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Self-Directed Thought and Response to Treatment for Depression: A Preliminary Investigation

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The study this article is based on investigated the role of self-directed attention in the maintenance of depressive episodes. Measures of rumination and self-consciousness were used to predict response to treatment for depression. Further, the study investigated the potential interplay between self-directed attention and negative cognition. Thirty-two participants completed measures of rumination, private self-consciousness, and negative cognition prior to receiving group psychoeducational treatment for depression. Analyses revealed that although the main effects of measures of self-directed attention and negative cognition were not statistically significant, the interaction between self-directed thought (particularly rumination) and negative cognitive style predicted change in severity of depressive symptoms over the course of the treatment program. These findings suggest that the degree to which heightened self-directed attention contributes to poor treatment outcome for depression varies as a function of cognitive style.

Episodes of depression vary considerably in their duration. By definition, Major Depressive Episodes (MDEs) last for a minimum of 2 weeks (American Psychiatric Association APA, 2000), but in most cases these episodes persist for months or even years. Naturalistically, approximately 57% percent of individuals who develop an MDE remit within 6 months, 12% remit between 6 and 12 months, 18% remit between 1 and 2 years, and 13% of individuals have episodes that persist for longer than 2 years (Coryell et al., 1994). Furthermore, although a number of treatments have been shown to decrease the severity and duration of depressive episodes, there is substantial variability in individuals' response to treatment. Unfortunately complete response to treatment is the exception rather than the rule. For example, only 36%-42% of clients achieved recovery across a number of treatments (cognitive-behavioral therapy, interpersonal therapy, and pharmacotherapy) in the Treatment of Depression Collaborative Research Program

(Elkin et al., 1989). In spite of the variability in the natural course of depression and in treatment response, little is known about processes that contribute to the maintenance of depressive episodes.

Over the past decade and a half, a number of clinical scientists have suggested that self-directed thought may play an important role in perpetuating depression (e.g., Musson & Alloy, 1988; Nolen-Hoeksema, 1991; Pyszczynski & Greenberg, 1987; Shapiro & Roberts, 2001; Wells & Matthews, 1996). However, these theories differ in the way that self-directed attention is conceptualized. Further, such theories vary with regard to the hypothesized interplay between self-directed attention and negative cognition. Although research has demonstrated that self-directed attention plays an important role in depressive disorders, little research has investigated self-directed thought in the context of recovery from clinical episodes of depression. The present study explored the role of self-directed thought in terms of ruminative response style and general self-consciousness as potential contributors to poor treatment outcome. Further, we investigated the relationship between self-directed thought and negative cognition in the prediction of depression.

PRIVATE SELF-CONSCIOUSNESS

Self-awareness theories of depression (e.g., Musson & Alloy, 1988; Pyszczynski & Greenberg, 1987) posit that excessive self-focusing places one at risk for episodes of depression. In general, self-focused attention involves "an awareness of self-referent, internally generated information" (Ingram, 1990, p. 156). However, depression researchers have tended to focus on a more specific type of self-awareness that has been referred to as "private self-consciousness," which involves focus on "thoughts and reflections that deal solely with the self" (Fenigstein, Scheier, & Buss, 1975, p. 525). This type of self-awareness stands in contrast to public self-consciousness, which involves the focus of attention on how the self is perceived by others. Whereas individuals with excessive private self-consciousness may be at risk for depression, individuals engaging in excessive public self-consciousness are thought to be at risk for other psychological problems, including social anxiety.

Support for a relationship between private self-consciousness and depression has been found in a series of correlational studies (Ingram & Smith, 1984; Smith & Greenberg, 1981; Smith, Ingram & Roth, 1985). Significant associations between self-consciousness and depression have also been found in a two-month investigation involving daily self-monitoring (Larsen & Cowan, 1988). Furthermore, Ingram, Lumry, Cruet, and Sieber (1987) found that compared to an age-and-sex-matched community sample, clinically depressed outpatients reported higher levels of self-focus. Although these correlational studies provide evidence that heightened self-consciousness and depression co-occur, they do not provide evidence that there is a direct causal relationship between these constructs.

A number of experimental studies have linked depression and self-focused attention. For example, research has found that mildly depressed individuals show a preference for self-focused attention (Ingram & Wisnicki, 1999), particularly

subsequent to failure (Pyszczynski & Greenberg, 1985, 1986). Despite this preference for self-focus, depressed individuals seem to be adversely affected by this form of attention. For example, in two separate studies, Gibbons and his colleagues (1985) compared the effect of a self-focus manipulation on a depressed psychiatric sample to recovering alcoholics (Study 1) and nondepressed general medical patients (Study 2). Both of these studies found that the self-focus manipulation was associated with increases in negative affect within the depressed samples, but not among the comparison samples. Unfortunately, no research to date has examined the role of self-focused attention in the persistence of episodes of clinical depression during the course of treatment.

RUMINATIVE RESPONSE STYLE

Response styles theory, forwarded by Nolen-Hoeksema (1991), posits that individuals differ in their responses to dysphoric mood and that these differences have an impact on the duration and severity of dysphoric mood. This theory distinguishes between ruminative and distracting responses. Ruminative responses are defined as "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). Such responses are thought to maintain and exacerbate depressed mood. On the other hand, distracting responses are defined as "the purposeful turning of one's attention away from one's symptoms of depression and its possible causes and consequences to pleasant or neutral activities" (Nolen-Hoeksema, 1991, p. 570). Distracting responses are thought to alleviate and interrupt depression.

The conceptualization of rumination differs from general self-consciousness in a number of ways. First, rumination is more specific with respect to the target and valence of attention. Self-consciousness involves sensitivity to one's *positive* and *negative* thoughts, feelings, attributes, and motivations, whereas a ruminative response style involves focusing specifically on one's negative emotions, depressive symptoms, and the negative implications of one's mood. Further, self-consciousness is thought of as a general personality dimension that deals with an introspective style of thinking manifested across various situations. In contrast, rumination is conceptualized as a pattern of maladaptive emotion-focused coping, and, as such, focuses on individuals' cognitive and behavioral responses to depressed mood. Although rumination is specific to states of dysphoria, studies have found that ruminative responses to depression are stable across time and thus potentially represent a trait vulnerability to depression (Just & Alloy, 1997; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Nolen-Hoeksema, Parker, & Larson, 1994).

Experimental studies with nonclinical samples have consistently supported the basic predictions of response styles theory. Nolen-Hoeksema and Morrow (1993) randomly assigned dysphoric and nondysphoric participants to engage in either a ruminative or distracting task for eight minutes. They found that, among dysphoric participants, rumination led to increased levels of depressive mood whereas dysphoric participants made to distract themselves experienced a significant reduction

in depressive moods. Rumination and distraction did not have any effect on participants who were not initially dysphoric. This pattern of findings has subsequently been replicated in numerous investigations (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Lyubomirsky & Nolen-Hoeksema, 1993; Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky, Tucker, Caldwell, & Berg, 1999; Morrow & Nolen-Hoeksema, 1990; Trask & Sigmon, 1999). Further, individuals who report high levels of trait rumination have been shown to report more distress following a negative mood induction than individuals low in rumination (Conway, Csank, Holm, & Blake, 2000).

Empirical support for response styles theory has also come from correlational and prospective investigations. Roberts, Gilboa, and Gotlib (1998) found that, relative to individuals without a history of depression, those who reported previous episodes of depression had significantly higher rumination scores after controlling for current symptoms of depression. Prospective investigations with undergraduate college students have demonstrated that, after controlling for baseline depression, rumination predicts future levels of depressive symptoms (Just & Alloy, 1997; Nolan, Roberts, & Gotlib, 1998; Nolen-Hoeksema & Morrow, 1991), as well as the duration of depressive moods (Nolen-Hoeksema et al., 1993). Rumination has also been found to predict the severity of depression over a 12-month period among bereaved adults in two separate samples (Nolen-Hoeksema, McBride, & Larson, 1997; Nolen-Hoeksema et al., 1994).

Only recently have researchers begun investigating the predictive value of rumination in samples of depressed individuals diagnosed with mood disorders. In a large community sample, rumination measured at the study intake was found to predict depressive episodes one year later after controlling for initial diagnostic status (Nolen-Hoeksema, 2000). Similarly, a study of depressed inpatients found that after controlling for initial symptoms of depression, rumination measured one month after hospital discharge significantly predicted severity of depressive symptoms three months later (Kuehner & Weber, 1999). Finally, Schmalzing, Dimidjian, Katon, and Sullivan (2002) examined rumination as a predictor of treatment response among individuals with minor depression or dysthymic disorder. Greater rumination at pretreatment predicted higher levels of self-reported depression at treatment termination (controlling for pretreatment depression) but was not predictive of change from intake to a follow-up 14 weeks post-treatment. Furthermore, rumination was not predictive of change in interviewer-assessed depression from intake to either time point.

However, three noteworthy studies have not found a significant main effect of rumination. In one such study, rumination failed to predict future depressive symptoms among college students meeting criteria for an episode of major depression (Lara, Klein, & Kasch, 2000). Rumination also was not a significant predictor of response to pharmacological treatment of depressed outpatients (Bagby et al., 1999). Finally, while Spasojevic and Alloy (2001) found that rumination was associated with both a history of depressive episodes and future onsets of depression, in this sample, these effects were limited to participants who reported high levels of negative cognition (Robinson & Alloy, in press). Among individuals with low levels of negative cognition, rumination was not a significant predictor of either outcome.

COGNITIVE STYLE

It is possible that high levels of self-directed thought may not affect all individuals equally and that other factors may moderate the association between self-directed thought and depression. The presence of a moderator may help to explain why a main effect of rumination has been demonstrated in some studies but has not been found in others. As suggested by Robinson and Alloy (in press), one such moderating factor may be the presence of negative cognitive styles. Negative cognitive styles include maladaptive beliefs about the self, often operationalized as low self-esteem and high scores on the Dysfunctional Attitude Scale (DAS) (Weissman & Beck, 1978), and negative attributional styles in which stressful life events are attributed to internal, stable, and global causes. Although studies have found that on average depressed individuals report more negative thinking patterns than nondepressed individuals (see Barnett & Gotlib, 1988; Gotlib & Hammen, 1992), there exists a great deal of heterogeneity in the degree of dysfunctional cognition experienced by depressed individuals (e.g., Rose, Abramson, Hodulik, Halberstadt, & Lef, 1994; Whisman & Pinto, 1997). Whereas some depressed individuals describe highly negative thinking patterns, others report relatively little negative cognition. The self-regulatory perseveration theory of depression (Pyszczynski & Greenberg, 1987) posits that only among individuals with negative cognitive styles (specifically, discrepancies between one's ideal and real selves) would self-consciousness lead to increased levels of depression. Similarly, Morrow and Nolen-Hoeksema (1990) proposed that rumination intensifies and protracts depression by "enhancing the effects of existing maladaptive cognitive styles by bringing maladaptive cognitions to mind more often" (p. 520). Consistent with this perspective, a recent study among college undergraduates found support for an interactive relationship between rumination and negative cognitive styles (Robinson & Alloy, in press). Rumination was predictive of previous and future episodes of major depression among participants who had high scores on measures of negative cognition. Yet, levels of rumination were not significantly associated with episodes of depression for participants with low levels of negative cognition. Thus, there is good reason to explore the potential interplay between self-directed thought and negative cognitive styles as predictors of treatment outcome for depression.

The present study investigated the roles of self-directed thought and negative cognitive styles and their potential interaction in a sample of individuals receiving group psychoeducational treatment for depression (Lewinsohn, Antonuccio, Stelmets, & Teri, 1984). In the context of this cognitive-behavioral treatment, which focuses on increasing adaptive thoughts and behaviors, we would expect that individuals who are more prone to self-directed thought and who have more negative cognitive styles would be slower to respond to treatment. We also tested alternative conceptualizations of self-directed thought (general self-consciousness and rumination) as predictors of treatment response. Consistent with Schmalzing and colleagues (2002), we hypothesized that higher levels of self-directed thought at intake would predict greater depression at termination after controlling for pretreatment depression. Further, we posited that self-directed thought and negative cognitive

styles would interact in predicting treatment response, such that high levels of self-directed thought would be most detrimental among individuals who report highly negative cognitive styles.

METHOD

Participants

The sample consisted of 32 individuals receiving group psychoeducational treatment for depression at the University at Buffalo, The State University of New York. Inclusion criteria for the present study included: (a) a current Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) score $> = 10$; and (b) a diagnosis of major depressive disorder (MDD), dysthymic disorder, or minor depression (defined as a significant mood disturbance lasting a minimum of 2 weeks, involving 2 to 4 of the symptoms of MDD), as assessed by the Structured Clinical Interview for DSM-IV (SCID). Exclusion criteria included: (a) a history of bipolar disorder and (b) a history of schizophrenia. The average age of participants was 45.9 years ($SD = 11.7$) and 19 were female. The sample was highly educated, averaging 16.1 ($SD = 2.3$) years of education. The majority of participants (94%) were Caucasian, one was Hispanic, and one did not report ethnicity. At study entry, 28 individuals met diagnostic criteria for MDD, 1 met for dysthymic disorder, 3 met for both MDD and dysthymic disorder and 1 met criteria for minor depression. Twenty-seven participants completed treatment, while 5 terminated early. Fourteen (44%) participants reported that they were currently taking antidepressant medication at the intake.

Measures

Structured Clinical Interview for DSM-IV, Patient Version. The Structured Clinical Interview for DSM-IV, Patients Version (SCID; First, Spitzer, Gibbon, & Williams, 1995) was conducted by clinical psychology graduate students and was used to assess the presence of current mood disorders at intake, using DSM-IV criteria (APA, 2000). In order to determine the reliability of SCID diagnoses, a second clinician reevaluated audiotapes of 19 interviews, and the resulting kappa coefficients were .69 for MDD, .64 for dysthymic disorder, and 1.0 for bipolar disorder. These kappa coefficients compare favorably to those obtained by the developers of the SCID, who obtained kappas of .64, .40, and .84, respectively (Williams et al., 1992).

Beck Depression Inventory. The Beck Depression Inventory (BDI; Beck et al., 1961) was used to measure individuals' level of depressive symptomatology weekly throughout the treatment program. The widely used 21-item scale has shown high internal consistency, with coefficient alphas of ranging from .76 to .95 in psychiatric patients (see Beck, Steer, & Garbin, 1988).

Response Style Questionnaire-Rumination Scale. The 33-item Response Style Questionnaire asks participants to report their typical responses to experiencing a depressed mood. This questionnaire consists of two scales: rumination and distraction.

only the 22-item rumination scale was used in this investigation. Participants are asked to indicate the frequency with which they engage in a number of different responses (e.g., "go someplace alone to think about your feelings," "listen to sad music") to depressed mood on a 4-point Likert scale. The rumination scale has been shown to have high internal consistency ($\alpha = .90$; Nolen-Hoeksema et al., 1994) in previous research.

Self-Consciousness Scale—Private Self-Consciousness Subscale. This 10-item subscale of the Self-Consciousness Scale was used to assess the degree to which participants are generally sensitive to their own thoughts, feelings, attributes, and motivations, irrespective of their current mood state. On this measure, participants rate a series of statements (e.g., "I'm always trying to figure myself out," "I generally pay attention to my inner feelings,") on a 5-point Likert scale. This scale has shown adequate internal consistency ($\alpha = .69$) and 2-week test-retest reliability ($r = .79$; Fenigstein et al., 1975).

Dysfunctional Attitudes Scale, Form A. The Dysfunctional Attitudes Scale, Form A (DAS; Weissman & Beck, 1978) was used to assess dysfunctional cognitions at intake. This 40-item scale assesses the endorsement of rigid and perfectionistic beliefs thought to be common among depressed individuals. Participants rate their agreement with a series of statements (e.g., "If I do not do well all the time, people will not respect me," "If others dislike you, you cannot be happy."). The DAS has been shown to have high internal consistency ($\alpha = .91$; Roberts & Kassel, 1996).

Rosenberg Self-Esteem Questionnaire. The Rosenberg Self-Esteem Questionnaire (RSE; Rosenberg, 1979) is a widely used, 10-item scale that assesses individuals' global self-worth. This questionnaire was assessed at intake. Participants rate their agreement on 10 statements about their general self-concept (e.g., "on the whole, I am satisfied with myself" and, "at times, I think I am no good at all"). The RSE has been shown to have good test-retest reliabilities in a number of studies (r 's from .85 to .88; see Rosenberg, 1979).

Attributional Style Questionnaire. The Attributional Style Questionnaire (ASQ; Peterson et al., 1982) asks participants about their attributions or explanations for six potentially stressful situations. For each hypothetical event, participants rate on 7-point Likert scales the degree to which the event was caused by the self (internal subscale), would have lasting negative consequences (stable subscale), and would have negative implications for other domains of the participant's life (global subscale). This measure has been shown to have good internal consistency ($\alpha = .72$; Peterson et al., 1982). In following Abramson, Metasky, and Alloy's (1989) reconceptualization of attributional style, the scores on the stable and global subscales were added to provide an index of negative attributional style.¹

PROCEDURE

Participants were recruited through local newspapers and flyers posted in the community. Diagnostic interviews were conducted using the SCID in order to determine whether or not the individual was eligible for the study. Those individuals who did not qualify for the study were given referrals for treatment in the community.

Treatment was based on the Coping with Depression Course (CWDC) (Lewinsohn et al., 1984), a group psychoeducational treatment for depression that teaches four major types of skills: relaxation training, increasing pleasant activities, cognitive restructuring, and social skills/assertiveness training. This program has been modified in our laboratory to be administered over 12 weekly sessions and groups were led by two graduate student clinicians. The CWDC has received empirical support in previous studies (see Cuijpers, 1998 for a metaanalytic review) and is currently recognized as a "probably efficacious treatment" by the American Psychological Association's Division 12 Task Force on Promotion and Dissemination of Psychological Procedures (Chambless et al., 1996).

At the intake session, a battery consisting of the following questionnaires was administered: BDI, RSQ, SCS, DAS, RSE, and the ASQ. At each of the subsequent 12 treatment sessions, the BDI was administered just prior to the appointment. Approximately 1 to 2 weeks after the last treatment session, participants had individual termination sessions, at which time they completed a final BDI. To increase the reliability of BDI scores, as well as to diminish potential demand characteristics (e.g., exaggerating depression at intake, minimizing depression at termination), composite scores were used (see Roberts, Shapiro, & Gamble, 1999). Initial BDI scores were calculated by averaging the first two BDI scores (those completed at the intake assessment and the first group session). Termination BDI scores were calculated by averaging the last two BDI scores provided by each participant. For those participants who terminated early, the average of their last two BDI scores was carried over as an estimate of their depression levels at treatment completion.

Data Analytic Strategy

To examine predictors of treatment response, partial correlation and multiple linear regression were utilized. First, to examine potential main effect predictors of treatment response, the partial correlations of post-treatment BDI with indices of self-directed attention and negative cognition were explored, controlling for pretreatment BDI. Second, to examine the potential interactive effects of the self-directed attention and negative cognition, a series of multiple linear regressions were conducted. Termination BDI scores were the dependent variable in these analyses. The first step in each of these regressions consisted of pretreatment BDI scores, to control for initial severity of depression. The second step added the main effects of one index of self-directed attention (either rumination or private self-consciousness) along with one index of negative cognition (either the RSE, DAS, or ASQ). The final step in these regressions included the corresponding interaction term of the two variables that were entered in Step 2 (Self-Directed Attention \times Negative Cognition). Cook's distances and collinearity diagnostics were examined for each of these regressions to guard against overly influential data points and multicollinearity. All Cook's distances were below 1, and the collinearity diagnostics were all acceptable. Analyses were first conducted using the full sample. To ensure that findings were not influenced by the effects of attrition, analyses were repeated using the "treatment completer" subsample. Significant interactions were plotted by entering values corresponding to two standard deviations above and below the means into the regression models.²

RESULTS

The treatment program resulted in a significant decrease in mean BDI scores among both the full sample and the treatment completers. The full sample showed a decrease from $M = 21.4$ to $M = 12.6$ (mean change = -6.8 , $t = 5.346$, $p < .001$). The treatment completer sample showed a decrease from $M = 20.2$ to $M = 11.9$ (mean change = -8.3 , $t = 6.629$, $p < .001$). The within-subject effect sizes for the full sample and the treatment completers were $d = .81$ and $d = 1.29$, respectively.³ The effect size for the completer sample was comparable to the average within-subject effect size across numerous studies using the Coping with Depression Course (Cuijpers, 1998). The standard deviation of difference scores was $SD = 7.2$ among the full sample and $SD = 6.5$ among the treatment completers, which relative to the means demonstrates a large amount of variability in the response to treatment.

Preliminary analyses were conducted to explore possible relationships between demographic factors and psychological variables. Age, ethnicity, marital status, income, and gender were not significantly associated with the variables in the study, including treatment outcome. As shown in Table 1, rumination and self-focused attention were positively correlated ($r = .55$, $p < .01$). Though significantly associated, these measures of self-directed thought share only 30% of their variance, suggesting that they are related, though not redundant constructs. Medication status was not significantly associated with treatment outcome in either the full sample ($p = .03$) or the treatment completer sample ($p = .09$).

As can be seen at the bottom of Table 1, partial correlations controlling for pretreatment depression revealed that none of the independent variables were associated with posttreatment BDI scores. These results indicate that rumination, self-consciousness, and each of the measures of cognitive style failed to predict treatment outcome individually.

TABLE 1. Zero-Order and Partial Correlations Among Independent Variables

	PSC	Rumination	RSE	DAS	ASQ	BDI T1
Rumination	.55**					
RSE	-.47**	-.49**				
DAS	.60***	.51**	-.71***			
ASQ	.10	.35	-.43**	.59***		
BDI T1	.40*	.49**	-.66***	.64***	.66***	
BDI T2	.22	.36*	-.45**	.42*	.52**	.83***
Partial r with BDI T2, controlling for BDI T1	-.21	-.10	.23	-.26	-.05	

Note. PSC = Private Self-Consciousness, RSE = Rosenberg Self-Esteem Scale, DAS = Dysfunctional Attitudes Scale, ASQ = Attributional Style Questionnaire, BDI T1 = pretreatment BDI scores, BDI T2 = post-treatment BDI scores.

* $p < .05$, ** $p < .01$, *** $p < .001$.

The first set of regression models examined private self-consciousness and negative cognition. Three regression models were tested, each investigating private self-consciousness and one of the three indices of negative cognition (see Table 2). In the self-esteem and private self-consciousness model, the interaction term was marginally significant ($\beta = -.823, p = .056$). This interaction also demonstrated a marginal trend in a parallel analyses based on the treatment completer subsample ($\beta = -.951, p = .050$). No significant interactive effects were found in the regression model investigating private self-consciousness and dysfunctional attitudes or attributional style in either the full sample or in the treatment completer subsample (all p 's $> .10$).⁴

A plot of the marginally significant interaction between self-consciousness and self-esteem is displayed in Figure 1. Among participants with moderate levels of self-esteem, higher levels of self-consciousness were associated with better treatment outcomes. For participants with very low levels of self-esteem, higher levels of self-consciousness were associated with somewhat worse treatment outcomes.

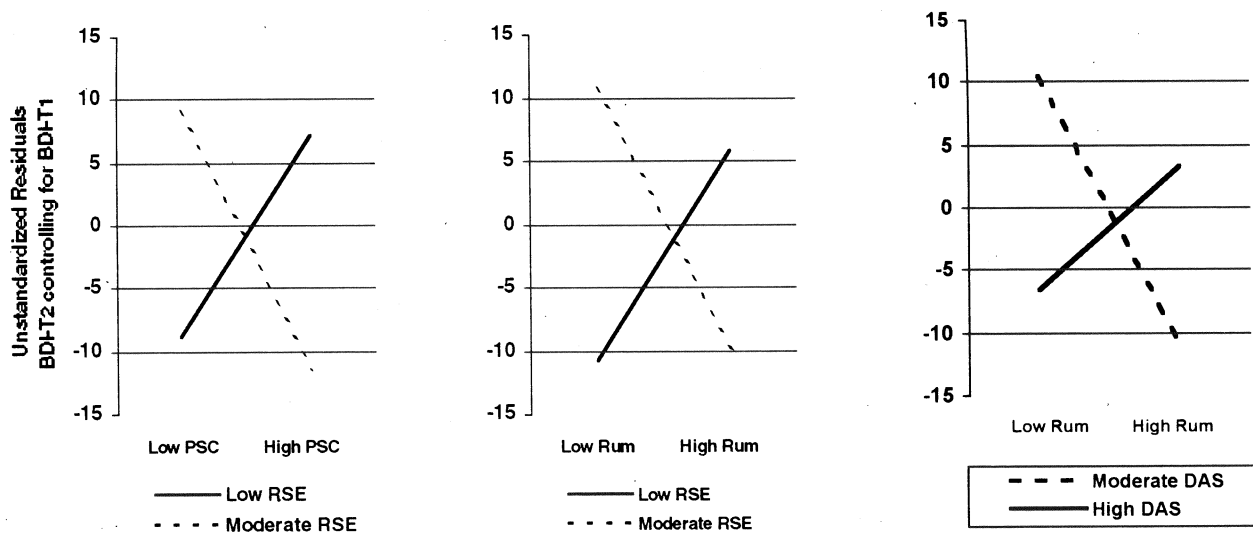
The second set of regressions investigated rumination and negative cognition. Again, three regression models were tested, each investigating a separate index of negative cognition (see Table 3). The first of these analyses revealed that the Rumination \times Self-Esteem interaction was significantly associated with treatment response ($\beta = -.838, p < .05$). This interaction was also significant using the "treatment completer" subsample ($\beta = -.947, p < .05$). As seen in Figure 1, the form of this interaction suggests that among participants with very low levels of self-esteem, greater rumination was associated with worse treatment outcomes. In contrast, among participants with moderate levels of self-esteem, greater rumination was associated with better treatment outcomes.

The results from the rumination and dysfunctional attitudes regression model mirrored those obtained with self-esteem. The interaction between rumination and dysfunctional attitudes predicted post-treatment BDI scores after controlling for pretreatment BDI ($\beta = 1.556, p < .05$). The interaction between rumination and dysfunctional attitudes was also significant when the analysis was based on the "treatment completer" subsample ($\beta = 1.801, p < .05$). As can be seen in Figure 1, higher rumination scores were associated with worse treatment outcomes among individuals with high levels of dysfunctional attitudes, whereas higher rumination scores were associated with better treatment outcomes among individuals with moderate levels of dysfunctional attitudes.

The analyses involving attributional style and rumination were examined next. The interaction term was not statistically significant in both the full sample ($\beta = .821, ns$) and the "treatment completer" subsample ($\beta = 1.152, ns$).

DISCUSSION

The present study investigated the roles of two somewhat different conceptualizations of dysfunctional self-directed attention in predicting response to treatment for depression. Further, the potential for an interactive relationship between self-directed attention and negative cognition was investigated. Our results demonstrated that



Note. PSC = Private Self-Consciousness, RSE = Rosenberg Self-Esteem Scale, DAS = Dysfunctional Attitudes Scale, Rum = Rumination. Higher residual scores indicate more depressive symptomatology at termination controlling for pre-treatment symptomatology. Solid lines represent greater cognitive dysfunction (i.e., low self-esteem, high dysfunctional attitudes). Interactions were plotted using the full sample; the form of the interactions did not differ in the treatment completer sample.

Figure 1. Interaction plots.

TABLE 2. Hierarchical Multiple Regression Analyses Involving Private Self-Consciousness

Predictor	β	<i>pr</i>	<i>t</i>	$R^2 \Delta$
<i>Self-Esteem</i>				
Step 1				.68***
BDI-T1	.826	.83***	8.02***	
Step 2				.02
PSC	-.098	-.16	0.84	
RSE	.133	.17	0.93	
Step 3				.04 [†]
PSC × RSE	-.823	-.36 [†]	2.00 [†]	
<i>Dysfunctional Attitudes</i>				
Step 1				.68***
BDI-T1	.826	.83***	8.02***	
Step 2				.02
PSC	-.076	-.11	0.59	
DAS	-.133	-.16	0.87	
Step 3				.03
PSC × DAS	1.45	.29	1.59	
<i>Attributional Style</i>				
Step 1				.68***
BDI-T1	.825	.83***	7.87***	
Step 2				.02
PSC	-.149	-.23	-1.25	
ASQ	-.082	-.11	-0.56	
Step 3				.01
PSC × ASQ	.815	.18	0.95	

Note. PSC = Private Self-Consciousness, RSE = Rosenberg Self-Esteem Scale, DAS = Dysfunctional Attitudes Scale, ASQ = Attributional Style Questionnaire, BDI-T1 = pre-treatment BDI scores.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

neither private self-consciousness nor depressive rumination were directly associated with treatment response. However, we found support for the hypothesis that negative cognitive styles interact with these indices of self-directed thought. Specifically, significant interactive relationships were found between rumination and self-esteem, as well as between rumination and dysfunctional attitudes. The analyses involving self-consciousness demonstrated similar but somewhat less robust findings, as the interaction with self-esteem was marginally significant and the interaction with dysfunctional attitudes was not statistically significant.

Taken together, these findings suggest that although self-consciousness and depressive rumination are potentially destructive processes, the degree to which they are associated with poor treatment response is moderated by the depressed individual's

TABLE 3. Hierarchical Multiple Regression Analyses Involving Rumination

Predictor	β	<i>pr</i>	<i>t</i>	$R^2 \Delta$
<i>Self-Esteem</i>				
Step 1				.68***
BDI-T1	.826	.83***	8.02***	
Step 2				.02
Rumination	-.028	-.04	0.23	
RSE	.161	.21	1.13	
Step 3				.05*
PSC × RSE	-.838	-.39*	2.19*	
<i>Dysfunctional Attitudes</i>				
Step 1				.68***
BDI-T1	.826	.83***	8.02***	
Step 2				.02
Rumination	-.019	-.03	0.15	
DAS	-.171	-.23	1.22	
Step 3				.05*
PSC × DAS	1.556	.39*	2.19*	
<i>Attributional Style</i>				
Step 1				.68***
BDI-T1	.825	.83***	7.87***	
Step 2				.00
Rumination	-.061	-.10	-0.49	
ASQ	-.035	-.05	-0.24	
Step 3				.01
PSC × ASQ	.821	.19	0.99	

PSC = Private Self-Consciousness, RSE = Rosenberg Self-Esteem Scale, DAS = Dysfunctional Attitudes Scale, ASQ = Attributional Style Questionnaire, BDI-T1 = pre-treatment BDI scores.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

cognitive style. The process of turning one's attention inward may be particularly caustic if one's thoughts are dominated by self-deprecating and perfectionistic cognitions. Our results suggest that depressed patients with negative cognitive styles are likely to be poor treatment responders if they repeatedly dwell on their perceived shortcomings and the causes and meaning of their depressive symptomatology. In contrast, they are likely to have more favorable treatment responses if they engage in less self-directed thought and engage in distraction, focusing their attention externally. Yet, in the absence of negative cognitive styles, heightened self-directed thought may not have the same deleterious effects. In fact, the form of our interactions suggests that self-directed thought may be associated with better treatment outcomes among such individuals. These findings may help explain why there have been notable failures to

replicate previous main-effect findings of rumination. The magnitude and perhaps even the direction of the relationship between rumination and depression may be dependent on the level of negative cognition experienced in a given sample, leading different investigators to contradictory conclusions.

Several unanticipated findings are worth highlighting. As mentioned above, individuals with the combination of low levels of self-directed thought and a less negative cognitive style demonstrated a relatively poor response to treatment. Given that these individuals are low in both putative risk factors for persistent depression, this finding is surprising and difficult to explain. It may be that the treatment program, which is cognitive-behavioral in nature and focuses on modifying these factors, simply was not targeting key features of these individuals' depressive disorders. Second, individuals with high levels of self-directed attention had a favorable response to treatment if they also had a more positive cognitive style. This finding suggests that for individuals who do not hold negatively distorted views of themselves and the world, heightened self-focus may be an asset. These individuals may be quite effective at self-monitoring their thoughts, feelings, and behaviors in a balanced manner, which is a crucial skill in cognitive-behavioral therapy. In contrast, in the context of negative distortions about the self or world, higher levels of self-directed attention leads to a much different result. Here, greater self-directed attention may contribute to maladaptive self-monitoring that selectively focuses individuals' attention on negative aspects of themselves and their social worlds. In this case, self-directed attention may become characterized by passivity and negative content and, in turn, may interfere with the more active and constructive self-monitoring taught in cognitive-behavioral therapies.

It is important to recognize that psychological treatment for depression may impact the nature of the interaction between self-directed attention and negative cognition. A major goal of therapy is to modify negative cognition and dysfunctional attentional processes. As such, over the course of treatment, therapists attempt to diminish the deleterious effect of rumination and negative cognition. In turn, therapists are likely to put more effort into assisting those clients who demonstrate these vulnerabilities. A corresponding increase in the dose of psychological treatment may serve to diminish the predictive effects of these vulnerabilities. As a consequence, research using untreated community samples may find that the main and interactive effects of these vulnerabilities are even more powerful.

Cognitive theories of depression have frequently focused either on cognitive content (e.g., self-esteem) or cognitive processes (e.g., rumination) as vulnerabilities to depression. Our findings, in combination with those of Robinson and Alloy (in press), who found similar evidence for an interaction between rumination and negative cognition, suggest that future cognitive conceptualizations of depression should take into account both content and process aspects of cognition. Cognitive models of depression continue to move from simple trait vulnerability models implicating types of dysfunctional thinking to models integrating content with cognitive priming (Segal & Ingram, 1994), cognitive reactivity (Teasdale, 1988), mood state (Miranda & Persons, 1988), and stability of self-concept (Roberts & Monroe, 1994). The incorporation of process- and content-related variables continues to be a promising area for future research in depression.

In comparing the relative effects of depressive rumination and private self-consciousness, our study provided some interesting but mixed results. Although we found evidence supporting the validity of both of these variables as predictors of treatment response (in combination with negative cognitive style), the results involving rumination were more robust and consistent. It is possible that these constructs are hierarchically related, with self-consciousness involving a general vulnerability to many forms of distress (see Ingram, 1990), whereas a ruminative response style may represent a specific style of self-directed thought that is uniquely related to depression. Self-focused attention may manifest itself in varying ways across different individuals leading to different types of vulnerability (see Shapiro & Roberts, 2001). For example, those individuals whose self-directed thoughts involve repetitive worry may be at risk for generalized anxiety disorder whereas those whose self-directed thoughts involve concerns about bodily sensations may be prone to panic disorder. Future research is needed to investigate the specificity of type of self-focus with type of psychopathology.

Although significant interactions were found using self-esteem and dysfunctional attitudes as indices of negative cognition, attributional style did not display such an effect. Conceptually, attributional style differs from self-esteem and dysfunctional attitudes. Whereas the latter two focus on core schema-related attitudes about the self and dysfunctional contingencies of self-worth, the former relates to individual differences in explanatory responses to hypothetical events. These may represent two distinct forms of cognitive vulnerability (Joiner & Rudd, 1996; Spangler, Simons, Monroe, & Thase, 1997). A dysfunctional attributional style may predispose individuals to experience depression dominated by feelings of hopelessness (Abramson, Seligman, & Teasdale, 1978), whereas low self-esteem and dysfunctional attitudes may predispose individuals to experience a more self-deprecating form of depression. Excessive self-directed attention may be particularly likely to exacerbate a depression marked by negative thoughts about the self.

One limitation of the present study is the small sample size. Although the converging nature of our analyses using multiple indices of self-directed attention and negative cognition bolster our confidence in the significant results obtained, it is possible that a lack of statistical power led to our missing a genuine effect. Further, the limited sample size did not allow for an evaluation of a regression model that included both rumination and private self-consciousness. It remains for future research with larger sample sizes to examine the relative contribution of these two indices of self-directed attention in predicting depression. A greater understanding of how attentional processes and cognitive content interact may lead to refinements in cognitive theories and therapies for depression.

NOTES

- Analyses were repeated using a composite measure of attributional style that included the internal, stable, and global subscales. The same pattern of results was found as those reported below.

2. The simple slopes of significant interaction terms were also examined, but none were statically significant. This was most likely due to median splits resulting in overly small sample sizes.
3. The within-subject effect size was computed by subtracting the post-treatment (or final) BDI score from the pretreatment, divided by the average standard deviation of pre- and post-treatment scores, in order to be directly comparable to the effect sizes reported by Cuijpers (1998).
4. The analyses involving the attributional style questionnaire include one fewer participant due to an individual providing incomplete data.

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