

Ruminative Response Style and the Severity of Seasonal Affective Disorder¹

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Research generally has supported the hypothesis of the Response Style Theory that a ruminative response style is associated with a greater severity of depression episodes. However, no published research has applied this theory to seasonal affective disorder (SAD). We examined the relationship between response style and severity of winter symptoms in a longitudinal study of individuals previously diagnosed with SAD. Eighteen participants kept accounts of their mood and their responses to mood for 14 consecutive days in the fall. Statistical modeling of these data yielded measures of response style for each participant. Ruminative response style, but not distracting response style, predicted symptom severity in winter, controlling for severity in the fall. As suggested by the Dual Vulnerability Hypothesis of SAD, ruminative response style interacted with fall vegetative symptom severity to predict winter nonvegetative symptom severity. Results also suggest that distracting response style may consist of two different types of response.

KEY WORDS: seasonal affective disorder; ruminative response style.

Seasonal affective disorder (SAD) is characterized by a pattern of depressive episodes that recur and remit at the same time each year (Rosenthal et al., 1984). The most common type of SAD is winter depression, where onset occurs in the fall, remission occurs in the spring, and most sufferers report feeling worst in January and February. The most prominent symptoms of winter depression are fatigue, increased appetite and weight, and hypersomnia (e.g., Rosenthal et al., 1984). Young, Watel, Lahmeyer, and Eastman (1991) found that the onsets of these symptoms are closely associated with the onset of the episode itself. Other common symptoms of depression also are present in SAD, but their onsets occur throughout the episode, with no particular association to the onset or course of the episode.

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In response to these findings, Young et al. (1991) proposed the Dual Vulnerability Hypothesis of SAD. In this model, the symptoms of SAD are the result of two different vulnerabilities. The first is a tendency for seasonality in vegetative functions, specifically sleep, appetite, and energy. Retrospective studies (e.g., Kasper, Wehr, Bartko, Gaist, & Rosenthal, 1989) and prospective studies (e.g., Murray, Allen, & Trinder, 2001) indicate that this vulnerability varies in magnitude across individuals in the general population. The second vulnerability is a tendency to develop mood and cognitive symptoms in the context of, or in response to, the stress presented by changes in vegetative functioning. These two groups of symptoms are supported by a within-participant factor analysis of symptoms across remission (Schmitt & Young, 2000), which found separate factors for cognition/affect, energy/motivation, appetite, and sleep. A between-participant factor analysis also found separate factors for vegetative symptoms and mood/social withdrawal (Madden, Heath, Rosenthal, & Martin, 1996).

Most research into the etiology of SAD has focused on changes in the environment causing physiological change, with photoperiod (day length) receiving the most empirical support as the relevant environmental factor (Young, Meaden, Fogg, Cherin, & Eastman, 1997). Although the exact mechanism by which light affects the onset or remission of SAD symptoms has not been established, this research is consistent with the first vulnerability of the dual vulnerability hypothesis.

Despite much research indicating that both biological and psychological factors play a role in the vulnerability, onset, course, severity, and treatment response of affective disorders, there has been relatively little research on psychological factors in SAD (see Enns and Cox, 2001, for a recent review). Response Style Theory (Nolen-Hoeksema, 1991) is one such contemporary psychological model of depression. Response style theory proposes that individuals may react to a sad mood by engaging in a variety of ruminative and/or distracting responses that affect the duration and severity of depressive symptoms. Ruminative responses are defined as thoughts or behaviors that focus one's attention on one's symptoms and their possible causes and effects. Distracting responses are those that takes one's mind off immediate symptoms. An individual's tendency to engage in these two types of responding to mood constitutes his or her response style.

A number of experimental studies with normal populations have demonstrated that induced rumination and distraction have a short-term effect on maintenance of a depressed mood (e.g., Nolen-Hoeksema, 1991). In addition, prospective longitudinal studies found a positive relationship between a ruminative response style and severity of depression in both normal populations (e.g., Nolen-Hoeksema, Parker, & Larson, 1994; Schwartz & Koenig, 1996) and clinical populations (Just & Alloy, 1997; Nolen-Hoeksema et al., 1994; Kuehner & Weber, 1999; in contrast, Bagby & Parker, 2001; Kasch, Klein, & Lara, 2001). Rumination also has been found to mediate the relationships between (a) depression and neuroticism (Blodgett, Reardon, & Young, 2001; Roberts, Gilboa, & Gotlib, 1998); (b) depression and other hypothesized risk factors such as negative cognitive style, self-criticism, maladaptive dependency, and past history of depression (Spasojevic & Alloy, 2000); and (c) seasonality and neuroticism (Blodgett et al., 2001).

Response style could represent a psychological vulnerability consistent with the Dual Vulnerability Hypothesis of SAD (Young et al., 1991). Other studies also draw attention to the role of responsiveness in SAD. Bouhuys, Meesters, Jansen, and Bloem (1998) found that, compared to nondepressed controls, SAD participants in remission reported reacting to stressful situations with greater emotion and depression. In addition, for SAD participants, the greater their emotional response to stress the earlier in the winter their Beck Depression Inventory (BDI) scores reached 14, a commonly used cutoff for clinical significance. Other investigators also have reported relationships between SAD and personality factors related to sensitivity, reactivity, rumination, and amplification of moods (Bagby, Schuller, Levitt, & Joffe, 1996).

Response style most often has been measured with the Responses to Depression Questionnaire (RDQ; Nolen-Hoeksema et al., 1994; Nolen-Hoeksema & Morrow, 1993), which asks individuals to recall their typical responses to sadness. The RDQ requires participants not only to recall their past behavior but also to formulate their typical response. As a result it may be prone to recall and formulation biases, especially in depressed individuals who are prone to such biases. The stability of ruminative response style has been moderate to high in nonclinical samples but only moderate in clinical samples (Kasch, Klein, & Lara, 2001; Kuehner & Weber, 1999). This suggests that participants' reports of their typical response to depressed mood has both a stable, trait component, and also changes as a function of changes in their clinical state. In this study, we developed a method to assess response style on the basis of reports of actual mood and behavior on each of a series of days.

This study examined whether ruminative and distracting response styles predict severity of depression in the SAD population. On the basis of Response Style Theory, we hypothesized that in individuals with a history of SAD (1) a ruminative response style would predict a greater severity of depression in the winter and (2) a distracting response style would predict a lower severity of depression in the winter. On the basis of the Dual Vulnerability Hypothesis, we hypothesized that, consistent with their vulnerability–stress relationship, ruminative response style would interact with the severity of vegetative symptoms in the fall to predict the severity of nonvegetative symptoms in the winter.

METHODS

Participants

Participants were recruited from a pool of individuals who had been screened as part of an earlier study of winter depression (Eastman, Young, Fogg, Liu, & Meaden, 1998). Potential participants had been diagnosed between 1991 and 1996 with SAD, winter subtype, using the Schedule for Affective Disorders and Schizophrenia (SADS-L; Spitzer & Endicott, 1979), *DSM-III-R*, and Rosenthal's SAD criteria (Rosenthal et al., 1984). These individuals were contacted by telephone in September 1997 and invited to participate in the study if they had experienced an episode of winter depression the previous winter. Two participants qualified but refused participation; 3 participants provided data only in the fall and could not be included. Of

the 25 participants who completed the study, 80% were female; the mean age was 44.7 ($SD = 10.1$) years. As explained below, 18 participants were ultimately used for the analyses, of these 78% were female; mean age was 44.7 ($SD = 10.6$) years. Participants were paid \$30 at the end of the data collection for their participation.

Measures

Severity of depression was assessed with BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) expanded to include four additional items covering typical SAD vegetative symptoms: fatigue, sleepiness, hypersomnia, increased appetite, and increased weight. The 21-item BDI has been widely used for the assessment of the severity of mood, cognitive, and vegetative depressive symptoms. The expanded measure (EBDI) contained 25 multiple-choice items about the participant's depressive symptomatology the previous week and has a potential range of scores from 0 to 75 (Cronbach's α : fall, .86; winter, .93). A subscale of vegetative symptoms consisted of the mean on EBDI items 16 (decreased sleep), 17 (fatigue), 18 (decreased appetite), 19 (weight loss), 22 (increased appetite), 23 (increased weight), 24 (sleepiness), and 25 (hypersomnia; Cronbach's α : fall, .67; winter, .77). A subscale of nonvegetative symptoms consisted of the mean on the remaining EBDI items (Cronbach's α : fall: .83; winter, .92). Each subscale has a potential range of scores from 0 to 3.0.

The Daily Emotion Records (DER) is a daily self-report that has been used previously to assess responses to sad mood (Nolen-Hoeksema et al., 1993). The DER consists of one question each about the duration and severity of sad mood on that day and 16 ruminative and 16 distracting responses each of which the participant checks if s/he engaged in that behavior that day in response to his or her mood. The rumination and distraction scores are the total of the items checked and thus each has a potential range of 0–16, with higher scores indicating greater use of this response.

Procedures

In September, participants were mailed a packet containing 14 DERs, 1 EBDI, a demographic questionnaire, an instruction sheet, and a consent form. Participants were told not to open their packet until they were contacted by telephone by study staff, at which time they received instructions, using a scripted protocol. Every night for 14 consecutive nights, participants completed a DER. On the 14th night, they also completed EBDI. Participants were instructed not to look at forms from previous days and to return all forms by mail when finished. The date on which participants started varied from September 2 to November 17 (median, September 29). Thus, the date the EBDI was completed varied from September 15 to November 30 (median, October 13).

In January, participants were recontacted and told to expect another mailing. This consisted of two EBDIs, one to be filled out upon receipt and the other, 1 week later. Dates on which the first EBDI was completed varied from January 25 to March 2 (median, February 4). The two winter EBDI measures were averaged to represent winter severity. Ruminative and Distracting response styles were derived from DER collected in the fall.

Determination of Response Style

Response style describes how people *typically* respond to their sad mood. However, as would be expected, an individual's actual ruminative and distracting responses on any given day might vary as a function of concurrent mood. For example, in our data, the severity of sad mood on DER correlated .45 ($p < .001$) with the number of ruminative responses per day and -0.27 ($p < .001$) with the number of distracting responses per day (based on 195 daily responses across all participants). Thus, using total ruminative responses and total distracting responses as measures of response style would confound a participant's response *style* with the level of sad mood on the particular days on which data were collected. Previous studies have not taken this dependency into account when assessing response style. On the surface, asking the participant for a *typical* response appears to bypass this confound. However, even the report of typical response has been found correlated with mood at the time of reporting (Kuehner & Weber, 1999). To deal with this issue, we devised a new way to calculate response style that is consistent with the intent of Response Style Theory that response style reflects the *tendency* to ruminate (or distract) but is not dependent on a particular level of mood. Using the fall DER data, for each participant separately, we calculated response style as the slope of a regression line predicting ruminative response level (or distracting response level) from the concurrent level of sad mood. The regression slope (the unstandardized beta coefficient) indicates the degree to which the participant ruminated (or distracted) as a function of sad mood. Five participants reported at least some sad mood on fewer than 3 days and 2 participants had no variability in mood; therefore, their response style could not be determined by this method. This yielded 18 participants with usable data (median, 8.5 days of data; range, 3–14).

RESULTS⁴

First, we used the daily DER data from the early fall to create measures of each participant's ruminative response style and distracting response style. As expected from the Response Style Theory, participants varied in the magnitude of ruminative response style (Fig. 1). Most participants tended to manifest more ruminative responses with greater sad mood (a positive slope), although for a few this trend was minimal or zero. However, for distracting responses as sad mood increased some participants distracted more and some distracted less (both positive and negative slopes). Thus, unexpected from the theory, some participants exhibited a reverse distracting response style. Ruminative and distracting response styles were not significantly correlated ($r = -.26$, $p = .31$) and examination of their scatterplot suggested no curvilinear pattern.

Next, we examined if the response styles predicted the severity of winter depression after accounting for fall level of depression. A hierarchical regression was

⁴Descriptive statistics (M , SD) of symptom and response style variables. EBDI, fall (18.7, 9.4); EBDI, winter (21.9, 10.8); vegetative symptoms, fall (.69, .43); vegetative symptoms, winter (.83, .46); nonvegetative symptoms, fall (.76, .40); nonvegetative symptoms, winter (.90, .45); ruminative response style (.62, .60); distracting response style ($-.11$, .58).

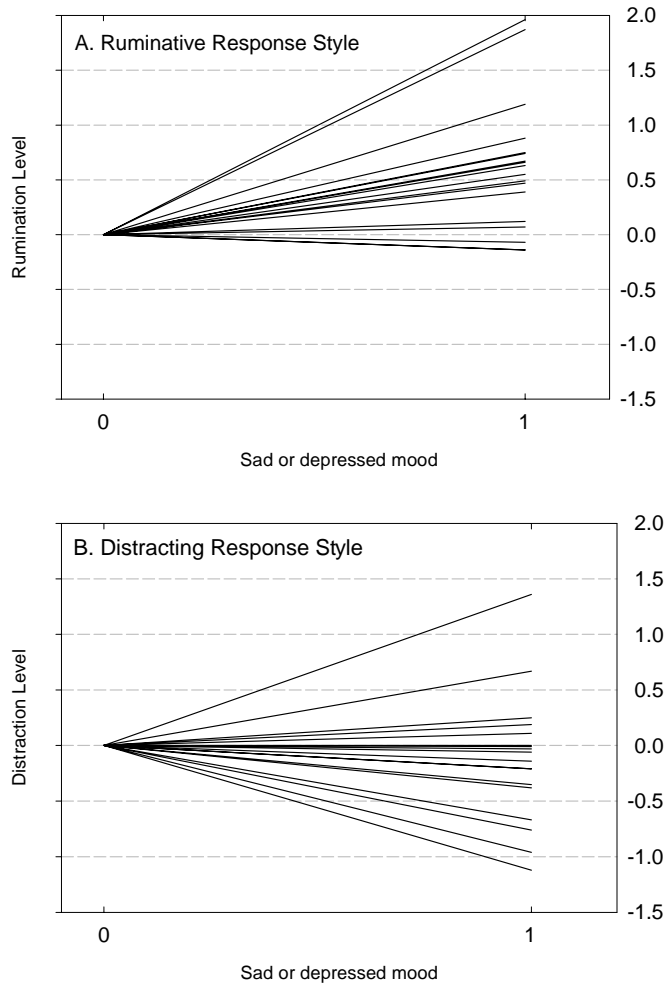


Fig. 1. Response styles of 18 participants. Ruminative and distracting response styles are defined as the slope of the response as a function of mood. To best display the slopes, all intercepts were set to zero and the x -axis to 0 and 1. Thus, a participant's response style value equals both the slope of the line and the value at mood = 1.

performed, with winter EBDI as the dependent variable, Fall EBDI entered in the first step, and ruminative and distracting response styles entered in the second step (Table I). Ruminative response style predicted winter depression severity after controlling for initial levels of depression. Distracting response style did not predict winter depression severity after controlling for initial levels of depression.

Finally, we examined if ruminative response style interacted with the severity of vegetative symptoms in the fall to predict the severity of nonvegetative symptoms in the winter. A hierarchical regression was performed with winter nonvegetative symptom severity as the dependent variable. All independent variables were

Table I. Regression Predicting Winter Symptomatology, Controlling for Fall Symptomatology

| Variable | <i>B</i> | <i>SE B</i> | β | <i>p</i> | ΔR^2 | <i>p</i> |
|--|----------|-------------|---------|----------|--------------|----------|
| <i>Predicting Depression Severity (EBDI)</i> | | | | | | |
| Step 1 | | | | | .177 | .082 |
| EBDI, fall | 0.489 | 0.264 | .421 | .082 | | |
| Step 2 | | | | | .361 | .018 |
| EBDI, fall | 0.345 | 0.218 | .296 | .136 | | |
| Ruminative response style | 11.25 | 3.456 | .622 | .006 | | |
| Distracting response style | 0.688 | 3.459 | .037 | .849 | | |
| <i>Predicting Nonvegetative Symptom Severity</i> | | | | | | |
| Step 1 | | | | | .593 | .005 |
| Nonvegetative, fall | 0.010 | 0.092 | .023 | .911 | | |
| Ruminative response style | 0.249 | 0.080 | .554 | .008 | | |
| Vegetative, fall | 0.172 | 0.095 | .382 | .091 | | |
| Step 2 | | | | | .180 | .007 |
| Nonvegetative, fall | 0.046 | 0.072 | .102 | .537 | | |
| Ruminative response style (<i>R</i>) | 0.183 | 0.065 | .408 | .015 | | |
| Vegetative, fall (<i>V</i>) | 0.096 | 0.077 | .213 | .235 | | |
| <i>R</i> × <i>V</i> | 0.165 | 0.051 | .481 | .007 | | |
| <i>Predicting Vegetative Symptom Severity</i> | | | | | | |
| Step 1 | | | | | .572 | .007 |
| Vegetative, fall | 0.273 | 0.100 | .588 | .017 | | |
| Ruminative response style | 0.223 | 0.085 | .481 | .020 | | |
| Nonvegetative, fall | -0.170 | 0.098 | -.367 | .103 | | |
| Step 2 | | | | | .042 | .259 |
| Vegetative, fall | 0.270 | 0.099 | .583 | .017 | | |
| Ruminative response style (<i>R</i>) | 0.261 | 0.090 | .563 | .012 | | |
| Nonvegetative, fall (<i>N</i>) | -0.215 | 0.103 | -.463 | .058 | | |
| <i>R</i> × <i>V</i> | 0.136 | 0.116 | .234 | .259 | | |

standardized before computing interaction product terms and before being entered into the regression. Fall nonvegetative symptom severity, ruminative response style, and vegetative symptom severity were entered in the first step and the interaction (product) of ruminative response style and vegetative symptom severity entered in the third step (Table I). The change in R^2 for the final step was significant indicating a significant interaction and that the relationship between fall vegetative symptoms and winter nonvegetative symptoms increased as a function of the magnitude of ruminative response style (controlling for nonvegetative symptom severity in the fall). For comparison purposes, we ran the analysis reversing the roles of vegetative and nonvegetative symptoms, with fall nonvegetative symptoms predicting winter vegetative symptoms (Table I). The interaction of ruminative response style and nonvegetative symptoms was not significant. Ruminative response style itself was related to winter vegetative symptom severity (Table I, Step 1). The magnitude of this effect cannot be compared to that for the relationship of rumination to winter nonvegetative symptoms because the latter relationship interacts with fall vegetative symptom severity.

DISCUSSION

Little research has examined the role of psychological variables in winter depression. The results of this study suggest that a person's response style, specifically

the tendency to ruminate in response to sad mood, can predict the severity of winter depression. In contrast, the magnitude of a distracting response style was not predictive. This result is similar to the findings of other response style research in which the positive results for rumination have been more consistent than those for distraction. Thus, response style theory appears to apply to SAD similarly to how it applies to unipolar depression and to depression in nonclinical populations.

We also observed a difference in the nature of ruminative and distracting response styles. Ruminative response style ranged from essentially zero upward, indicating that, to one extent or another, participants tended to ruminate more as their mood got worse. In contrast, some participants distracted more as their mood got worse, whereas other participants distracted less. It may be that for some individuals, sadness triggers distraction as a coping mechanism whereas, for other individuals, sadness overwhelms their ability to distract. This latter possibility is speculative and is not addressed by Response Style Theory. These two different kinds of distracting response may partially account for the inconsistent results regarding distraction. Future research could examine the functioning of these two types of distraction response.

Results also support the prediction of the Dual Vulnerability Hypothesis of SAD that the severity of nonvegetative symptoms in the winter should be related to an interaction of earlier vegetative symptoms and psychological vulnerabilities to depression, such a ruminative response style. In addition, ruminative response style itself was associated with greater severity of vegetative symptoms. A possible explanation of this finding is that rumination affects the experience and self-report of vegetative symptoms. Parallel to individuals with high anxiety sensitivity, who report higher levels of subjective distress to the same physiological arousal (Reiss, 1987), individuals who ruminate may have an enhanced awareness of, and concern about, vegetative symptoms. It is important to note that, consistent with Response Style Theory, response style was assessed in relation to "feeling sad or depressed" and not specifically in relation to vegetative symptoms.

In this study, we devised a new way to assess response style, taking advantage of the benefits of participants' reports of their actual behavior rather than their understandings of their typical behavior. This method also avoided the problem of the dependence of these understandings on a participant's mood at time of assessment. This response style measure is consistent with Nolen-Hoeksema's notion of response style as a stable individual tendency to respond in a certain way when faced with sad mood and would be useful to utilize in future research.

Conclusions from this study are limited by several factors. First, the small sample may have limited the power of statistical analyses, although the effect size for distracting response style was very small and nowhere close to statistical significance. Also, the small sample may not represent the full range of the winter depression population and the generalizability of the results is unknown. Second, our method of determining response style could only use data from days on which participants reported experiencing some sadness or depression. As a result, response style measures for different individuals were based on different numbers of data points and may have had different levels of reliability. However, reanalysis with weighted regression based on the number of days of data for the response style determinations

produced similar results. Finally, we measured depression severity in February, when people with winter depression are typically at their worst. However, individuals may vary in this regard and more frequent assessment would allow a better specification of each participant's greatest severity. In addition, a longer data collection in the fall would allow for a more precise and individual specification of early symptoms and of the timing of response style assessment relative to the course of the symptomatology.

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REFERENCES

- Bagby, R. M., & Parker, D. A. (2001). Relation of rumination and distraction with neuroticism and extraversion in a sample of patients with major depression. *Cognitive Therapy and Research, 25*, 91–102.
- Bagby, R. M., Schuller, D. R., Levitt, A. J., & Joffe, R. T. (1996). Seasonal and non-seasonal depression and the five-factor model of personality. *Journal of Affective Disorders, 38*, 89–95.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561–571.
- Blodgett, C., Reardon, A., & Young, M. A. (2001). *Rumination as a mediator of the relationship between neuroticism and both seasonality and depression*. Poster presented at the Meeting of the Society for Research in Psychopathology, Madison, WI.
- Bouhuys, A. L., Meesters, Y., Jansen, J. H. C., & Bloem, G. M. (1998). *Personality and tiredness in remitted seasonal affective disorder patients and their relevance to the onset of a next depressive episode: A prospective study*. Unpublished manuscript.
- Eastman, C. I., Young, M. A., Fogg, L. F., Liu, L., & Meaden, P. M. (1998). Bright light treatment of winter depression: A placebo controlled trial. *Archives of General Psychiatry, 55*, 883–889.
- Enns, M. W., & Cox, B. J. (2001). Personality and cognition. In T. Partonen & A. Magnusson (Eds.), *Seasonal affective disorder: Practice and research*. 223–234 Oxford: Oxford University Press.
- Just, N., & Alloy, L. B. (1997). The response styles theory of depression: Tests and an extension of the theory. *Journal of Abnormal Psychology, 106*, 221–229.
- Kasch, K. L., Klein, D. N., & Lara, M. E. (2001). A construct validation study of the Response Style Questionnaire rumination scale in participants with a recent-onset major depressive episode. *Psychological Assessment, 13*, 375–383.
- Kasper, S., Wehr, T. A., Bartko, J. J., Gaist, P. A., & Rosenthal, N. E. (1989). Epidemiological findings of seasonal changes in mood and behavior. *Archives of General Psychiatry, 46*, 823–833.
- Kuehner, C., & Weber, I. (1999). Responses to depression in unipolar depressed patients: An investigation of Nolen-Hoeksema's response styles theory. *Psychological Medicine, 29*, 1323–1333.
- Madden, P. A. F., Heath, A. C., Rosenthal, N. E., & Martin, N. G. (1996). Seasonal changes in mood and behavior: The role of genetic factors. *Archives of General Psychiatry, 53*, 47–55.
- Murray G., Allen N. B., & Trinder, J. (2001) A longitudinal investigation of seasonal variation in mood. *Chronobiology International, 875–891*.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressed episodes. *Journal of Abnormal Psychology, 100*, 569–582.
- Nolen-Hoeksema, S., & Morrow, J. (1993). Effects of rumination and distraction on naturally occurring depressed mood. *Cognition and Emotion, 7*, 561–570.
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67*, 92–104.
- Reiss, S. (1987). Theoretical perspectives on the fear of anxiety. *Clinical Psychology Review, 7*, 585–596.
- Roberts, J., Gilboa, E., & Gotlib, I. (1998). Ruminative response and vulnerability to episodes of dysphoria: Gender, neuroticism, and episode duration. *Cognitive Therapy and Research, 22*, 401–423.

- Rosenthal, N. E., Sack, D. A., Gillin, C., Lewy, A. J., Goodwin, F. K., Davenport, Y., et al. (1984). Seasonal affective disorder: A description of the syndrome and preliminary findings with light therapy. *Archives of General Psychiatry*, *41*, 72–80.
- Schmitt, L., & Young, M. A. (2000). *Clustering of symptoms across the offset of seasonal affective disorder*. Paper Presented at the Annual Meeting of the Society for Light Treatment and Biological Rhythms, Evanston, IL.
- Schwartz, J. A. J., & Koenig, L. J. (1996). Response styles and negative affect among adolescents. *Cognitive Therapy and Research*, *20*, 13–36.
- Spasojevic, J., & Alloy, L. B. (2001). Rumination as a common mechanism relating depressive risk factors to depression. *Emotion*, *1*, 25–37.
- Spitzer, R. L., & Endicott, J. (1979). *Schedule for affective disorders and schizophrenia—Lifetime version*. New York: New York State Psychiatric Institute.
- Young, M. A., Meaden, P. M., Fogg, L. F., Cherin, E. A., & Eastman, C. I. (1997). Which environmental variables are related to the onset of seasonal affective disorder? *Journal of Abnormal Psychology*, *106*, 554–562.
- Young, M. A., Watel, L. G., Lahmeyer, H. W., & Eastman, C. I. (1991). The temporal onset of individual symptoms in winter depression: Differentiating underlying mechanisms. *Journal of Affective Disorders*, *22*, 191–197.