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Ruminative Responses to Negative and Positive Affect Among Students Diagnosed with Bipolar Disorder and Major Depressive Disorder

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Abstract

Rumination in response to negative affect has been found to predict the onset, severity, and duration of depressive symptoms. Few researchers, however, have considered rumination within bipolar disorder, nor have studies considered parallel responses that might intensify positive affect. The current study examined self-reported rumination in response to both negative and positive affect among people diagnosed via the SCID with BPD (n = 28), major depressive disorder (MDD; n = 35), or no mood disorder (n = 44). Participants completed the Ruminative Response Scale and the Responses to Positive Affect Questionnaire about their dispositional tendencies. Results indicated that compared to control participants, people with BPD and MDD endorsed heightened rumination in response to negative affect, but only those with BPD endorsed elevated rumination in response to positive affect. Within BPD, ruminative responses to negative affect were explained by depressive symptoms. Goals for understanding responses to negative and positive affect in BPD are suggested.

Keywords

Bipolar disorder; Mania; Rumination; Affect regulation

Introduction

Bipolar disorder (BPD) is a highly recurrent and severe disorder. Disruptions to social and occupational life are well-documented, with much higher rates of divorce and unemployment, as well as suicide, among people with BPD compared to the rates among the general population (Angst et al. 2002; Mitchell et al. 2004). Even in the context of the strong genetic influence on the disorder (McGuffin et al. 2003), a growing literature has shown that psychological variables may affect the severity and timing of bipolar symptoms. For example, a body of evidence

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indicates that the negative cognitive styles associated with unipolar depression can be observed in bipolar depression (Cuellar et al. 2005).

In this paper, then, we draw from the literature on psychological mechanisms in unipolar depression to examine parallel processes in BPD. One prominent model in unipolar depression is the Response Styles Theory developed by Nolen-Hoeksema (1991), which suggests that the way people respond to their negative affect influences the duration and severity of depressive symptoms. Within this model, rumination is defined as behaviors and thoughts focused on one's depressive symptoms without action to relieve the negative mood or underlying problems. Rumination is often contrasted with distraction, defined as engagement in pleasant activities to divert attention from negative affect. Rumination on negative affect has been found to be a core mechanism involved in activating and maintaining depressive cognitive styles (c.f. Lyubomirsky and Nolen-Hoeksema 1993; Nolen Hoeksema et al. 1994). That is, given a sad mood or a threatening events, people who ruminate on the meaning and causes of those events have been found to have more sustained negative moods, and in that context, to display negative thinking about themselves and their lives (Lyubomirsky and Nolen-Hoeksema 1995). Rumination has been shown to predict the onset of MDD, as well as more severe and sustained depressive symptoms (cf. Just and Alloy 1997; Nolen-Hoeksema and Morrow 1991). Overall, then, it appears that rumination is an important factor for understanding unipolar depression.

In examining rumination, it is important to consider that there are several factor-analytically supported subscales of the most commonly used measure of rumination, the Ruminative Response Scale (RRS; Nolen-Hoeksema and Morrow 1991). After removing items with substantial content overlap with depression, the remaining items encompass two components, labeled reflection, defined by contemplation and pondering, and brooding, defined by anxious and gloomy thinking (Treynor et al. 2003). Reflection has been found to be associated with more depression concurrently, but less depression over time, whereas brooding has been found to be associated with more depression both concurrently and in longitudinal analyses (Treynor et al. 2003). Hence, it is important to differentiate between the types of rumination.

Two studies have documented high total rumination scores among persons at risk for BPD (Knowles et al. 2005; Thomas and Bentall 2002). A goal of this study was to examine whether high rumination levels could be documented among those diagnosed with BPD and to examine subscales of the RRS.

Beyond assessing rumination in a diagnosed sample, we were interested in examining whether rumination was explained by current and previous depression within BPD. Although BPD is defined on the basis of mania, depression is common. About two-thirds of people with BPD will meet criteria for a major depressive episode at least once during their lifetime (Kessler et al. 1997), and previous research suggests that within bipolar spectrum disorder, negative cognitive styles can be explained by the extent of depression history (Alloy et al. 1999). Hence, one goal of this study was to examine whether ruminative response styles were limited to those bipolar persons with a history of depressive episodes, or could be observed among those with a history of mania without major depressive episodes.

Beyond a lifetime history of major depression, subsyndromal depressive symptoms tend to be present in about one-third of the time for people with BPD (Judd et al. 2002). Previous research suggests that rumination among persons at risk for BPD is correlated with current depressive symptoms (Knowles et al. 2005; Thomas and Bentall 2002). Research to date, though, has not examined whether current depressive symptoms explain the links between BPD and rumination. We aimed to examine whether ruminative responses to negative affect in BPD were explained by current depressive symptoms. In sum, beyond testing whether ruminative

responses to negative affect were present among people diagnosed with BPD, we were interested in the role of lifetime and current depression in relation to such tendencies.

Just as responses to negative affect might relate to bipolar depression, there is some reason to consider responses to positive affect in relation to mania. Certainly, manic episodes are characterized by high levels of positive affect (APA 1994). There is also evidence that during remission, people with BPD endorse greater variability in the intensity of positive affect (Bagby et al. 1996;Lovejoy and Steuerwald 1995). Little research has examined psychological processes that could help contribute to these elevations of positive affect.

In the depression field, rumination on negative affect has been found to be a core mechanism involved in sustaining negative moods and activating depressive cognitive styles. Given that BPD is characterized by differences in PA, one possible explanation for this would be a tendency to use strategies that sustain and enhance positive moods. In most contexts, one would expect dwelling on positive experiences, and maximizing the positive affect associated with those experiences, to be beneficial. Nonetheless, a growing body of research suggests that people with BPD experience mood-state dependent shifts in cognition that are problematic. That is, compared to healthy controls, they appear to respond to positive affect with diminished willingness to take advice (Mansell and Lam 2006), with less ability to recall negative memories (Eich et al. 1997), and poorer ability to process negative interpersonal cues (Lembke and Ketter 2002). Hence there is a need to understand how people with BPD respond to positive affect, and whether the manner in which they cope with positive moods fuels further affective and cognitive dysregulation. Towards that goal, this study examined whether people with BPD endorse high levels of rumination regarding positive affect.

In sum, the goal of the current study was to examine responses to negative affect (negative rumination) and positive affect (positive rumination) among students diagnosed with BPD. We measured responses to negative affect with the RRS (Nolen-Hoeksema and Morrow 1991). We measured responses to positive affect with the newly developed Responses to Positive Affect Questionnaire (RPA; Feldman et al., in press). The RPA measures ‘positive rumination,’ or the tendency to respond to positive affective states with thoughts about positive self-qualities, positive affective experience, and one’s favorable life circumstances that might amplify the positive affect (Feldman et al., in press). To facilitate analyses of the separate role of mania and depression, we recruited people with a history of mania alone, depression alone, or both depression and mania. We also measured current subsyndromal symptoms of mania and depression.

We hypothesized that compared to individuals with no mood disorder, those with BPD and those with MDD would demonstrate elevations of negative rumination. Drawing on findings with at-risk samples, we hypothesized that negative rumination among persons with BPD would be explained by depressive symptom severity. In addition, we hypothesized that people with BPD would demonstrate elevations on positive rumination compared to those with MDD or no mood disorder.

Method

Participants were 107 undergraduate students (66.3% female; mean age = 19.1, SD = 1.46) from the University of Miami, who received credit toward their Introduction to Psychology course requirement.[1] In the beginning of the semester, the Hypomanic Personality Scale (HYP; Eckblad and Chapman 1986) and the Inventory to Diagnose Depression-Lifetime version

[1]For ethical reasons, IDD-L and HYP data was not linked with study participant id. As a result, statistical analyses of these measures were not conducted for study participants

(IDD-L, Zimmerman and Coryell 1987) were administered in class sessions to identify persons with a history of depression or mania (these measures were not used for other purposes). A total of 2,365 University of Miami students enrolled in Introductory Psychology classes were screened. Both measures are described below. Students who scored above the established cut-offs for the HYP and IDD-L were contacted by e-mail individually and invited to participate in the study (See footnote 1). Other participants signed up for the study without any invitation; those participants enrolled without regard to HYP or IDD-L scores. In all cases, sign-up was completed through a website dedicated to psychology department experiments.

Experimenters met with all potential participants individually to complete written informed consent procedures, and then to conduct study assessments. Persons interested in taking part in the study were interviewed using the mood, psychosis, and alcohol/substance abuse modules of the Structured Clinical Interview for DSM-IV (SCID-IV; Spitzer et al. 1992). Those who met criteria for BPD, MDD, or no mood disorder (healthy control participants) were invited to participate in the study. Those who met diagnostic criteria for non-affective psychotic disorders, alcohol, or substance abuse disorders were excluded from the study ($n = 3$). It is important to note that anxiety disorders were not assessed; therefore, some of the healthy control participants may have met criteria for past or current anxiety disorders. Participants then completed the measures of rumination, as well as several self-report questionnaires and tasks not relevant to this report.[2]

Measures

Hypomanic Personality Scale—The HYP (Eckblad and Chapman 1986) is a self-report scale containing 48 true–false items. The scale was designed to identify people at risk for mania. Although the word "personality" in the HYP scale title implies trait-like characteristics, the actual item wording captures episodic shifts in emotions, behavior, and energy. Examples include: "There are often times when I am so restless that it is impossible for me to sit still," and "I often feel excited and happy for no apparent reason." Previous research has indicated that individuals who scored at least two SDs above the mean had a ninefold increase in prevalence of hypomanic episodes compared to those with lower score. In addition, more than 78% met criteria for bipolar spectrum disorders (Kwapil et al. 2000; Eckblad and Chapman 1986). The HYP has strong 15-week test–retest reliability (.81) and internal consistency in validational studies ($\alpha = .87$) and strong internal consistency in the present study, ($\alpha = .87$, $N = 2{,}365$). The measure is not correlated with the Crowne-Marlowe Social Desirability Scale, $r = .05$, $n = 768$. In the present study, students with scores of 35 or higher (two SDs above the mean) ($n = 111$) were asked to take part in the study. Students who did not enroll typically described schedule difficulties or having already accumulated sufficient course credit as the reason for nonenrollment.

Lifetime Depressive Symptoms—The Inventory to Diagnose Depression-Lifetime (Zimmerman and Coryell 1987) was administered in screening sessions to assess lifetime depressive symptoms. The 45 items cover whether the symptoms required for a DSM-IV diagnosis of MDD are endorsed during the individual's worst lifetime period of depression. The IDD-L has excellent sensitivity and specificity with diagnoses based on structured diagnostic interviews, as well as strong correlations with other measures of depression (Zimmerman and Coryell 1987). In the present study, internal consistency was high ($\alpha = .93$). Students who endorsed a history of MDD on this measure ($n = 153$) were invited to participate in the study.

[2]Two unpublished reports have been prepared based on data gathered with this sample, focused on cognitive responses to failure and success, and elevated expectancies for the future in bipolar disorder

Structured Clinical Interview for DSM-IV—The SCID (Spitzer et al. 1992) was administered to establish whether participants met diagnostic criteria for Axis I disorders (APA 1994). More specifically, the modules for lifetime mood disorders, psychosis, and current alcohol/substance abuse and dependence were administered. SCID interviews were conducted by research assistants who completed extensive training in diagnostic interviewing that included didactic material, role playing, mock interviews, and weekly reliability meetings. Among trained interviewers, the SCID has been shown to have good test–retest reliability (Williams et al. 1992). All SCID interviews in the present study were audiotaped, and a random sample of ten interviews was reviewed for reliability. Inter-rater reliability among the team was high for diagnoses of mania, $r_i = 1.00$, and depression, $r_i = .87$ as assessed with intra-class correlations using SPSS reliability analyses to assess absolute agreement.

Group assignments were made entirely on the basis of the SCID interview, without regard to self-report assessments. The bipolar group included participants with diagnoses of bipolar I disorder (defined by at least one lifetime episode of mania, $n = 15$), bipolar II disorder (defined by at least one lifetime episode of hypomania and at least one lifetime episode of major depression, $n = 7$), and BPD not otherwise specified (these participants met diagnostic criteria for either cyclothymia or hypomanic episodes without a history of depression, $n = 6$). Within the bipolar group, 16 people also reported a history of at least one major depressive episode, while 12 people reported no history. Thirty-five participants met criteria for a history of unipolar MDD (with no history of mania); 44 participants had no history of mood disorders. Of the participants who met criteria for BPD, only one had been previously diagnosed with BPD by a psychologist or psychiatrist. Two participants reported current lithium use (one for a condition other than BPD).

Current Symptoms—The 20-item Center for Epidemiological Studies-Depression scale (CESD; Radloff 1977), and the five-item Self-Rating Mania Scale (ASRM; Altman et al. 1997), two well-validated self-report scales, were used to assess current symptoms. Both measures have strong correlations with interview-based measures of symptoms. In this study, internal consistency for both measures was adequate, ($\alpha_{CESD} = .75$ and $\alpha_{ASRM} = .70$). Symptoms of both mania and depression were within a moderately low range ($M_{ASRM} = 5.05$, SD = 3.20, possible range 0–15; $M_{CESD} = 19.82$, SD = 6.54, possible range 0–60).

Ruminative Response Scale—The RRS (Nolen-Hoeksema and Morrow 1991; Treynor et al. 2003) was used to measure dispositional tendencies to ruminate in response to negative affect. The RRS consists of 22 possible responses to sad mood that are focused on the self, on one's symptoms, and on the possible causes and consequences of the mood state. Examples of such items are: "Think 'why do I have problems other people don't have'?" and "Think about how hard it is to concentrate." The RRS also assess behavioral responses to dysphoria, such as "Go away by yourself and think about why you feel this way." Responses are rated on a scale of one (almost never respond in this way) to four (almost always respond in this way).

The RRS has three factor-analytically derived subscales. The 12-item depression subscale captures content related to depressive symptoms, such as "Think about how alone you feel." The four-item Brooding subscale involves "moody pondering" on personal shortcomings and life set-backs (e.g., "Think 'Why do I always react this way?'") whereas the six-item reflection subscale involves items designed to assess efforts to analyze one's self, feelings, thoughts, and events in a "resolution-oriented perspective" (e.g., "Go away by yourself and think about why you feel this way.") (Treynor et al. 2003). In previous studies, total RRS has achieved a test–retest correlation of .67 over a 2-year period and satisfactory convergent and predictive validity (Nolen-Hoeksema and Morrow 1991; Treynor et al. 2003). Internal consistencies for the current study were adequate (see Table 1).

Responses to Positive Affect Questionnaire—The RPA (Feldman et al., in press) is a 17-item self-report measure designed to assess the tendency to respond to positive affective states with recurrent thoughts about positive self-qualities, positive affective experience, and one's favorable life circumstances, or with responses which might diminish positive affect. Instructions for the RPA state *"People think and do many different things when they feel happy. Please read each of the following items and indicate whether you never, sometimes, often, or always think or do each one when you feel happy, excited, or enthused. Please indicate what you generally do, not what you think you should do."* Items were developed to parallel those on the RRS. Responses are rated on a scale of one (almost never respond in this way) to four (almost always respond in this way). In an initial study, factor analyses supported three subscales of the RPA (Dampening, Self-focused Positive Rumination, and Emotion-focused Positive Rumination), and in a second study, confirmatory factor analysis supported this structure. The subscales demonstrated acceptable internal consistency in the validation studies, as well as the current study (see Table 1). Items on both the Emotion-Focused Positive Rumination scale (e.g., 'Think about how happy you feel') and the Self-Focused Positive Rumination subscale (e.g., 'Think about how proud you are of yourself.') capture responses which might be expected to intensify the experience of PA. Items on the Dampening subscale would be expected to counteract these two tendencies, in that the scale captures responses which might diminish PA (e.g., "Think about things that could go wrong."). In the current study, these three subscales demonstrated small correlations with each other (absolute r's < .20, ns).

In validation studies, emotion-focused and self-focused positive rumination subscales demonstrated expected positive correlations with self-esteem and vulnerability to hypomania (Feldman et al., in press). No study to date has examined how the RPA relates to diagnoses of mood disorders.

Results

Preliminary Analyses

As one would expect, gender was related to rumination, in that women endorsed elevated levels on the Depression RRS subscale, $t(105) = -2.12$, $p < .05$, and the Reflection RRS subscale, $t(105) = -2.08$, $p < .05$, of the RRS, as well as the emotion focus RPA subscale, $t(105) = -2.98$, $p < .01$. Age and bilingual status were unrelated to rumination levels. As preliminary analyses (ANOVAs) revealed no difference in rumination scores by type of bipolar diagnosis, bipolar I disorder, bipolar II disorder, and bipolar NOS diagnoses were combined for analyses.

As shown in Table 1, rumination subscales were moderately correlated with each other. Current hypomanic symptoms (ASRM), but not current depressive symptoms (CESD) related to higher scores on the RPA Emotion-Focus and Self-Focus subscales. Current depressive symptoms correlated with RPA Dampening, as well as RRS Brooding and Reflection scores.

Analyses of Hypotheses

To examine how diagnoses of mania and depression related to rumination, separate, parallel 2 (mania) × 2 (depression) way ANOVAs were conducted with each of the six rumination scores subscales as dependent variables (see Table 2). Considering responses to positive affect, history of mania was significantly related to the Emotion Focus subscale, $F(1, 107) = 4.75$, $p < .05$, $\eta^2 = .04$, but not Self-Focus, $F(1, 107) = 1.46$, ns, $\eta^2 = .01$, or Dampening, $F(1, 107) = 2.77$, ns, $\eta^2 = .03$. Persons with a diagnosis of mania endorsed using strategies that involved a focus on their positive emotions more than did those with no diagnosis of mania (irregardless of depression history). The RPA subscales were unrelated to depression or the interaction of Depression × Mania. That is, depression was unrelated to Dampening, $F(1, 107) = .78$,

Emotion-Focus, $F(1, 107) = 1.30$, or Self-Focus, $F(1, 107) = .39$. Similarly, the interaction of Depression × Mania was unrelated to Dampening, $F(1, 107) = .23$, Emotion-Focus, $F(1, 107) = 3.47$, or Self-Focus $F(1, 107) = .77$.

In regard to responses to negative affect, mania was related significantly to the three subscales: Brooding, $F(1, 107) = 4.74$, $p < .05$, $\eta^2 = .04$, Reflection, $F(1, 107) = 4.40$, $p < .05$, $\eta^2 = .04$, and Depression, $F(1, 107) = 9.03$, $p < .05$, $\eta^2 = .08$. In each case, people with diagnoses of mania were likely to endorse more negative rumination than were those with no diagnosis of mania. Diagnoses of depression were associated with significantly higher scores on Reflection, $F(1, 107) = 10.36$, $p < .01$, $\eta^2 = .09$, and Depression subscales, $F(1, 107) = 5.40$, $p < .05$, $\eta^2 = .05$, but not the Brooding subscale, $F(1, 107) = 2.80$, ns, $\eta^2 = .03$. There was an interaction of depression and mania for the Depression subscale, $F(1, 107) = 5.15$, $p < .05$: only participants with no history of depression or mania demonstrated lower scores on the Depression subscale, whereas participants with a history of mania or those with a history of depression endorsed relatively higher scores on this subscale. Interactions of depression and mania were not significantly related to Brooding, $F(1, 107) = 2.02$, nor Reflection, $F(1, 107) = .69$.

Do Current Symptoms Explain Links between Mania and Rumination?

As shown in Table 1, current depressive symptoms (CESD) were correlated with all three negative rumination subscales, and current manic symptoms (ASRM) were correlated with two of the positive rumination scales. To examine whether these subsyndromal symptoms explained the differences between the manic and non-manic participants on the rumination subscales, ANCOV As were conducted.

To examine whether current depressive symptoms explained the relation between history of mania and negative rumination, three separate parallel 2 (mania) × 2 (depression) ANCOV As were conducted to examine the role of mania after controlling for CESD. After accounting for the CESD, mania was unrelated to negative rumination subscales, $F_{\text{Brooding}}(1, 105) = .76$, $F_{\text{Depression}}(1, 106) = 2.4$, $F_{\text{Reflection}}(1, 106) = 2.28$, all ns.

To examine whether current manic symptoms explained the relation between history of mania and positive emotion-focused rumination, we conducted a 2 (mania) × 2(depression) ANCOV A controlling for ASRM. After accounting for ASRM, $F(1,102) = 6.14$, $p < .05$, the effect for mania was no longer significant, $F(1, 102) = 1.61$, ns.

Discussion

The current study provides the first examination of ruminative responses to positive and negative affect among people diagnosed with BPD. In response to positive affect, persons with a history of mania endorsed more use of responses that involved focusing on positive emotions (thinking about how happy, strong, and energetic one feels) compared to those with no history of mania. Other researchers have examined how people with BPD respond to early symptoms of mania (Lam and Wong 2005; Jones et al. 2006). Current findings suggest that beyond examining how people respond to hypomanic symptoms, it is valuable to consider how people respond to positive affect.

It should be noted that only the Emotion Focus subscale was related to lifetime diagnoses of mania or hypomania. Self-focused responses to positive affect were related to current manic symptom severity but not to lifetime diagnoses of mania. That is, people with a history of mania were more likely to endorse focusing on how good they feel rather than on their own abilities in response to positive affect. In the context of hypomanic symptoms, though, both types of responses to positive moods became more common. This may help explain the tendency for people who are feeling hypomanic to report using their energy and good mood as evidence that

they can accomplish more (Jones et al. 2006). More research is needed on these different forms of responding to positive affect.

Beyond responses to positive affect, people with BPD and those with MDD both endorsed more rumination in response to negative affect compared to those without mood disorders, specifically on the Reflection and Depression subscales. The absence of association between depression and the Brooding subscale ran counter to the findings of Treynor et al. (2003). The disparity in these findings may reflect a difference in the depression severity between a relatively high functioning undergraduate sample as compared with a community sample of adults used in Treynor et al.'s study. The current findings add to a growing literature indicating that ruminative responses to negative affect are prevalent within BPD (Knowles et al. 2005; Thomas and Bentall 2002), just as they are in unipolar disorder (Just and Alloy 1997; Nolen-Hoeksema and Morrow 1991).

The study is relatively unique in considering the role of current hypomanic and depressive symptoms in driving these ruminative patterns. Ruminative responses to negative affect were explained by the level of current depression, and so do appear linked to the depressive pole of BPD. In parallel, ruminative responses to positive affect were explained by the level of current hypomanic symptoms.

Several features of this study impinge on the ability to interpret these patterns, though. This study is limited by the reliance on an undergraduate sample, a highly functional subset of people with diagnosable BPD. In addition, anxiety symptoms were not evaluated and thus some healthy controls may have met diagnostic criteria for an anxiety disorder. Beyond sample issues, substantial research has shown that mood states bias self-evaluations (Blaney 1986), so it must be acknowledged that persons with mild symptoms of depression may have over-estimated their tendency to dwell on negative mood states, whereas people with mild manic symptoms may have over-estimated their tendency to dwell on positive mood states. Aside from reporting biases, a person who is experiencing even mild symptoms might find those experiences more puzzling and worthy of focus, such that the uniqueness of the affective experience might promote a ruminative response. That is, within the current study, it is impossible to determine whether rumination plays any role in increasing symptoms, or just reflects a response to having distinct affective experiences.

Although this study cannot shed light on whether ruminative tendencies could intensify symptoms of BPD, there is substantial longitudinal and experimental research within unipolar depression supporting the idea that rumination predicts changes in mood and symptoms (Just and Alloy 1997; Nolen-Hoeksema and Morrow 1991). Within BPD, we are unaware of any longitudinal research on ruminative tendencies. Nonetheless, previous studies of BPD have found that a tendency towards negative cognition can predict increases in depression (Johnson and Fingerhut 2004; Reilly-Harrington et al. 1999). Failure to engage in self-calming activities in the face of early hypomanic symptoms has been found to predict manic relapse (Lam and Wong 2005). Research is needed, then, to examine whether ruminative responses to affect can predict the course of symptoms within BPD.

In sum, the current study suggests that BPD is characterized by ruminative responses to both positive and negative affect, at least when mild symptoms are present. More research is needed to understand whether these response to affective states can be observed in other samples, to consider the role of response biases in self reports of rumination, and to test whether such patterns help predict the course of symptoms over time.

We believe that research in this area is important, though. To date, many psychological interventions have been found to offer stronger relief from the depressive than the manic symptoms of BPD (Scott 2006). Development of better mania prevention programs will depend

on understanding which coping and cognitive styles are specifically related to the manic symptoms shown within BPD. Given that neurobiological control over brain regions involved in emotion appears to be diminished within this disorder (cf. Malhi et al. 2004), coping and conscious responses may play a key role in regulation. It is hoped that a greater understanding of mood regulation impairments within BPD could help refine psychological interventions.

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References

Alloy LB, Reilly-Harrington N, Fresco DM, Whitehouse WG, Zechmeister JS. Cognitive styles and life events in subsyndromal unipolar and bipolar disorders: Stability and prospective prediction of depressive and hypomanic mood swings. Journal of Cognitive Psychotherapy 1999;13:21–40.

Altman ES, Hedeker D, Peterson JL, Davis JM. The althman self-rating mania scale. Biological Psychiatry 1997;42:948–955. [PubMed: 9359982]

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed.. Washington: APA; 1994.

Angst F, Stassen HH, Clayton PJ, Angst J. Mortality of patients with mood disorders: Follow-up over 34 to 38 years. Journal of Affective Disorders 2002;68:167–181. [PubMed: 12063145]

Bagby MR, Young TL, Schuller DR, Bindseil KD, Cooke RG, Dickens SE, Levitt AJ, Joffe RT. Bipolar disorder, unipolar depression, and the five factor model of personality. Journal of Affective Disorders 1996;41:25–32. [PubMed: 8938202]

Blaney PH. Affect and memory: A review. Psychological Bulletin 1986;99:229–246. [PubMed: 3515383]

Cuellar AK, Johnson SL, Winters R. Distinctions between bipolar and unipolar depression. Clinical Psychology Review 2005;25:307–339. [PubMed: 15792852]

Eckblad M, Chapman LJ. Development and validation of a scale for hypomanic personality. Journal of Abnormal Psychology 1986;95:214–222. [PubMed: 3745642]

Eich E, Macaulay D, Lam RW. Mania, depression, and mood dependent memory. Cognition and Emotion 1997;11:607–618.

Feldman GC, Joorman J, Johnson SL. Responses to positive affect: A self-report measure of rumination and dampening. Cognitive Therapy and Research. (in press), doi: 10.1007/s10608-006-9083-0.

Johnson SL, Fingerhut R. Negative cognitions predict the course of bipolar depression, not mania. Journal of Cognitive Psychotherapy 2004;18:149–162.

Jones S, Mansell W, Waller L. Appraisal of hypomania-relevant experiences: Development of a questionnaire to assess positive self-dispositional appraisals in bipolar and behavioural high risk samples. Journal of Affective Disorders 2006;93:19–28. [PubMed: 16503056]

Judd LL, Akiskal HS, Schetteler PJ, Endicott J, Maser J, Solomon DA, Leon AC, Rice JA, Keller MB. The long-term natural history of the weekly symptomatic status of bipolar I disorder. Archives of General Psychiatry 2002;59:530–537. [PubMed: 12044195]

Just N, Alloy LB. The response styles theory of depression: Tests and an extension of the theory. Journal of Abnormal Psychology 1997;106:221–229. [PubMed: 9131842]

Kessler RC, Rubinow DR, Holmes C, Abelson JM, Zhao S. The epidemiology of DSM-III-R bipolar I disorder in a general population survey. Psychological Medicine 1997;27:1079–1089. [PubMed: 9300513]

Knowles R, Tai S, Christensen I, Bentall R. Coping with depression and vulnerability to mania: A factor analytic study of the Nolen-Hoeksema (1991) response style questionnaire. British Journal of Clinical Psychology 2005;44:99–112. [PubMed: 15826347]

Kwapil TR, Miller MB, Zinser MC, Chapman LJ, Chapman J, Eckbald M. A longitudinal study of high scores on the hypomanic personality scale. Journal of Abnormal Psychiatry 2000;109:222–226.

Lam D, Wong G. Prodromes, coping strategies and psychological interventions in bipolar disorders. Clinical Psychology Review 2005;25:1028–1042. [PubMed: 16125292]

Lembke A, Ketter TA. Impaired recognition of facial emotion in mania. American Journal of Psychiatry 2002;159:302–304. [PubMed: 11823275]

Lovejoy MC, Steuerwald BL. Subsyndromal unipolar and bipolar disorders: Comparisons on positive and negative affect. Journal of Abnormal Psychology 1995;104:381–384. [PubMed: 7790640]

Lyubomirsky S, Nolen Hoeksema S. Self-perpetuating properties of dysphoric rumination. Journal of Personality and Social Psychology 1993;65:339–349. [PubMed: 8366423]

Lyubomirsky S, Nolen Hoeksema S. Effects of self-focused rumination on negative thinking and interpersonal problem-solving. Journal of Personality and Social Psychology 1995;69:176–190. [PubMed: 7643299]

Malhi GS, Lagopoulos J, Sachdev P, Mitchell PB, Ivanovski B, Parker GB. Cognitive generation of affect in hypomania: An fMRI study. Bipolar Disorders 2004;6:271–285. [PubMed: 15225144]

Mansell W, Lam D. “I won’t do what you tell me!”: Elevated mood and the assessment of advice-taking in euthymic bipolar I disorder. Behaviour Research and Therapy 2006;44:1787–1801. [PubMed: 16487480]

McGuffin P, Rijsdijk F, Andrew M, Sham P, Katz R, Cardno A. The heritability of bipolar affective disorder and the genetic relationship to unipolar depression. Archives of General Psychiatry 2003;60:497–502. [PubMed: 12742871]

Mitchell PB, Slade T, Andrews G. Twelve-month prevalence and disability of DSM-IV bipolar disorder in an Australian general population survey. Psychological Medicine 2004;34:777–785. [PubMed: 15500298]

Nolen-Hoeksema S. Responses to depression and their effects on the duration of depressive episodes. Journal of Abnormal Psychology 1991;100:569–582. [PubMed: 1757671]

Nolen-Hoeksema S, Morrow J. A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. Journal of Personality and Social Psychology 1991;61:115–121. [PubMed: 1890582]

Nolen Hoeksema S, Parker LE, Larson J. Ruminative coping with depressed mood following loss. Journal of Personality and Social Psychology 1994;67:92–104. [PubMed: 8046585]

Radloff LS. The CES-D Scale: A self report depression scale for research in the general population. Applied Psychological Measurement 1977;1:385–401.

Reilly-Harrington NA, Alloy LB, Fresco DM, Whitehouse WG. Cognitive styles and life events interact to predict bipolar and unipolar symptomatology. Journal of Abnormal Psychology 1999;108:567–578. [PubMed: 10609421]

Scott J. Psychotherapy for bipolar disorders—Efficacy and effectiveness. Journal of Psychopharmacology 2006;20:46–50. [PubMed: 16551672]

Spitzer RL, Williams JBW, Gibbon M, First MD. The structured clinical interview for DSM-III-R, I: History, rationale and description. Archives of General Psychiatry 1992;49:624–629. [PubMed: 1637252]

Thomas J, Bentall RP. Hypomanic traits and response styles to depression. British Journal of Clinical Psychology 2002;41:309–313. [PubMed: 12396257]

Treynor W, Gonzalez R, Nolen-Hoeksema S. Rumination reconsidered: A psychometric analysis. Cognitive Therapy and Research 2003;27:247–259.

Williams JB, Gibbon M, First MB, Spitzer RL, et al. The Structured Clinical Interview for DSM-III-R (SCID): II. Multisite test–restest reliability. Archives of General Psychiatry 1992;49:630–636. [PubMed: 1637253]

Zimmerman M, Coryell W. The inventory to diagnose depression, lifetime version. Acta Psychiatrica Scandinavica 1987;75:495–499. [PubMed: 3604734]

Table 1

Correlations among rumination subscales and with current depressive and manic symptoms

Scale	Number of items	Alpha	Correlations		Dampening	Emotion-focus	Self-focus	Brooding	Depression
			ASRM	CESD					
Positive rumination									
Dampening	5	.79	.12	.44*					
Emotion-focus	4	.73	.33*	.19	.08				
Self-focus	5	.68	.22*	.26	.19	.59**			
Negative rumination									
Brooding	4	.71	−.01	.43*	.44**	.20*	.12		
Depression	6	.84	.09	.28*	.30**	.32**	.02	.74**	
Reflection	12	.90	.02	.47*	.22*	.40**	.17	.59**	.72**

* $p < .05$

** $p < .01$

Table 2

Mean values and standard deviations for each rumination subscale, separated by history of mania, and history of depression

	No mania		**Mania**	
	No depression history (*n* = 44)	**Depresion history (*n* = 35)**	**No depression history (*n* = 12)**	**Depression history (*n* = 16)**
Positive rumination				
Dampening	2.01 (0.46)	2.06 (0.67)	2.17 (0.62)	2.34 (.68)
Emotion-focus	2.36 (.58)	2.79 (.59)	2.94 (.86)	2.83 (.74)
Self-focus	2.24 (.61)	2.28 (.66)	2.54 (.76)	2.33 (.59)
Negative rumination				
Brooding	7.70 (2.55)	9.60 (2.61)	9.90 (3.14)	10.10 (3.02)
Reflection	10.47 (3.67)	13.97 (4.08)	13 (3.77)	15.06 (4.14)
Depression	21.41 (6.47)	28.6 (7.38)	29.67 (7.28)	29.75 (8.18)