

The Response Styles Theory of Depression: Tests and an Extension of the Theory

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The authors tested and extended S. Nolen-Hoeksema's (1991) response styles (RSs) theory of depression by assessing the role of RSs in the onset of depressive episodes (DEs), controlling for the effects of concurrent depression, examining the dispositional aspects of RS, clarifying the role of distraction in the course of a DE, and studying the predictive validity of the Response Styles Questionnaire. Nondepressed (ND) participants who reported that they ruminate in response to their depressive symptoms were more likely to experience a DE over 18 months than were participants who reported that they distract themselves from their symptoms. Both a ruminative RS as measured in an ND state and the use of rumination during the first DE predicted the severity of that episode. In contrast, neither trait nor state rumination predicted the duration of the first DE. Participants showed moderate stability of RSs over 1 year and responded in a consistent manner when depressed.

A large proportion of the population is at some time affected by depressive symptoms (Smith & Weissman, 1992). For some, the depressive symptoms are mild and transient. For others, the symptoms may become severe and long lasting, at times even interfering with everyday functioning. Several researchers have suggested that part of the reason why some individuals experience severe, long-duration depressive syndromes whereas others recover from depressive symptoms quickly can be attributed to the individual's response to his or her symptoms of depression (Ripperre, 1976, 1977; Teasdale, 1985).

The response styles theory of depression (Nolen-Hoeksema, 1991) posits that individuals have consistent styles of responding to a depressed mood and that these responses affect the course of the depressive mood. Specifically, ruminative responses are hypothesized to prolong and intensify depressive episodes, whereas distractive responses shorten and diminish depressive episodes (Morrow & Nolen-Hoeksema, 1990). Ruminative responses to depression refer to "behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications of these symptoms" (Nolen-Hoeksema, 1991, p. 569). Examples of ruminative responses include expressing to others how badly one feels, pondering why one

feels badly, and thinking about the possible consequences of one's symptoms. In contrast, distractive responses, such as engaging in sports, observing or interacting with other people, and concentrating on one's work, involve active attempts to ignore depressive symptoms and instead, to focus on pleasant or neutral activities. In this article, we revisit some of the fundamental issues in the response styles theory in order to provide further tests of the theory as well as propose and test an extension of the theory to the prediction of onsets of depressive episodes.

Research on the Response Styles Theory of Depression

Although it is a relatively new model, the response styles theory of depression has received strong initial support. For example, in a longitudinal study of family members of the terminally ill (Nolen-Hoeksema, Parker, & Larson, 1994), a ruminative response style was one of several factors predictive of later depression both for participants with initially high depression scores (1 *SD* above the sample mean on the Hamilton Rating Scale for Depression; Hamilton, 1960) and participants with initially low depression scores (1 *SD* below the sample mean). In a field study, Nolen-Hoeksema, Morrow, and Fredrickson (1993) administered the Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and a depression measure at Time 1, after which participants began a 30-day period of daily self-report on depressed mood and their responses to their depressed mood. Nolen-Hoeksema et al. found that the more participants ruminated in response to their depressed moods, the greater the proportion of the day they experienced symptoms and the more severe the depressed mood. In addition, individual analyses indicated that 83% of the sample demonstrated consistent response tendencies across the 30-day period. Also, ruminative response style score measured on the first day of an episode significantly predicted the duration of that depressive episode even after controlling for the initial severity of the depressed mood.

In a prospective study, Nolen-Hoeksema and Morrow (1991) examined the effect of response styles on depression following

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a major stressor (an earthquake). They found that participants who had comparatively higher depression scores prior to the earthquake, a more ruminative response style prior to the earthquake, and more quake-related stress evidenced elevated depression scores 10 days following the earthquake. Even when participants' initial levels of depressed mood were controlled statistically, prequake response style and quake-related stress predicted elevated depression scores 10 days following the earthquake. In an experimental manipulation of responses to depression, Morrow and Nolen-Hoeksema (1990) administered a depressive mood induction procedure and then randomly assigned participants to ruminative or distractive types of activities. Participants who engaged in an active distracting task demonstrated the greatest remediation of their depressed mood whereas those who engaged in a passive ruminative task showed the least improvement in their depressed mood.

To summarize, correlational, field, longitudinal, and experimental studies all provide evidence that ruminative behavior is highly associated with depression, and with increases in both the severity and duration of depressive episodes. The evidence with respect to the role of distraction is less clear, but laboratory evidence does suggest that distraction may have an ameliorative effect on depressive affect.

Unresolved Issues in Response Styles Studies to Date

Although the response styles theory has fared well in empirical tests to date, several issues remain unresolved in prior response styles studies. A revisiting of these issues may serve to further clarify the role of response styles in the course of depressive episodes.

The Depiction of Response Styles as Traits

Nolen-Hoeksema (1991) suggested that people's styles of responding to depressive symptoms are consistent and that a ruminative response style acts as a stable predisposition for severe and long duration depressive episodes. To document the dispositional nature of response styles (by *dispositional* we mean the tendency of someone to act in a consistent manner under specific circumstances), one must establish consistency of classification of individuals over an extended time period. To date, this has been demonstrated for periods of 30 days (Nolen-Hoeksema et al., 1993) and 5 months (Nolen-Hoeksema et al., 1994). This study investigated the dispositional quality of response styles over an even longer interval with a 1-year test-retest analysis.

Predictive Validity of Response Styles Measures

According to Nolen-Hoeksema (1991), a ruminative response style is hypothesized to be a risk factor for longer, more severe episodes of depression if and when rumination occurs in response to depressive symptoms. In other words, a ruminative style is not in and of itself a vulnerability factor unless the rumination is consistently used in response to depressive symptoms. Given that mood state can alter an individual's report of mood state dependent cognitions (Miranda, Persons, & Byers, 1990; Persons & Miranda, 1992), what individuals in a nonde-

pressed state report as their typical response to depression (rumination or distraction) may not be an accurate reflection of how they actually respond to depressive symptoms. We addressed this issue by measuring the response styles of an initially nondepressed sample and then monitored the sample every 6 weeks for indication of depressive symptoms. When depressive symptoms reached a mild or moderate level, participants completed a state form of the original RSQ that measured their reports of the amount of time they actually spent engaged in ruminative versus distractive responses when depressed. In this manner, we examined the predictive validity of the original trait RSQ.

Confounded Measurement of Response Styles

Given that depressed persons evidence more self-focused attention than nondepressed persons (e.g., Ingram, 1990; Ingram, Lumry, Cruet, & Sieber, 1987) and that the tendency to self-focus and ruminate increases depressive symptoms (e.g., Gibbons et al., 1985; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990), it is important that studies designed to test the response styles theory control for depression levels at the time response styles are measured in order to avoid confounding of depression and response styles. Several prior studies have tried to accomplish this aim by statistically controlling for initial depression levels when testing whether response styles predict duration or severity of depressive symptoms (e.g., Nolen-Hoeksema et al., 1993; Nolen-Hoeksema & Morrow, 1991). However, when two groups differ on a confounding variable, it may be statistically risky to allow them to differ on this variable at the start of the study even if later analyses "control" for the confound with the use of analysis of covariance (Lord, 1967, 1969). In fact, this approach can lead to inaccurate conclusions. Rather, it is better to control for the confounding variable by selecting a sample that is homogeneous on the confounding variable at the start of the study, as in Nolen-Hoeksema et al.'s (1994) separate analyses of the effects of response styles for participants who were initially high versus low on depression. Consequently, in the present study, we extended Nolen-Hoeksema et al.'s (1994) approach to this problem by using a prospective high-risk design (Alloy, Lipman, & Abramson, 1992) in which response styles were initially assessed in nondepressed participants. In this way, response style measurement was not confounded by depression.

Response Styles and the Likelihood of Depressive Episodes

In the response styles theory (Nolen-Hoeksema, 1991), rumination about one's depressive symptoms is hypothesized to affect the course of those symptoms by prolonging and intensifying them. The logic of the theory can readily be extended to suggest that rumination may also increase the likelihood that an individual will experience a depressive episode. Many people experience a few mild depressive symptoms from time to time. If a person ruminates about a few initially mild depressive symptoms, the symptoms may become prolonged and exacerbated sufficiently, and the rumination may recruit enough additional symptoms, that the person eventually develops a full-blown depressive episode. In the present study, we tested this extended

response styles hypothesis by examining whether participants' response styles measured in a nondepressed state at Time 1 predicted whether or not they experienced a depressive episode during the 18-month prospective follow-up period.

Hypotheses

In line with response styles theory, we hypothesized that (a) response style would show dispositional features through significant test-retest correlations over a 1-year period and consistency across depressed episodes; (b) response style as measured in a nondepressed state would predict responses participants report they actually used while in a depressed episode; (c) participants with a ruminative response style (RSQ-Trait [RSQ-T]) measured in a nondepressed state would evidence longer and more severe episodes of depression than would those who do not evidence a ruminative style, whereas participants with a distractive response style measured in a nondepressed state would evidence shorter and less severe depressive episodes than would those who do not exhibit a distractive style; (d) participants' ruminative and distractive responses when they are in a depressed episode (RSQ-State [RSQ-S]) would predict the severity and duration of that episode; and (e) response style as measured in a nondepressed state would predict which participants would experience a depressive episode over the 18-month prospective period.

Method

Participants

One hundred and eighty-nine Temple University freshmen, who were participating at the Temple site of the Temple-Wisconsin Cognitive Vulnerability to Depression (CVD) Project (Alloy & Abramson, 1996), completed the present study. The CVD Project is designed to test the etiological hypotheses of the cognitive diathesis-stress models of depression (Abramson, Metalsky, & Alloy, 1989; Beck, 1967); thus, it follows longitudinally initially nondepressed freshmen who are at high versus low cognitive risk for depression in order to predict onsets and relapses or recurrences of depressive disorders. The use of a prospective behavioral high-risk design with initially nondepressed participants (Alloy et al., 1992) in the CVD Project complemented the goals of the current response styles study.

Selection of participants for the CVD Project occurred in two phases. In Phase 1, a sample of Temple freshmen ($n = 2,438$) were screened with the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978) and the Cognitive Style Questionnaire (CSQ; Abramson, Metalsky, & Alloy, 1996), which is a revision of the Attributional Style Questionnaire (ASQ; Seligman, Abramson, Semmel, & von Baeyer, 1979). Participants who scored in the highest quartile (most negative) on both the DAS and the CSQ composite for negative events were designated the potential high-risk (HR) group, whereas those who scored in the lowest quartile (most positive) on both cognitive style measures were the potential low-risk (LR) group. A random subset of the 261 HR and 234 LR Temple freshmen who met the Phase 1 criteria were invited for the Phase 2 screening. In Phase 2, they were administered a Modified version of the Schedule for Affective Disorders and Schizophrenia-Lifetime Interview (Mod-SADS-L; original SADS-L by Endicott & Spitzer, 1978), expanded to permit *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; *DSM-III-R*; American Psychiatric Association, 1987) as well as Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978) diagnoses. A total of 167 Phase 1-eligible HR

and 130 Phase 1-eligible LR freshmen were administered and paid \$25 for the Phase 2 screening. Participants were excluded from the final CVD Project sample if they evidenced (a) *DSM-III-R* or RDC diagnosis of any current mood disorder (e.g., major depressive disorder, minor depressive disorder, dysthymia, mania, hypomania, bipolar disorder, or cyclothymia) or any other current psychiatric disorder (e.g., anxiety disorders, schizophrenia, substance use disorders, etc.) as of the time of the Phase 1 screening; or (b) current serious medical illness that would preclude participation in a longitudinal study.

The final sample included 189 participants (61 men, 128 women; 63% Caucasian, 26% African American, 4% Hispanic, 4% Asian, 3% Other) with a mean age of 19 years. The 189 freshmen also completed the present response styles study and were included in the analyses that examined the association between initial response styles measured in the nondepressed state (RSQ-T scores) and onset of depressive episodes during the first 18 months of prospective follow-up. Sixty-eight of these 189 participants went on to experience at least one depressive episode during the 18-month follow-up period. The 68 participants formed the sample on which most of the remaining analyses were conducted, specifically the analyses involving severity and duration of depressive episodes or rumination versus distraction when participants were depressed (RSQ-S scores).

The final sample of 189 did not differ significantly from the Phase 1 screening sample of 2,438 on age or ethnic composition, but did have a higher proportion of women (68%) than did the Phase 1 screening sample (57%), $\chi^2(1, N = 2,627) = 9.86, p < .01$. In turn, the Phase 1 screening sample did not differ from the entire freshmen class at Temple on age or ethnic status, but also had a higher proportion of women than the freshmen class as a whole (51% women). The female bias in both the Phase 1 and final samples is probably due to women being more likely than men to volunteer for research studies in general. Our final sample also did not differ significantly on demographics or cognitive style scores (DAS and CSQ) from eligible participants who either refused participation or were dropped by us prior to the prospective phase of the project.¹ Thus, with the exception of the female bias, the final sample was generally representative of the population from which it was drawn on demographics (but obviously not on cognitive styles) and was unbiased relative to other eligible freshmen who did not participate in the prospective phase. In addition, given that most of the present analyses were carried out on the 68 participants who experienced at least one prospective depressive episode, we also compared the demographic characteristics of these 68 participants with those of the 121 who did not experience a depressive episode. The episode and no episode groups did not differ significantly on sex ratio, age, or ethnic status. Thus, participants who developed a depressive episode were representative of the larger study sample on demographic features.

Measures

Beck Depression Inventory (BDI). One of the most widely used self-report measures, the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), is a 21-item questionnaire that assesses the presence and severity of cognitive, motivational, somatic, and affective symptoms of depression over the past week. The instructions were modified such that participants were asked to respond to each item for each of three 2 week periods covering the time since the previous assessment. If the person's

¹ Of the participants who were eligible after the Phase 2 screening, 23 refused participation in the prospective phase of the study, and we dropped another 31 prior to entry into the prospective follow-up period because of inability to locate the participant again, five or more missed appointments, or poor English speaking ability. As indicated in the text, however, these eligible nonparticipants did not differ from the final sample on demographics or cognitive styles.

BDI score was ≥ 10 for any of the three 2-week periods, they completed one RSQ-S measure for the period during which they had been depressed (usually 2 weeks, but for 4 weeks if two consecutive 2-week periods had a BDI ≥ 10 , etc.). Test-retest reliability of the BDI is high, as is its internal consistency and validity with both psychiatric and nonpsychiatric samples (e.g., Beck, Steer, & Garbin, 1988). In this study, the BDI was used to measure severity of depressive symptoms and episodes throughout the prospective phase of the study.

Mod-SADS-L. The SADS-L (Endicott & Spitzer, 1978) is one of the most widely used structured diagnostic interviews. In its original version, it is used to make current and past diagnoses according to the decision rules specified by the RDC (Spitzer et al., 1978) for a wide variety of psychopathologies. The SADS has evidenced high interrater reliability in both joint interviews and test-retest analyses (Endicott & Spitzer, 1978). The SADS-L was expanded for the CVD Project to include probes relevant to the collection of information necessary to make *DSM-III-R* (American Psychiatric Association, 1987) as well as RDC diagnoses. In addition, the Mod-SADS-L grouped together all of the questions relevant to each diagnosis and presented items relevant to assessing past episodes of a given disorder immediately after the items for a current episode of that disorder. The Mod-SADS-L was used during the Phase 2 screening to exclude participants who evidenced any current mood or other psychiatric disorders at the start of the study as well as to ascertain lifetime history of psychopathology.

The Mod-SADS-L was administered by interviewers who were blind to participants' cognitive risk status and response style status. Interviewers received extensive training and practice (about 200 hr) on the administration of the SADS and on *DSM-III-R* and RDC criteria. Based on a subset of 80 jointly rated interviews, the interrater reliability of the Mod-SADS-L was high, with kappa coefficients $\geq .90$ for all depressive disorder diagnoses.

Dysfunctional Attitudes Scale (DAS). The DAS (Weissman & Beck, 1978) is a 40-item self-report inventory that is designed to measure maladaptive attitudes involving concern with evaluation, perfectionistic standards of performance, pessimism, expectations of control, and causal attributions. The DAS has demonstrated good internal consistency and stability over time (e.g., Dobson & Breiter, 1983; Hamilton & Abramson, 1983; Riskind, Beck, & Smucker, 1983) as well as validity in student and patient samples (e.g., Eaves & Rush, 1984; Hamilton & Abramson, 1983; Riskind et al., 1983; Weissman & Beck, 1978). The DAS was used together with the CSQ to select cognitively HR and LR participants for the CVD Project.

Cognitive Style Questionnaire (CSQ). The CSQ (Abramson et al., 1996) is an expanded and modified version of the ASQ (Seligman et al., 1979), which assesses the degree to which individuals make internal, stable, and global attributions for 6 positive and 6 negative achievement and interpersonal events. There were two major modifications of the ASQ to create the CSQ. First, the number of hypothetical events was increased to 12 positive and 12 negative (6 achievement and 6 interpersonal of each) events of relevance to college students. Second, respondents were asked to make two additional inferences featured as vulnerabilities to depression in the hopelessness theory (Abramson et al., 1989) about each of the 24 events: inferences about the consequences and self-worth implications of the events. Mean item scores on the CSQ can range from 1 to 7. Intercorrelations of the 4 dimension ratings averaged over the 12 positive events ranged from .45 to .75, and over the 12 negative events they ranged from .44 to .78. Therefore, positive and negative CSQ event composites were formed by summing participants' ratings on the 4 dimensions featured in hopelessness theory (stability + globality + consequences + self-implications) across the 12 positive and 12 negative events, respectively. Internal consistency of the CSQ composites for positive and negative events is good, with α s = .86 and .88, respectively. Validity of the CSQ has been demonstrated by findings from the CVD Project indicating that the CSQ negative event composite

combined with the DAS predicts lifetime history as well as prospective incidence of *DSM-III-R* and RDC depressive disorders (see Alloy, Abramson, Murray, Whitehouse, & Hogan, in press).

RSQ-T. The RSQ (Nolen-Hoeksema et al., 1993) is designed to measure dispositional responses to depression by asking participants what they generally do when they feel sad, down, or depressed, using 5-point Likert scales with scale anchors *almost never* to *almost always*. The RSQ contains two subscales: the Ruminative Response Scale (RRS) and the Distractive Response Scale (DRS). The RRS consists of 21 items that address how often participants engage in responses to depression that are self-focused (e.g., think "why do I have problems that other people don't have?"), symptom focused (e.g., "think about your feelings of fatigue and achiness"), and focused on the causes or consequences of having a depressed mood (e.g., think "I am embarrassing my friend/family/partner"). The DRS consists of 13 items that address how often participants engage in pleasant, nondangerous activities in response to depression (e.g., "do something you enjoy"). The RSQ has demonstrated good internal consistency (RRS = .89, DRS = .80; Nolen-Hoeksema & Morrow, 1991) and validity for predicting depression (e.g., Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema et al., 1994). In the present sample, the RRS and DRS subscales of the RSQ-T were uncorrelated with each other ($r = .14$, ns) and had internal consistencies similar to those previously reported for the instrument (RRS, $\alpha = .88$; DRS, $\alpha = .82$, $n = 189$).

RSQ-S. The questions contained in the RSQ-S are identical in wording and order to those in the RSQ-T. The directions and scale markers were changed to measure what participants reported they actually did when depressed during the last 6 weeks. The directions ask the respondent to indicate the percentage of the total time depressed over the past 6 weeks (0–25%, 26–50%, 51–75%, or 76–100%) spent engaging in each response.² In this manner, it was possible to examine the predictive validity of the RSQ-T by measuring the amount of time spent engaged in different responses to depression when the participant actually experienced an episode of depression and comparing this to what participants reported as their typical response to depression when they were nondepressed (RSQ-T).³ The RSQ-S was administered at each 6-week assessment at which the participant indicated that depressive symptoms had occurred for at least 2 weeks during the 6-week interval (i.e., when their BDI score for any 2-week period within the 6-week interval was ≥ 10). Thus, for the purposes of the present response styles study, a depressive episode was operationalized as a minimum of 2 weeks with a BDI ≥ 10 .⁴ The internal consistency of the RSQ-S was good, with α s

² Note that the rumination and distraction subscales of the RSQ-S were calculated in an additive manner, but because many behaviors can occur coterminously (e.g., "do something you enjoy" and "do something fun with a friend"), conceptual subscale totals of greater than 100% are possible.

³ It was necessary to change the scale descriptors on the RSQ-S in order to better capture the construct of proportion of time spent in alternative responses to depression. As a compensatory measure, two questions were added to the trait form of the RSQ that used the same scale markers as those on the RSQ-S. These questions inquired in a global manner as to the proportion of time the person generally spends doing something active in an attempt to distract themselves from their feelings of depression (distraction) and the proportion of time the person generally spends thinking about their depressed feelings and their causes and consequences (rumination). These two added rumination and distraction questions using the same scale as the RSQ-S correlated significantly with the trait subscales of their respective constructs (rumination, $r = .61$, $p < .001$; distraction, $r = .42$, $p < .001$).

⁴ Although an expanded SADS-Change interview (Spitzer & Endicott, 1978) incorporating the Longitudinal Interval Follow-up Evaluation II (Shapiro & Keller, 1979) was also given to participants every 6 weeks during the prospective phase in order to diagnose onsets, remissions,

Table 1
Means and Standard Deviations of the Response Styles
Questionnaire Trait and State Versions and of the Severity
and Duration of the First Depressive Episode

Measure	Participants who experience a depressed episode		Participants who do not experience a depressed episode		<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
RSQ-T (<i>n</i> = 189)					
Rumination Scale	18.91	10.60	11.41	8.58	*
Distraction Scale	12.49	5.23	13.76	5.80	<i>ns</i>
RSQ-S (<i>n</i> = 68)					
Rumination Scale	17.05	9.59			
Distraction Scale	9.31	6.65			
Severity of episode (<i>n</i> = 68)					
BDI Score	15.69	8.59			
Duration (in weeks) of episode (<i>n</i> = 68)	4.40	8.39			

Note. For participants who experience a depressed episode, *n* = 68; for participants who do not experience a depressed episode, *n* = 121. RSQ-T = Response Styles Questionnaire-Trait; RSQ-S = Response Styles Questionnaire-State (Nolen-Hoeksema & Morrow, 1991); BDI = Beck Depression Inventory (Beck et al., 1961).

**p* < .001.

= .86 and .89 for the RRS and DRS subscales, respectively. The two subscales of the RSQ-S were moderately correlated (*r* = .39, *p* < .01).

Procedure

Participants in the final sample were randomly assigned to interviewers and were assessed every 6 weeks for 2 years, although this study used only data from the first 18 months.⁵ At the initial assessment, participants completed the RSQ-T.⁶ During each of these 6-week regular prospective assessments (RPAs), as part of the larger CVD Project, participants completed self-report inventories that assessed stressful life events, cognitions, and symptoms that had occurred since their last interview. Participants were also administered semistructured interviews (SADS-Change, Stress Interview, Cognition Interview) at each RPA to determine the dates of occurrence and severity of stressors, cognitions, symptoms, and diagnosable episodes that had occurred in the past 6 weeks. If participants reported symptoms of depression lasting at least 2 weeks of the past 6 weeks, as determined by a BDI score ≥ 10 , they also completed the RSQ-S at that RPA. At the end of 1 year, participants had a yearly assessment during which they completed the RSQ-T again

and relapses or recurrences of DSM-III-R and RDC disorders, administration of the RSQ-S questionnaire was tied to participants' experience of a 2-week period with a BDI ≥ 10 rather than to a depressive disorder diagnosis based on the SADS-Change. Consequently, not all of the depressive episodes (BDI ≥ 10 for at least 2 weeks) exhibited by the 68 participants who went on to experience at least one episode necessarily met DSM-III-R or RDC criteria for a depressive disorder diagnosis. We compared these 2-week BDI-based episodes to the SADS-Change-based diagnoses and found that 36% of the BDI episodes met DSM-III-R or RDC criteria for major depression and an additional 45% met RDC criteria for minor depression. Thus, 81% of the episodes did meet criteria for a diagnosable depressive disorder.

and other measures relevant to the CVD Project. Participants were paid \$30 for each RPA and \$20 for the yearly assessment.

Results

Description of the Sample

One hundred fifty-four of the 189 participants in the final sample completed the second RSQ-T at the yearly assessment.⁷ Sixty-eight of the 189 participants experienced at least one depressive episode (BDI ≥ 10 for at least 2 weeks) over the course of the 18-month follow-up. The mean time to first episode of depression was 31 weeks (median = 18 weeks; *SD* = 24.8 weeks). Table 1 presents the means and standard deviations of the RSQ-T and RSQ-S in the study sample and of the severity and duration of the first depressive episode. For RSQ-T scores, participants are grouped by whether or not they experienced a depressive episode during the follow-up.

Hypothesis 1

On the basis of Nolen-Hoeksema's (1991) theory, we hypothesized that response styles would demonstrate dispositional features through stability over time. This hypothesis was examined with a test-retest correlation on the RSQ-T given at both the initial and the yearly assessments. Both subscales demonstrated significant test-retest stability over 1 year (rumination, *r* = .47, *p* < .001; distraction, *r* = .45, *p* < .001, *n* = 154), although the coefficients were moderate in size. Thus, the hypothesis received some support.

To investigate the issue of the consistency of response styles further, we conducted a correlational analysis on the subset of the 68 participants (*n* = 31) who evidenced two separate episodes of depression (BDI ≥ 10 for at least 2 weeks) at two distinct RPAs. The goal of this analysis was to determine whether reported state responses were consistent within individuals. The results of this analysis suggested that state responses were consistent within participants (rumination, *r* = .61, *p* < .001; distraction, *r* = .54, *p* < .01).

Hypothesis 2

It was hypothesized that response style to depression as measured in a nondepressed state would predict the responses participants reported they actually used when in a depressive episode. The RSQ-T rumination and distraction scores (nondepressed state) were correlated with the rumination and distraction scores from the RSQ-S, respectively, obtained during participants' (*n*

⁵ We used only the first 18 months of data in this study because the RSQ-T and RSQ-S were only added temporarily onto the main CVD Project protocol for the first 18 months.

⁶ Although the initial assessment occurred within 4 weeks of the Phase 2 screening, it is possible that some participants could have developed a depressed mood after Phase II screening, but prior to the initial assessment. Therefore, we repeated all analyses excluding participants who evidenced a BDI score ≥ 10 at the time of completion of the RSQ-T and obtained highly similar results with no changes in conclusions.

⁷ The degrees of freedom for some analyses varied because of missing data.

= 68) first prospective depressive episode,⁸ a mean of 31 weeks later. Note that, as described in the Method section, the scale descriptions for the RSQ-T and RSQ-S were not exactly the same in that the RSQ-T asked for how often each response is engaged in (*almost never to almost always*), whereas the RSQ-S asked for the proportion of time spent engaged in each response (see Footnote 3). Despite these scale differences, this analysis revealed significant predictive validity for the RSQ-T distraction scale ($r = .45, p < .01$) but only a trend for predictive validity for the RSQ-T rumination scale ($r = .23, p < .09$). The RSQ trait-state correlations were very similar when we controlled for the time to the first depressive episode (distraction, $pr = .52, p < .001$; rumination, $pr = .23, p = .10$).

Hypothesis 3

Participants with a more ruminative response style were hypothesized to be at risk for longer and more severe episodes of depression than those with a less ruminative style and participants with a more distractive response style were predicted to experience shorter and less severe depressive episodes than those with a less distractive style. This hypothesis was tested by correlating participants' ($n = 68$) rumination and distraction scores from the RSQ-T, measured at Time 1 in a nondepressed state, with the number of consecutive weeks they spent in their first prospective depressive episode (a measure of duration) and highest BDI score during the first episode (a measure of severity). RSQ-T rumination scores predicted prospectively the severity of participants' first depressive episode ($r = .38, p < .01$), and this correlation remained significant even when state rumination during the episode was controlled ($pr = .33, p < .02$). Trait distraction did not predict severity of the first episode significantly, $r = -.07, ns$. Neither trait rumination nor distraction scores predicted prospectively the duration of depressive episodes (rumination, $r = .04, ns$; distraction, $r = -.11, ns$).

Hypothesis 4

According to Hypothesis 4, participants' state responses during an episode of depression would predict the severity and duration of that episode. For the 68 participants who developed a depressive episode during the 18-month follow-up, rumination and distraction scores measured for their first prospective depressive episode (BDI ≥ 10 for at least 2 weeks) were separately correlated with the number of weeks the individual's BDI score remained ≥ 10 (duration) and with the highest BDI score during the episode (severity; see Footnote 8). State rumination scores predicted the severity of the episode significantly ($r = .29, p < .03$); however, when trait rumination scores were controlled, state rumination no longer predicted episode severity ($pr = .19, p < .19$). State distraction scores did not predict episode severity ($r = .01, ns$), and neither state rumination nor distraction scores correlated significantly with the number of weeks in the first depressive episode (rumination, $r = .18, ns$; distraction, $r = -.11, ns$).

Hypothesis 5

On the basis of an extension of the logic of the response styles theory, we hypothesized that response styles as measured

Table 2

Summary of Hierarchical Regressions Investigating Whether Response Style (RSQ-T) and Cognitive Risk Status Predict the Prospective Onset of a Depressive Episode

Measure	R ²	Measure	R ²
1. Rumination Scale	.12*	1. Risk Status	.10*
2. Risk status	.04*	2. Rumination Scale	.06*
1. Distraction Scale	.01 ^a	1. Risk Status	.10*
2. Risk status	.10*	2. Distraction Scale	.01 ^a

Note. Ranking number represents order of entry into the regression equation. RSQ-T = Response Styles Questionnaire-Trait (Nolen-Hoeksema & Morrow, 1991).

^a Nonsignificant.

* $p < .001$.

by the RSQ-T in a nondepressed state would predict which participants would go on to experience a depressive episode over the 18 month prospective follow-up. As shown in Table 1, the 68 participants who developed a prospective depressive episode differed significantly from the 121 participants who did not experience an episode on the RSQ-T rumination scale, $t(179) = -5.17, p < .0001$, but not on the distraction scale, $t(179) = 1.46, ns$. Participants who reported higher levels of trait rumination were more likely to develop a depressive episode than those who reported lower rumination.

To examine whether response styles would predict the likelihood of depression onset over and beyond the effects of participants' cognitive styles, we conducted a series of hierarchical logistic regression analyses in which participants' RSQ-T scores and cognitive risk status (HR vs. LR) based on the DAS and CSQ were entered in a predetermined order as predictors of the presence versus absence of a future depressive episode. In one set of hierarchical regression analyses, participants' risk status was entered first, followed on Step 2 by their RSQ-T score. In the second set of hierarchical analyses, RSQ-T scores were entered first followed by cognitive risk to determine whether cognitive risk status predicted unique variance in onset of depression beyond that attributable to response styles. Table 2 displays a summary of the results of these hierarchical regression analyses. As can be seen in the right half of Table 2, trait rumination scores predicted unique variance (6%) in the likelihood of depressive episode onset even after controlling for cognitive risk status. Distractive response style scores did not predict onset of depressive episodes even when entered into the regression equation first (left half of Table 2). Cognitive risk status also predicted independent variance (4% or 10%) in de-

⁸ In all analyses involving state response style scores (RSQ-S), we used only the first depressive episode of the 68 participants who experienced at least one episode because this was the cleanest way to test hypotheses regarding state responses. The use of more than one episode per participant (for those who had more than one) in these analyses would have confounded what participants did for a particular episode (state responses) with what they tended to do more generally (dispositional or trait response style). We thank an anonymous reviewer for this suggestion.

pressive episode onset even after controlling for response styles (left half of Table 2).

Discussion

This study examined new questions and revisited old ones in an investigation of the role of ruminative and distractive response styles in predicting the onset, duration, and severity of depressive episodes. To summarize the main findings, response styles showed moderate but significant stability over a 1 year interval and consistency within individuals across different depressive episodes. Trait distractive response styles assessed during a nondepressed state predicted participants' reports of the responses they actually used when they were depressed. Moreover, trait ruminative response styles measured when participants were nondepressed prospectively predicted the likelihood that they would develop a depressive episode as well as the severity of their first depressive episode. Participants' reported rumination when they experienced a depressive episode (RSQ-S) also predicted the severity of that episode, but not above and beyond their trait rumination. In contrast, participants' reported general use of distraction (RSQ-T) and their use of distraction in response to actual symptoms (RSQ-S) did not predict the severity of their first depressive episode. Neither trait nor state rumination and distraction significantly predicted the duration of the first depressive episode.

Are Response Styles Traits?

An important goal of this study was to provide additional information on the dispositional nature of response styles. If it can be shown that responses to depressive mood are traitlike, as Nolen-Hoeksema (1991) hypothesized, then the tendency to ruminate in response to depression may be a vulnerability factor for the development of depressive episodes, and for longer and more severe episodes, and thus should be a target of preventive interventions. In the present study, we found that individuals do demonstrate stability of trait response style scores, although our stability correlation for rumination ($r = .47$) over a 1-year period was lower than that for a 5-month interval reported by Nolen-Hoeksema et al. (1994; $r = .80$). Beside the time interval difference, it is possible that their use of a chronically bereaved sample may have increased the consistency of reported rumination over time. We also found that state assessments of rumination and distraction were moderately consistent within individuals across two depressed episodes. Thus, our findings are consistent with the presence of dispositional response styles that could influence, along with situational factors, the degree to which a person ruminates or distracts in response to any particular experience of depressed mood.

A related issue involves the predictive validity of the RSQ. That is, do individuals' response styles assessed when they are nondepressed predict their reported responses to depressed mood when they actually become depressed? As stated previously, predictive validity is important in Nolen-Hoeksema's (1991) theory because a dispositional response style is hypothesized to be a risk factor for longer and more severe episodes of depression if and when the responses typical of the style actually occur when the person is depressed. Although the association

between trait and state rumination scores was only marginally significant, trait distraction scores did predict significantly state distraction scores. The fact that the RSQ-T and RSQ-S used different metrics (*almost never* to *almost always* for the RSQ-T vs. percentage of time for the RSQ-S; see Footnote 3) could have lowered the correlations observed between the trait and state measures. One might also argue that the association between trait response style and state responses would be modest inasmuch as situational factors would also be expected to modify the full expression of the general response style during any particular episode of depression. For example, the availability of social support and environmental opportunities for distraction (Nolen-Hoeksema et al., 1994) could influence the likelihood that the person engages in a particular response to a given bout of depressed mood and thus, could override the individual's general response tendencies. A similar argument has been offered by Peterson, Buchanan, and Seligman (1995) in explaining the moderate but significant correlations obtained between trait explanatory style and state explanations for actual events.

Rumination and the Onset and Course of Depressive Episodes

In several respects, the present findings confirmed and extended those of previous studies (Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema et al., 1993, 1994). Consistent with prior findings, we found that nondepressed participants who reported that they generally ruminate about their depression were likely to experience a more severe episode of depression than were those who reported that they generally do not ruminate in response to depressed mood. Similarly, participants who reported that they engaged in more rumination during their first depressive episode had a more severe episode than those who engaged in less rumination during the episode. However, the fact that state rumination did not significantly predict severity of the episode when trait rumination was controlled suggests that much of the predictive effect of state rumination for severity was attributable to the variance it shared with trait rumination.

Moreover, on the basis of an extension of the logic of the response styles theory, we hypothesized and found that nondepressed participants who exhibited a dispositional tendency to ruminate were more likely to experience an onset of a depressive episode in the first place during the 18-month follow-up than were participants who tended not to ruminate, even after controlling for the significant predictive effect of negative cognitive styles (i.e., dysfunctional attitudes and depressogenic inferential styles). In addition, given that 80% of participants' depressive episodes met *DSM-III-R* or RDC criteria for major or minor depression (see Footnote 4), a ruminative response style appeared to predict the onset of clinically significant depressive episodes and not just mild depressive symptoms.

The finding that a general ruminative style is correlated with the likelihood and severity of a depressive episode may have implications for the treatment of depression. Indeed, these results provide support for therapeutic strategies aimed specifically at breaking the cycle of rumination during a depressive episode (Fennell, 1989).

In contrast to our findings for the likelihood and severity

of depressive episodes, we did not replicate previous findings concerning the association between a ruminative response style (RSQ-T) or state rumination and longer duration depressive episodes. It is possible that our use of a coarser unit of time for measuring duration (i.e., weeks rather than days) may have decreased the variance for this dependent measure and thus, made it more difficult to obtain significant response style predictors of duration.

Distraction and the Onset and Course of Depressive Episodes

To date, the influence of distraction on the severity and duration of depressive episodes has been unclear. In laboratory experiments, distraction has been found to hasten the remediation of depressive affect (Morrow & Nolen-Hoeksema, 1990). Yet, in naturalistic field studies, the role of distraction in predicting the course of depressive episodes has been minimal (Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema et al., 1994). Our findings suggest that neither trait nor state distraction is associated significantly with the severity or duration of depressive episodes or with the likelihood of experiencing a depressive episode.

Two factors may account for the discrepancy between the findings for distraction in laboratory and real-life settings. First, it is possible that in and of itself distraction does not play a significant role in the course of a depressive episode. It may only be as an example of nonrumination that distraction predicts the course of depression. Therefore, studies are needed in which distraction is compared to a nondistractive or nonruminative response to depression. Second, distraction and rumination were not mutually exclusive in this study and may not be in daily life, either. Perhaps, except in situations in which distractive responses are actually prescribed and monitored (as in the laboratory or a therapist's office), attempts to entirely keep one's mind off one's feelings of depression and the causes and consequences of those feelings are futile. In fact, Wenzlaff, Wegner, and Roper's (1988) research suggests that depressed individuals may have enhanced accessibility of interconnected negative thoughts and thus, have difficulty finding positive distractors unless they are provided and made easily accessible. The response styles theory might benefit from future studies that address this issue directly, and particular attention may need to be paid to the amount of time, effort, and concentration applied during the act of distraction.

Limitations of the Present Study

The present study replicated earlier findings that have demonstrated that participants who tend to ruminate in response to depressive symptoms experience more severe depressive episodes and extended prior studies by showing that a ruminative response style also predicts the likelihood of a depressive episode. However, we did not replicate previous findings concerning the relationship between ruminative responses and duration of depressive episodes. Thus, future studies of the response styles theory may benefit by conducting a more powerful and fine-grained measurement of duration of depression. In addition, although our sample was generally representative of the popula-

tion from which it was drawn and unbiased on demographic characteristics with respect to eligible nonparticipants, our sample consisted entirely of college students, which affects the generalizability of the findings. Finally, our participants were selected on the basis of certain cognitive characteristics (i.e., dysfunctional attitudes and inferential styles) that were relevant to the larger CVD Project. Although the use of this sample complemented the goals of the present study, the generalizability of our findings may also be limited by the use of this specialized sample. Nonetheless, our finding that a ruminative response style prospectively predicted the likelihood of onset and the severity of depressive episodes is noteworthy.

References

- 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. (1996). *The Cognitive Style Questionnaire: A measure of the diatheses featured in the hopelessness theory of depression*. Unpublished manuscript, University of Wisconsin—Madison.
- Alloy, L. B., & Abramson, L. Y. (1996). *The Temple-Wisconsin Cognitive Vulnerability to Depression (CVD) Project: Conceptual background, design, and methods*. Manuscript submitted for publication.
- Alloy, L. B., Abramson, L. Y., Murray, L. A., Whitehouse, W. G., & Hogan, M. E. (in press). Self-referent information processing in individuals at high and low cognitive risk for depression. *Cognition and Emotion*.
- Alloy, L. B., Lipman, A. J., & Abramson, L. Y. (1992). Attributional style as a vulnerability factor for depression: Validation by past history of mood disorders. *Cognitive Therapy and Research*, 16, 391-407.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- Beck, A. T. (1967). *Depression: Clinical, experimental and theoretical aspects*. New York: Hoeber.
- 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., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 53-63.
- Dobson, K. S., & Breiter, H. J. (1983). Cognitive assessment of depression: Reliability and validity of three measures. *Journal of Abnormal Psychology*, 92, 107-109.
- Eaves, G., & Rush, A. J. (1984). Cognitive patterns in symptomatic and remitted unipolar major depression. *Journal of Abnormal Psychology*, 93, 31-40.
- Endicott, J., & Spitzer, R. S. (1978). A diagnostic interview: The schedule for affective disorders and schizophrenia. *Archives of General Psychiatry*, 35, 837-844.
- Fennell, M. J. V. (1989). Depression. In K. Hawton, P. M. Salkovskis, J. Kirk, & D. M. Clark (Eds.), *Cognitive behavior therapy for psychiatric problems: A practical guide* (pp. 169-234). New York: Oxford University Press.
- Gibbons, F. X., Smith, T. W., Ingram, R. E., Pearce, K., Brehm, S. S., & Schroeder, D. J. (1985). Self-awareness and self-confrontation: Effects of self-focused attention on members of a clinical population. *Journal of Personality and Social Psychology*, 48, 662-675.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, & Psychiatry*, 23, 56-62.
- Hamilton, E., & Abramson, L. Y. (1983). Cognitive patterns and major depressive disorders: A longitudinal study in a hospital setting. *Journal of Abnormal Psychology*, 92, 173-184.

- Ingram, R. E. (1990). Self-focused attention in clinical disorders: Review and a conceptual model. *Psychological Bulletin*, *107*, 156–176.
- Ingram, R. E., Lumry, A. E., Cruet, D., & Sieber, W. (1987). Attentional processes in depressive disorders. *Cognitive Therapy and Research*, *11*, 351–360.
- Lord, F. M. (1967). A paradox in the interpretation of group comparisons. *Psychological Bulletin*, *68*, 304–305.
- Lord, F. M. (1969). Statistical adjustments when comparing preexisting groups. *Psychological Bulletin*, *72*, 336–337.
- Miranda, J., Persons, J. B., & Byers, C. N. (1990). Endorsement of dysfunctional beliefs depends on current mood state. *Journal of Abnormal Psychology*, *99*, 237–241.
- Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, *58*, 519–527.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of the depressive episode. *Journal of Abnormal Psychology*, *100*, 569–582.
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology*, *61*, 115–121.
- Nolen-Hoeksema, S., & Morrow, J. (1993). The effects of rumination and distraction on naturally-occurring depressed moods. *Cognition and Emotion*, *7*, 561–570.
- Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology*, *102*, 20–28.
- Nolen-Hoeksema, S., Parker, L., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology*, *67*, 92–104.
- Persons, J. B., & Miranda, J. (1992). Cognitive theories of vulnerability to depression: Reconciling negative evidence. *Cognitive Therapy and Research*, *16*, 485–502.
- Peterson, C., Buchanan, G. M., & Seligman, M. E. P. (1995). Explanatory style: History and evolution of the field. In G. M. Buchanan & M. E. P. Seligman (Eds.), *Explanatory style* (pp. 1–20). Hillsdale, NJ: Erlbaum.
- Rippere, V. (1976). Antidepressive behavior: A preliminary report. *Behaviour Research and Therapy*, *14*, 289–299.
- Rippere, V. (1977). "What's the thing to do when you're feeling depressed?"—A pilot study. *Behaviour Research and Therapy*, *15*, 185–191.
- Riskind, J. H., Beck, A. T., & Smucker, M. R. (1983). *Psychometric properties of the Dysfunctional Attitudes Scale in a clinical population*. Paper presented at the meeting of the World Congress on Behavior Therapy, Washington, DC.
- Seligman, M. E. P., Abramson, L. Y., Semmel, A., & von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, *88*, 242–247.
- Shapiro, R. W., & Keller, M. B. (1979). *Longitudinal Interval Follow-up Evaluation (LIFE)*. Boston: Massachusetts General Hospital.
- Smith, A. L., & Weissman, M. M. (1992). Epidemiology. In E. S. Paykel (Ed.), *Handbook of affective disorders* (2nd. ed., pp. 111–129). New York: Guilford Press.
- Spitzer, R. S., & Endicott, J. (1978). *Schedule for Affective Disorders and Schizophrenia—Change version*. New York: New York State Psychiatric Institute.
- Spitzer, R. S., Endicott, J., & Robins, E. (1978). Research diagnostic criteria: Rationale and reliability. *Archives of General Psychiatry*, *35*, 773–782.
- Teasdale, J. D. (1985). Psychological treatments for depression: How do they work? *Behaviour Research and Therapy*, *23*, 157–165.
- Weissman, A., & Beck, A. T. (1978, November). *Development and validation of the Dysfunctional Attitudes Scale: A preliminary investigation*. Paper presented at the meeting of the American Educational Research Association, Toronto, Ontario, Canada.
- Wenzlaff, R. M., Wegner, D. M., & Roper, D. W. (1988). Depression and mental control: The resurgence of unwanted negative thoughts. *Journal of Personality and Social Psychology*, *55*, 882–892.
- Wood, J. V., Saltzberg, J. A., Neale, J. M., Stone, A. A., & Rachmiel, T. B. (1990). Self-focused attention, coping responses, and distressed mood in everyday life. *Journal of Personality and Social Psychology*, *58*, 1027–1036.

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