Research report

The course of depression in individuals at high and low cognitive risk for depression: A prospective study

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Abstract

Background: Negative cognitive styles have been shown to prospectively predict depression onset and recurrence. Research has also begun to suggest that cognitive styles may be associated with the course of depression as well. This study examined whether cognitive risk for depression onset also predicts the course of depression in a prospective design.

Methods: One hundred fifty-nine initially nondepressed participants from the Temple–Wisconsin Cognitive Vulnerability to Depression Project who experienced a depressive episode while in the study were followed prospectively for 2.5 years. Four indicators of the course of depression were assessed from diagnostic interviews and questionnaires administered every 6 weeks: the number, severity and duration of episodes and the chronicity of the depression experienced.

Results: Cognitive high-risk participants experienced more episodes of depression, more severe episodes, and more chronic courses than low-risk participants. There were no risk group differences observed for the duration of episodes.

Limitations: This study’s sample was chosen to include individuals with high and low cognitive vulnerability to depression, potentially limiting the generalizability of the findings to other individuals. Also, the study included some participants with a past history of depression.

Conclusions: Negative cognitive styles predict a worse course of depression as well as rendering an individual prone to depression onset. This highlights that the cognitive factors impacting depression’s course overlap, at least partly, with those that initiate depression. Thus, knowledge of a depressed individual’s cognitive styles could aid in prognosis and treatment planning.

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Keywords: Cognitive vulnerability; Risk; Depression; Course

1. Introduction

Recent research has produced growing evidence for the role of negative cognitive styles as vulnerabilities for the onset of depression (Abramson et al., 2002; Alloy et al., 1999, 2006; Ingram et al., 1998). Specifically, both Hopelessness (Abramson et al., 1989) and Beck’s (1967) theories of depression include cognitive vulnerability components positing that individuals exhibiting particular maladaptive thinking patterns are at increased risk for developing depression when they experience negative life events. According to the Hopelessness theory (Abramson et al., 1989), individuals exhibiting characteristic
tendencies to infer stable (enduring) and global (widespread) causes, negative consequences, and negative self-characteristics in response to a negative life event will be more likely to develop depression (particularly, hopelessness depression) than people who do not exhibit these negative inferential styles. In Beck’s (1967) theory, dysfunctional attitudes concerning the need to be perfect or gain others’ approval are hypothesized to provide vulnerability to depression when individuals experience negative life events that impinge on these attitudes.

Consistent with the cognitive vulnerability hypotheses of Hopelessness and Beck’s theories, the Temple–Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Alloy and Abramson, 1999) demonstrated that nondepressed individuals exhibiting the aforementioned cognitive vulnerabilities were significantly more likely to exhibit a lifetime history of depressive episodes (Alloy et al., 2000), as well as prospective first lifetime onsets and recurrences of major, minor, and hopelessness depression compared to individuals who did not exhibit these cognitive vulnerabilities (Alloy et al., 1999, 2006). Although individuals were included in the CVD Project regardless of past history of depression, at least half of the sample had no prior history of depression. Among these never depressed participants, 16.2% of the cognitively vulnerable experienced a first lifetime onset of major depression while in the study, as compared to 2.7% of the “low-risk” group (OR 7.4, 95% CI (1.6–34.8); Alloy et al., 2005, 2006), highlighting the prospective nature of the study. These CVD Project findings have also been augmented by similar findings from other research, indicating that a negative cognitive style, either alone or in combination with stressful events, confers vulnerability to depression (e.g., Brown et al., 1995; Dykman and Johll, 1998; Haefelf et al., 2003; Hankin et al., 2004; see Abramson et al., 2002 and Alloy et al., 2006 for reviews).

As important as understanding factors that contribute to the onset or recurrence of depression, is understanding factors that influence the course of the disorder. Given certain negative cognitive premorbid characteristics, what would an individual’s depression be expected to “look like”? Knowledge of such course predictors could be valuable to clinicians in estimating prognoses and treating depressed clients, as well as to researchers in targeting individuals likely to develop chronic or more severe depressions. Foresight on the part of both pharmacotherapists and psychotherapists as to what the course of a client’s depression could be expected to entail would be useful for treatment planning and assessment of treatment effectiveness. For instance, a clinician that has an expectation that their client may well experience several episodes, more severe episodes, or lingering subsyndromal symptoms could take this into account when planning a cognitive–behavioral treatment or assessing the effectiveness of a drug treatment that has been implemented. Moreover, knowledge of predictors of a depression’s course could shed light on the factors that maintain or worsen the disorder, once onset or a recurrence has occurred. Indeed, some research suggests that the factors that maintain depression may be different than those that initiate it (Daley et al., 2000; Lewinsohn et al., 1999). However, according to Hopelessness (Abramson et al., 1989) and Beck’s (1967) theories, negative inferential styles and dysfunctional attitudes, respectively, are relatively stable vulnerabilities that should increase risk for a worse course as well as for onsets and recurrences of depression.

Depression’s course is often described in terms of the severity of the disorder, the duration of episodes experienced, rates of relapse, symptomatic chronicity, and symptom specificity, among other indicators. To date, relatively few studies have investigated the role of cognitive factors as predictors of the course of depression. In a relatively small sample of hospital-treated patients, Scott et al. (1996) found that higher dysfunctional attitudes were related to more severe symptoms at 3 months post-onset and non-recovery at 6 months. Similarly, in the retrospective portion of the CVD Project, Alloy et al. (2000) found that individuals with negative cognitive styles had more severe past episodes of major and minor depression, as indicated by number of symptoms present, than did participants with positive cognitive styles. The risk groups did not differ in the duration of their past depressive episodes. Dent and Teasdale (1988) reported that level of depression was strongly related to the number of global negative trait words endorsed as self-descriptive by participants. Further, increased self-identification with global, negative trait words predicted more persistent depressions. Finally, Riso et al. (2003) demonstrated that, compared with non-chronic major depressives, those with chronic depression were significantly elevated on dysfunctional attitudes. However, the two groups did not differ on attributional style. These studies offer evidence that negative cognitive styles can impact the course of depression.

The present study sought to expand the current understanding of the relation between negative cognitive styles (operationalized here as high and low cognitive risk for depression based on negative inferential styles [Hopelessness theory] and dysfunctional attitudes [Beck’s theory]) and the course of depression. Toward this end, we used a behavioral high-risk design in which
individuals with no depression or any other Axis I psychiatric disorder at the outset of the study, but at high-risk (HR) versus low-risk (LR) for developing depression based on the presence versus absence of negative cognitive styles, were followed prospectively and assessed for the onset and course of depression. We have argued elsewhere that the most powerful and direct method of testing the cognitive vulnerability hypotheses of depression is with a behavioral high-risk design (Alloy et al., 1999, 2000, 2006). This study represents an improvement over previous studies of cognitive factors in the course of depression, as this was a prospective test that assessed cognitive risk before the onset of a depressive episode and observed the unfolding of the course of depression over time.

We chose a broad range of indicators to represent the course of depression: severity, duration of episodes experienced, symptomatic chronicity (e.g., the amount of time that depressive symptoms are present, even when full diagnostic criteria for an episode of depression are not met), and number of episodes. We hypothesized that HR individuals would exhibit a higher number of depressive episodes with greater severity and duration, as well as a more chronic course, compared with LR individuals.

2. Methods

2.1. Participants

This study used data from the CVD Project (Alloy and Abramson, 1999), a prospective study of cognitive and psychosocial factors in the development of depressive disorders among college freshmen at high and low cognitive risk for depression. Details of the selection procedures are in Alloy et al. (2000). In Phase I, we gave the Cognitive Style Questionnaire (CSQ; Alloy et al., 2000) and Dysfunctional Attitudes Scale (DAS; Weissman and Beck, 1978) to 5378 freshmen. Those who scored in the highest and lowest quartiles on both the CSQ composite for negative events and the DAS were considered the high-risk (HR) and low-risk (LR) groups, respectively. In Phase II, a random subset of participants who met the Phase I criteria for the HR or LR groups were given an expanded Schedule for Affective Disorders and Schizophrenia-Lifetime interview (SADS-L; Endicott and Spitzer, 1978) by interviewers who were blind to risk status. Based on DSM-III-R (American Psychiatric Association, 1987) and RDC (Spitzer et al., 1978) criteria, participants were excluded if they exhibited any current Axis I disorder, psychotic symptoms, or any serious medical illness. Participants were retained if they met diagnostic criteria for a past depressive disorder but had remitted for at least 2 months (to insure that any depression onsets during the prospective phase were new episodes and not relapses). On average, the most recent past episode of depression was 2.31 years (SD = 2.44 yrs.) before Phase I. The final CVD sample included 172 HR and 175 LR participants (see Alloy et al., 2000 for the sample demographics and representativeness). The present study was based on CVD participants who experienced at least one depressive episode during the first 2.5 years of prospective follow-up and for whom all relevant data were collected, resulting in 97 HR and 62 LR participants. See Table 1 for the demographic and cognitive style characteristics of this sample. The groups did not differ on age, gender or ethnicity.

2.2. Measures

The Beck Depression Inventory (BDI; Beck et al., 1979) is a 21-item self-report questionnaire that measures the subjective severity of depressive symptoms. The BDI was given at Time 1 and at every 6-week

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Demographic and cognitive style characteristics of the study sample</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>High risk</td>
</tr>
<tr>
<td>Temple site</td>
<td></td>
</tr>
<tr>
<td>Sample size</td>
<td>38</td>
</tr>
<tr>
<td>Age (years)</td>
<td>18.66 (1.55)</td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>68.4%</td>
</tr>
<tr>
<td>Ethnic group (% Caucasian)</td>
<td>75.7%</td>
</tr>
<tr>
<td>CSQ—Neg. Comp. mean total score</td>
<td>59.95 (7.21)</td>
</tr>
<tr>
<td>(95% CI: 57.54–62.35)</td>
<td>(95% CI: 29.78–36.87)</td>
</tr>
<tr>
<td>DAS mean total score</td>
<td>263.17 (53.04)</td>
</tr>
<tr>
<td>(95% CI: 245.48–280.85)</td>
<td>(95% CI: 124.51–150.20)</td>
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<tr>
<td>Wisconsin site</td>
<td></td>
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<tr>
<td>Sample size</td>
<td>59</td>
</tr>
<tr>
<td>Age (years)</td>
<td>18.44 (.50)</td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>71.2%</td>
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<tr>
<td>Ethnic group (% Caucasian)</td>
<td>98.3%</td>
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<tr>
<td>CSQ—Neg. Comp. mean total score</td>
<td>58.94 (7.92)</td>
</tr>
<tr>
<td>(95% CI: 56.88–61.01)</td>
<td>(95% CI: 33.78–38.30)</td>
</tr>
<tr>
<td>DAS mean total score</td>
<td>262.71 (37.55)</td>
</tr>
<tr>
<td>(95% CI: 252.93–272.50)</td>
<td>(95% CI: 131.46–150.71)</td>
</tr>
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</table>

prospective assessment. The BDI provided a measure of baseline depressive symptoms, as well as one measure of the severity of each depressive episode experienced. The BDI has high internal consistency, test–retest reliability and validity with both psychiatric and normal samples (Beck et al., 1988).

The Schedule for Affective Disorders and Schizophrenia-Lifetime version (SADS-L; Endicott and Spitzer, 1978) is a widely used structured diagnostic interview that assesses current and past psychopathology according to the RDC and has demonstrated high inter-rater reliability and test–retest reliability (Endicott and Spitzer, 1978). The SADS-L was used in this study as part of the Phase II screening procedure. For the CVD Project, the SADS-L was expanded in several ways (Alloy and Abramson, 1999; Alloy et al., 2000): 1) additional questions were included to allow DSM-III-R diagnoses to be made; 2) a more precise set of initial “probes” was included to assess the persistence of depressed mood; 3) components of the Anxiety Disorders Interview Schedule (ADIS; DiNardo et al., 1985) were included in the anxiety section; 4) items were reorganized such that all items relevant to a particular disorder, both past and current, were presented together; and 5) questions were included to assess the hopelessness subtype of depression based on the Hopelessness theory (Abramson et al., 1989). The expanded version of the SADS-L has also demonstrated high levels of inter-rater reliability, with \( \kappa \)’s for all diagnoses = .90 (Alloy et al., 2000). As regards validity, HR participants in the CVD project were found to have greater lifetime prevalence of DSM-III-R and RDC major depression and RDC minor depression as assessed by the expanded SADS-L than LR participants (Alloy et al., 2000).

To assess change in depression over the course of the study, the onset or offset of episodes, and for tracking symptoms and the course of depression, an expanded SADS-Change (SADS-C) interview was given every 6 weeks throughout the 2.5-year prospective follow-up. The SADS-C was expanded for the CVD Project in a manner similar to the SADS-L, with the addition that the SADS-C was expanded to include DSM-IV diagnoses as well (see Alloy et al., 2006). Moreover, features of the Longitudinal Interval Follow-up Evaluation (LIFE-II, Shapiro and Keller, 1979) were also incorporated into the expanded SADS-C to track depression’s course by probing for day-to-day fluctuation in symptoms and creating a timeline for each symptom.

In the CVD Project, inter-rater reliability of the expanded SADS-C (based on 125 interviews) was high (\( \kappa \)’s \( \geq .90 \)) for all diagnoses (Alloy et al., 2006). Test–retest reliability (based on 80 interviews), in which interviewers interviewed the same participant within two days of each other for the same 6-week interval (blind to the results of the other interview), obtained a mean \( r = .97 \) between interviews for day-by-day dating of depressive episodes.

Among those HR and LR participants who experienced at least one prospective major or minor depressive episode, the course variables were operationalized as follows: Episode duration was measured as the average duration, in days, of all prospective episodes of DSM-IV and RDC major and RDC minor depression (i.e., average number of days meeting full syndromal criteria for the relevant depression diagnoses). Chronicity was measured as the percentage of total days in the study a participant spent either in a major or minor depressive episode, experiencing subsyndromal symptoms of depression prodromal to the onset of a diagnosable episode, or in partial remission from an episode. This is an encompassing, and somewhat novel, way of operationalizing the chronicity of depression. The number of episodes was measured as the total number of diagnosable major and minor episodes, as defined by DSM-IV and RDC criteria. Depression severity was measured based on both clinician ratings (SADS-C) and self-report (BDI). The numbers of SADS-C symptoms rated as clinically significant for each episode were averaged to obtain an overall clinician-rated severity score (possible range 2–36), and the BDI scores for each episode were also averaged for an overall self-report severity score (possible range 0–63). When episodes spanned multiple assessment periods, the highest of these SADS-C symptom counts and BDI scores were used. Given that the average number of SADS-C symptoms and average BDI score were highly and significantly correlated with each other (\( r = .56, p < .001 \)), we created a composite score of the self- and clinician-rated severity measures. Thus, \( z \)-scores were computed for the average BDI and average number of SADS-C symptoms, and these \( z \)-scores were averaged to compute a composite severity score.

The Cognitive Style Questionnaire (CSQ; Alloy et al., 2000) assesses the internality, stability, and globality of causal attributions, as well as inferred consequences and self-worth implications for 24 hypothetical positive and negative events. In the CVD Project, an additive composite score of the stability, globality, consequences, and self-dimensions for negative events was used to select HR and LR participants (along with the DAS) as described above. Coefficient \( \alpha \) of the negative event composite was .88 and the 1-year retest reliability was \( r = .80 \) (Alloy et al., 2000). With respect to validity, the CSQ in combination with the DAS

The Dysfunctional Attitudes Scale (DAS; Weissman and Beck, 1978) is a 40-item self-report questionnaire that assesses perfectionistic expectations of performance, concerns about disapproval, pessimism and causal attributions. In the CVD Project, 24 additional achievement- and interpersonally oriented items were added to the DAS. Internal consistency (α = .90) and test–retest reliability for 1-year for the expanded DAS were good (r = .79; Alloy et al., 2000).

2.3. Procedures

Participants provided informed consent, and were paid for their participation throughout the duration of the study. After the Phase II assessment using the SADS-L and a comprehensive Time 1 assessment, participants were interviewed every 6 weeks for the first 2.5 years of the study. Each prospective assessment included the expanded SADS-C and the BDI, among other interviews and questionnaires. The directions on the BDI directed the participants to rate each item according to how they felt during the interim since the last SADS-C assessment.

3. Results

To examine whether cognitive risk predicted the course variables, hierarchical regression analyses were conducted. Such an analytic procedure allows for the control of covariates and other variables potentially related to the course indicators (i.e., demographic variables, whether an individual had already experienced a past diagnosable depression, etc.), and allows for an understanding of cognitive risk’s ability to predict the depression course indicators above and beyond these covariates and other variables.

Initially, age, gender, ethnicity, site, and baseline (Time 1) BDI score were considered as possible covariates for these analyses. As gender differences have been found in relation to the onset (e.g., Hankin and Abramson, 2001) and some indicators of the course of depression (i.e., rates of relapse; Kuehner, 1999), gender could be a covariate of interest in this study. In addition, age and ethnicity have also been related to aspects of depression’s course (i.e., time-to-recurrence of an episode; Mueller et al., 2004; and number of depressive symptoms; Zimmerman et al., 2004) and as such were also considered covariates of possible interest. Thus, preliminary analyses examined the correlations between these variables and the course indicators. It was found that age, gender and ethnicity were not significantly correlated with the course indicators and, as such, were not included as covariates in the final analyses. Given that site and baseline BDI score were significantly correlated with some of the course indicators, they were entered as covariates in Step 1 of the main hierarchical regression analyses to control for their effects. In Step 2, the dichotomous score for whether or not the participant had experienced a previous depressive episode before the onset of the study (obtained from the expanded SADS-L interview) was included. Step 3 added in the participant’s cognitive risk status. Finally, Step 4 included the risk status by previous depression interaction.

Table 2 presents the means and standard deviations for the dependent variables (course indicators) by cognitive risk status. Table 3 presents the correlations among cognitive risk status, demographics and other covariates (age, gender, ethnicity, site, prior depression status, and baseline BDI) and the 4 course indicators (chronicity, number of episodes, average duration of episodes and severity). As previously noted (and as can be seen from the table), the significant correlations between site and baseline BDI and some of the course indicators led to their inclusion in the final model. In addition, Table 3 shows that cognitive risk correlated significantly with the number of depressive episodes, severity of episodes, and chronicity of depression.

Table 4 displays the results of the hierarchical regressions predicting the course indicators. As seen in this table, cognitive risk did not significantly predict
average episode duration. However, cognitive risk did significantly predict chronicity ($t(158)=2.65, p = .009, ΔR^2 = .039$), number of episodes ($t(158)=2.38, p = .019, ΔR^2 = .032$) and severity of episodes ($t(157)=3.15, p = .002, ΔR^2 = .054$), over and above baseline BDI and prior history of depression. HR individuals were more likely to exhibit more chronic courses of depression, a higher number of diagnosable major or minor depressive episodes over the study period, and more severe episodes, than LR individuals. There were no significant interactions of prior history of depression and cognitive risk in predicting any of the course indicators.

Given the significant difference in chronicity between HR and LR participants, further analyses were conducted to investigate the basis of this difference. In particular, it was noted that this difference could be due to HR individuals experiencing longer prodromal and/or partial remission periods than LR individuals, and post hoc analyses of these conditions were conducted.
using the same procedure as the main analyses. Table 5 presents the results of these analyses, which indicate that cognitive risk did not significantly predict the amount of time spent in a prodromal period or a partial remission period after an episode (as a percentage of the total time spent in the study). However, HR participants did experience a higher percentage of study days spent in a partial remission period directly between episodes than LR participants ($t(158) = 3.319, p = .001, \Delta R^2 = .061$).

4. Discussion

Consistent with Hopelessness (Abramson et al., 1989) and Beck’s (1967) theories of depression, as well as prior evidence that negative cognitive styles are associated with a worse course of depression, this study demonstrated that cognitive vulnerability to depression prospectively predicted several key indicators of depression’s course. High cognitive risk individuals, or those with negative cognitive styles, experienced a greater number of episodes, more severe episodes, and more chronic depressions during the study, than did low cognitive risk individuals who exhibit positive cognitive styles. Cognitive vulnerability did not predict the average duration of episodes. The effect sizes for cognitive risk’s significant prediction of the course indicators ranged from small to medium, with risk status accounting for 3.2% to 6.1% of the variance in the course indicators, above and beyond the effects of covariates such as baseline, low-grade depressive symptoms and a prior history of depression (according to the $\Delta R^2$ values obtained in Tables 4 and 5). Thus, cognitive style appears to be a useful measure that clinicians could incorporate into their practices to aid in the estimation of prognoses and treatment planning.

Moreover, this study provides strong evidence that cognitive factors shown to confer risk for development of depression also predict aspects of its course. Previous work by Daley et al. (2000) and Lewinsohn et al. (1999) suggested that different psychosocial processes are involved in depression onset than recurrences, whereas Alloy et al. (1999; 2006) found that negative cognitive styles similarly increased risk for first onsets and recurrences of depression. Consistent with the findings of Alloy et al. (2006), the current study indicates that the negative inferential styles and dysfunctional attitudes involved in rendering one vulnerable to depression onset and recurrence may also lead to depressions with a worse course.

We obtained considerable support for the cognitive vulnerability hypotheses despite controlling for initial depressive symptoms (BDI scores) and prior history of depressive disorder. Consequently, initial dysphoria associated with HR status or residual depressive symptoms associated with prior depression are unlikely to be plausible explanations for the cognitive risk effects on the course indicators. Our controls for initial BDI scores and prior history of depression provide a very (probably overly) conservative test of the cognitive vulnerability hypotheses, because any variance in depression course indicators shared between cognitive styles and initial or past depression is allocated to initial symptoms and the past depression, even though the cognitive theories predict that such shared variance should exist. Therefore, the magnitudes of the cognitive risk effects we obtained may be underestimates of the true effect sizes in nature.

That negative cognitive styles predicted the number, severity, and chronicity of depression during the follow-up period despite controlling for initial depressive symptoms and any past depressive disorder provides an especially important test of the cognitive vulnerability hypotheses because the test is truly prospective, uncontaminated by initial depression or prior history of depression.

That cognitive risk predicted some aspects of the course of depression, but not others is intriguing. The association of cognitive risk with the prospective number of episodes participants experienced is consistent with the prior finding that negative cognitive styles increased the likelihood of depression onset, including recurrences (Alloy et al., 1999, 2006). In addition, consistent with several prior studies of the role of negative cognitive styles in the course of depression (Alloy et al., 2000; Dent and Teasdale, 1988; Scott et al., 1996), negative inferential styles and dysfunctional attitudes also predicted an increased number of symptoms during depressive episodes. The mechanisms by which negative cognitive styles lead to an increase in depression symptoms remain to be elucidated. One possibility is that the symptoms specifically hypothesized to be a part of hopelessness depression by Abramson et al. (1989), such as sadness, reduced motivation, low energy, suicidal ideation, etc., are the likely sequelae of the enduring maladaptive thinking patterns of high cognitive risk individuals, especially when faced with negative life events. Future work to determine the nature of the relation between negative cognitive styles and the severity of depression could explore differences in the characteristics of the symptoms of depression that are manifested. The persistent effect of a stable negative cognitive style could also explain the increased chronicity of depression experienced by high cognitive risk individuals in this study. Dent and Teasdale (1988) and Riso et al.
(2003) also found that negative cognitive styles were associated with more chronic depression. It appears from our analyses that this increase in chronicity comes about from cognitive high-risk individuals experiencing clinical depressions that linger at a subsyndromal level longer between episode and recurrence.

This study has several strengths. First, the prospective design allowed participants’ cognitive vulnerability to be assessed before the onset of a depressive episode. It also enabled the course of depression to be chronicled in real time, and not assessed by retrospective report. The prospective design and frequent (every 6 weeks) assessments increase the reliability of self-report and diagnostic interview measures of depressive features, and thus increase the accuracy of all the course indicators. Additionally, the participants in this study were diverse with respect to socioeconomic status, ethnicity and gender. Despite being selected for the CVD Project based on cognitive risk status, the sample is quite representative of the young adult population and, as such, the findings of this study should be generalizable to this population.

A limitation of the current study was the inclusion of some participants who had a prior history of depression. It would have been ideal to only include individuals with no prior depression, so that the assessment of cognitive vulnerability would be unequivocally devoid of impact from previous depression. Several measures were taken to avoid the possible influence of previous depression on the relation between cognitive risk and depression course indicators, including the exclusion of participants who experienced a depression within the 2 months prior to entering the study, and the use of prior depression as a covariate in all analyses. Another possible limitation on the generalizability of the current findings is that the sample was chosen to include those individuals most and least cognitively vulnerable to develop depression. However, given that the current findings were consistent with prior studies of cognitive styles conducted with samples that were not selected based on cognitive risk status, this possible limit on generalizability may be lessened.

In summary, this study was well designed to examine negative cognitive styles as predictors of aspects of the course of depression, while avoiding some of the limitations of prior studies. In particular, the number and severity of episodes and the chronicity of depressions experienced were associated with negative cognitive styles, whereas the duration of depressive episodes was not. Thus, similar cognitive factors may be involved in vulnerability to more severe and chronic depression as well as in depression onset. Future research is warranted to uncover the mechanisms by which negative cognitive styles impact the course of depression.

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