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History of Childhood Maltreatment, Negative Cognitive Styles, and Episodes of Depression in Adulthood

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Participants at high (HR) and low (LR) cognitive risk for depression, based on the presence versus absence of negative cognitive styles, were followed longitudinally for 2.5 years. Reported levels of childhood emotional, but not physical or sexual, maltreatment were related to levels of hopelessness and episodes of nonendogenous major depression (NE-MD) and hopelessness depression (HD) during the prospective follow-up period. HR participants reported more childhood emotional maltreatment but less childhood physical maltreatment than did LR participants. In support of Beck's (1967, 1987) theory, cognitive risk fully mediated the relation between childhood emotional maltreatment and NE-MD. In support of the hopelessness theory (Abramson, Metalsky, & Alloy, 1989), cognitive risk partially mediated the relation between childhood emotional maltreatment and hopelessness and fully mediated the relation between childhood emotional maltreatment and HD. Additionally, hopelessness partially mediated the relation between cognitive risk and HD.

KEY WORDS: childhood maltreatment; cognitive vulnerability; depression.

Both the hopelessness theory (Abramson, Metalsky, & Alloy, 1989) and Beck's theory (1967, 1987) propose that a negative cognitive style may leave an individual vulnerable to developing both symptoms and full-blown episodes of depression. According to the hopelessness theory, individuals who tend to make stable and global attributions and infer negative consequences and negative characteristics about themselves following the occurrence of negative life events are hypothesized to be vulnerable to a cognitively mediated subtype of depression, hopelessness depression (HD). According to Beck's model, the presence of dysfunctional attitudes, representing a maladaptive self-schema, contributes vulnerability to the development of depression when individuals confront life stressors. Thus, although

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both models propose that negative cognitive styles may increase risk for the development of depression, the hopelessness theory offers an etiological chain culminating in a specific subtype of depression, whereas Beck's model applies to nonendogenous unipolar depressions more generally.

A number of studies have reported an association between negative cognitive styles and depressive symptoms or diagnoses. Of particular relevance to the current study are findings from the Cognitive Vulnerability to Depression (CVD) Project (Alloy & Abramson, 1999). Participants in the CVD Project with no current Axis I disorders were selected based on the presence versus absence of the cognitive vulnerabilities (negative inferential styles and dysfunctional attitudes) hypothesized by both hopelessness theory and Beck's theory. Controlling for initial depressive symptom levels, cognitively high-risk participants were significantly more likely than cognitively low-risk participants to develop episodes of both *DSM-III-R* (American Psychiatric Association, 1987) and Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robbins, 1978) major depression (MD) as well as HD during the 2.5-year follow-up period of the study. These results were maintained for first onsets of MD and HD even when only those participants with no history of previous depression were considered (Alloy et al., 2000b). These findings, in combination with those of other studies (for reviews see Abramson, Alloy, & Metalsky, 1995; Haaga, Dyck, & Ernst, 1991; Joiner & Wagner, 1995), provide support for the cognitive vulnerability hypotheses of hopelessness and Beck's theories and suggest that certain cognitive styles may leave individuals vulnerable to developing episodes of depression in the future.

Although both Beck's (1967, 1987) theory and an extension of the hopelessness theory (Rose & Abramson, 1992) include hypotheses that negative events in childhood may contribute to the development of a negative cognitive style, few studies have examined possible developmental antecedents of cognitive vulnerability to depression. Beck (1967, 1987) suggested that negative childhood events might lead to the development of maladaptive self-schemata; however, he did not speculate about the process by which this may occur. In contrast, Rose and Abramson (1992), in extending the etiological chain of the hopelessness theory, suggested a pathway by which childhood maltreatment may lead to the development of a negative cognitive style. Specifically, they hypothesized that when a negative event occurs in a child's life, the child initially tends to make hopefulness-inducing (e.g., unstable, specific) attributions about its cause. However, when the negative events are chronic and widespread, as in recurrent maltreatment, the child may come to make hopelessness-inducing (e.g., stable, global) attributions and inferences about its occurrence. Over time, these cognitions may crystallize into a negative cognitive style. Although any type of chronic maltreatment may lead to the development of this negative cognitive style, Rose and Abramson hypothesized that childhood emotional maltreatment should be more likely to lead to the development of a negative cognitive style than either childhood physical or sexual maltreatment because the depressive cognitions (e.g., ''You're so stupid, you'll never amount to anything'') are directly supplied to the child by the abuser. With physical and sexual maltreatment, by contrast, the child must supply his or her own depressogenic attribu-

tions and inferences, and may have a greater opportunity to make more benign attributions and inferences.

Consistent with Rose and Abramson's (1992) hypothesis, studies have provided some support for the relation between a history of childhood maltreatment and the presence of negative cognitive styles in adults. For example, Rose, Abramson, Hodulik, Halberstadt, and Leff (1994) found that the cognitive styles of depressed adult inpatients who reported a history of childhood sexual maltreatment and/or negative family control (i.e., harsh or rigid discipline, parents' perfectionistic standards for the child or overprotective behaviors, and isolation from social contact outside of the family) were more negative than those of depressed inpatients who did not report such histories. Similarly, Gold (1986) found that women who reported sexual maltreatment in childhood exhibited more negative cognitive styles than did women who reported no history of childhood sexual maltreatment. Finally, Feiring, Taska, and Lewis (1998) found that, in a sample of children and adolescents with a documented history of sexual maltreatment, the number of maltreatment events experienced was positively related to the negativity of the participants' cognitive styles. Of particular interest for the current study, cognitive style mediated the relation between number of maltreatment events and levels of depression (Feiring et al., 1998). In contrast to these results, however, Gross and Keller (1992) found that the cognitive styles of college students with a reported history of either childhood emotional maltreatment, physical maltreatment, or both were no more negative than were the cognitive styles of students with no history of maltreatment. To the extent that the majority of these studies assessed neither childhood emotional nor physical maltreatment, it is unclear whether the relation found between childhood sexual maltreatment and adults' cognitive styles is due to the unique influence of childhood sexual maltreatment or to its overlap with either one or both of the other types of maltreatment. Given that this is the first study to examine the unique association of emotional, physical, *and* sexual maltreatment with negative cognitive styles (Gibb, 2000), there has not yet been an adequate test of this relation.

Although rarely considered in relation to the cognitive theories of depression, a number of studies have supported a link between each of the three types of childhood maltreatment and levels of depression in adults. The majority of this research has focused on the long-term effects of childhood sexual maltreatment (for reviews, see Beitchman et al. 1992; Browne & Finkelhor, 1986; Dhaliwal, Gauzas, Antonowicz, & Ross, 1996). For example, Boudewyn and Liem (1995) found that a more severe reported history of sexual maltreatment in childhood was related to higher current levels of depression in a sample of college students. Furthermore, in a sample of low income women, documented childhood sexual maltreatment remained significantly related to a history of depression even after controlling for levels of childhood emotional and physical maltreatment (Zuravin & Fontanella, 1999).

A history of childhood physical maltreatment has also been associated with elevated levels of depression in adulthood. For example, among a community sample

of young adults, Silverman, Reinherz, and Giaconia (1996) found that those who reported a history of physical maltreatment during childhood or adolescence were significantly more likely to meet *DSM-III-R* criteria for MD than were young adults who reported no history of physical maltreatment. In addition, Roosa, Reinholtz, and Angelini (1999) found that reported childhood physical maltreatment was a stronger predictor of current depressive symptoms than was reported childhood sexual maltreatment in a community-based sample of women.

Whereas the majority of research on childhood maltreatment has focused on sexual, and to a lesser extent physical, maltreatment, there is a growing body of studies also suggesting the long-term detrimental effects of childhood emotional maltreatment. For example, Boudewyn and Liem (1995) found that, even after controlling for a reported history of childhood sexual maltreatment, college students who reported childhood emotional maltreatment had higher levels of depressive symptomatology than students without a reported history of childhood emotional maltreatment. In addition, Braver, Bumberry, Green, and Rawson (1992) found that adult outpatients reporting childhood maltreatment (emotional, physical, or sexual) had significantly higher levels of depressive symptomatology than clients with no reported history of maltreatment. Of particular interest, the emotional maltreatment-only group did not differ significantly from the sexual or multiple maltreatment groups in level of depressive symptomatology (Braver et al., 1992). Moreover, Rich, Gingerich, and Rosen (1997) found that college students who reported a history of childhood emotional maltreatment, with or without a combined history of either physical or sexual maltreatment, had significantly higher levels of depression than individuals who reported no history of maltreatment. Similar to the Braver et al. findings, students who reported a history of emotional maltreatment only did not differ significantly in level of depressive symptomatology from students who also reported a history of physical or sexual maltreatment (Rich et al., 1997). Taken together, findings from the child maltreatment literature suggest that individuals with a reported history of childhood maltreatment are at increased risk for depression in adulthood. What is unclear, however, is which particular type of maltreatment is most associated with depression and the processes that mediate the childhood maltreatment–adult depression association.

In addition to examining the relation between childhood maltreatment and levels of adult depression, several studies have also examined the relation between a history of childhood maltreatment and levels of hopelessness in adolescence and adulthood. For example, in a sample of male adolescent inpatients, Hussey, Strom, and Singer (1992) found that those who reported a history of sexual maltreatment had higher levels of hopelessness than did individuals who reported no history of sexual maltreatment. Similarly, in a sample of adult inpatients and outpatients diagnosed with MD, Gladstone, Parker, Wilhelm, Mitchell, and Austin (1999) found that those who reported a history of childhood sexual maltreatment were significantly more hopeless than patients who did not report a history of childhood sexual maltreatment. Thus, there is some evidence that a reported history of childhood maltreatment is related to elevated levels of hopelessness in both adolescence and adulthood. However, as with studies finding a relation between childhood sexual maltreatment and adults' cognitive styles, these provide ambiguous results to the

extent that they did not also assess the occurrence of childhood emotional and physical maltreatment.

In this study, we assessed the relations among reported childhood maltreatment (emotional, physical, and sexual), cognitive vulnerability to depression as posited by both hopelessness theory (Abramson et al., 1989) and Beck's (1967, 1987) theory, and episodes of depression. In so doing, we hoped to extend Alloy et al.'s (2000b) findings showing that negative cognitive styles confer increased risk for future episodes of MD and HD by examining possible developmental antecedents of cognitive vulnerability to depression as proposed by hopelessness theory and Beck's theory. Specifically, according to the hopelessness theory, childhood maltreatment should contribute to the development of a negative cognitive style, which should then leave a person vulnerable to developing both hopelessness and episodes of HD. According to Beck's theory, childhood maltreatment should lead to the development of a negative cognitive style, leaving the individual vulnerable to developing nonendogenous major depression (NE-MD). Thus, we hypothesized that a reported history of childhood maltreatment would be related to episodes of both NE-MD and HD as well as to cognitive vulnerability to depression. In accord with Beck's theory, we hypothesized that a negative cognitive style should mediate the relation between a reported history of childhood maltreatment and episodes of NE-MD in adulthood. In accord with the hopelessness theory, we hypothesized that both a negative cognitive style and levels of hopelessness should mediate the relation between a reported history of childhood maltreatment and episodes of HD in adulthood. In examining these hypotheses, the three types of maltreatment (emotional, physical, and sexual) were examined separately so that their unique impact could be assessed.

METHOD

Participants

Participants in this study were a subset of those selected for inclusion in the Temple–Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Alloy & Abramson, 1999). Participants for the CVD study were recruited from the freshmen classes of Temple University (TU) and the University of Wisconsin-Madison (UW) in a two-phase screening process. First, 5,378 freshmen (2,438 at TU and 2,940 at UW) completed the Cognitive Style Questionnaire (CSQ; Abramson, Metalsky, & Alloy, 2000) and a modified version of the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). Individuals scoring in the highest (most negative) or lowest (most positive) quartile on *both* the DAS and the CSQ composite (stability + globality + consequences + self) for negative events were designated as being at high (HR) and low (LR) cognitive risk for depression, respectively (for more details, see Alloy & Abramson, 1999, and Alloy et al., 2000a). Thus, our HR participants exhibited high cognitive vulnerability to depression as specified by *both* the hopelessness theory and Beck's theory, and our LR participants exhibited low cognitive vulnerability to depression as specified

by both theories.[4] A total of 619 HR and 585 LR potential participants were identified in this way.

In the second phase of the screening process, a randomly selected subsample of 313 potential HR and 236 potential LR freshmen who were less than 30 years old were administered an expanded version of the Schedule for Affective Disorders and Schizophrenia—Lifetime (exp-SADS-L) diagnostic interview (Endicott & Spitzer, 1978). The SADS-L was expanded to allow *DSM-III-R* as well as RDC diagnoses. Participants were excluded from participation in the study if they had any of the following diagnoses based on the *DSM-III-R* or RDC: (1) current *DSM-III-R* or RDC diagnosis of any episodic mood disorder (e.g., major [MD] or minor [MiD] depressive disorder, bipolar [Bi] disorder with a current episode of either MD, mania [Ma], or hypomania [Hyp]) or any chronic mood disorder (e.g. dysthymia [Dys], intermittent depressive disorder [IDD], or cyclothymia [Cyc]); (2) current diagnosis of any other psychiatric disorder (e.g., anxiety disorder, alcohol or drug use disorder); (3) current psychotic symptoms; (4) past history of Ma, Hyp, Bi, or Cyc; and (5) serious medical illness that would preclude participation in a longitudinal study. Freshmen who met *DSM-III-R* or RDC criteria for past unipolar depressive disorder (e.g., past MD, MiD, Dys, IDD), but who had remitted for a minimum of 2 months, were retained in the final sample so as not to be left with an unrepresentative sample of HR participants.

A total of 209 HR (114 at TU; 95 at UW) and 207 LR (110 at TU; 97 at UW) participants remained eligible for participation after Phase II of screening. Of these, 173 HR (83 at TU; 90 at UW) and 176 LR (87 at TU; 89 at UW) individuals agreed to participate in the prospective phase of the study. Only those participants who remained in the study through the 2.5-year prospective follow-up and who completed the maltreatment assessment were included in the current study ($N = 297$; HR = 145; LR = 152). The demographic characteristics of the final participants in this study are presented in Table I. The HR and LR groups did not differ significantly on gender, $F(1, 295) = .001$, $p = .98$, age, $F(1, 295) = 1.49$, $p = .22$, or ethnicity, $F(1, 295) = 1.01$, $p = .32$. In addition, the subsample of participants included in the current study is similar to the total CVD Project sample in terms of cognitive style, age, ethnicity, and gender.

Measures

Cognitive Risk for Depression

The Cognitive Style Questionnaire (CSQ; Abramson et al., 2000) and the Dysfunctional Attitude Scale (DAS; Weisman & Beck, 1978) were used to assess

[4]When the CVD Project was first conceptualized, there was limited support for the vulnerability–stress hypotheses of Beck's (1967, 1987) theory and the hopelessness theory (Abramson et al., 1989). Because both theories, despite their differences, are quite similar, participants were selected based on the presence versus absence of cognitive vulnerability as defined by *both* theories. The rationale for this was to provide the strongest test possible of the cognitive theories of depression generally. Thus, the original goal of the CVD Project was to examine general cognitive vulnerability rather than to test the hypotheses of Beck's theory against those of the hopelessness theory (for a further discussion of this point, see Alloy & Abramson, 1999). This said, however, the theories do make different etiological predictions, which are evaluated in the current paper.

Table I. Characteristics of High- and Low-Cognitive-Risk Participants

	High risk (n = 145)	Low risk (n = 152)
DAS item score	4.39 (0.59)	2.21 (0.31)
CSQ-NC item score	5.09 (0.52)	2.78 (0.54)
Age (years)	18.92 (1.83)	19.28 (2.98)
Sex (% female)	68.3	68.4
Ethnicity (% White)	79.3	73.8

Note: Values in parentheses represent standard deviations. DAS, Dysfunctional Attitudes Scale; CSQ-NC, Cognitive Style Questionnaire, Composite for Negative Events.

participants' cognitive vulnerability to depression as specified by the hopelessness theory (Abramson et al., 1989) and Beck's theory (1967, 1987) of depression, respectively. The CSQ, a revised version of the Attributional Style Questionnaire (ASQ; Peterson et al., 1982), is a self-report measure used to assess individuals' tendency to make internal, stable, and global attributions and to infer negative consequences and negative characteristics about themselves following the occurrence of a negative life event. The CSQ contains 24 hypothetical events (12 positive and 12 negative). In response to each of the hypothetical events (e.g. ''You want to be in an intimate, romantic relationship, but aren't''), the participant is asked to indicate what she or he believes would be the major cause of the event if it happened to her or him. In addition, the participant is asked to answer a series of questions about the cause and consequences for each event, as well as what the occurrence of the event would mean for his or her self-concept. The CSQ was modified from the ASQ by including more hypothetical events (both positive and negative) and by including the assessment of inferences about consequences and characteristics of the self in response to the given hypothetical events. A composite score was created for inferences (stability + globality + consequences + self-implication) generated in response to hypothetical negative events. This composite was used in conjunction with scores from the DAS to designate individuals as at high or low cognitive risk for depression. In the CVD Project, the CSQ showed good internal consistency (αs = .86 and .88 for positive and negative events, respectively), retest reliability over 1 year (r = .80 for both the positive and negative composites; Alloy et al., 2000a), and predictive validity for episodes of depression (Alloy, Abramson, Murray, Whitehouse, & Hogan, 1997; Alloy et al., 2000a, 2000b).

The DAS is a 40-item self-report inventory used to assess maladaptive attitudes, including sensitivity to social criticism, perfectionistic performance standards, causal attributions, expectations of control, and rigid ideas about the world. Response options to each of the questions range, on a 7-point Likert-type scale, from totally agree to totally disagree. An example of one of the items is, ''If I fail at my work, then I'm a failure as a person.'' The DAS has been shown to have good internal reliability and moderate concurrent validity in a student population (Dobson & Breiter, 1983). In the current study, a revised version of the DAS was used in which 24 items were added to the original 40 to assess dysfunctional attitudes in

interpersonal and achievement domains, for a total of 64 items. This expanded form of the DAS has shown excellent internal consistency (α = .90) and retest reliability over 1 year (r = .78; Alloy et al., 2000a). As with the CSQ, the DAS has shown predictive validity for episodes of depression (Alloy et al., 1997, 2000b).

Depressive Symptoms

The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) was used to assess participants' initial levels of depression as they entered the study. Numerous studies have established the validity and reliability of the BDI (Beck, Steer, & Garbin, 1988).

Childhood Maltreatment

The Lifetime Experiences Questionnaire (LEQ; Rose, Abramson, & Kaupie, 2000) is a 92-item self-report measure, developed for use in the CVD Project, that assesses a history of emotional, physical, and sexual maltreatment as well as emotional and physical neglect committed by both peers and adults. For each event listed in the LEQ, participants indicate if they have experienced that event, the age of onset and cessation of the event described, its frequency of occurrence, and who the perpetrator was. The LEQ was modeled on Cicchetti's (1989) Child Maltreatment Interview. The LEQ, however, is both more comprehensive and specific with respect to the events it assesses. Consistent with the suggestions made by Brewin, Andrews, and Gotlib (1993), the LEQ assesses a broad range of specific events rather than asking individuals for global estimates of maltreatment and neglect. For the current study, only the maltreatment items from the LEQ were used. In addition, given that we were interested in childhood maltreatment specifically and not maltreatment occurring in either adolescence or adulthood, we included only those events endorsed as occurring before age 15 years. Levels of maltreatment were determined by summing the number of different forms of maltreatment endorsed for each of the three categories (emotional, physical, and sexual). Forms of childhood emotional maltreatment assessed included humiliation, rejection, extortion, and teasing. Forms of physical maltreatment assessed included being hit either with a fist or object, being choked, and being the victim of deliberate physical pain. Forms of sexual maltreatment assessed included unwanted exposure to pornography and exhibitionism, as well as fondling and attempted and completed rape. Examples of items assessed include, ''Did any of your caretakers ever say they wished they were not parents or that you had never been born?'' (emotional maltreatment), ''Did anyone ever deliberately cause you serious physical pain? (For example, burn you with a cigarette, break a bone, or cut you?)'' (physical maltreatment), and ''Did any adult or someone more than 5 years older than you ever force you to have sexual intercourse against your will?'' (sexual maltreatment). The maltreatment subscales of the LEQ (emotional, physical, and sexual) have been found to correlate highly with levels of emotional, physical, and sexual maltreatment reported in structured clinical interviews (rs = .78, .79, and .87, respectively; Kaupie & Abramson, 1999). In the current study, the LEQ exhibited good internal consistency both

for total levels of childhood maltreatment ($\alpha = .89$) and for the childhood emotional ($\alpha = .85$), physical ($\alpha = .67$), and sexual ($\alpha = .80$) maltreatment subscales.

Hopelessness

The Beck Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974), a 20-item true–false self-report questionnaire, was used to assess participants' negative expectations regarding the future. Total scores range from 0 to 20, with higher scores indicating more severe levels of hopelessness. Beck et al. (1974) reported an internal consistency of .93 for the HS using a sample of patients hospitalized for a recent suicide attempt. In addition, the correlations reported by Beck et al. between clinicians' ratings of hopelessness and scores on the HS ($r = .74$, $p < .001$ in an outpatient sample; $r = .64$, $p < .001$ in a sample of hospitalized suicide attempters) indicate adequate concurrent validity. Furthermore, Holden and Fecken (1988) reported a 3-week retest reliability of $r = .85$ in a sample of undergraduates. Participants completed the HS for every 2-week period of the 2.5-year follow-up. Mean levels of hopelessness calculated from the entire 2.5-year period were used because it was hypothesized that individuals who experienced childhood maltreatment would have higher levels of hopelessness over their lifetimes than would individuals who did not experience childhood maltreatment. By using mean levels of hopelessness across the 2.5-year follow-up period, it was thought that a better estimate of lifetime levels of hopelessness would be obtained than if only one measure of hopelessness was used.

Depressive Episodes

An expanded-SADS-Change (exp-SADS-C; Spitzer & Endicott, 1978) interview, which was modified in the same way as the exp-SADS-L, was used to assess episodes of *DSM-III-R* (definite and subthreshold) and RDC (definite and probable) MD across the 2.5-year follow-up. In accord with Beck's (1967, 1987) theory, only episodes of *DSM-III-R* nonmelancholic and RDC nonendogenous MD (NE-MD) were examined in the current study.[5] In addition, the exp-SADS-C was used to make diagnoses of HD (definite and probable) across the 2.5-year follow-up according to the symptom criteria established by Abramson et al. (1989).[6] In the current study, both NE-MD and HD were coded as dichotomous variables, indicating whether or not each participant experienced at least one of these disorders during the 2.5-year follow-up period of the study. Diagnostic interrater reliability for MD and HD

[5]For convenience, both *DSM-III-R* nonmelancholic MD and RDC nonendogenous MD are referred to simply as NE-MD.

[6]To qualify for a diagnosis of HD, participants had to endorse either ≥5 (for a definite HD diagnosis) or ≥4 (for a probable HD diagnosis) of the following criterial symptoms: sadness, retarded initiation of voluntary responses, suicidal ideation/acts, sleep disturbance–initial insomnia, lack of energy, self-blame, difficulty in concentration, psychomotor retardation, brooding/worrying, lowered self-esteem, and dependency. These criterial symptoms had to be present either for ≥2 weeks (overlapping at least 12 of 14 days for definite HD) or for ≥1 week (overlapping at least 6 of 7 days for probable HD). In addition, the onset of hopelessness was required to precede the onset of the criterial symptoms by at least 1 day and no more than 1 week.

episodes throughout the follow-up phase was ≥.90. Details regarding interviewer training may be found in Alloy and Abramson (1999) and Alloy et al. (2000a).

Procedures

Participants who were hypothesized to be at high versus low cognitive risk for depression based on their responses to the CSQ and DAS were chosen for inclusion in the study. After completing the screening procedure, including completion of the BDI, nondisordered participants who agreed to participate in the rest of the study were enrolled in the follow-up phase. For a 2.5-year period, participants came to the laboratory to complete the structured interview and questionnaire assessments (SADS-C and HS) approximately every 6 weeks. When participants were unable to come to the laboratory (e.g., during vacations), assessments were conducted by phone and mail. In addition, participants completed the LEQ at the end of the second year of follow-up. All assessments were conducted blind to participants' risk-group status. Participants were paid for all of their time.

RESULTS

Preliminary Analyses

Before combining the data from the TU and UW sites, a series of one-way ANOVAs was conducted to test for possible site differences on the variables included in this study. Significant effects were found for HD, $F(1, 294) = 8.00$[7], $p < .01$, $r_{\text{effect size}} = .16$, indicating that UW participants were significantly more likely to be diagnosed with HD than were TU participants. Data from the two sites were combined; however, site was statistically controlled in all analyses for which HD served as the dependent variable. Next, to test for possible gender differences in levels of childhood emotional, physical, and sexual maltreatment as well as in hopelessness, NE-MD, and HD, a series of one-way ANOVAs was conducted. The only significant difference was for childhood physical maltreatment, $F(1, 294) = 11.41$, $p < .001$, $r_{\text{effect size}} = .19$, indicating that males reported significantly more childhood physical maltreatment than did females.[8]

Relation Between Reported Childhood Maltreatment and both NE-MD and HD

To test the hypothesis that there would be a significant relationship between levels of reported childhood maltreatment and both NE-MD and HD, NE-MD and HD were each regressed onto reported levels of childhood emotional, physical, and sexual maltreatment. Levels of childhood emotional maltreatment were significantly

[7]Degrees of freedom differ in some analyses due to missing data.

[8]An examination of sex differences in the frequency of individual LEQ items endorsed revealed that although there were no sex differences on the childhood sexual maltreatment subscale, there were differences in a number of the items endorsed. Specifically, women were more likely than men to report childhood incidents of both attempted and completed rape than were men.

related to both NE-MD, $t(293) = 2.36$, $p < .05$, $\beta = .16$, and HD, $t(292) = 2.76$, $p < .01$, $\beta = .19$, indicating that participants who reported more emotional maltreatment in childhood were also more likely to experience both NE-MD and HD during the 2.5-year follow-up period of this study. Neither childhood physical nor sexual maltreatment was related to either NE-MD or HD. Controlling for participants' levels of depressive symptoms upon entering the study, levels of childhood emotional maltreatment remained significantly related to both NE-MD, $t(277) = 2.02$, $p < .05$, $\beta = .14$, and HD, $t(276) = 2.22$, $p < .05$, $\beta = .15$.[9,10]

Relation Between Reported Childhood Maltreatment and Cognitive Risk

To test the hypothesis that HR participants would report more maltreatment in childhood than would LR participants, risk status was regressed onto reported levels of the three kinds of childhood maltreatment. Risk status was related to levels of both childhood emotional, $t(293) = 3.57$, $p < .001$, $\beta = .25$, and physical, $t(276) = -2.66$, $p < .01$, $\beta = -.18$, maltreatment. Thus, HR participants reported significantly higher levels of childhood emotional maltreatment than did LR participants. Counterintuitively, however, HR participants reported significantly lower levels of childhood physical maltreatment than did LR participants. Risk status was not related to childhood sexual maltreatment.[11] An examination of Table II indi-

[9]To aid in comparing the current results to those of previous studies, analyses were also performed examining MD more generally (i.e., including both endogenous and nonendogenous diagnoses of MD). These results were virtually identical to those obtained when examining NE-MD. Specifically, controlling for the overlap among the three forms of childhood maltreatment, we found that participants who experienced at least one episode of MD during the 2.5-year follow-up reported higher levels of childhood emotional, $t(293) = 2.80$, $p < .01$, $\beta = .19$, but not physical, $t(293) = -1.23$, $p = .22$, $\beta = -.08$, or sexual maltreatment, $t(293) = .51$, $p = .61$, $\beta = .03$, than participants who experienced no episodes of MD during the follow-up. In addition, HR participants were more likely to experience at least one episode of MD during the 2.5-year follow-up than were LR participants, $t(295) = 5.17$, $p < .001$, $\beta = .29$. In testing Beck's model, cognitive risk status fully mediated the relation between childhood emotional maltreatment and MD. Each of these results was maintained even after controlling for participants initial levels of depressive symptoms upon entering the study.

[10]The relations between the three types of childhood maltreatment and both NE-MD and HD were also examined using one-way ANOVAs, thus not statistically controlling for the overlap among the three forms of maltreatment. Results of these analyses were, for the most part, consistent with those found when using regression analyses. Specifically, participants who were diagnosed with at least one episode of NE-MD, $F(1, 295) = 5.53$, $p < .05$, $r = .14$, or HD, $F(1, 295) = 8.50$, $p < .01$, $r = .17$, during the follow-up reported higher levels of childhood emotional maltreatment than did participants not receiving diagnoses of either NE-MD or HD, respectively, during the follow-up. In contrast, reported levels of childhood physical maltreatment were not significantly related to either NE-MD, $F(1, 295) = .18$, $p = .68$, $r = .02$, or HD, $F(1, 295) = .52$, $p = .47$, $r = .04$. Finally, reported levels of childhood sexual maltreatment were not related to NE-MD, $F(1, 295) = .03$, $p = .87$, $r = .10$, but were related to HD, $F(1, 295) = 4.13$, $p < .05$, $r = .12$. Looking at MD more generally (i.e., both endogenous and nonendogenous), participants experiencing at least one episode of MD during the follow-up reported higher levels of childhood emotional, $F(1, 295) = 5.23$, $p < .05$, $r = .13$, but not physical, $F(1,295) = .18$, $p = .68$, $r = .02$, or sexual, $F(1, 295) = .03$, $p = .87$, $r = .01$, maltreatment than did participants experiencing no episodes of MD during the follow-up.

[11]The relations between the three types of childhood maltreatment and participants' cognitive risk status were also examined using one-way ANOVAs, thus not statistically controlling for the overlap among the three forms of maltreatment. Results of these analyses were consistent with those found when using regression analyses. Specifically, HR participants reported higher levels of childhood emotional maltreatment than did LR participants, $F(1, 295) = 6.35$, $p = .01$, $r = .15$. The risk groups did not differ, however, in levels of reported childhood physical, $F(1, 295) = .73$, $p = .39$, $r = -.05$, or sexual, $F(1, 295) = .03$, $p = .90$, $r = .01$, maltreatment.

Table II. Mean Levels of Childhood Maltreatment for High- and Low-Risk Participants

	High risk	Low risk
Childhood emotional maltreatment	3.20 (3.71)	2.18 (3.10)
Childhood physical maltreatment	1.00 (1.36)	1.05 (1.21)
Childhood sexual maltreatment	0.66 (1.67)	0.54 (1.62)

Note: Values represent mean numbers of different forms of each type of maltreatment. Values in parentheses represent standard deviations.

cates, however, that the difference in levels of childhood physical maltreatment between high- and low-risk participants was quite small. Indeed, controlling for initial levels of depressive symptoms, risk status remained significantly related to reported levels of childhood emotional maltreatment, $t(277) = 2.85, p < .01, \beta = .16$, but its relationship with childhood physical maltreatment was reduced to marginal significance, $t(277) = -1.85, p = .07, \beta = -.10$.

Testing Beck's Model

To evaluate whether cognitive risk status mediated the relation between reported childhood maltreatment and NE-MD, a series of regression analyses was conducted in accord with the suggestions of Baron and Kenny (1986). The significant relations between reported levels of childhood emotional maltreatment and both episodes of NE-MD and cognitive risk status were reported above. Alloy et al. (2000b) demonstrated that cognitive risk status predicted prospective onsets of MD and HD over the 2.5-year follow-up. However, because a subset of the CVD Project participants was included in this study, regression analyses were conducted to determine whether risk status predicted NE-MD in the present sample. Risk status was significantly related to NE-MD, $t(295) = 4.29, p < .001, \beta = .24$, suggesting that HR participants were significantly more likely to have experienced an NE-MD during the 2.5-year follow-up than were LR participants. This relationship was maintained even after controlling for participants' initial levels of depressive symptoms.

Having established these significant relations, we tested the mediation model with a hierarchical regression analysis (see Table III). Using NE-MD as the criterion variable, each of the three types of reported childhood maltreatment was entered in the first step of the regression analysis and emotional maltreatment was significant as described above. When cognitive risk was entered in the second step, it was significant, $t(292) = 3.89, p < .001, \beta = .22$. The relation between levels of childhood emotional maltreatment and NE-MD was reduced to nonsignificant in this second step, $t(292) = 1.57, p = .12, \beta = .11$, suggesting that cognitive vulnerability fully mediated the relation between reported levels of childhood emotional maltreatment and NE-MD. These results were maintained even after participants' initial levels of depressive symptoms were statistically controlled.

Table III. Summary of Hierarchical Regression Analysis Predicting Nonendogenous Major Depression During the 2.5-Year Follow-up

Variable	*B*	*SE B*	β
Step 1			
Child emotional maltreatment	.02	.01	.16*
Child physical maltreatment	−.02	.02	−.08
Child sexual maltreatment	.02	.01	.07
Step 2			
Child emotional maltreatment	.01	.01	.11
Child physical maltreatment	−.01	.02	−.04
Child sexual maltreatment	.02	.01	.07
Cognitive risk	.18	.05	.22***

Note: $R^2 = .03$ for step 1; $\Delta R^2 = .05$ for step 2 (ps $< .05$).
*$p < .05$; ***$p < .001$.

Testing the Hopelessness Model

To evaluate whether the etiological chain of the hopelessness theory accounted for the relation between a reported history of childhood maltreatment and episodes of HD during the follow-up, a series of mediation analyses was again conducted. Specifically, the logic of the hopelessness theory suggests that childhood maltreatment should lead to the development of a cognitive vulnerability to depression (negative cognitive style), which should, in turn, predispose a person to becoming hopeless. Higher levels of hopelessness should then leave one vulnerable to developing HD. To test this mediational model, analyses were divided into three parts. In the first part, a hierarchical regression analysis was conducted to determine whether cognitive risk mediated the relation between reported childhood maltreatment and levels of hopelessness. In the second part, a hierarchical regression analysis was conducted to examine whether levels of hopelessness mediated the relation between cognitive risk and HD. In the third part, having established the individual components of the model, we tested the entire model in a single hierarchical regression analysis.

As a first step in the tests of mediation, a series of regression analyses was conducted to determine whether all the variables to be included in this model were significantly related to one another. In addition to the significant relations between reported childhood emotional maltreatment and both cognitive risk and HD reported above, levels of hopelessness were significantly related to both levels of reported childhood emotional maltreatment, $t(279) = 3.40$, $p < .001$, $\beta = .24$, and cognitive risk status, $t(281) = 5.99$, $p < .001$, $\beta = .34$. Neither childhood physical nor sexual maltreatment was related to hopelessness. Further, HD was significantly related to both risk status, $t(294) = 8.28$, $p < .001$, $\beta = .43$, and levels of hopelessness, $t(280) = 7.40$, $p < .001$, $\beta = .40$. Each of these relations was maintained after controlling for initial levels of depressive symptoms.

Table IV. Summary of Hierarchical Regression Analysis Predicting Average Levels of Hopelessness Across the 2.5-Year Follow-up

Variable	*B*	*SE B*	β
Step 1			
Child emotional maltreatment	0.14	.04	.24***
Child physical maltreatment	−0.06	.11	−.04
Child sexual maltreatment	0.01	.07	.01
Step 2			
Child emotional maltreatment	0.09	.04	.16*
Child physical maltreatment	0.02	.10	.02
Child sexual maltreatment	0.01	.07	.01
Cognitive risk	1.34	.24	.31***

Note: $R^2 = .05$ for step 1; $\Delta R^2 = .09$ for step 2 (ps $< .01$).
*$p < .05$; ***$p < .001$.

To examine the first component of the model, a hierarchical regression analysis was conducted to determine whether cognitive risk mediated the relation between reported childhood maltreatment and hopelessness (see Table IV). Using average levels of hopelessness across the 2.5-year follow-up as the criterion variable, we entered each of the three types of reported childhood maltreatment in the first step of the regression analysis. Although neither childhood physical nor sexual maltreatment was related to hopelessness, childhood emotional maltreatment was significant, $t(279) = 3.40$, $p < .001$, $\beta = .24$. When cognitive risk was entered in the second step, it was significant, $t(278) = 5.53$, $p < .001$, $\beta = .31$, and childhood emotional maltreatment was reduced in significance, $t(278) = 2.37$, $p < .05$, $\beta = .16$, indicating that cognitive risk partially mediated the relation between reported levels of childhood emotional maltreatment and hopelessness.[12] These results were maintained even after controlling for initial levels of depressive symptoms.

To examine the second component of the model, a hierarchical regression analysis was used to determine whether levels of hopelessness mediated the relation between cognitive risk and HD (see Table V). Using HD as the criterion measure, we entered site in the first step of the regression equation to control for its influence on HD. When cognitive risk was entered in the second step, it was significant, $t(280) = 8.08$, $p < .001$, $\beta = .43$. When hopelessness was added in the third step, the relation between cognitive risk and HD, though remaining significant, was reduced in magnitude, $t(279) = 6.19$, $p < .001$, $\beta = .33$. In this third step, hopelessness was also significantly related to HD, $t(279) = 5.35$, $p < .001$, $\beta = .29$, indicating

[12]To determine partial mediation, a modified version of Meng, Rosenthal, and Rubin's (1992) test of correlated correlation coefficients was used. To qualify for partial mediation, (a) the strength of the relation between the predictor and criterion variables had to be significantly reduced when the proposed mediator was entered into the hierarchical regression and (b) the relation between the predictor and the criterion variables, though reduced when the proposed mediator was included in the regression, remained significant. Further details of these analyses can be obtained by contacting the first author.

Table V. Summary of Hierarchical Regression Analysis Predicting Hopelessness Depression During the 2.5-Year Follow-up

Variable	*B*	*SE B*	β
Step 1			
Site	−.16	.06	−.17**
Step 2			
Site	−.18	.05	−.19***
Cognitive risk	.41	.05	.43***
Step 3			
Site	−.20	.05	−.21***
Cognitive risk	.32	.05	.33***
Hopelessness	.06	.01	.29***

Note: $R^2 = .03$ for step 1; $\Delta R^2 = .18$ for step 2; $\Delta R^2 = .07$ for step 3 (ps $< .001$).
**$p < .01$; ***$p < .001$.

that it partially mediated the relation between cognitive risk and HD. These results were maintained even after controlling for participants' initial levels of depressive symptoms.

Given that cognitive risk partially mediated the relation between reported childhood emotional maltreatment and hopelessness, and hopelessness partially mediated the relation between cognitive risk and HD, the complete model was tested next. Using HD as the criterion variable, we entered site in the first step of the regression analysis to control for its influence on HD (see Table VI). Each of the three types of childhood maltreatment was entered in the second step of the hierarchical regression equation. Although neither childhood physical nor sexual maltreatment was significantly related to HD, childhood emotional maltreatment was significant, $t(278) = 2.69$, $p < .01$, $\beta = .19$. When cognitive risk was added in the third step, it was significant $t(277) = 7.72$, $p < .001$, $\beta = .42$, and childhood emotional maltreatment was reduced to nonsignificant, $t(277) = 1.31$, $p = .19$, $\beta = .09$. In the fourth step, hopelessness was added to the model. It was significant, $t(276) = 5.08$, $p < .001$, $\beta = .28$; cognitive risk, though reduced in magnitude, remained significant, $t(276) = 6.06$, $p < .001$, $\beta = .33$; and childhood emotional maltreatment remained nonsignificant. These results indicate that cognitive risk status fully mediated the relation between levels of reported childhood emotional maltreatment and HD and that average levels of hopelessness partially mediated the relation between cognitive risk status and HD. Each of these results was maintained even after participants' initial levels of depressive symptoms were controlled.

Specificity of the Models

The specificity of both Beck's model and the hopelessness model was examined in two ways.[13] First, the hopelessness model was tested with NE-MD as the criterion variable. If both cognitive risk status and levels of hopelessness mediated the relation between childhood emotional maltreatment and NE-MD, this would argue against

[13]We would like to thank an anonymous reviewer for suggesting these analyses.

Table VI. Summary of Hierarchical Regression Analysis Predicting Hopelessness Depression During the 2.5-Year Follow-up

Variable	*B*	*SE B*	β
Step 1			
Site	−.16	.06	−.17**
Step 2			
Site	−.16	.06	−.17**
Child emotional maltreatment	.02	.01	.19**
Child physical maltreatment	−.02	.02	−.08
Child sexual maltreatment	.03	.02	.10
Step 3			
Site	−.18	.05	−.19***
Child emotional maltreatment	.01	.01	.09
Child physical maltreatment	.00	.02	−.01
Child sexual maltreatment	.03	.02	.11*
Cognitive risk	.39	.05	.42***
Step 4			
Site	−.20	.05	−.21***
Child emotional maltreatment	.00	.01	.04
Child physical maltreatment	.00	.02	−.01
Child sexual maltreatment	.03	.01	.11*
Cognitive risk	.31	.05	.33***
Hopelessness	.06	.01	.28***

Note: $R^2 = .10$ for step 1; $\Delta R^2 = .03$ for step 2; $\Delta R^2 = .10$ for step 3; $\Delta R^2 = .07$ for step 4 ($ps < .05$).
*$p < .05$; **$p < .01$; ***$p < .001$.

the specificity of the hopelessness model's etiological chain. The first two steps of the hierarchical regression analysis were identical to those described above under Testing Beck's Model. When hopelessness was added in the third step, it was not significant, $t(277) = 1.09$, $p = .28$, $\beta = .07$, suggesting that it did not mediate the relation between risk status and NE-MD. Thus, the causal chain specified by the hopelessness theory appears to be specific to diagnoses of hopelessness depression.

The specificity of both Beck's model and the hopelessness model was also examined by retesting the components of each model while statistically controlling for the subtype of depression (HD and NE-MD) not being used as the criterion variable. Thus, for example, the occurrence of HD was statistically controlled for in all analyses for which NE-MD served as the criterion variable. First, the relations between childhood maltreatment and both NE-MD and HD were examined. Controlling for HD, reported levels of childhood emotional maltreatment were no longer significantly related to NE-MD, $t(292) = 1.33$, $p = .19$, $\beta = .09$. In addition, controlling for HD, neither childhood physical nor sexual maltreatment was related to NE-MD, $t(292) = -.70$, $p = .49$, $\beta = -.04$, and $t(292) = .56$, $p = .58$, $\beta = .03$,

respectively. In contrast, controlling for NE-MD, childhood emotional maltreatment remained significantly related to HD, $t(291) = 1.97$, $p = .05$, $\beta = .12$. Controlling for NE-MD, neither childhood physical, $t(291) = -.80$, $p = .42$, $\beta = -.05$, nor sexual, $t(291) = 1.39$, $p = .17$, $\beta = .07$, maltreatment was related to HD. Second, the relations between cognitive risk status and both NE-MD and HD were examined. Controlling for HD, risk status was not significantly related to NE-MD, $t(294) = 1.31$, $p = .19$, $\beta = .08$. In contrast, controlling for NE-MD, risk status remained significantly related to HD, $t(293) = 6.97$, $p < .001$, $\beta = .35$. Third, the relations between participants' average levels of hopelessness and HD were examined. Controlling for NE-MD, hopelessness remained significantly related to HD, $t(279) = 6.45$, $p < .001$, $\beta = .34$. Finally, the entire hopelessness model was examined, controlling for NE-MD. Beck's model was not retested because, controlling for HD, neither reported levels of childhood emotional maltreatment nor cognitive risk status were significantly related to NE-MD. Controlling for NE-MD, risk status fully mediated the relation between childhood emotional maltreatment and HD, and hopelessness partially mediated the relation between cognitive risk status and HD. These results support the specificity of the relationships among childhood emotional maltreatment, cognitive risk status, hopelessness, and HD.

DISCUSSION

The results of the current study provide support for the hopelessness theory (Abramson et al., 1989) and partial support for Beck's (1967, 1987) theory. Specifically, results of this study suggest that levels of reported childhood emotional maltreatment were related to cognitive vulnerability to depression, average levels of hopelessness, NE-MD, and HD. In support of Beck's theory, it appeared that cognitive risk status fully mediated the relation between reported childhood emotional maltreatment and NE-MD. However, this was no longer true when HD was controlled. Supporting the extended hopelessness theory, results suggested that (a) cognitive risk status partially mediated the relation between levels of reported childhood emotional maltreatment and average levels of hopelessness, (b) cognitive risk fully mediated the relation between levels of reported childhood emotional maltreatment and HD, and (c) average levels of hopelessness partially mediated the relation between cognitive risk status and HD.

Tests of specificity indicated that the etiological pathway proposed by Rose and Abramson's (1992) extension of the hopelessness theory was specific to diagnoses of hopelessness depression. Specifically, average levels of hopelessness did not mediate the relation between cognitive risk status and NE-MD. In addition, the relations of both childhood emotional maltreatment and cognitive risk status with NE-MD appear to have been due to the overlap of NE-MD with HD. In contrast, the relations among reported childhood emotional maltreatment, cognitive risk status, average levels of hopelessness, and HD were independent of any overlap between HD and NE-MD. In confirming the hypothesized etiological pathway of the hopelessness theory, the current results provide further evidence of the construct validity of hopelessness depression.

That partial instead of full mediation was found when testing some of the components of the model might have been due to the use of average levels of hopelessness in the model. Although we hypothesized in the current study that levels of reported maltreatment would be positively correlated with average levels of hopelessness, the hopelessness theory does not assert that individuals with a cognitive vulnerability to depression will have higher levels of hopelessness at all times. The hopelessness theory merely hypothesizes that cognitively vulnerable individuals will be more likely to become hopeless when confronted with negative life events and that hopelessness, when it occurs, is a proximal sufficient cause of the symptoms of HD. By examining levels of hopelessness on such a gross level, we may have obscured otherwise significant findings.

The major findings from the present study were those involving emotional maltreatment. Although previous authors have hypothesized that childhood emotional maltreatment may be more deleterious than either childhood physical or sexual maltreatment (e.g. Hart & Brassard, 1987; Rose & Abramson, 1992), the current results do contradict results of some previous studies. Specifically, in contrast to previous studies, we did not find a significant relation between reported levels of childhood sexual maltreatment and participants' cognitive styles. In addition, we did not find significant relations between reported levels of either childhood physical or sexual maltreatment and participants' average levels of hopelessness or diagnoses of NE-MD or HD.

There are three differences between the design of the current study and the designs of previous studies that may have contributed to the differences in findings. First, this is the first study simultaneously to examine the relation of reported childhood emotional, physical, *and* sexual maltreatment with negative cognitive styles, hopelessness, NE-MD, and HD. Given that previous studies did not control for the overlap among the three forms of childhood maltreatment, prior findings of significant relations for physical and sexual maltreatment may have been due to the overlap of childhood emotional maltreatment with childhood physical and sexual maltreatment. Indeed, in the current study, levels of reported childhood emotional maltreatment were significantly related to levels of both physical and sexual maltreatment ($r = .54$, $p < .001$, and $r = .19$, $p < .001$, respectively). To the extent that previous studies did not control for the occurrence of childhood emotional maltreatment when examining the impact of either childhood physical or sexual maltreatment, their significant findings could have been spurious due to the third-variable effects of childhood emotional maltreatment.

Second, in the majority of previous studies, participants were dichotomously classified as either maltreated or not, whereas in the current study, participants' levels of maltreatment were calculated along a continuum from zero to many types of maltreatment experiences. By using this method, it was hoped that a more sensitive assessment of maltreatment could be obtained. For example, a person whose experiences of childhood emotional maltreatment were limited to a certain form (e.g., humiliation) is very different, and is expected to have a more positive long-term outcome, than is an individual who experienced many different forms of childhood emotional maltreatment (e.g., humiliation, rejection, extortion, teasing, etc.).

A third difference between the current study and previous studies that may have contributed to the difference in the obtained importance of childhood emotional maltreatment is that participants for the current study were selected based on their cognitive styles. It may be that using cognitive vulnerability to depression as the selection criterion biased the sample such that individuals with deleterious effects following from childhood emotional maltreatment were overrepresented. This situation would be congruent with the hypotheses of Rose and Abramson (1992), who argued that childhood emotional maltreatment should be more likely than either childhood physical or sexual maltreatment to lead to a negative cognitive style because negative cognitions are supplied directly to the child by the abuser.

It is noteworthy that in the current study LR participants reported higher levels of childhood physical maltreatment than did HR participants, although this relation was reduced to marginal when initial levels of depression were controlled. Although not robust, this finding is counterintuitive and requires further examination before definitive conclusions can be drawn about the long-term effects of childhood physical maltreatment on individuals' cognitive styles.

Despite the contributions offered by this study, it is characterized by several limitations as well. The primary limitation is the reliance upon participants' self-reported recall of instances of childhood maltreatment. Brewin et al. (1993), however, argued that adults' recall of the occurrence of specific childhood events is reasonably accurate. Inasmuch as our measure of childhood maltreatment was based not on the global recall of maltreatment, but on the recall of specific instances of maltreatment, we hoped to minimize such recall biases. Two aspects of the current results suggest that they were not due to recall bias. First, in finding that the HR and LR participants had an opposite pattern of reported childhood emotional and physical maltreatment, we may have greater confidence in our childhood maltreatment measure. That is, our risk-group differences in levels of maltreatment did not appear to be the result of the HR participants simply reporting higher levels of all types of negative childhood events than the LR participants. Second, our findings that the effects of childhood emotional maltreatment were mediated by other variables (i.e., cognitive risk status and average levels of hopelessness) argue against the presence of a strong recall bias. That is, if our results were due to participants' recall biases, we should not have found support for our mediational hypotheses.

A second limitation of the current study is that levels of maltreatment were assessed after the participants had been in the study for 2 years, so that reported levels of maltreatment could not be used as prospective predictors of hopelessness, MD, and HD. However, by administering the maltreatment questionnaire at the end of the second year of the study, it was hoped that participants would be more willing to report on sensitive topics than would individuals who simply came in for one assessment, thereby providing a more accurate description of their maltreatment histories. Future studies, however, should attempt to use levels of maltreatment prospectively to predict cognitive styles, hopelessness, and depressive episodes.

In conclusion, despite its limitations, this project offers significant findings in support of the potential role of childhood emotional maltreatment as a developmental contributor to cognitive vulnerability, hopelessness, and depression. This study is the first simultaneously to examine the relations among childhood emo-

tional, physical, and sexual maltreatment and cognitive vulnerability, hopelessness, NE-MD, and HD. In so doing, our findings suggest that childhood emotional maltreatment may be the most detrimental of the three types of childhood maltreatment for the development of cognitive vulnerability to depression. In addition, of the three types of maltreatment, childhood emotional maltreatment may have the strongest unique relations with hopelessness, NE-MD, and HD. Although the models tested were congruent with the hypothesis that childhood emotional maltreatment leads to the development of negative cognitive styles, and, in turn, vulnerability to both NE-MD and HD, research is necessary before any causal conclusions can be drawn. Specifically, future studies should examine whether levels of childhood emotional maltreatment prospectively predict changes in children's cognitive styles.

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REFERENCES

Abramson, L. Y., Alloy, L. B., & Metalsky, G. I. (1995). Hopelessness depression. In G. M. Buchanan & M. E. P. Seligman (Eds.), *Explanatory style* (pp. 113–134). Hillsdale, NJ: Erlbaum.

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96,* 358–372.

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (2000). *The Cognitive Style Questionnaire*: *A measure of the diatheses featured in the hopelessness theory of depression.* Manuscript in preparation, University of Wisconsin-Madison, Madison, Wisconsin.

Alloy, L. B., & Abramson, L. Y. (1999). The Temple–Wisconsin Cognitive Vulnerability to Depression (CVD) Project: Conceptual background, design, and methods. *Journal of Cognitive Psychotherapy*: *An International Quarterly*, *13,* 227–262.

Alloy, L. B., Abramson, L. Y., Hogan, M. E., Whitehouse, W. G., Rose, D. T., Robinson, M. S., Kim, R. S., & Lapkin, J. B. (2000a). The Temple–Wisconsin Cognitive Vulnerability to Depression (CVD) Project: Lifetime history of Axis I psychopathology in individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology*, *109,* 403–418.

Alloy, L. B., Abramson, L. Y., Murray, L. A., Whitehouse, W. G., & Hogan, M. E. (1997). Self-referent information-processing in individuals at high and low cognitive risk for depression. *Cognition and Emotion*, *11,* 539–568.

Alloy, L. B., Abramson, L. Y., Whitehouse, W. G., Hogan, M. E., Panzarella, C., Robinson, M. S., Lapkin, J. B., Rose, D. T., & Donovan, P. (2000b). *Prospective incidence of Axis I disorders in individuals at high and low cognitive vulnerability to depression.* Manuscript in preparation, Temple University, Philadelphia, Pennsylvania.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed. rev.). Washington, DC: Author.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51,* 1173–1183.

Beck, A. T. (1967). *Depression*: *Clinical*, *experimental*, *and theoretical aspects.* New York: Harper & Row.

Beck, A. T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy*: *An International Quarterly*, *1,* 5–37.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford Press.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*, *8,* 77–100.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42,* 861–865.

Beitchman, J. H., Zucker, K. J., Hood, J. E., daCosta, G. A., Arkman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse and Neglect*, *16,* 101–117.

Boudewyn, A. R., & Liem, J. H. (1995). Childhood sexual abuse as a precursor to depression and self-destructive behavior in adulthood. *Journal of Traumatic Stress*, *8,* 445–459.

Braver, M., Bumberry, J., Green, K., & Rawson, R. (1992). Childhood abuse and current psychological functioning in a university counseling center population. *Journal of Counseling Psychology*, *39,* 252–257.

Brewin, C. R., Andrews, B., & Gotlib, I. H. (1993). Psychopathology and early experience: A reappraisal of retrospective reports. *Psychological Bulletin*, *113,* 82–98.

Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: A review of the research. *Psychological Bulletin*, *99,* 66–77.

Cicchetti, D. (1989). *Maltreatment Classification Interview.* Rochester, NY: University of Rochester, Mount Hope Family Center.

Dhaliwal, G. K., Gauzas, L., Antonowicz, D. H., & Ross, R. R. (1996). Adult male survivors of childhood sexual abuse: Prevalence, sexual abuse characteristics, and long-term effects. *Clinical Psychology Review*, *16,* 619–639.

Dobson, K. S., & Breiter, H. J. (1983). Cognitive assessment of depression: Reliability and validity of three measures. *Journal of Abnormal Psychology*, *92,* 107–109.

Endicott, J., & Spitzer, R. A. (1978). A diagnostic interview: The Schedule for Affective Disorders and Schizophrenia. *Archives of General Psychiatry*, *35,* 837–844.

Feiring, C., Taska, L., & Lewis, M. (1998). The role of shame and attributional style in children's and adolescents' adaptation to sexual abuse. *Child Maltreatment*, *3,* 129–142.

Gibb, B. E. (2000). *Childhood emotional*, *physical*, *and sexual maltreatment and negative cognitive styles*: *A qualitative and quantitative review of the literature.* Manuscript submitted for publication.

Gladstone, G., Parker, G., Wilhelm, K., Mitchell, P., & Austin, M. (1999). Characteristics of depressed patients who report childhood sexual abuse. *American Journal of Psychiatry*, *156,* 431–437.

Gold, E. R. (1986). Long-term effects of sexual victimization in childhood: An attributional approach. *Journal of Consulting and Clinical Psychology*, *54,* 471–475.

Gross, A. B., & Keller, H. R. (1992). Long-term consequences of childhood physical and psychological maltreatment. *Aggressive Behavior*, *18,* 171–185.

Haaga, D. F., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theories of depression. *Psychological Bulletin*, *110,* 215–236.

Hart, S. N., & Brassard, M. R. (1987). A major threat to children's mental health: Psychological maltreatment. *American Psychologist*, *42,* 160–165.

Holden, R. R., & Fecken, C. (1988). Test–retest reliability of the hopelessness scale and its items in a university population. *Journal of Consulting and Clinical Psychology*, *44,* 40–43.

Hussey, D. L., Strom, G., & Singer, M. (1992). Male victims of sexual abuse: An analysis of adolescent psychiatric inpatients. *Child and Adolescent Social Work Journal*, *9,* 491–503.

Joiner, T. E., Jr., & Wagner, K. D. (1995). Attributional style and depression in children and adolescents: A meta-analytic review. *Clinical Psychology Review*, *15,* 777–798.

Kaupie, C. A., & Abramson, L. Y. (1999). *Validation of a questionnaire to measure developmental history of maltreatment.* Unpublished manuscript, University of Wisconsin-Madison, Madison, Wisconsin.

Meng, X., Rosenthal, R., & Rubin, D. B. (1992). Comparing correlated correlation coefficients. *Psychological Bulletin*, *111,* 172–175.

Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as risk factors for depression: Theory and evidence. *Psychological Review*, *91,* 347–374.

Peterson, C. R., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research*, *6,* 287–300.

Rich, D. J., Gingerich, K. J., & Rosen, L. A. (1997). Childhood emotional abuse and associated psychopathology in college students. *Journal of College Student Psychotherapy*, *11,* 13–28.

Roosa, M. W., Reinholtz, C., & Angelini, P. J. (1999). The relation of child sexual abuse and depression in young women: Comparisons across four ethnic groups. *Journal of Abnormal Child Psychology*, *27,* 65–76.

Rose, D. T., & Abramson, L. Y. (1992). Developmental predictors of depressive cognitive style: Research and theory. In D. Cicchetti & S. Toth (Eds.), *Rochester symposium of developmental psychopathology* (Vol. IV, pp. 323–349). Rochester, NY: University of Rochester Press.

Rose, D. T., Abramson, L. Y., Hodulik, C. J., Halberstadt, L., & Leff, G. (1994). Heterogeneity of cognitive style among depressed inpatients. *Journal of Abnormal Psychology*, *103,* 419–429.

Rose, D. T., Abramson, L. Y., & Kaupie, C. A. (2000). *The Lifetime Experiences Questionnaire*: *A measure of history of emotional*, *physical*, *and sexual maltreatment.* Manuscript in preparation, University of Wisconsin-Madison, Madison, Wisconsin.

Silverman, A. B., Reinherz, H. Z., & Giaconia, R. M. (1996). The long-term sequelae of child and adolescent abuse: A longitudinal community study. *Child Abuse and Neglect*, *20,* 709–723.

Spitzer, R. L., & Endicott, J. (1978). *Schedule for Affective Disorders and Schizophrenia—Change version.* New York: Biometrics Research, New York State Psychiatric Institute.

Spitzer, R. L., Endicott, J., & Robbins, E. (1978). Research diagnostic criteria: Rationale and reliability. *Archives of General Psychiatry*, *35,* 773–782.

Weissman, A., & Beck, A. T. (1978). *Development and validation of the Dysfunctional Attitude Scale*: *A preliminary investigation.* Paper presented at the meeting of the American Educational Research Association, Toronto, Canada.

Zuravin, S. J., & Fontanella, C. (1999). The relationship between child sexual abuse and major depression among low-income women: A function of growing up experiences? *Child Maltreatment*, *4,* 3–12.