Cogn Ther Res (2011) 35:285–292
DOI 10.1007/s10608-010-9298-y

BRIEF REPORT

After Further Deliberation: Cognitive Vulnerability Predicts Changes in Event-Specific Negative Inferences for a Poor Midterm Grade

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Published online: 19 February 2010

Abstract According to the hopelessness theory of depression (*Psychological Review* 96:358–372, 1989), individuals with a cognitive vulnerability are at risk for depression because they generate event-specific negative inferences for stressful life events. Although prior studies have found an association between cognitive vulnerability and event-specific negative inferences, conclusions from these studies have been limited by weak correlations and a failure to examine how event-specific inferences change over time. The current study attempted to reconcile and extend prior work using a midterm design (*Journal of Personality and Social Psychology* 43:612–617, 1982, *Journal of Personality and Social Psychology* 52:386–393, 1987, *Journal of Abnormal Psychology* 102:101–109, 1993). Participants' event-specific negative inferences for a poor midterm grade were assessed at three time points during a 1-week prospective interval. Consistent with hypotheses, results showed that, if given enough time, the relationship between cognitive vulnerability and event-specific negative inferences becomes robust. Further, event-specific negative inferences on day 3, but not initial event-specific negative inferences, predicted increases in depressive symptoms over the prospective interval. The implications of these results for the cognitive theories of depression are discussed.

Keywords Cognitive vulnerability · Dual-process · Hopelessness theory · Event-specific negative inferences · Depression

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Introduction

Given the same stressful life event, why is it that some people become depressed and others do not? According to the cognitive theories of depression, individual differences in the interpretation of stressful life events determine who is at risk for depression. Specifically, some individuals have a *cognitive vulnerability* that interacts with stressful life events to produce depression. One prominent cognitive theory of depression, the hopelessness theory (Abramson et al. 1989), defines cognitive vulnerability as the tendency of an individual to make particular kinds of inferences about the cause, consequences, and self-worth implications of stressful life events. Specifically, when faced with a stressful life event, an individual who has a cognitive vulnerability is likely to: (a) attribute the event to stable and global causes; (b) view the event as likely to lead to other negative consequences; and (c) construe the event as implying that he or she is unworthy or deficient. Individuals who generate these event-specific negative inferences are hypothesized to experience increases in hopelessness, and in turn, develop depression.

The current study focused on two important constructs in the hopelessness theory: cognitive vulnerability and event-specific negative inferences. Cognitive vulnerability is the diathesis in hopelessness theory's etiological chain. It precedes and contributes to the occurrence of event-specific negative inferences (see Fig. 1). Cognitive vulnerability is the *tendency* or propensity of an individual to generate event-specific negative inferences for stressful life events; it is not the actual inferences generated for stressful life events. In contrast, event-specific negative inferences are a more proximal contributor to depression. They are the actual cognitions about cause, consequences and self-worth implications that people generate for stressful life events.

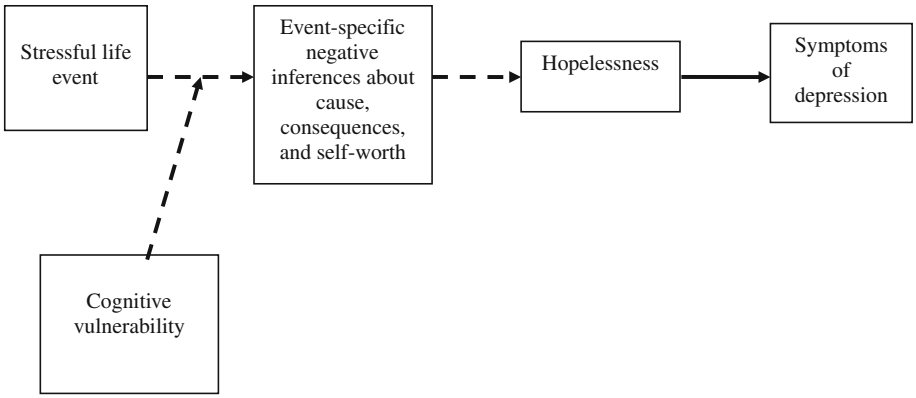

Fig. 1 The hopelessness theory of depression (*dashed arrows* represent contributory causes whereas *solid arrows* indicate sufficient causes). The focus of this study was on the three left-most boxes

According to hopelessness theory, event-specific negative inferences are more likely to be generated by individuals with a cognitive vulnerability than by individuals without a cognitive vulnerability.

The majority of research testing the hopelessness theory has focused on whether cognitive vulnerability and stress interact to predict depression. The results of this work have consistently demonstrated that individuals with cognitive vulnerability are at heightened risk for depression in the presence, but not absence, of life stress (see Abramson et al. 2002 for review). Given the solid support for this hypothesis, the next logical step is to test whether cognitive vulnerability and stress combine as described by hopelessness theory's etiological chain. That is, when faced with a stressful life event, do individuals with a cognitive vulnerability generate the event-specific negative inferences hypothesized to cause depression (inferences about cause, consequences, and self-worth implications)?

To date, only a handful of studies (e.g., Hankin et al. 2005; Hong et al. 2006; Metalsky et al. 1987; Swendsen 1997) have examined whether cognitive vulnerability interacts with stressful life events to produce event-specific negative inferences. In a typical study of this kind, participants are administered a measure of cognitive vulnerability at baseline, and then followed prospectively. Each day of the prospective interval, participants are asked (via diary or experience sampling) to report the occurrence of daily stressful life events, event-specific inferences, and depressive symptoms. The results of these studies have generally supported hypotheses; individuals with high levels of cognitive vulnerability are more likely to generate event-specific negative inferences in response to daily stressors than those with low levels of cognitive vulnerability. Moreover, event-specific negative inferences are associated with fluctuations in daily depressive symptoms.

These studies provide preliminary support for hopelessness theory's etiological chain, but also raise further questions about the relationship between cognitive vulnerability and event-specific negative inferences. Results of prior research indicate that this relationship tends to be weak. Cognitive vulnerability typically accounts for only about 20–30% of the variance in event-specific negative inferences (e.g., Hong et al. 2006; Swendsen 1997). This is problematic because, according to hopelessness theory, cognitive vulnerability should be the primary determinant of whether an individual generates event-specific negative inferences. Thus, it is important to determine whether this weak association can be reconciled.

Haeffel et al.'s (2007) dual-process theory of cognitive vulnerability may provide a context for understanding the weak associations found in previous research. According to this dual-process theory, there are two sets of processes that determine how a stressful life event will be interpreted. First, there is an automatic cognitive response to the event. This initial cognitive interpretation is generated from implicit schemas, which are activated rapidly and unintentionally by stressful life events. However, a person's initial, schema-driven response may not be his or her final cognitive interpretation. Research from social psychology suggests that a person also can use deliberative, explicit processes to reinterpret the stressful event, which may override the implicit cognitive response (cf. Devine 1989; Gilbert et al. 1988). This may be especially likely if a person's explicit beliefs are not congruent with his or her activated implicit cognitions. Thus, a person's final interpretation of the event depends on whether he or she used explicit cognitive processes to accept or change their more automatic, schema-driven response. It is a person's final cognitive interpretation that provides the greatest risk for enduring depressive symptoms according to Haeffel et al. (2007).

In light of this dual-process theory, it may be possible to reconcile the weak associations found in previous research. Cognitive vulnerability, as currently conceptualized in hopelessness theory, emphasizes a person's *final* cognitive interpretation or product (Haeffel et al. 2007). However, studies to date have largely focused on an individual's *initial* cognitive interpretation. In these studies, event-

specific negative inferences were typically measured the day of, or immediately following, the stressful life event. These more immediate inferences may not be consistent with an individual's final cognitive interpretation, particularly if explicit processing is later used to alter the more immediate response. Thus, we suspect that past studies failed to detect a strong relationship between cognitive vulnerability and event-specific negative inferences because they focused on initial rather than final cognitive inferences. These studies assumed that an individual's initial event-specific inferences would also be their final event-specific inferences (i.e., event-specific inferences are static over time).

In contrast to previous research, we propose that event-specific inferences change over time in a predictable manner. Specifically, event-specific inferences will change over time to be more consistent with a person's level of cognitive vulnerability. Cognitive vulnerability, as described in hopelessness theory, emphasizes an individual's final cognitive interpretation of stressful life events. Thus, as an individual's initial inferences are altered over time with explicit processing, they should become more in line with a person's general cognitive tendency for interpreting life events. In other words, an individual's cognitive vulnerability should emerge over time, regardless of the initial cognitive response.

The goal of the current study was to reconcile and extend prior research investigating cognitive vulnerability and event-specific negative inferences. This is the first study to directly examine how event-specific negative inferences change over time. There were two primary hypotheses. First, we hypothesized that the association between cognitive vulnerability and event-specific negative inferences would grow stronger over time. Second, we hypothesized that event-specific negative inferences generated later in time would be more predictive of enduring depressive symptoms than initial event-specific negative inferences. To test hypotheses, we used a variant of Metalsky et al.'s (1982, 1987, 1993) classic midterm study design. We examined undergraduates' event-specific negative inferences and depressive symptoms for a poor midterm grade at three time points—the day the grade was received, 3 days after the grade, and 7 days after the grade.

Method

Overview

The study design was a variation of Metalsky et al.'s (1982, 1987, 1993) classic midterm studies. Participants completed a questionnaire packet at four time points: baseline, day 1, day 3, and day 7. The baseline assessment occurred 1 week prior to participants taking their midterm exam. At the baseline assessment, participants were administered measures of cognitive vulnerability, depressive symptoms, and grade aspirations. The second assessment (day 1) occurred the day that participants received their grade on the midterm (2 weeks after the baseline assessment). We assessed participants' event-specific negative inferences for the midterm grade and depressive symptoms. The same measures were administered 2 days after receipt of the exam grade (day 3) and 6 days after the receipt of the exam grade (day 7).

Participants

Participants ($N = 87$) were undergraduates from an intermediate-level psychology course at the University of Notre Dame. They were given extra credit points for their participation. According to hopelessness theory, a person is only at risk for depressive symptoms and disorders if they experience a stressful life event. Thus, participants were excluded from the final sample if they perceived their midterm grade as a success. Success was determined by comparing participants' grade aspiration to their actual grade (Metalsky et al. 1987). Excluded participants did not differ from the final sample on baseline measures of depressive symptoms ($F[1.86] = .29$, $P = .59$) or cognitive vulnerability ($F[1.86] = .05$, $P = .82$). The final sample consisted of 46 participants (16 men; 30 women). Ninety-two percent of participants completed all four assessments (97% of participants completed at least three of the four assessments).

Materials

Aspirations Questionnaire (AQ; Metalsky et al. 1987)

The AQ assesses the midterm grade that participants would consider a failure. Participants circle 1 of 12 possible grades (A, A−, B+, B, B−, C+, C, C−, D+, D, D−, F). The AQ was administered at the baseline assessment. Participants' AQ scores were compared to their actual midterm grade scores to determine whether participants perceived their score as a success or failure experience. Participants were excluded from analyses if their midterm grade score was better than their "failure" score. As expected, participants included in the analyses had significantly lower midterm test scores (mean grade = 80%) than participants excluded from the analyses (mean grade = 90%). More importantly, those included in the analyses reported an increase in depressive symptoms on the day they received their grade relative to baseline (see Table 1); in contrast, those excluded from the analyses reported a small decrease in depressive symptoms on the day they received their grade relative to baseline.

Table 1 Means, standard deviations, and correlations

	1	2	3	4	5	6	7	8
CSQ base	–							
Anhedonia base	**.42**	–						
PIQ day 1	**.57**	**.34**	–					
Anh day 1	−.05	**.52**	.17	–				
PIQ day 3	**.61**	**.43**	**.84**	.22	–			
Anh day 3	.11	**.71**	.18	**.82**	**.36**	–		
PIQ day 7	**.72**	**.45**	**.83**	.11	**.84**	.23	–	
Anh day 7	.02	**.64**	.09	**.76**	**.32**	**.77**	.21	–
M	4.08	61.46	3.77	65.30	3.60	61.66	3.70	63.41
SD	.81	14.53	1.24	13.29	1.29	13.75	1.39	13.65

$N = 46$. CSQ base = Cognitive Style Questionnaire achievement subscale at baseline. Anhedonia base = MASQ anhedonic subscale at baseline. PIQ day 1 = Particular Inference Questionnaire on Day 1. Anh day 1 = MASQ anhedonic subscale on Day 1. PIQ day 3 = Particular Inference Questionnaire on Day 3. Anh day 3 = MASQ anhedonic subscale on Day 3. PIQ day 7 = Particular Inference Questionnaire on Day 7. Anh day 1 = MASQ anhedonic subscale on Day 7

For all measures, scores indicate greater levels of the construct being measured. Correlations in bold are significant at the .05 level

Cognitive Style Questionnaire (CSQ; Haeffel et al. 2008)

The CSQ assesses the cognitive vulnerability factor featured in the hopelessness theory of depression (negative inferences for cause, consequence, and self-worth). The CSQ assesses participants' causal attributions for the 12 hypothetical negative events (six achievement and six interpersonal) on dimensions of stability and globality; in addition, participants rate the probable consequences of each event and the self-worth implications of each event. Mean-item scores can range from 1 to 7, with higher scores reflecting more negative cognitive styles. The CSQ has good internal consistency, reliability, and validity (see Haeffel et al. 2008 for review). The achievement subscale of the CSQ was used in analyses because the stressful life event of interest was an achievement related event—a poor midterm grade. The CSQ was administered at the baseline assessment (coefficient alpha in the current sample was .89).

Mood and Anxiety Symptom Questionnaire (MASQ; Watson et al. 1995)

The MASQ is a 90-item self-report questionnaire that assesses general depressive and specific anhedonic symptoms of depression based on the tripartite theory of anxiety and depression (Clark and Watson 1991). The anhedonic and anxious arousal subscales were used to assess depressive and anxious symptoms, respectively. The anhedonic subscale contains 22 items that assess symptoms hypothesized to be specific to depression (e.g., low positive affect, loss of pleasure in daily activities). The anxious arousal subscale has 17 items that assess symptoms hypothesized to be relatively specific to anxiety (e.g., somatic tension and hyperarousal). In this study, participants were instructed to rate the symptoms with respect to how they felt that day. The MASQ has demonstrated good reliability and validity (e.g., Watson et al. 1995). It was administered at baseline (coefficient alpha = .92), day 1 (coefficient alpha = .90), day 3 (coefficient alpha = .88), and day 7 (coefficient alpha = .92).

Particular Inference Questionnaire (PIQ; Metalsky et al. 1987)

The PIQ is a four-item questionnaire that assesses students' inferences for their performance on a poor midterm grade. Using the same exact format as the CSQ, the PIQ assesses participants' inferences about the cause, consequences and self-worth implications of their midterm grade. Participants were instructed to "Think about their exam grade" and then write down the one major cause of their grade on the exam. Then, they made ratings on dimensions of stability and globality; in addition, participants rated the probable consequences of each event and the self-worth implications of each event. Mean-item scores can range from 1 to 7, with higher scores reflecting a greater degree of event-specific negative inferences. The PIQ was administered at day 1 (coefficient alpha = .66), day 3 (coefficient alpha = .72), and day 7 (coefficient alpha = .71).

Procedure

All participants completed four study sessions. All sessions were completed in class and consisted of a questionnaire packet. The baseline assessment was administered 1 week before participants took their midterm exam. At baseline, participants were administered the CSQ, MASQ, and AQ. Two weeks after the baseline assessment (1 week after taking their midterm exam) participants received their grades. Participants received their midterm grade at the beginning of class, and shortly thereafter were administered the MASQ and PIQ. The MASQ and PIQ were also administered 2 days (day 3) and 6 days (day 7) after participants received their midterm grade. It is important to note that it was not unusual for participants to be administered questionnaires during class. Prior to the exam (and at various times throughout the semester), participants were administered questionnaires for both educational purposes as well as other research studies.

Results

Hypothesis 1: Primary Analyses

We hypothesized that the relationship between cognitive vulnerability and event-specific negative inferences for a poor midterm grade would significantly strengthen over the prospective interval. To test this hypothesis, we first examined the bivariate correlation of cognitive vulnerability (CSQ achievement subscale score) and event-specific negative inferences (PIQ score) at three time points—day 1, day 3, and day 7. As can be seen in Fig. 2, results were consistent with hypotheses. The correlation between cognitive vulnerability and event-specific negative inferences score grew from .57 on day 1 to .72 on day 7. As expected, the increase in magnitude of the correlation coefficient from day 1 to day 7 was statistically significant, $Z = -2.26$, $P = .02$ (coefficients were compared using the statistical method recommended by Meng et al. 1992).[1] This pattern of results was found for both men and women.

To more precisely determine how the association between cognitive vulnerability and event-specific inferences changed over time, we categorized participants (using median split) into high-vulnerable and low-vulnerable groups as determined by their baseline CSQ achievement scale score. We then graphed the PIQ scores for the two groups over the prospective interval. Consistent with predictions and confirming our initial analysis, results showed that event-specific inferences generated by high vulnerable individuals grew more negative over time whereas the event-specific inferences of low vulnerable individuals became less negative over time (see Fig. 3).

Hypothesis 1: Secondary Analyses

We used a hierarchical multiple regression analysis (Cohen et al. 2003) to further corroborate the initial results. Cognitive vulnerability (CSQ achievement subscale score) served as the dependent variable. The independent variables were event-specific negative inference (PIQ) scores at the three time points. The three event-specific negative inferences scores (day 1, day 3, and day 7) were stepped into the regression equation to determine whether their relationship with cognitive vulnerability increased incrementally over time. Consistent with hypotheses, results showed a statistically significant increase in the shared variance between cognitive vulnerability and event-specific

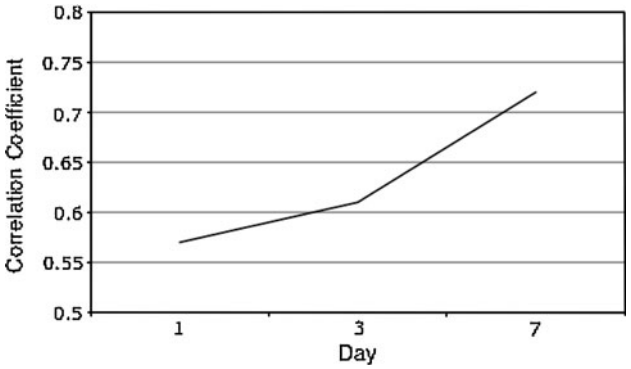

Fig. 2 Correlation between cognitive vulnerability (CSQ achievement subscale score) and event-specific negative inferences (PIQ score) as a function of time

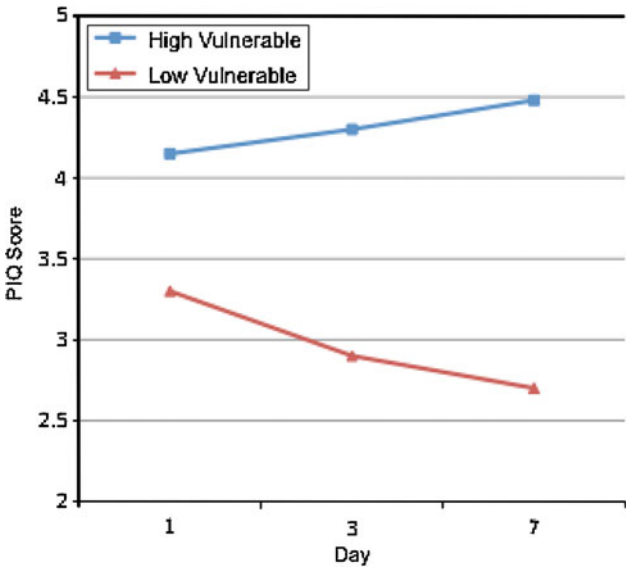

Fig. 3 Event-specific inference score as a function of cognitive vulnerability level (high versus low CSQ achievement subscale score)

negative inferences at each day of the prospective interval, change in R^2 from day 1 to day 3 = .24, $P = .001$; change in R^2 from day 3 to day 7 = .12, $P = .008$ (day 1 $R^2 = .20$; day 3 $R^2 = .44$; day 7 $R^2 = .57$). The results held if gender and baseline level of depressive symptoms were used as covariates.

Taken together, analyses show that an individual's event-specific inferences for a poor midterm grade change over time to be more consistent with his or her cognitive vulnerability level. However, it is important to rule out the possibility that depressive symptoms, as opposed to cognitive vulnerability level, accounted for the changes in event-specific negative inferences over time. We used hierarchical multiple regression procedures (Cohen et al. 2003) to rule-out this alternative hypothesis. The dependent variable was level of event-specific negative inferences at day 7 (day 7 PIQ). Level of event-specific negative

[1] Meng's approach is used for a single sample of participants where each correlation is between a common variable (in this case, the CSQ at baseline) and two different variables (in this case, the PIQ at time 1 and PIQ at time 7).

inferences at day 1 (day 1 PIQ) was entered in the first step of the regression equation to create a residual change score. In the second step, the main effects of cognitive vulnerability (e.g., CSQ achievement subscale) and day 1 depressive symptoms (MASQ anhedonic subscale at day 1) were entered. Results showed that day 1 depressive symptoms did not predict changes in event-specific negative inferences over the 1-week interval, $pr = .01$, $P = .54$. However, as expected, cognitive vulnerability predicted changes in event-specific negative inferences over the prospective interval even when controlling for day 1 depressive symptoms, $b = .78$, $t = 4.57$, $pr = .62$, $P < .001$. This pattern of results also held when baseline level of depressive symptoms (or gender) was added as an additional covariate, $b = .56$, $t = 2.90$, $pr = .45$, $P = .01$ (the results also held if gender was used as a covariate).

Hypothesis 2: Primary Analyses

Next, we tested the second hypothesis that an individual's final (or more explicit) event-specific negative inferences would be a stronger predictor of enduring depressive symptoms than his or her initial event-specific negative inferences. We predicted that event-specific negative inferences generated on day 3 would be a stronger predictor of enduring depressive symptoms (on day 7) than initial event-specific negative inferences generated on day 1. The anhedonic subscale of the MASQ was used as the measure of depressive symptoms. The advantage of using the MASQ anhedonic scale is that it is a relatively pure measure of depressive symptoms (Clark and Watson 1991). This is important because the cognitive vulnerability factor featured in hopelessness theory is hypothesized to confer specific risk for depressive as opposed to anxious symptoms. Thus, it is important to utilize measures of depression and anxiety with good discriminate validity (see Hankin et al. 2004 for further discussion of the importance of using specific rather than general measures of depressive symptoms).

We again used hierarchical multiple regression to predict level of depressive symptoms at day 7 (day 7 MASQ anhedonic subscale score). Depressive symptoms at day 1 were entered in the first step of the regression equation to create a residual change score. In the second step, the main effects of event-specific inferences at day 1 and day 3 were entered. Consistent with hypotheses, results revealed event-specific inferences on day 3 were a significant predictor of depressive symptoms ($b = 4.97$, $t = 2.26$, $pr = .39$, $P = .03$) even after controlling for day 1 depressive symptoms and day 1 event-specific negative inferences. In contrast, day 1 event-specific inferences did not significantly predict depressive symptoms at day 7.[2] The results held if gender was used as a covariate.

Hypothesis 2: Secondary Analyses

To establish discriminant validity for our results, we tested the specificity hypothesis. According to hopelessness theory, changes in event-specific negative inferences are a specific risk factor for depression. Thus, we examined whether event-specific negative inferences (day 3 PIQ) predicted anxious symptoms (day 7 MASQ anxious arousal subscale score). Anxious arousal at day 1 served as a covariate to control for individual differences in initial anxious reactions. Results indicate that day 3 event-specific negative inferences are a specific vulnerability for depression; they did not predict enduring anxious symptoms, $b = -.01$, $t = -.03$, $pr = -.01$, $P = .97$.

Discussion

Prior research has found a weak association between cognitive vulnerability and event-specific negative inferences. We hypothesized that this finding could be reconciled in light of a dual-process theory of cognitive vulnerability (Haeffel et al. 2007). Specifically, we predicted that the initial event-specific negative inferences typically measured in prior research would change over time to be more consistent with an individual's level of cognitive vulnerability. Consistent with hypotheses, results showed that, if given time, event-specific negative inferences for a poor midterm grade become highly consistent with a person's level of cognitive vulnerability. Indeed, the correlation between event-specific negative inferences and cognitive vulnerability rose as high as .72 on day 7. Cognitive vulnerability accounted for almost 60% of the variance in event-specific negative inferences generated on day 7 of the prospective interval (even after controlling for initial depressive reactions to the poor midterm grade). This is the first study to show that event-specific negative inferences for the same event change over time, and that the strongest predictor of this change is cognitive vulnerability.

Not only do event-specific negative inferences change over time in a predictable manner, these changes appear to have implications for the development of depressive symptoms. Consistent with hypotheses, results showed that event-specific negative inferences generated on day 3, but

[2] It is important to note that this pattern of results does not appear to be due to measurement proximity (i.e., day 3 is closer in time to day 7 than is day 1). The CSQ achievement subscale (administered at the most distal time point from day 7) was also a significant predictor of depressive symptoms on day 7 after controlling for baseline levels of depressive symptoms ($P = .02$).

not initial inferences, were the best predictor of increases in depressive symptoms 1 week later. These findings provide additional support for Haeffel et al. (2007) dual-process theory of cognitive vulnerability.

The current findings may have implications for treating and preventing depression. Consistent with research in social psychology, our results indicate that an individual's initial cognitive interpretation may not be their final cognitive interpretation (Devine 1989; Gilbert et al. 1988). Indeed, initial event-specific inferences appear to be a "watered down" version of individual's cognitive vulnerability (see Fig. 3). It takes time for the more extreme interpretations to emerge. This means that it may be difficult to identify those at risk for depression based on their initial event-specific inferences for a stressful life event. Even if an individual initially generates event-specific negative inferences about a stressful life event, it is possible that these inferences will become more adaptive over time. For some individuals (those with low cognitive vulnerability), the process of generating more adaptive inferences over time appears to occur naturally. However, for those with a high level of cognitive vulnerability, the opposite seems to be true. Their inferences become more negative (consistent with their cognitive vulnerability level). Thus, it may be beneficial for therapists to assess negative cognitions about a stressful life event at multiple time points. If a therapist only inquires about negative cognitions about a stressful life event the day that it occurs, he or she could miss an at-risk individual (or overpathologize a resilient individual).

Given that inferences appear to change over time, it will be critical for future studies to determine the processes that underlie this change. Prior research on dual-process theories suggest that individual difference variables such working memory capacity, the availability of cognitive resources, the match (or mismatch) between automatic and explicit cognitive content, and the tendency to ruminate might be critical components that moderate whether or not explicit processes are recruited. There may also be factors inherent in the negative situation that could influence how event-specific inferences change over time. For example, research in social psychology suggests that informational cues such as consensus, consistency, and distinctiveness (Kelley 1967) can influence how events are interpreted. However, at this point, these studies only provide clues about the mechanism responsible for cognitive change. There remains a strong need for future research examining the interplay between automatic and explicit cognitive processes.

It is important to note strengths of the current study. A significant strength of this study is the use of the midterm design. This design allowed us to examine event-specific negative inferences for a naturally occurring stressor. Thus, we did not have to rely on participants' retrospective recall of life events occurring the same day or even weeks earlier. An additional strength of the study is that we used a prospective longitudinal design to measure event-specific negative inferences for the same event at multiple time points. This is the first study to examine whether or not event-specific negative inferences for a stressful life event change over time. A final strength of the current study is that the hypotheses were specific, falsifiable, and limited in number (Popper 1959). Further, extra precaution was taken to ensure the validity of the results. For example, a discriminant validity analysis was conducted. To demonstrate discriminant validity, we tested hopelessness theory's specificity hypothesis. If a measurement artifact caused the significant results for predicting enduring depressive symptoms, then one would expect that event-specific negative inferences would also predict an outcome that had no relation to the hypothesis (i.e., predicting anxious symptoms). However, event-specific negative inferences did not predict anxious symptoms, and, thus, suggests that the results are valid.

There were also limitations to the current study. For example, the study used a college sample, so it is possible that the results may not generalize to community and clinical samples. However, it is important to note that college samples are often used to test the cognitive theories of depression because participants are at the peak age for developing depression (Hankin et al. 1998), and they are likely to experience sufficient levels of stress adjusting to college. Moreover, research suggests that the "college sophomore problem" is often overstated. The results of studies using college samples often do generalize to community and clinical samples, particularly when basic processes (e.g., cognition) are being studied (e.g., Anderson et al. 1999). Another potential limitation of the current study is that it examined depressive symptoms, but not clinical diagnoses. Thus, it will be important to determine if changes in event-specific negative inferences not only have implications for enduring depressive symptoms, but also for clinically significant depressive disorders. Finally, it is necessary to note that participants completed the questionnaires in a fixed order with the MASQ preceding the PIQ. Although our analyses statistically controlled for individual differences in level of depressive symptoms as measured by the MASQ, it remains possible that the order of questionnaire administration affected participant responding.

In conclusion, this study was the first to demonstrate that event-specific negative inferences can change over time for the same event. The results provide support for the plasticity of event-specific negative inferences as well as further support for the hopelessness theory and the role of cognitive products as risk factors for depressive symptoms.

Understanding how cognitive interpretations for stressful life events change over time should lead to a more comprehensive cognitive theory of depression, and hopefully, novel strategies for preventing and treating this prevalent disorder.

Acknowledgments I would like to thank members of the Cognition and Emotion Lab as well as the Introduction to Clinical Psychology class at Notre Dame for their assistance with this research.

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