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Peer Victimization and Harsh Parenting Predict Cognitive Diatheses for Depression in Children and Adolescents

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Abstract

Objective—The current study examined peer victimization and harsh parenting as longitudinal predictors of broadband and narrowband cognitions associated with the etiology of depression in children and adolescents.

Method—The sample consisted of 214 elementary and middle school students. At the start of the study, their average age was 12.2 years (SD = 1.0). The sex ratio was 112 girls to 102 boys. The sample was ethnically diverse (58.9% Caucasian, 34.1% African American, 10.7% Hispanic, 3.3% Asian, and 5.2% other). Children and their parents completed measures of peer victimization and harsh parenting. At two waves one year apart, children also completed questionnaire measures of negative and positive broadband cognitive style (e.g., personal failure, global self-worth) and narrowband self-perceptions (e.g., perceived social threat, social acceptance).

Results—Every wave 2 cognitive variable was predicted by peer victimization or harsh parenting or both, even after controlling for a wave 1 measure of the same cognitive variable. Peer victimization more consistently predicted narrowband social/interpersonal cognitions, whereas harsh parenting more consistently predicted broadband positive and negative cognitions. Furthermore, controlling for positive and negative self-cognitions eliminated a statistically significant effect of harsh parenting and peer victimization on depressive symptoms.

Conclusions—Support emerged for the social learning of negative self-cognitions. Support also emerged for negative self-cognitions as a mediator of depressive symptoms. Implications for theory and practice are discussed.

Keywords

Peer relations; victimization; parenting; children and adolescents; depression

Does exposure to peer victimization and harsh parenting predict the emergence of cognitive diatheses for depression in children and adolescents? Beck and Young (1985) proposed that children construct perceptions of reality through their experiences with their social environment and significant others. These experiences can lead to the development of either adaptive or maladaptive beliefs and attitudes. Aversive feedback from others, especially

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when repetitive or chronic, can be internalized as negative perceptions about one's self, world, and future, which in turn can serve as cognitive diatheses for depression (Beck, 1967; Cole, 1991). Aversive feedback from parents and peers is very important during late middle childhood and early adolescence, as these are times when (a) the construction of core self-beliefs is a major developmental task (Garber, 1984; Harter, 1990, 2003), (b) peer victimization is highly prevalent (Nansel, et al., 2001; Turner, Finkelhor, Hamby, Shattuck, & Ormrod, 2011; Wang, Iannotti, & Nansel, 2009), (c) parenting still matters (Ausubel, Montemayor, & Svajian, 1977; Berndt, 1979), and (d) depression is on the rise (Costello, Copeland, & Angold Costello et al., 2011; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). Consequently, the goal of the current paper was to examine the separate and additive effects of peer victimization and harsh parenting on the development of cognitive diatheses for depression during middle childhood and early adolescence.

Beck's (1967) cognitive model of depression states that negative perceptions about one's self, world, and future serves as a diathesis for depression. Such maladaptive cognitive structures (or depressive schemas) can remain latent until activated by later stressful life events (Beck, Rush, Shaw, & Emery, 1979). Although substantial research has supported the extension of Beck's model into adolescence and even childhood (Cole, Martin, Peeke, Seroczynski, & Hoffman, 1998; Lakdawalla, Hankin, & Mermelstein, 2007; Robinson, Garber, & Hilsman, 1995), much less has been said about the developmental origins of depressive schemas themselves. Beck speculated that such schemas develop in response to negative events in childhood (Beck, 1967; see also Williams, Watts, MacLeod, & Matthews, 1997). Cole (1991) expanded on Beck's speculations. Borrowing from the symbolic interactionists (Cooley, 1902; Mead, 1934; Shrauger & Schoeneman, 1979), he suggested that children construct both healthy and depressive self-perceptions out of feedback from significant others. Cole's (1991) model takes a developmental perspective as it describes the construction of self-perceptions as a major developmental task of middle childhood and early adolescence (Garber, 1984; Harter, 1990; Havighurst, 1948). Unsuccessful completion of this task is correlated with low self-esteem, a view of one's world as negative or threatening, and hopelessness about the future (Cole, Jacquez & Maschman, 2001; Cole, Maxwell, Dukewich & Yosick, 2010; Cole, Martin, Peeke, Seroczynski, & Hoffman, 1998; Cole, Peeke, & Ingold, 1996; Cole, Peeke, Dolezal, Murray, & Canzoniero, 1999; Garber, 1984; Garber, Robinson, & Valentiner, 1997; Harter, 1999).

One potential source of such negative feedback for children and young adolescents is peer victimization. Peer victimization conveys negative, personally-relevant information to the victims (Graham & Juvonen, 1998; Mynard, Joseph, & Alexander, 2000; Prinstein, Cheah, & Guyer, 2005; Troop-Gordon & Ladd, 2005). For example, the social ostracism inherent in relational victimization conveys that the child is disliked, if not also unlikeable. Children and young adolescents who are repeatedly victimized by peers could be at greater risk for developing cognitive diatheses for depression. Indeed, cross-sectional and longitudinal studies have linked peer victimization to psychological maladjustment. Hawker and Boulton's (2000) meta-analysis of cross-sectional studies showed that victimized children have substantially higher rates of internalizing problems compared to non-victimized peers. Focusing on longitudinal studies, Reijntjes, Kamphuis, Prinzie, and Telch. (2010) reported that internalizing problems function as both an antecedent and a consequence of

victimization. Although boys and girls tend to be victimized differently, the effects seem to be the same for both genders (Bjorkqvist, 1994). Delving more deeply, other studies have linked peer victimization not just to depression but to the putative cognitive diatheses for depression as well (Cole et al., 2010; Gibb & Abela, 2008; Gibb, Abramson, & Alloy, 2004; Sinclair et al., 2012; Tran, Cole, & Weiss, 2012).

A second potential source of negative self-relevant information for children is feedback from parents. Research has shown that children internalize standards and expectations learned through their parents and carry them forward into other relationships and settings (Grusec & Kuczynski, 1997). Chronic and unmitigated negative feedback from parents about a child's abilities, performance, appearance, behavior, and personality can be internalized by the child and may facilitate the development of the cognitive diatheses for depression (Bowlby, 1980, 1988, Bruce et al., 2006, Cole, 1990, McCranie & Bass, 1984). Empirical work supports such theory. For example, non-supportive parenting is associated with the emergence of negative cognitive styles and elevated depressive symptoms (Mezulis, Hyde, & Abramson, 2006; Lewinsohn et al., 1994; Rapee, 1997). Additionally, literature reviews show that high levels of parental rejection are linked to depressive cognitions and internalizing symptoms (Gibb et al., 2001; McLeod, Weisz & Wood, 2007). In contrast, positive, supportive feedback from parents has the opposite effect (Bilsky et al., 2013; Kopala-Sibley, Zuroff, Leybman, & Hope, 2013. Furthermore, although sex and age differences in depression are commonly reported, these reviews did not report sex or age differences in the relation of parenting to depressive cognitions.

Theory implies that the additive effects of peer victimization and harsh parenting will have a greater impact on depressogenic cognitions than either taken alone. In the construction of positive self-concept, developmentalists describe children as active agents, who attempt to concentrate on positive feedback and denigrate the importance of negative feedback (Harter, 1990, 2003; Havighurst, 1948). Cole (1991; Cole, Martin, & Powers, 1997) extended this work to the development of the cognitive substrate for depression, suggesting that children who receive adverse feedback from multiple sources or in multiple domains will be less able to dismiss such feedback by diminishing the source, compared to children who receive such feedback from only one source or in only one domain. Relatively few studies have examined the combined effects of harsh parenting and peer victimization on the development of cognitive risk for depression, and their results have varied widely. First, in a retrospective study of young adults, Gibb, Abramson, and Alloy (2004) found that parental emotional abuse (controlling for peer verbal victimization) predicted dysfunctional attitudes but did not predict cognitive style; conversely, peer verbal victimization (controlling for parental emotional abuse) predicted cognitive style but not dysfunctional attitudes. Second, in a prospective study of community 11–13 year-old children, Gibb and Abela (2008) reported that parental emotional abuse and peer verbal victimization (taken separately) each predicted children's depressive attributional style, the tendency to make negative inferences about themselves, and pessimism about the consequences of hypothetical negative life events. Taken together in a multiple regression, neither emotional abuse nor peer victimization (each controlling for the other) predicted specific measures of attributional style or negative inferences about self or consequences. Third, in a cross-sectional study of 13–18 year-old community adolescents, Seeds, Harkness, and Quilty (2010) discovered that both parent and

peer maltreatment predicted perceived availability of others for companionship but did not predict perceived availability of others for advice, guidance, or information. Fourth, Kopala-Sibley, Zuroff, Leybman, and Hope's (2013) retrospective study of college students reported that high levels of peer victimization and low levels of parental care predicted negative self-perceptions (i.e., inadequacy and self-criticism) but only parental care predicted positive perceptions (i.e., self-reassurance). Fifth, in a sample of college students, Gibb, Benas, Crossett, and Uhrlass (2007) discovered that retrospective reports about parental emotional maltreatment and peer verbal victimization made independent contributions to the prediction of negative automatic thoughts; however, only parental emotional maltreatment made a unique contribution in the prediction of positive automatic thoughts. Finally, in a community sample of children (ages 8 to 14), Bilsky et al. (2013) provided longitudinal evidence that supportive parenting had a positive effect on self-cognitions over-and-above the adverse effects of peer victimization; however, they did not examine negative or harsh parenting.

Such discrepant results may be due to the use of very different research methodologies. Among these studies, some were cross-sectional; others were longitudinal. Some were retrospective; others were prospective. Some studied young adults; others studied children or adolescents. Most of the previous studies obtained only a single measure of either peer victimization or harsh parenting. Some focused on the exacerbation of narrowband negative cognitions (i.e., the perception of oneself as incompetent or flawed in a specific domain, such as social acceptance); others focused on the reduction of broadband positive cognitions (i.e., low levels of global self-worth or general self-esteem). Collectively, this research is subject to one or more of the following effects. Mood-related memorial bias can affect the retrospective assessment of peer victimization and harsh parenting (Monroe & Simons, 1991). Uncontrolled third variables are introduced in cross-sectional studies that fail to control for prior levels of the dependent variable (Fitzmaurice, Laird, & Ware, 2004). The use of single (and fallible) measures of victimization and parenting can seriously affect the estimation of model parameters, especially when testing complex models (Cole & Preacher, 2014). We seek to resolve these discrepancies by examining the unique and additive effects of peer victimization and harsh parenting in youths (not young adults), in a prospective design (not a retrospective or cross-sectional design) on both narrowband and broadband positive and negative cognitions.

One important reason for examining the effects of peer victimization and harsh parenting on children's self-cognitions derives from the implications for the emergence of depression. The adverse effects of peer victimization and harsh parenting on depression are well documented (for reviews, see Hawker & Boulton, 2000; McLeod et al., 2007; Reijntjes et al., 2010 Yap, Pilkington, Ryan, & Jorm, 2014). Researchers have even begun to develop models about the especially detrimental effects of cumulative interpersonal risk factors (Cole et al., in press; Epkins & Heckler, 2011). Less well understood, however, are the mechanisms underlying these effects. We speculate that a major vehicle through which interpersonal adversity conveys risk for depression is via its disruption of the development of healthy self-cognitions, especially in middle childhood when the construction of healthy self-cognitions is so important a developmental task.

We had four hypotheses. First, peer victimization and harsh parenting both convey negative self-relevant information to the child; therefore, we expected that both kinds of experiences, taken separately, would predict change in children's negative and positive cognitions. Second, peer victimization and harsh parenting will have additive effects on change in positive and negative self-cognitions, each contributing to the prediction over-and-above the other. Third, we hypothesized that peer victimization (which inherently conveys aversive feedback in the social domain) will have somewhat domain-specific cognitive effects. Conversely, as harsh parenting conveys aversive feedback in a wide variety of domains, we hypothesized that a history of harsh parenting will be linked to broadband positive and negative cognitions. Finally, we hypothesized that the effect of peer victimization and harsh parenting on depressive symptoms will be explained by positive and negative self-cognitions

Method

Participants

The sample consisted of children and their primary caregivers, randomly selected from a pool of participants in a larger study. The larger study sample consisted of 1888 children and adolescents (grades 3–7) at one of four, urban, middle-Tennessee elementary schools or the middle schools to which they were linked (Bilsky et al., 2013; Roeder et al., in press). From this pool, we recruited potential participants by mail and by phone. When the recruitment of a given participant failed, we replaced that recruit with a new child of the same sex, race, and grade. Of 298 recruits, 216 parent-child dyads (72.5%) participated in the current study. Recruitment success rates were similar across all key demographic characteristics (ps > .20), except age. Participants were 0.31 years younger than nonparticipants, $t(296) = 3.08$, $p < .003$. Examination of the response forms revealed two instances of obviously invalid responding, resulting in the loss of 2 participants, leaving us with a final N of 214.

Participants had an average age of 12.2 years (SD = 1.0). In total, 112 were girls, and 102 were boys. The sample was ethnically diverse: 58.9% Caucasian, 34.1% African American, 10.7% Hispanic, 3.3% Asian, and 5.2% other (note: categories are not mutually exclusive, so percentages do not sum to 100%). Family size (i.e., the number of children living at home) ranged from one to seven (M = 2.5, SD = 1.2). Approximately 38% of the participating children were on full or reduced lunch programs at school, a crude indicator of low socioeconomic status.

Measures

Peer Victimization—To offset mono-operation and mono-method bias, we assessed peer victimization using both self-report and parent report (De Los Reyes & Prinstein, 2004). We used Ladd and Kochenderfer-Ladd (2002) self- and parent reports of peer victimization, herein referred to as the Peer Victimization Self-Report (PVSR) and the Peer Victimization Parent Report (PVPR). These parallel measures consist of items modified for use with older children and supplemented to include a wider range of victimization types (Cole et al., 2010). For the PVSR, the question stem is, "How often do kids…?" Example items are "Make fun of you," "Push or shove you around," and "Say mean things about you to other kids." Items were rated on four-point scales, ranging from: 1 (never) to 4 (a lot). The PVPR

asks the same questions, replacing the word “you” with “your child.” Both measures contain 12 peer victimization items plus three positive items (not analyzed), included to interrupt response sets. In a sample of elementary and middle school students, multitrait-multimethod analyses reveal strong evidence of convergent validity with each other and with peer nomination measures of victimization (Cole et al., 2010). Previous studies have shown the scales to have acceptable internal consistency, with a Cronbach's alpha of .91 for both relational and physical victimization (Tran, Cole, & Weiss, 2012). In the current study, Cronbach’s alphas were .90 for the PVSR and.94 for the PVPR.

Harsh Parenting—The Parent Perception Inventory-Child version and the Parent Perception Inventory-Parent version (PPIC, PPIP; Bruce et al., 2006) are 36-item questionnaires that assess how children view their parents or primary caregivers and the role they play in the children’s lives. The PPIC and PPIP were originally based upon Hazzard and Margolin.’s (1983) Parent Perception Interview. The original interview inquired about children’s perceptions of 18 parental behaviors (9 positive and 9 negative). Bruce et al. (2006) converted these 18 behaviors into a 36-item questionnaire by generating two items designed to measure each of the 18 behaviors. Children and parents use 5-point scales (1 = not at all to 5 = all the time) to rate how often the parent/caregiver engages in a variety of supportive and harsh parenting behaviors. In a sample of 7- to 13-year-olds, factor analysis revealed a strong two-factor solution, reflecting warm/supportive parenting and harsh/critical parenting (Bruce et al., 2006), both of which showed significant convergent validity with subscales of a parent-report measure of similar behaviors (Lovejoy, Weis, O’Hare, & Rubin, 1999). Given that harsh parenting was the focus of this study, we only used the harsh/ negative parenting subscale. Items on the PPIC begin with the stem “How often does this person [Mother, father or primary caregiver]….” Example harsh/negative items are: “…tell you you're no good,” “…threaten you or say they are going to punish you,” and “…criticize you or say you're doing things wrong.” The PPIP asks the same questions, reworded so that parents reported on their own parenting style. In the current study, Cronbach’s alphas were. 81 to .83 at waves 1 and 2.

Self-cognition measures—The Cognitive Triad Inventory for Children (CTI-C; Kaslow, Stark, Printz, Livingston, & Tsai, 1992) is a 36-item self-report questionnaire assessing children’s views of themselves, their world, and their future. Children indicate whether they have had specific thoughts by marking yes, maybe, or no (scored 0, 1, or 2) such that higher scores indicate stronger negative cognitions. Despite the word “triad” in the title, factor analysis of the measure has revealed that a two-factor solution emerges over the course of middle childhood (LaGrange et al., 2008). One is a broadband positive cognition factor; the other is a broadband negative cognition factor. In nonclinic samples of elementary and middle school students, the subscales have high internal consistency and good construct validity, correlating with measures of self-perception, self-worth, self-control, perceived contingency, and attributional style (Kaslow, Stark, Printz, & Livingston, 1992; LaGrange et al., 2008). In waves 1 and 2 of the current study, Cronbach’s alphas were .87 and .90 for the positive CTI-C, and .87 and .89 for the negative CTI-C.

The Children's Automatic Thoughts Scale (CATS; Schniering & Rapee, 2002) is a self-report questionnaire that assesses specific types of negative self-cognitions in young people. The questionnaire asks children to rate the frequency with which they have had 56 different negative thoughts in the previous week. Participants respond on 5-point scales (1 = not at all to 5 = all the time). The CATS has four subscales: Physical Threat (e.g., "I'm going to get hurt"), Social Threat (e.g., "I'm afraid I will make a fool of myself"), Personal Failure (e.g., "It's my fault that things have gone wrong"), and Hostility (e.g., "I won't let anyone get away with picking on me"). In both clinical and non-clinical 7- to 16 year olds, the CATS has good test-retest reliability, .79 at 1 month and .76 at 3 months (Schniering & Rapee, 2002), and has been used in test development and validation efforts. For the purpose of this study, we used the two subscales most relevant to peer victimization: the narrowband Social Threat subscale (alphas = .87 and .89 for waves 1 and 2) and the broadband Personal Failure subscale (alpha = .90 for both waves).

The Self-Perception Profile for Children (SPPC; Harter, 1985) is a 36-item self-report of five domains of self-concept (academic competence, social acceptance, athletic competence, physical appearance, behavioral conduct) and global self-worth. To complete the questionnaire, participants first indicate whether they are like or not like others who are good at a particular activity. Then participants mark whether the chosen statement is "Really true for me" or "Sort of true for me." Items are scored on 4-point rating scales such that high scores reflect greater self-perceived competence. The scales have good internal consistency (Cronbach alphas range from .71 to .86 for children in grades three through eight; Harter, 1985). Three-month test–retest reliability estimates are also high (.70 - .87; Harter, 1982). Furthermore, the instrument shows a highly interpretable factor structure (Granleese & Joseph, 1993; Harter, 1985; Marsh & Gouvernet, 1989; Stigler, Smith, & Mao, 1985). In the current study, we used two narrowband SPPC subscales (Social acceptance and Physical appearance) and one broadband subscale (Global self-worth). Cronbach's alphas revealed adequate levels of internal consistency: .83 for Social acceptance, .86 for Physical appearance, and .77 for Global self-worth.

Depressive symptoms were measured using the Children's Depression Inventory (CDI; Kovacs, 1992), a widely used, well-validated self-report measure of number and severity of depressive symptoms. Its 27 items assess cognitive, affective, and behavioral symptoms of depression. Each item consists of three statements describing varying degrees of symptom severity, for example, 0 = I am sad once in a while; 1 = I am sad many times; 2 = I am sad all the time. Scores range from 0 to 54. The scale has proven reliable and valid, especially in non-clinical populations (Saylor, Finch, Spirito, & Bennett, 1984). In the current study, the internal reliability Cronbach's alpha was .89 at both Waves 1 and 2.

Procedures

Initial recruitment and Wave 1—As part of a larger study (Bilsky et al., 2013; Roeder et al., in press), we distributed consent documents to students in grades 3 through 7, offering a $100 donation to each classroom if 90% of children in that classroom returned a consent form signed by a parent or guardian, either granting or denying permission for the child's participation. Students returned signed consent forms to classroom teachers in sealed

envelopes. Consented students and their primary caregivers completed a battery of questionnaires, including those used in Wave 1 of the current study. Research assistants gathered consented students into groups of 20–30 students and administered a questionnaire battery containing the PVSR, PPIC, CTI-C, CATS, SPPC, and CDI. Research assistants read the questionnaires aloud while students read along and marked their answers on their own hard copies. At the end of the study, participants were given a snack and a decorative pencil for their participation. Parents received and returned their questionnaires by mail. They received a $10 gift certificate for their participation.

Wave 2—One year later, we re-recruited a random subset (N = 214) of the Wave 1 participants into Wave 2 (see Participants, above). Wave 2 data collection occurred in our university-based lab. Students and their primary caregivers were invited to the university. They were provided either free parking or cab fare. Research assistants met with each parent-child dyad individually. After describing the study and signing consent/assent forms, child and parent were escorted into separate rooms. For child participants, research assistants read the questionnaires aloud while participants marked their answers on their own forms. Most parents completed their questionnaires independently. Participants were provided a snack break part way through. Families were reimbursed $50 for their participation.

Results

Descriptive Statistics and Correlations

Table 1 contains means and standard deviations for all study measures. These descriptive statistics are comparable to those reported in prior research on similar community samples (Bilsky et al., 2013; Bruce et al., 2006; Cole et al., 2013; LaGrange et al., 2008; Roeder et al., in press; Stigler, Smith, & Mao, 1985). Table 2 contains Pearson correlations of Wave 1 measures of harsh parenting and peer victimization with all other Wave 1 and Wave 2 measures of negative and positive cognitions.[1] Parent and child reports of peer victimization and child reports of harsh parenting were significantly correlated with almost all measures of positive and negative cognitions. Correlations involving parent-reported harsh parenting were small and mostly nonsignificant.

Hierarchical Regression

To test the combined and specific effects of both harsh parenting and peer victimization, we conducted two sets of hierarchical regression analyses. In the first set, we examined harsh parenting over and above peer victimization. In each set of analyses, we began with Model 1, in which we regressed one of the Wave 2 cognitive measures onto the Wave 1 version of the same cognitive measure as well as sex and age.

$$Y2=\beta_0+\beta_1 Y1+\beta_2 \mathrm{Age}+\beta_3 \mathrm{Sex}+e \quad \text{Model 1}$$

[1]Please note that we did not attempt to control the family-wise alpha for multiple analyses. We do, however, provide information about three different levels of significance should the reader prefer a more conservative approach.

where Y1 and Y2 represent scores on one of the cognitive variables at Wave1 and Wave 2, respectively. In most of these analyses, Age and Sex were not significant predictors, after controlling for $Y1$. Two exceptions were a negative effect of Age on CATS Personal Failure (signifying that older participants were less likely to endorse these items: $\beta = -.16$, $p < .017$) and an effect of Sex on SPPC Social Acceptance (signifying that girls perceived themselves as more socially accepted than did boys: $b = -.19$, $p < .001$).[2]

In Model 2, we added the child and parent reports of peer victimization, and in Model 3, we added the child and parent reports of harsh parenting, as in the following equations:

$$Y2=\beta_0+\beta_1 Y1+\beta_2 \text{Age}+\beta_3 \text{Sex}+(\beta_4 \text{WKAC}1+\beta_5 \text{WKAP}1)+e \quad \text{Model 2}$$

$$Y2=\beta_0+\beta_1 Y1+\beta_2 \text{Age}+\beta_3 \text{Sex}+(\beta_4 \text{WKAC}1+\beta_5 \text{WKAP}1)+(\beta_6 \text{PPIC}1+\beta_7 \text{PPIP}1)+e$$

Model 3

We were principally interested in three things. First was the change in R^2 from Model 1 to Model 3, signifying the total combined effect of peer victimization and harsh parenting on the Wave 2 cognitive variable, controlling for the Wave 1 cognitive variable (part of hypothesis 1). Second was the change in R^2 from Model 1 to Model 2, signifying the degree to which the peer victimization (taken alone) predicted Wave 2 cognition (part of hypothesis 1). Third was the change in R^2 from Model 2 to Model 3, signifying the degree to which the two harsh parenting measures (taken together) predicted the Wave 2 cognition over-and-above Wave 1 peer victimization (part of hypothesis 2).

Even though our hypotheses focused on main effects, we also tested interactions. First, we standardized and averaged parent and child reports to form a single index of peer victimization ($WKA1$) and a single index of harsh parenting ($PPI1$). Then we computed the product of these two new indices. We entered these new variables into the following set of regressions, where Y1 and Y2 represent a particular cognitive variable at waves 1 and 2, respectively: $Y2=\beta_0+\beta_1 Y1+\beta_2 Age+\beta_3 Sex+\beta_4 WKA1+\beta_5 PPI1+\beta_6(WKA1)(PPI1)+e$. For none of the cognitive variables was β_4 significant. In other words, all peer victimization x harsh parenting interactions were nonsignificant.

In the second set of analyses, we reversed the order, entering harsh parenting before peer victimization. We began with Model 1, as above. Next we added the Wave 1 child and parent reports of harsh parenting (Model 4), and finally we added the child and parent reports of peer victimization (Model 5), as in the following equations:

[2]We also tested the interactions of Age and Sex with both peer victimization and harsh parenting. All such interactions were nonsignificant ($ps > .20$)

$$Y2=\beta_0+\beta_1 Y1+\beta_2 \text{Age}+\beta_3 \text{Sex}+(\beta_4 \text{PPIC}1+\beta_5 \text{PPIP}1)+e \quad \text{Model 4}$$

$$Y2=\beta_0+\beta_1 Y1+\beta_2 \text{Age}+\beta_3 \text{Sex}+(\beta_4 \text{PPIC}1+\beta_5 \text{PPIP}1)+(\beta_6 \text{WKAC}1+\beta_7 \text{WKAP}1)+e. \quad \text{Model 5}$$

We were interested in two things. First was the change in R^2 from Model 1 to Model 4, signifying the degree to which harsh parenting predicted the Wave 2 cognitive variable, controlling for prior levels of cognitive variable (part of hypothesis 1). Second was the change in R^2 from Model 4 to Model 5, testing the degree to which peer victimization predicted the Wave 2 cognitive variable, controlling prior cognitions and harsh parenting (part of hypothesis 2). We rotated through the narrow and broadband cognitive dependent variables, anticipating that peer victimization variables would be significantly related to narrowband social cognition outcomes and that harsh parenting would be significantly associated with broadband negative and positive cognitive outcomes (hypothesis 3).

Table 3 contains the results of both sets of regressions when CATS subscales served as the dependent variables. Four key results emerged: (1) In the prediction of Wave 2 Social threat, both harsh parenting and peer victimization had significant total effects on residual change (i.e., each was significant when the other was ignored). (2) Both harsh parenting and peer victimization also had significant unique effects (i.e., each was significant when the other was controlled). (3) In the prediction of CATS Personal failure, harsh parenting had a significant total effect and a significant unique effect on residual change. (4) Neither the total nor the unique effect of peer victimization predicted self-perceived personal failure.

Table 4 contains the results when CTI-C subscales served as the dependent variables. Four results emerged: (1) In the prediction of Wave 2 CTI-C Negative cognitions, both harsh parenting and peer victimization had significant total effects on residual change. (2) Both sets of predictors also had significant unique effects. (3) In the prediction of CTI-C Positive cognitions, harsh parenting had a significant total effect and a significant unique effect on residual change. (4) Peer victimization, however, had neither a significant total effect nor a significant unique effect on CTI-C Positive cognitions.

Table 5 contains the results when SPPC subscales were the dependent variables. Six results emerged: (1) In the prediction of Wave 2 SPPC Social acceptance, peer victimization had a significant total effect and a significant unique effect on residual change; however, (2) harsh parenting had neither a significant total effect nor a significant unique effect on SPPC Social acceptance. (3) Conversely, in the prediction of SPPC Physical appearance, harsh parenting had significant total and unique effects on residual change; however, (4) peer victimization had neither a significant total effect nor a significant unique effect on SPPC Physical appearance. (5) Similarly, in the prediction of SPPC Global Self-worth, harsh parenting had

significant total and unique effects; but (4) peer victimization had neither a significant total effect nor a significant unique effect.

Finally, we tested the hypotheses (a) that harsh parenting and peer victimization would jointly predict depressive symptoms and (b) that statistically controlling for negative and positive self-cognitions would explain this relation. First, we regressed Wave 2 CDI onto Wave 1 CDI, Age, and Sex (see the reduced model shown as Model 1 in the top panel of Table 6) and compared it to the fuller Model 2 in which two harsh parenting measures and two peer victimization measures were added as predictors. The change in R^2 was significant ($\Delta R^2 = .16$, $p < .001$), supporting the first hypothesis. To test the second hypothesis, we compared three regression models (see middle panel of Table 6). Model 1 was the same as above. In Model 2, we added all seven of our Wave 1 cognitive variables (two CATS subscales, two CTI subscales, and three SPPC subscales). The change in R^2 was significant ($\Delta R^2 = .20$, $p < .001$), showing that these cognitive variables did predict Wave 2 depression symptoms. Then we compared Model 2 to Model 3, in which the two harsh parenting and the two peer victimization measures were added as predictors. The change in R^2 was not significant ($\Delta R^2 = .01$, $\Delta F < 1.0$), showing that controlling for self-cognitions eliminated the previously significant effect of harsh parenting and peer victimization. Finally, we repeated the second analysis, this time controlling for Wave 2 instead of Wave 1 cognitive variables. As shown in the bottom panel of Table 6, very similar results emerged, in which controlling for Wave 1 cognitive variables almost completely explained the previously significant effect of harsh parenting and peer victimization on Wave 2 CDI scores.

Discussion

Five major conclusions emerged from the current multi-method, longitudinal study of factors predicting the development of children's positive and negative cognitions. First, supporting our hypothesis, peer victimization and harsh parenting predicted changes in children's positive self-cognitions. Partially supporting our second hypothesis, peer victimization and harsh parenting uniquely predicted some cognitive outcomes each controlling for the other. Consistent with our third hypothesis, peer victimization more consistently predicted narrowband cognitive outcomes, and harsh parenting more consistently predicted broadband positive and negative cognitions. Fourth, replicating prior research, harsh parenting and peer victimization predicted children's symptoms of depression. Fifth, extending prior research, positive and negative self-cognitions statistically explained the effects of peer victimization and harsh parenting on depressive symptoms. Below, we discuss the implications of these findings for theory and practice.

The first conclusion from the current study was that harsh parenting and peer victimization, taken together or separately, predicted changes in children's negative and positive cognitions; however, their effects varied depending on the type of cognition under investigation. When the predictors were examined one-at-a-time, every cognitive outcome was predicted by either harsh parenting or peer victimization. Taken alone, harsh parenting predicted change in all positive and negative cognitive outcome variables, except the SPPC measure of self-perceived social acceptance. Taken alone, peer victimization predicted change in the negative cognitions subscale of the CTI-C, the social threat subscale of the

CATS, and the social acceptance subscale of the SPPC. These results support our first hypothesis and reinforce previous research. Several previous studies have examined the adverse longitudinal effects of either peer victimization or harsh parenting on children's positive or negative cognitive style (Cole et al., 2010; Gibb & Abela, 2008; Gibb et al., 2001, 2004; McLeod et al., 2007; Sinclair et al., 2012; Tran, Cole & Weiss, 2012). Taken together, this finding is consistent with speculations by Beck (1967; Beck & Young, 1985) that negative childhood events give rise to the construction of depressive self-schemas. The finding is also commensurate with Cole's (1991) developmental position that negative feedback from significant others provides information that children may internalize, providing the foundation for self-perceived incompetence and low self-worth, especially during middle childhood.

Second, in the prediction of certain cognitive variables, either peer victimization was significant over-and-above harsh parenting or harsh parenting was significant over-and-above peer victimization or both. Three specific patterns emerged. In one pattern, harsh parenting was significant (controlling for peer victimization) but peer victimization was not significant (controlling for harsh parenting). This was true for the prediction of the personal failure subscale of the CATS, the positive subscale of the CTI-C, and the global self-worth and physical appearance subscales of the SPPC. In the second pattern, peer victimization was significant (controlling for harsh parenting) but the reverse was not true. This characterized the prediction of only the social acceptance subscale of the SPPS. The third pattern was both harsh parenting and peer victimization were significant, each controlling for the other. This was true for the social threat subscale of the CATS and the negative subscale of the CTI-C.

Third, some support emerged for our hypothesis that peer victimization is a good predictor of narrowband social/interpersonal cognitions and that harsh parenting would be a good predictor of broadband positive and negative cognitions. Specifically, peer victimization predicted our two narrowband social scales, the SPPC social acceptance and the CATS social threat (as well as the more general CTI-C negative scale). Conversely, harsh parenting predicted all the broadband positive and negative scales (as well as the narrowband CATS social threat scale). We speculate that harsh parenting may be a relatively stable phenomenon, to which children are subjected over a longer portion of their lives and that the feedback conveyed by harsh parenting may span a wider range of content areas, compared to peer victimization. Certainly peer victimization can focus on a wide range of content areas as well, but these content areas differ from person to person. The common denominator to virtually all types of peer victimization is interpersonal threat or social rejection. Compatible with these speculations, the current results suggest that broadband cognitive sequelae may derive from harsh parenting, whereas narrowband cognitive sequelae about social threat or social acceptability may be more tightly linked to victimization by peers.

Our fourth and fifth findings, taken together were (a) that harsh parenting and peer victimization predicted children's symptoms of depression after controlling for prior levels of depressive symptoms and (b) that positive and negative self-cognitions statistically explained this effect. The first of these findings replicates the well-established longitudinal effects of harsh parenting and peer victimization on depression in young people (for reviews,

see Hawker & Boulton, 2000; McLeod et al., 2007; Reijntjes et al., 2010 Yap, Pilkington, Ryan, & Jorm, 2014). Furthermore, our focus on the additive effects of parent and peer relations is commensurate with various cumulative interpersonal risk models (Cole et al., in press; Epkins & Heckler, 2011). The second of these findings extends previous research, providing preliminary support for the idea that the effect of peer victimization and harsh parenting on depression may be mediated by the adverse effect of these interpersonal risk factors on children's development of a healthy cognitive style.

Taken together, these results extend previous research on the combined effects of peer victimization and harsh parenting insofar as the current study focused on children not young adults, did not rely on retrospective assessments of peer victimization and harsh parenting, was longitudinal not cross-sectional, controlled statistically for prior levels of the cognitive variables, and obtained multiple measures of all key variables (cf. Gibb & Abela, 2008; Gibb, Abramson, & Alloy, 2004; 2007; Seeds et al., 2010). Furthermore, these results (a) provide strong support for our hypothesis about the incremental importance of harsh parenting over-and-above peer victimization and (b) moderate support for the incremental importance of peer victimization over-and-above harsh parenting. These findings are consistent with developmental theories about children's construction of self-concept and social cognitive precursors to depressogenic cognitive style. A major developmental task of middle childhood is the construction of self-competence (Garber, 1984). Strategic in this effort, children appear to be highly motivated to emphasize positive information and denigrate the importance of negative information. Harter (1990, 2003) noted that in the construction of global self-worth, children place greater emphasis on domains of self-perceived competence than on domains of self-perceived incompetence. The same also appears to be true with regard to information source (Cole, 1991; Cole et al., 1997). Children who are victimized by peers but supported by parents appear to rely enough on the positive to offset the adverse effects of the negative (Bilsky et al., 2013). The current study supports a corollary to this position: negative information from one source can add to the adverse effects of negative information from another source. When children are confronted with negative feedback from multiple sources, the likelihood may diminish that they will be able to focus on the positive. They may be cognitively cornered into the construction of negative self-cognitions. The strength of this effect, however, may depend upon the type of negative cognition.

Several clinical and public health implications emerge from these findings. First, clinicians might use information about children's victimization history to target negative and distorted cognitions. Youths with peer victimization experiences alone might benefit from interventions focused on cognitions related to social competence, interpersonal skills, and social cognitions (e.g., Mufson et al., 2004). Youths who have experienced both peer victimization and harsh parenting may require a more comprehensive approach. Second, our findings have public health implications as well, especially given the ubiquity of both harsh parenting (Straus & Field, 2003) and peer victimization (Nansel et al., 2001). The independent contributions of both experiences in the development of depressive cognitions add to the case for development of tandem programs involving both parenting education and school-based peer victimization prevention (Aceves, Hinshaw, Mendoza-Denton, & Page-Gould, 2010).

Several limitations of the current study suggest avenues for future research. The first concerns developmental effects. In various positive domains, the relative importance of peers versus parents varies with age. The same may be true of victimization and harshness. Future research could test this hypothesis with larger sampling of a wider age range. Second, the current study was limited to two waves, eliminating the possibility of conducting rigorous tests of mediation (Cole & Maxwell, 2003). Implicit in the current study is the idea that the emergence of problematic cognitive style mediates the relation of peer victimization and harsh parenting to depression. Future studies with three waves and measures of depression could test this mediational model. Third, although the same measures were used at both waves, wave 1 data were collected in schools and wave 2 data were collected in the lab, potentially reducing estimates of over-time stability. Finally, although the current study obtained measures from both parents and children, these data derived from paper-and-pencil surveys. Observational measures of peer and parent behavior and performance-based measures of cognition would be valuable contributions to this literature.

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Table 1

Means and Standard Deviations for all Wave 1 and Wave 2 measures

	Wave 1		Wave 2	
Variable	**Mean**	***SD***	**Mean**	***SD***
PPIC Harsh parenting	39.57	9.37	--	--
PPIP Harsh parenting	44.19	7.88	--	--
WKA-C Peer victimization	16.18	5.76	--	--
WKA-P Peer victimization	18.34	6.11	--	--
CATS Social threat	15.85	7.83	13.08	5.29
CATS Personal failure	13.89	6.20	12.04	4.60
CTI-C Negative	24.40	6.11	23.25	5.52
CTI-C Positive	23.11	5.33	21.29	4.34
SPPC Social acceptance	13.10	4.68	14.17	4.09
SPPC Physical appearance	12.61	5.17	13.88	4.48
SPPC Global self-worth	14.58	3.96	15.94	2.94
CDI Depression	7.03	6.08	7.22	6.24

Note. PPIC = Parent Perception Inventory for Children; PPIP = Parent Perception Inventory for Parents; WKA-C = Way Kids Are – child report; WKA-P = Way Kids Are – parent report; CATS = Children's Automatic Thoughts Scale; CTI-C = Cognitive Triad Inventory for Children; SPPC = Self-Perception Profile for Children; CDI = Children's Depression Inventory.

Table 2

Pearson Correlations of Wave 1 Predictors and Cognitive Variables at Waves 1 and 2

Variable	Harsh Parenting (HP)		Peer Victimization (PV)	
	Child report	Parent report	Child report	Parent report
Wave 1 measures				
CATS Social threat	.23***	.16**	.48***	.38***
CATS Personal failure	.25***	.13*	.39***	.38***
CTI-C Negative	.37***	.11	.40***	.23***
CTI-C Positive	.14*	.04	.34***	.21***
SPPC Social acceptance	−.13*	−.12	−.42***	−.40***
SPPC Physical appearance	−.06	−.06	−.18**	−.21***
SPPC Global self-worth	−.14**	−.05	−.35***	−.33***
CDI Depression	.31***	.16*	.29***	.21**
Wave 2 measures				
CATS Social threat	.39***	.14*	.45***	.32***
CATS Personal failure	.35***	.08	.23***	.18**
CTI-C Negative	.44***	.17**	.30***	.31***
CTI-C Positive	.33***	.08	.34***	.25***
SPPC Social acceptance	−.17**	−.04	−.55***	−.43***
SPPC Physical appearance	−.23***	−.04	−.18**	−.18**
SPPC Global self-worth	−.33***	−.08	−.26***	−.25***
CDI Depression	.40***	.21**	.38***	.26***
Intercorrelations of HP and PV measures at wave 1				
HP Child report	1.00	.48***	.32***	.28***
HP Parent report	--	1.00	.27***	.35***
PV Child report	--	--	1.00	.47***
PV Parent report	--	--	--	1.00

Note. CATS = Children's Automatic Thoughts Scale; CTI-C = Cognitive Triad Inventory for Children; SPPC = Self-Perception Profile for Children; CDI = Children's Depression Inventory.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 3

Regression of Wave 2 CATS Scales onto Wave 1 Child and Parent Reports of Harsh Parenting (HP) and Peer Victimization (PV)

Effect	Model comparison	ΔR^2	test	*p*
DV = CATS Social threat W2				
Combined effect of HP & PV	models 3 vs. 1	.15	$\Delta F_{(4,208)} = 8.84$	.005
Total effect of HP ignoring PV	models 2 vs. 1	.10	$\Delta F_{(2,210)} = 11.48$	.001
Total effect of PV ignoring HP	models 4 vs. 1	.08	$\Delta F_{(2,210)} = 8.14$	.001
Unique effect of HP controlling PV	models 3 vs. 2	.07	$\Delta F_{(2,208)} = 8.73$	.001
Unique effect of PV controlling HP	models 5 vs. 4	.05	$\Delta F_{(2,208)} = 5.53$	.005
DV = CATS Personal failure W2				
Combined effect of HP & PV	models 3 vs. 1	.06	$\Delta F_{(4,208)} = 3.86$	.001
Total effect of HP ignoring PV	models 2 vs. 1	.06	$\Delta F_{(2,210)} = 7.33$	.001
Total effect of PV ignoring HP	models 4 vs. 1	.01	$\Delta F_{(2,210)} = 0.85$	ns
Unique effect of HP controlling PV	models 3 vs. 2	.06	$\Delta F_{(2,208)} = 6.80$	.001
Unique effect of PV controlling HP	models 5 vs. 4	.00	$\Delta F_{(2,208)} = 0.43$	ns

Note. CATS = Children's Automatic Thoughts Scale

Table 4

Model Comparisons in the Regression of Wave 2 CTI-C Scales onto Wave 1 Child and Parent Reports of Harsh Parenting (HP) and Peer Victimization (PV)

Effect	Model comparison	ΔR^2	test	*p*
DV = CTI-C Negative W2				
Combined effect of HP & PV	models 3 vs. 1	.10	$\Delta F_{(4,208)} = 7.03$	.001
Total effect of HP ignoring PV	models 2 vs. 1	.07	$\Delta F_{(2,210)} = 10.28$	.001
Total effect of PV ignoring HP	models 4 vs. 1	.03	$\Delta F_{(2,210)} = 4.38$	.005
Unique effect of HP controlling PV	models 3 vs. 2	.07	$\Delta F_{(2,208)} = 9.22$	.001
Unique effect of PV controlling HP	models 5 vs. 4	.02	$\Delta F_{(2,208)} = 3.46$	.014
DV = CTI-C Positive W2				
Combined effect of HP & PV	models 3 vs. 1	.06	$\Delta F_{(4,208)} = 4.10$	.004
Total effect of HP ignoring PV	models 2 vs. 1	.05	$\Delta F_{(2,210)} = 6.75$	.002
Total effect of PV ignoring HP	models 4 vs. 1	.02	$\Delta F_{(2,210)} = 2.73$	ns
Unique effect of HP controlling PV	models 3 vs. 2	.04	$\Delta F_{(2,208)} = 5.31$	.006
Unique effect of PV controlling HP	models 5 vs. 4	.01	$\Delta F_{(2,208)} = 1.41$	ns

Note. CTI-C = Children's Cognitive Triad Inventory

Table 5

Model Comparisons in the Regression of Wave 2 SPPC Scales onto Wave 1 Child and Parent Reports of Harsh Parenting (HP) and Peer Victimization (PV)

Effect	Model comparison	ΔR^2	test	*p*
DV = SPPC Social acceptance W2				
Combined effect of HP & PV	models 3 vs. 1	.13	$\Delta F_{(4,208)} = 11.55$	.001
Total effect of HP ignoring PV	models 2 vs. 1	.01	$\Delta F_{(2,210)} = 1.27$	ns
Total effect of PV ignoring HP	models 4 vs. 1	.12	$\Delta F_{(2,210)} = 19.61$	.001
Unique effect of HP controlling PV	models 3 vs. 2	.02	$\Delta F_{(2,208)} = 2.98$	ns
Unique effect of PV controlling HP	models 5 vs. 4	.12	$\Delta F_{(2,208)} = 21.48$	.001
DV = SPPC Physical appearance W2				
Combined effect of HP & PV	models 3 vs. 1	.06	$\Delta F_{(4,208)} = 3.97$	.004
Total effect of HP ignoring PV	models 2 vs. 1	.06	$\Delta F_{(2,210)} = 7.50$	.001
Total effect of PV ignoring HP	models 4 vs. 1	.01	$\Delta F_{(2,210)} = 1.73$	ns
Unique effect of HP controlling PV	models 3 vs. 2	.05	$\Delta F_{(2,208)} = 6.09$	.003
Unique effect of PV controlling HP	models 5 vs. 4	.00	$\Delta F_{(2,208)} = 0.49$	ns
DV = SPPC Global self-worth W2				
Combined effect of HP & PV	models 3 vs. 1	.08	$\Delta F_{(4,208)} = 4.55$	.002
Total effect of HP ignoring PV	models 2 vs. 1	.08	$\Delta F_{(2,210)} = 8.89$	.001
Total effect of PV ignoring HP	models 4 vs. 1	.02	$\Delta F_{(2,210)} = 1.56$	ns
Unique effect of HP controlling PV	models 3 vs. 2	.06	$\Delta F_{(2,208)} = 7.40$	.001
Unique effect of PV controlling HP	models 5 vs. 4	.00	$\Delta F_{(2,208)} = 0.29$	ns

Note. SPPC = Self-Perception Profile for Children.

Table 6

Relation of Parenting (HP) and Peer Victimization (PV) to Self-reported Depression (CDI), Controlling and Not Controlling for Measures of Positive and Negative Self-cognitions.

Model	Predictors	R^2	ΔR^2	test	*p*
	HP and PV predicting wave 2 CDI (ignoring self-cognitions)				
1.	CDI at wave 1, Age, Sex	.21	.21	$\Delta F_{(3,210)} = 8.27$	.001
2.	PV and HP at wave 1	.37	.16	$\Delta F_{(4,210)} = 5.66$	.001
	HP and PV predicting wave 2 CDI (controlling for wave 1 self-cognitions)				
1.	CDI at wave 1, Age, Sex	.21	.21	$\Delta F_{(3,210)} = 8.27$	.001
2.	Positive and negative self-cognitions at wave 1[a]	.41	.20	$\Delta F_{(7,203)} = 9.83$	.001
3.	PV and HP at wave 1[b]	.62	.01	$\Delta F_{(4,199)} = 0.73$	ns
	HP and PV predicting wave 2 CDI (controlling for wave 2 self-cognitions)				
1.	CDI at wave 1, Age, Sex	.21	.21	$\Delta F_{(3,210)} = 8.27$	.001
2.	Positive and negative self-cognitions at wave2[a]	.57	.36	$\Delta F_{(7,203)} = 24.28$	.001
3.	PV and HP at wave 1[b]	.57	.00	$\Delta F_{(4,199)} = 0.30$	ns

Note. CDI = Children's Depression Inventory.

[a]Seven subscales from CATS, CTI-C, and SPPC.

[b]Self- and parent-report measures harsh parenting and peer victimization.