preventative interventions. For instance, greater use of retaliation relative to other ways of coping was especially detrimental to girls with high negative emotionality whereas greater use of problem solving relative to other ways of coping was especially beneficial to these girls. Encouraging girls with such temperamental vulnerability to engage in adaptive ways of coping with peer aggression may help to prevent depressive symptoms. Greater use of advice seeking relative to other ways of coping was more beneficial to children with low than high negative emotionality. It may be helpful to teach children with high negative emotionality when and how to seek advice. Likewise, it may be beneficial to take a closer look at the kind of humor in which boys with low negative emotionality engage, encouraging them to keep the balance with other types of coping behavior. Finally, depending on the circumstances, it may be useful for children to learn to ignore some types of stressors although it will be important to assess the long-term effects of this coping approach. In sum, considering how children's temperament influences the consequences of coping can help scientists and educators design more effective and targeted intervention programs aimed at facilitating children's ability to respond effectively to peer aggression and, ultimately, to prevent future exposure to peer aggression.

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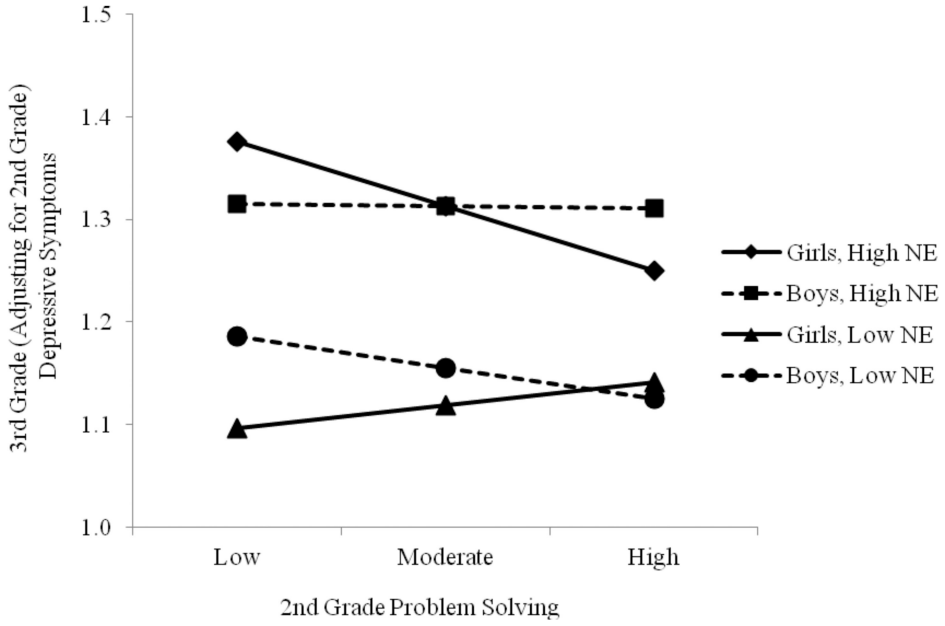
(a) Problem Solving in Girls and Boys



(b) Advice Seeking Across the Sample

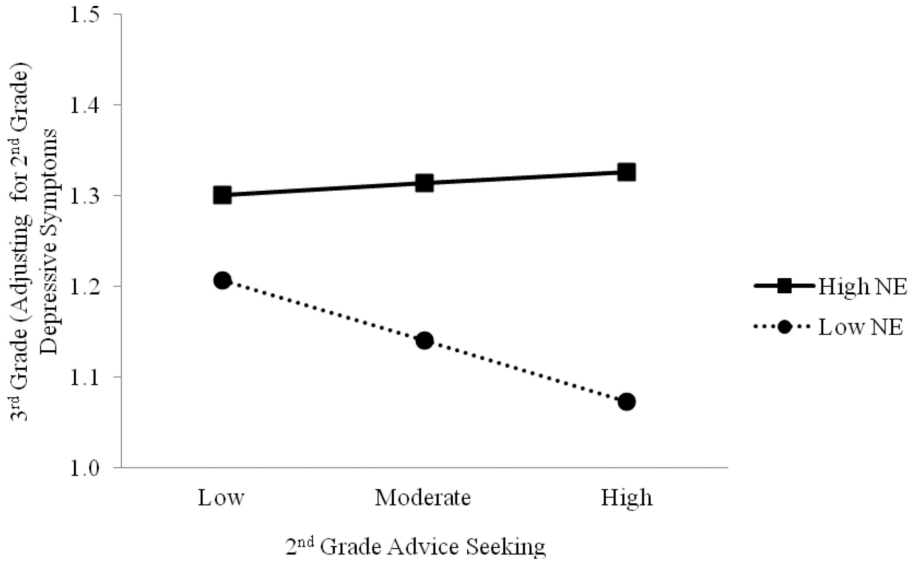
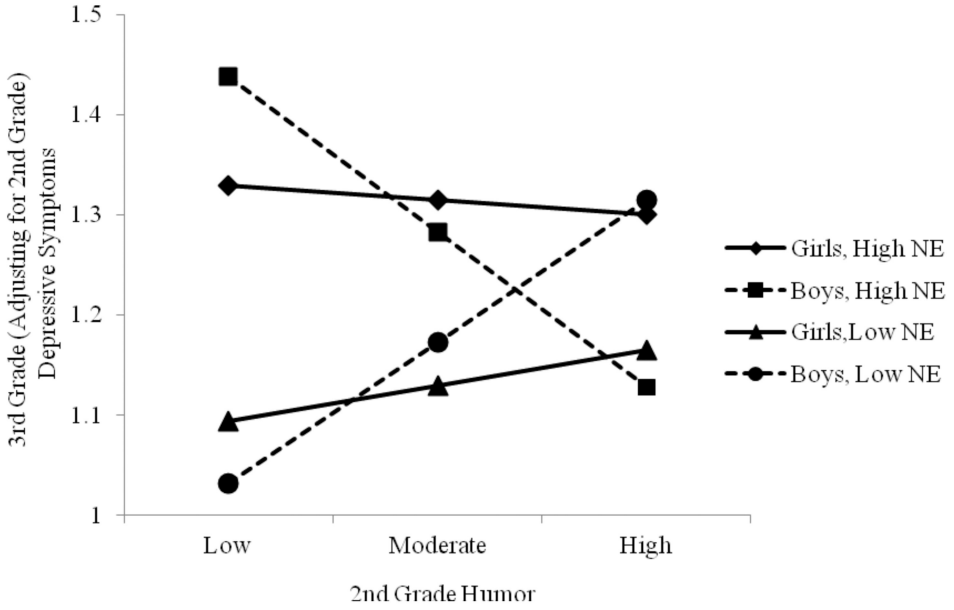


Figure 1.

The interactive contribution of 2nd grade (a) problem solving in girls and boys and (b) advice seeking across the sample and negative emotionality to 3rd grade depressive symptoms, adjusting for 2nd grade depressive symptoms.

(a) Humor in Girls and Boys



(b) Ignoring Across the Sample

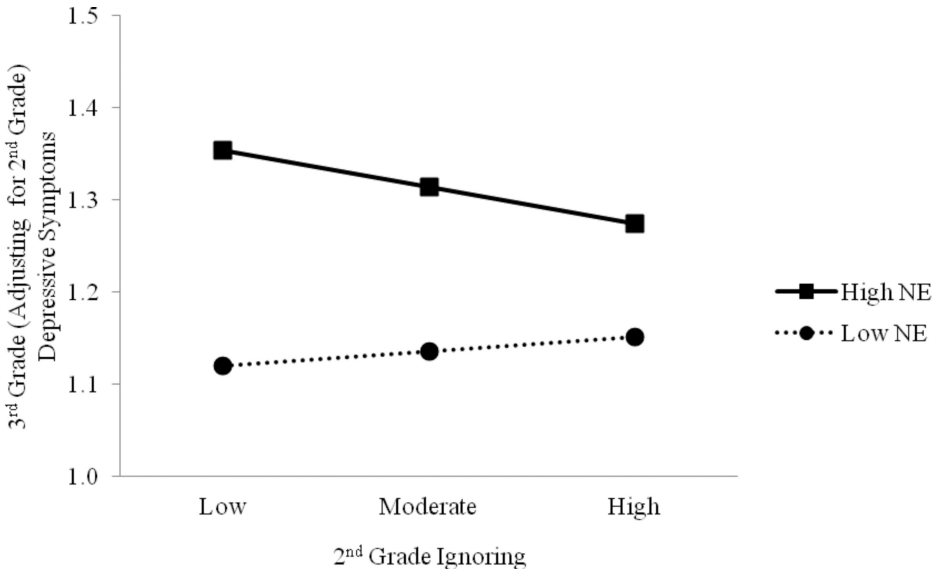


Figure 2.

The interactive contribution of 2nd grade (a) humor in girls and boys and (b) ignoring across the sample and negative emotionality to 3rd grade depressive symptoms, adjusting for 2nd grade depressive symptoms.

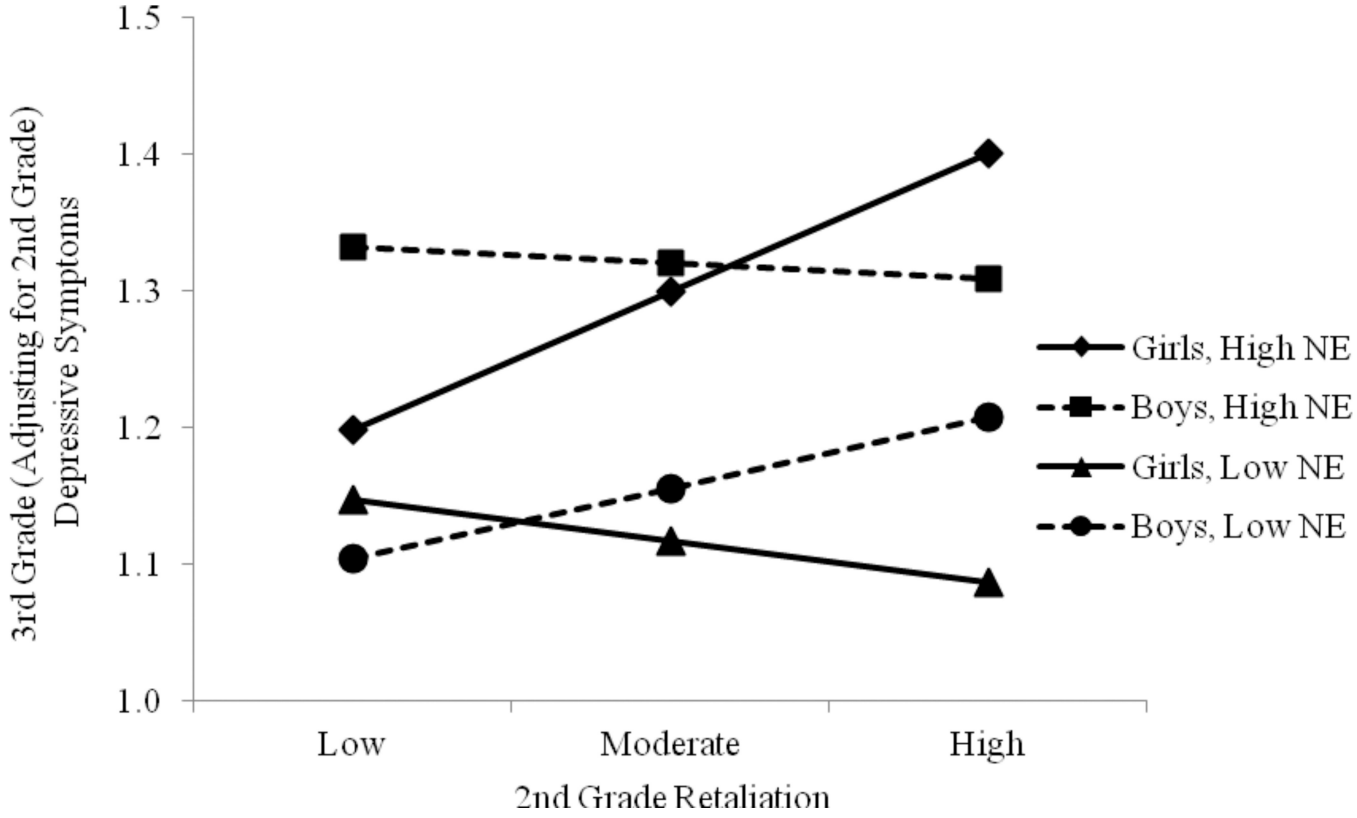


Figure 3.

The interactive contribution of 2nd grade retaliation and negative emotionality to 3rd grade depressive symptoms, adjusting for 2nd grade depressive symptoms, in girls and boys.

Table 1

Descriptive Data (N = 235)

	Wave 1						Wave 2						Stability	
	Girls			Boys			Girls			Boys			Girls	Boys
	M	*SD*	α	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α	*r*	*r*
Problem Solving[ab]	.27	.07	.93	.25	.06	.92	.28	.06	.82	.26	.06	.84	.20**	.42***
Advice Seeking[a]	.10	.03	.76	.09	.03	.72	.10	.03	.81	.09	.03	.80	−.08	.18
Humor[a]	.14	.04	.95	.16	.06	.95	.13	.04	.94	.16	.06	.96	−.03	.11
Ignoring	.10	.04	.79	.11	.04	.77	.10	.04	.79	.10	.04	.74	.08	.22*
Retaliation[a]	.17	.08	.91	.19	.08	.93	.17	.08	.92	.19	.09	.94	.53***	.61***
Negative Emotionality[a]	2.54	.61	.93	2.73	.60	.92	2.56	.54	.90	2.70	.58	.92	.79***	.76***
Depressive Symptoms[a]	1.20	.27	.87	1.26	.32	.87	1.20	.25	.74	1.26	.27	.74	.48***	.36***
Victimization[b]	2.21	.88	.94	2.20	.75	.90	2.09	.82	.95	2.00	.66	.91	.59***	.50***

[a]Differs across gender at $p < .05$ or lower.

[b]Differs across wave at $p < .05$ or lower.

*$p < .05$.

**$p < .01$.

***$p < .001$. Scores on the coping measure are proportion scores.

Table 2

Wave 1 Intercorrelations among the Variables (N = 235)

	1	2	3	4	5	6	7	8
1. Problem Solving	---	.10	−.19*	.14	−.64***	−.13	−.10	−.33***
2. Advice Seeking	.08	---	−.39***	−.28**	−.11	.02	.01	.02
3. Humor	.09	−.34***	---	.08	−.01	−.05	−.03	−.15
4. Ignoring	.02	−.10	.09	---	−.46***	−.14	−.08	−.11
5. Retaliation	−.61***	−.17	−.32**	−.43***	---	.20*	.13	.25**
6. Negative Emotionality	−.15	−.08	−.14	.13	.15	---	.55***	.09
7. Depressive Symptoms	.01	−.16	.03	.25*	.05	.60***	---	.18*
8. Victimization	−.10	.03	−.04	−.15	.18	−.04	−.02	---

Note. Intercorrelations presented above the diagonal are for girls; intercorrelations presented below the diagonal are for boys.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Predicting Wave 2 Depressive Symptoms from Coping, Negative Emotionality, and the Coping × Negative Emotionality Interaction

	Total Sample			Girls			Boys		
Predictors	**B (*SE*)**	***t***	**ΔR^2**	**B (*SE*)**	***t***	**ΔR^2**	**B (*SE*)**	***t***	**ΔR^2**
Problem Solving									
Step 1									
2nd grade Depressive Symptoms	---	---	---	.45(.07)	6.17***	.23	.31(.08)	3.89***	.13
Step 2									
2nd grade Problem Solving	---	---	---	−.38(.27)	−1.40	.10	−.19(.41)	−.46	.06
2nd grade Negative emotionality	---	---	---	.14(.04)	3.93***		.14(.05)	2.58*	
Step 3									
Problem Solving × Negative emotionality	---	---	---	−1.02(.40)	−2.53*	.03	.35(.69)	.51	.00
Advice Seeking									
Step 1									
2nd grade Depressive Symptoms	.38(.05)	7.17***	.18	---	---	---	---	---	---
Step 2									
2nd grade Advice Seeking	−.66(.46)	−1.44	.08	---	---	---	---	---	---
2nd grade Negative emotionality	.15(.03)	4.96***		---	---	---	---	---	---
Step 3									
Advice Seeking × Negative emotionality	1.99(.80)	2.51*	.02	---	---	---	---	---	---
Humor									
Step 1									
2nd grade Depressive Symptoms	---	---	---	.45(.07)	6.17***	.23	.31(.08)	3.89***	.13
Step 2									
2nd grade Humor	---	---	---	.25(.43)	.59	.09	.10(.45)	.23	.06
2nd grade Negative Emotionality	---	---	---	.15(.04)	4.07***		.14(.05)	2.72**	
Step 3									
Humor × Negative emotionality	---	---	---	−.83(.82)	−1.01	.01	−2.80(.91)	−3.08**	.07
Ignoring									
Step 1									

	Total Sample			Girls			Boys		
Predictors	**B (*SE*)**	***t***	**ΔR^2**	**B (*SE*)**	***t***	**ΔR^2**	**B (*SE*)**	***t***	**ΔR^2**
2nd grade Depressive Symptoms	.38(.05)	7.17***	.18	---	---	---	---	---	---
Step 2									
2nd grade Ignoring	−.46(.38)	−1.23	.08	---	---	---	---	---	---
2nd grade Negative emotionality	.15(.03)	4.85***		---	---	---	---	---	---
Step 3									
Ignoring × Negative emotionality	−1.14(.56)	−2.05*	.01	---	---	---	---	---	---
Retaliation									
Step 1									
2nd grade Depressive Symptoms	---	---	---	.45(.07)	6.17***	.23	.31(.08)	3.89***	.13
Step 2									
2nd grade Retaliation	---	---	---	.62(.24)	2.59*	.12	.10(.32)	.31	.06
2nd grade Negative emotionality	---	---	---	.13(.04)	3.67***		.14(.05)	2.64*	
Step 3									
Retaliation × Negative emotionality	---	---	---	1.36(.37)	3.69***	.06	−.65(.58)	−1.12	.01

* $p < .05$.

** $p < .01$.

*** $p < .001$.