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## Tendencies Toward Mania and Tendencies Toward Depression Have Distinct Motivational, Affective, and Cognitive Correlates

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### Abstract

Debate has emerged in the literature on mania, with some evidence suggesting that tendencies toward mania relate to negative emotional and cognitive styles, and other evidence suggesting that tendencies toward mania relate to positive emotional and cognitive styles. An initial study examined how tendencies toward mania (as measured by the Hypomanic Personality Scale) and tendencies toward depression (as measured by the Inventory to Diagnose Depression-Lifetime version) were related to diverse measures pertaining to incentive and threat motivations, negative and positive emotionality, and cognitive responses to emotion, among 238 undergraduates. Tendencies toward mania related to a self-reported pattern of reacting intensely to positive stimuli, both cognitively and emotionally, as well as lower sensitivity to threatening stimuli and less restraint over impulses. In contrast, tendencies toward depression related to a pattern of reacting more strongly to negative stimuli emotionally and cognitively, as well as deficits in the ability to savor positive affect. This pattern was re-confirmed in a second sample of 394 undergraduates, who completed many of the same measures plus a measure of current mood symptoms. This second sample confirmed that the pattern was not mood-state dependent. Implications for future research and clinical work are discussed, including an intriguing conceptual parallel in the distinct sets of correlates of depressive versus manic tendencies.

### Keywords

Bipolar disorder; Mania; Cognition; Emotion; Reward; Threat

### Introduction

A growing body of research is examining psychological processes involved in mania. Beyond a well-documented role for sleep deprivation as a trigger (Wehr et al. 1987), this literature has coalesced around two divergent views of psychological factors that might enhance vulnerability to mania. In the first, termed the depression avoidance or manic defense model, mania is seen as a protection against painful admissions about the self. Mania is therefore expected to be associated with sensitivity to threats and negative cognitive styles (Winters and Neale 1985; Lyon et al. 1999). In the second, termed the behavioral activation or goal dysregulation model, mania is seen as the outcome of an overly sensitive reward system,

reflecting underlying neurobiological dysregulation (Depue and Iacono 1989; Fowles 1993). This reward sensitivity is expected to be manifested in a tendency towards positive cognitive styles and a hyper-reactivity to success (Johnson 2005).

Both approaches can claim some empirical support: people with bipolar disorder have been found to endorse both negative and positive styles. This evidence is briefly reviewed next.

### **Negative Cognitive Patterns**

Several studies have found that people with bipolar disorder display cognitive styles that seem to be as negative as those among people with unipolar depression (for review, see Cuellar et al. 2005; Mansell et al. 2005). This evidence is particularly strong during depressive episodes, though some report associations of negative cognitive styles with bipolar disorder in remission (Bentall and Thompson 1990). Many interpret these findings as a sign that negative cognitive styles predict mania. Indeed, one study found that negative cognitive styles interacted with negative life stressors to predict increases in hypomanic symptoms among college students (Reilly-Harrington et al. 1999).

On the other hand, there are inconsistencies in this literature. First, studies have found that person with remitted bipolar disorder do not display lower self-esteem (Ashworth et al. 1985; Bentall and Thompson 1990; Daskalopoulou et al. 2002; Scott et al. 2000; Tracy et al. 1992; Winters and Neale 1985; Wolf and Mueller-Oerlinghausen 2002), more negative self-beliefs (Hollon et al. 1986), or dysfunctional attitudes (Tracy et al. 1992), compared with persons who have no mood disorder. Other studies found that negative cognitive styles fail to predict manic symptoms (Johnson and Fingerhut 2004).

Closer analysis sheds some light on possible reasons for the inconsistency. Specifically, Alloy et al. (1999) examined the extent to which negativity of cognition was related to mania versus depression within bipolar spectrum disorder. That is, they divided their bipolar spectrum group into those who had had a depressive episode and those who had not. Negative cognitive styles were present only among those with a depression history. Those with a history of mania or hypomania without depression did not differ from the healthy controls on measures of negative cognitive styles. Inasmuch as not all people with mania experience depression during their lifetime (Kessler et al. 1997), it is important to test how cognitive styles relate to manic tendencies independent of depression.

### **Positive Cognitive Patterns**

Not all research on cognitive and motivational factors in bipolar disorder has focused on negative patterns. Several studies have found elevated sensitivity to reward on the Carver and White (1994) BAS scales and related measures among persons with bipolar I disorder (Meyer et al. 2001; Salavert et al. 2007; see Jones et al. 2006b, for a nonreplication) and persons with tendencies toward mania (Gruber and Johnson in press; Meyer et al. 1999; Johnson and Carver 2006; Meyer and Hofmann 2005). Laboratory studies also suggest that students with tendencies toward mania are especially oriented to reward, showing greater psychophysiological reactivity to positive stimuli (Harmon-Jones et al. 2008; Sutton and Johnson 2002) and to barriers to goal attainment (Harmon-Jones et al. 2002). Hence, some suggest that people with mania and with tendencies toward mania might be characterized by greater positive emotions in response to reward (for review, see Johnson et al. 2007).

In keeping with this hypothesis, people with bipolar disorder and with tendencies toward the disorder have greater cognitive responses to small successes and positive moods (Feldman et al. 2008; Johnson et al. in press; Jones et al. 2006a). For example, people with bipolar disorder and those with high scores on measures of manic tendencies have shown elevations in

confidence (Eisner et al. 2008; Stern and Berrenberg 1979) and goal-setting (Johnson et al. 2005), and reductions in willingness to take advice after positive mood inductions (Mansell and Lam 2006).

Perhaps related to the issue of reward sensitivity, people with bipolar disorder and those with manic tendencies are also more likely than other people to endorse extremely high life goals, even during asymptomatic periods (Johnson and Carver 2006; Johnson et al. under review; Gruber and Johnson in press). People with bipolar disorder and those at risk also report use of strategies that might amplify positive moods when they do occur (Johnson et al. in press; Jones et al. 2006a, b; Mansell et al. 2007). A growing literature, then, suggests that tendencies toward mania are related to more-intense reactivity to rewards, overly positive cognitions about the self during positive mood states, and mood regulation strategies that might amplify positive affect.

## Summary and Overview

In sum, one literature has linked mania to sensitivity to positive and reward-relevant stimuli. A different literature has linked bipolar disorder to negative emotional and cognitive tendencies. An additional characteristic of both literatures is that the studies tended to examine emotional and cognitive measures one at a time. As a consequence, it is impossible to know whether the variables in either literature make separate contributions to prediction or whether they are redundant.

The research reported here addressed these issues by examining associations with measures of negative and positive cognitive and emotional tendencies in a set of measures that is more wide-ranging than was the case in previous studies. We hypothesized that measures of negative reactivity would relate to tendencies toward depression, and would do so independent of manic tendencies. We hypothesized that measures of positive reactivity would relate to a measure of manic tendencies, and would do so independent of depression tendencies.

We chose a battery of diverse measures of both negative and positive emotional, motivational, and cognitive reactivity. We included measures of the separate motivational sensitivities to rewards and punishments, measures of positive and negative emotional intensity, and cognitive responses to rewards and punishments. We also included additional measures that previous research suggested might be related to mania. Because heightened responsivity to emotions often yields impulsive behavior, we included measures of impulsivity and self-control (cf. Swann et al. 2007). Finally, we included a measure of endorsement of highly ambitious goals, and measures of how people regulate positive moods.

This research focused on tendencies toward mania and depression rather than diagnosable disorder. Despite the clear disadvantages of analog samples (Coyne 1994), we were concerned by the following issue. Bipolar disorder is an extremely severe disorder, often characterized by psychotic symptoms during manic episodes, recurrent hospitalizations, suicide attempts, interpersonal strife, and financial difficulties (Miklowitz and Johnson 2006). Those difficulties of the disorder have extreme consequences for how people consider their selves, their emotions, and their goals. To minimize the impact of those consequences, we studied tendencies toward mania, rather than diagnosed mania. Although it is very likely that some of our participants have experienced manic episodes in the past, it is also unlikely that they were currently manic when participating in the study. In a recent small study using parallel recruitment strategies, no participants recruited on the basis of high HPS scores met diagnostic criteria for a current manic episode (Miller 2008). To provide a comparable measure of tendencies toward depression, we assessed lifetime history of depressive symptoms.

## Study 1

### Method

Participants were undergraduates at the University of Miami, who were earning credit toward a course requirement. They completed the measures described below in group sessions, along with several other measures not relevant to the issues under discussion. Because of the large number of measures collected, some of them were abbreviated (as noted below). Ethnicity information was not collected on this sample, but we have no reason to believe that the sample differed materially from the University of Miami's ethnically diverse student body. In the semester the data were collected, the psychology pool was approximately 23% Hispanic, 6% African American, 8% Asian, 55% non-Hispanic White, and 7% "other."

All measures were administered in large group sessions. Two steps were taken to enhance data quality. First, to provide a check on whether persons were reading and answering questions carefully, "catch" items were inserted periodically. That is, some items simply stated "code two for this item" or "please leave this item blank on the answer sheet." The data from the 5% of persons who failed at one point or another to follow these instructions were excluded from analyses. We also included the Shipley Institute of Living Scale (Shipley 1940) as an easily administered index that correlates highly with other measures of verbal intelligence (Weiss and Schell 1991). The data from 15 persons who scored at or below the standard cut-off of 23 on this measure were also excluded from analyses. The final sample was 235 (134 female). Sample size varies somewhat across analyses due to occasional missing data.

**Measures Related to Mania and Depression**—Our primary measures, the Hypomanic Personality Scale (HPS) and the Inventory to Diagnose Depression-Lifetime were used to assess tendencies toward symptoms of mania and depression. Both scales include items focused on a lifetime history of symptoms, and as such, were conceptualized as measures of the propensity towards these diagnoses. Diagnostic interviews were not conducted.

**Hypomanic Personality Scale:** The HPS (Eckblad and Chapman 1986) is a self-report questionnaire designed to assess risk for bipolar spectrum disorders. Although the scale was intended as a measure of risk, it addresses lifetime experiences of mild mania symptoms, without diagnostic severity or duration criteria. The scale contains 48 true-false items to capture shifts in emotions, behavior, and energy (i.e., "There have often been times when I had such an excess of energy that I felt little need to sleep at night," and "I often feel excited and happy for no apparent reason"). In the initial validation study, 78% of persons scoring more than two SDs above the mean were found to meet research diagnostic criteria for bipolar spectrum disorder, as compared to 0% in the control group defined by lower scores on the HPS (Eckblad and Chapman 1986). Elevated scores on the HPS predicted heightened risk for *DSM-IV* bipolar disorders 13 years later (Kwapil et al. 2000). The scale has been widely used to identify samples at risk for bipolar disorder (Eisner et al. 2008; Meyer and Hofmann 2005; Trevisani et al. in press). The HPS has high internal consistency and good test-retest reliability over fifteen weeks ( $r = .81$ ; Eckblad and Chapman 1986). In this sample  $M = 26.34$ ,  $SD = 7.46$ ,  $\alpha = .84$ . Using the typical cut-off criterion of 36 or above, 29 of this sample were at elevated risk of mania.

**Inventory to Diagnose Depression-Lifetime:** The IDD-L was used to assess depressive tendencies (Zimmerman and Coryell 1987). The 45 items on this scale probe the symptoms required for *DSM-IV* diagnosis of major depression. For each symptom endorsed, participants are asked whether the symptom lasted for at least two weeks. The IDD-L has been shown to have a rate of agreement of more than 97% and a kappa coefficient of .51 with structured diagnostic interviews for depression (Zimmerman and Coryell 1987). In this sample  $M = 2.76$ ,

SD = 3.18,  $\alpha = .93$ . Of this sample 57 satisfied the criteria indicating probability of at least one lifetime episode of major depression.

**Measures Relating to Motivational, Emotional, and Cognitive Reactivity**—The measures described next capture motivational sensitivity to positive and negative stimuli; positive and negative emotional intensity; and positive and negative cognitive styles. We also gathered two measures of mood regulation responses to positive mood states.

**Behavioral Inhibition/Behavioral Activation Scales**—The Behavioral Inhibition/Behavioral Activation Scales (BIS/BAS) scales (Carver and White 1994) were designed to measure individual differences in motivational sensitivities, in the form of sensitivity to threat and reward cues. The BIS scale (seven items) measures the tendency to respond to threatening events with anxiety or fear (e.g., “If I think something unpleasant is going to happen I usually get pretty ‘worked up’”). There are three factor analytically derived BAS scales, all of which focus on tendencies to respond positively to cues of incentive and reward. Drive captures the effort to pursue desired goals energetically (e.g., “If I see a chance to get something I want I move on it right away”). Reward Responsiveness measures the tendency to respond with energy and positive affect when desired events are experienced or anticipated (e.g., “When good things happen to me, it affects me strongly”). Fun Seeking captures the impulsive behavioral pursuit of pleasurable opportunities when they arise (e.g., “I will often do things for no other reason than that they might be fun”). Responses were made on a scale from 1 (“I agree a lot”) to 5 (“I disagree a lot”), and scales were computed as the average of the contributing items (thus keeping the scores on the same metric as item responses). Internal consistency, factor structure, and test-retest reliability of the BIS/BAS scales is adequate (Carver and White 1994; Jorm et al. 1998; Heubeck et al. 1998). Convergent and discriminant validity has been shown with measures of extraversion, trait anxiety, positive affect, and novelty seeking (Carver and White 1994; Jorm et al. 1998). Normative data are available from a major community sample (Jorm et al. 1998).

Descriptive statistics for this and all subsequently described measures are in Table 1. In this sample, internal consistencies were satisfactory; as in previous research, BAS subscales were correlated,  $r_s = .32$  to  $.38$ . The BIS subscale was not strongly related to Drive,  $r = -.06$ , ns or Fun-seeking,  $r = -.17$ ,  $P < .05$ , but was correlated positively with Reward Responsiveness,  $r = .34$ ,  $P < .005$ .

**Affect Intensity:** An abbreviated set of items from the Affect Intensity Measure (AIM, Larsen and Diener 1987) was included. The AIM was based on the premise that people vary in how strongly they react emotionally to both good and bad outcomes (see also Schimmack and Diener 1997). The focus here is on the intensity of the affect, independent of the frequency of the affective experience. The full AIM is relatively long (40 items). We extracted 12 items that appeared to be good representatives of the construct, five bearing on positive feelings (e.g., “When something good happens, I am usually much more jubilant than others”) and seven bearing on negative feelings (e.g., “When I feel guilt, this emotion is quite strong”). Responses were made on a scale from 1 (“I agree a lot”) to 5 (“I disagree a lot”). Although the AIM has generally been used as a unidimensional scale, initial examination of the data in this sample indicated that the items pertaining to positive feelings correlated only  $.26$  with the items pertaining to negative feelings. For that reason, we averaged and analyzed them separately.

**Negative Generalization:** Negative generalization was measured by a subscale from the Attitudes Toward Self-Revised (ATS-R, Carver et al. 1988), a self-report measure that derives from a self-regulatory view of depression. The ATS-R has three subscales: high standards, self-criticism, and negative generalization. Because the negative generalization scale has been found in several studies to be the strongest and most meaningful correlate (and predictor) of



depression (Carver 1998; Carver et al. 1988; Eisner et al. 2008), only that scale was used here. Its items measure the tendency to generalize from a single negative event to the broader sense of self-worth (four items, e.g., “If I notice one fault of mine, it makes me think about my other faults”). Items were rated from 1 (“I agree a lot”) to 5 (“I disagree a lot”).

**Positive Generalization:** The Positive Generalization (POG) (Eisner et al. 2008) was designed to assess a broad range of ways in which people might generalize from positive events. In that way it was intended to mirror the measure of negative generalization. Each item refers to a positive outcome, and then portrays a generalization from that outcome to the respondent’s broader sense of self-confidence. The three POG subscales used by Eisner et al. (2008) were revised and expanded for this study.<sup>1</sup> Lateral generalization is generalizing from a good outcome in one domain to positive outcomes in other areas of life (six items, e.g., “When something good happens to me, it makes me expect good things in other parts of my life too”). Upward generalization is generalizing to more lofty goals in the same domain (five items, e.g., “If someone praises the way I express something, it makes me think I can write a popular book”). Social generalization is generalizing from a small social success to a larger one (five items, e.g., “All it takes is one look from someone and I know that person is falling for me”). Response options ranged from 1 (“I agree a lot”) to 5 (“I disagree a lot”). In previous research, POG subscales were unrelated to history of depression, but each subscale correlated with risk for mania, particularly upward generalization (Eisner et al. 2008). POG subscales were relatively highly intercorrelated in this sample,  $r_s = .49$  to  $.71$ .

**Savoring Beliefs Inventory:** The Savoring Beliefs Inventory (SBI) (Bryant 2003) was developed to assess individual differences in the ability to savor positive outcomes after they have occurred, to anticipate upcoming positive events pleasurably, and to reminisce warmly about past events. There is evidence that the savoring ability is associated with higher self-esteem (Wood et al. 2003) and lower depression (Bryant 2003). We included the Savoring scale (seven items, e.g., “I feel fully able to appreciate good things that happen to me”) and the Anticipating scale (seven items, e.g., “Before a good thing happens, I look forward to it in ways that give me pleasure in the present”). Response options ranged from 1 (“I agree a lot”) to 5 (“I disagree a lot”). These two subscales were moderately correlated,  $r = .62$ .

**Responses to Positive Affect:** The Responses to Positive Affect (RPA) (Feldman et al. 2008) is a self-report measure designed to assess divergent cognitive responses to positive affective states. Participants are asked to rate each response listed on a scale of 1 (“almost never respond in this way”) to 4 (“almost always respond in this way”). There are three factor-analytically derived subscales: Dampening (eight items, e.g., “Think about things that could go wrong”), Self-focused Positive Rumination (four items, e.g., “Think about how proud you are of yourself”), and Emotion-focused Positive Rumination (five items, e.g., “Think about how happy you feel”). Items on both the Emotion-Focused Positive Rumination scale and the Self-Focused Positive Rumination scale capture responses that are expected to intensify positive feelings. Items on the Dampening scale capture responses expected to diminish positive feelings.

In validation studies, Emotion-focused and Self-focused Positive Rumination subscales correlated positively with self-esteem and vulnerability to hypomania (Feldman et al. 2008). More recently, positive emotion-focused rumination was found to be elevated among persons with a diagnosis of bipolar spectrum disorder, but not those with a diagnosis of depression (Johnson et al. in press). In contrast, the Dampening scale has been found to correlate with

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<sup>1</sup>Revision rendered more broadly applicable a few items that had been focused on school-related situations; expansion fleshed out slightly two scales that had been quite brief.

history of depression (Feldman et al. 2008; Johnson et al. in press). Emotion-focused and Positive Self-focused rumination were substantially correlated in this sample,  $r = .66$ , but neither was strongly correlated with Dampening,  $r_s = .13$  and  $.09$ .

### Goal Setting

**Willingly Approached Set of Statistically Unlikely Pursuits:** The Willingly Approached Set of Statistically Unlikely Pursuits (WASSUP) is a 30-item self-report measure designed to assess expectations regarding the setting of highly ambitious life goals (Johnson and Carver 2006). For each item, participants were asked to rate their goal-setting expectations on a scale from 1 (“no chance I will set this goal for myself”) to 5 (“definitely WILL set this goal for myself”).

The WASSUP has factor-analytically derived subscales covering a range of goal domains. In this sample we included an abbreviated subset: popular fame (seven items, e.g., “you will appear regularly on TV”), having a positive impact on world well-being (two items, e.g., “you will create world peace”), political influence (two items, e.g., “you will be important in political circles”), idealized relations with family (two items, e.g., “your relationship will be more romantic than Romeo and Juliet”), and financial success (three items, e.g., “you will have 20 million dollars or more”). Across five previous samples, persons at risk for mania and those with diagnosed mania have been found to endorse WAS-SUP scales measuring goals pertaining to fame and financial success to a greater degree than other participants, and these links were not confounded by current manic or depressive symptoms (Johnson and Carver 2006; Johnson et al. under review; Gruber and Johnson in press). Given this, we focused on those two subscales in this study. In this sample, popular fame and wealth subscales were moderately correlated,  $r = .51$ .

**Measures Relating to Self-control or Impulsivity—**Motivational tendencies are also reflected in the tendency to be impulsive versus self-controlled. Several measures were included to cover differing aspects of self-control and impulsivity. These measures are similar to one another in certain ways, but they have somewhat different focuses.

**Self-control scale:** The Self-control scale (SC) was developed by Tangney et al. (2004) as a measure of individual differences in self-control tendencies. The authors also reported a 13-item Brief Self-Control scale, which correlated at above  $.90$  with the full scale in two samples. This measure has good psychometric properties and correlated with higher grade point average, better adjustment, less binge eating and alcohol abuse, and better relationships and interpersonal skills (Tangney et al. 2004). In this study we used the Brief version (13 items, e.g., “Pleasure and fun sometimes keep me from getting work done” [reversed]). Responses were on a scale from 1 (“I agree a lot”) to 5 (“I disagree a lot”).

**Consideration of Future Consequences:** The Consideration of Future Consequences (CFC) (Strathman et al. 1994) was devised to measure stable individual differences in the extent to which people take into account future consequences of their actions before acting. The items (12 items, e.g., “I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes”) were answered here on a scale from 1 (“I agree a lot”) to 5 (“I disagree a lot”). Strathman et al. (1994) reported evidence that the CFC predicts responses to persuasive messages and also predicts behaviors relevant to personal health and environmental issues.

**Barratt Impulsiveness Scale, Version 11:** The Barratt Impulsiveness Scale, version 11 (BIS-11) (Patton et al. 1995) is perhaps the most widely used measure of impulsivity. It was originally intended to assess impulsiveness in a way that would be orthogonal to anxiety, and

it has undergone multiple revisions over an extended period. The BIS-11 consists of 30 items. Responses are made on a scale from 1 (“rarely/never”) to 4 (“almost always/always”). Patton et al. (1995) reported six-first-order factors, which aggregated into three-second-order factors: Attentional Impulsiveness reflects difficulty in concentrating (eight items, e.g., “I don’t ‘pay attention’”). Motor Impulsiveness reflects lack of reflection before acting (11 items, e.g., “I act ‘on impulse’”). Nonplanfulness reflects failing to take the future into consideration (11 items, e.g., “I am a careful thinker” [reversed]). BIS-11 subscales were moderately strongly intercorrelated in this sample,  $r_s = .44$  to  $.48$ .

**Relations Among Hypothesized Correlates**—Before proceeding to our primary analyses, we considered the extent to which the various measures other than HPS and IDD-L overlap among themselves. As expected, impulsivity-related scales were inter-correlated: Self-control correlated substantially with BIS-11 subscales,  $r_s = -.47$  to  $-.62$ , as did the CFC,  $r_s = -.33$  to  $-.55$ . Impulsivity-related scales were not strongly related to measures of cognitive and emotional reactivity, absolute  $r_s = .01$  to  $.25$ , with three exceptions in the  $.35$  range. The measures of positive emotionality and cognitive styles were mostly moderately correlated,  $r = .25$  to  $.50$ , but a few associations were much lower. Despite these relationships, which were not unexpected, it appeared that these scales were indexing separable constructs. For that reason and to allow comparison with previous literature, we began by examining each measure separately.

## Results

Tendencies toward depression (IDD-L scores) and tendencies toward mania (HPS scores) typically correlate positively, but the association in this sample was not significant,  $r = .10$ ,  $P < .12$ . Of greater interest is how the IDD-L and HPS scores related to the other measures. Relevant correlations are in Table 1. Differences between correlations for IDD-L and HPS were tested by the procedure described by Steiger (1980); the significance levels of these tests are indicated in the right-hand column.

HPS related positively to two subscales assessing incentive sensitivity, whereas the IDD-L did not relate to incentive sensitivity. In contrast, IDD-L related positively to threat sensitivity scores, whereas the relation for HPS was inverse. With respect to affective intensity scales, the patterns were similarly distinct. IDD-L related to intensity of negative but not positive affect; HPS related to intensity of positive but not negative affect.

HPS related to endorsing the setting of extreme goals, positive generalization, and positive rumination.<sup>2</sup> HPS also related modestly to a tendency to endorse generalizing from negative events. IDD-L related to endorsing the tendency to generalize from bad events, and to an inability to savor positive affect. On the measures pertaining to self-control, HPS scores correlated with poorer self-control, less consideration of future consequences, and greater impulsivity.

**High-risk Scorers Versus All Others**—Further analyses were done to diminish concern about the possibility that the correlations in Table 1 stem primarily from variation among low- and medium-scoring participants, and to provide a closer analog to diagnosable patient samples. In these analyses, the sample was first split into those who met or exceeded the typical cut-off criterion of 36 on the HPS ( $N = 29$ ) versus those who did not. The sample then was split into those who met the IDD-L criteria for diagnosis of an episode of major depression

<sup>2</sup>The HPS contains five items that cover overly positive cognitive content (e.g., “I expect that someday I will succeed in several different professions,” “There are so many fields I could succeed in that it seems a shame to have to pick one”). An HPS score was calculated excluding these 5 items. Findings were entirely comparable with this version of the HPS.



( $N = 57$ ) versus those who did not. In each case, the pair of groups was compared on each cognitive, motivational, and affective variable of interest.

Of the 18 significant correlates of HPS scores in Table 1, only four failed to differ significantly between hypomanic groups: Drive, WASSUP Financial goal setting, Negative Generalization, and Consideration of Future Consequences. Of the five significant correlates of IDD-L scores in Table 1, only Dampening failed to differ significantly between depression groups.

**Redundant or Separate Predictors?**—We noted earlier that most of the measures being examined as correlates of the IDD-L and the HPS were not themselves strongly interrelated. Nonetheless, an important question remains as to whether their relationships to the symptom indices were redundant with each other, or whether the measures have relatively independent links to the hypomania and depression indices. For this reason, we conducted two sets of multiple regression analyses, one predicting HPS scores and one predicting IDD-L scores. For each regression model, the significant correlates of the variable being predicted (from Table 1) were entered as a block.

When the five significant correlates of IDD-L were entered, the resulting equation accounted for 16% of the variance in IDD-L scores, and two unique associations emerged as significant: for Negative Affect Intensity,  $\beta = .19$ ,  $t(207) = 2.43$ ,  $P < .02$ , and (lack of) Savoring,  $\beta = -.19$ ,  $t(207) = 2.60$ ,  $P < .02$ . The individual effect of Negative Generalization was near significant,  $\beta = .17$ ,  $t(207) = 1.92$ ,  $P < .06$ . Associations for threat sensitivity and Dampening of positive feelings did not approach significance.

The comparable analysis for HPS scores was more difficult to conduct in a meaningful way, because there was substantial overlap among the measures of impulsivity. When the Brief Self-control scale was chosen to represent this group of measures and was entered together with the other 13 scales with which HPS scores had correlated, the resulting equation accounted for 54% of the variance in HPS. Significant unique effects emerged for Self-control,  $\beta = -.21$ ,  $t(195) = 3.67$ ,  $P < .001$ , Positive Affect Intensity,  $\beta = .21$ ,  $t(195) = 3.63$ ,  $P < .001$ , Positive Social Generalization,  $\beta = .17$ ,  $t(195) = 2.24$ ,  $P < .03$ , Positive Upward Generalization,  $\beta = .21$ ,  $t(195) = 2.71$ ,  $P < .01$ , Positive Emotion-focused Rumination,  $\beta = .16$ ,  $t(195) = 2.29$ ,  $P < .03$ , Fun Seeking,  $\beta = .12$ ,  $t(195) = 2.00$ ,  $P < .05$ , and lower threat sensitivity,  $\beta = -.15$ ,  $t(195) = 2.57$ ,  $P < .02$ ; the effect of Popular Fame as a goal also approached significance,  $\beta = .11$ ,  $t(195) = 1.78$ ,  $P < .08$ .

When the three Barratt scales were used instead of the Brief Self-control scale, the variance accounted for rose slightly, to 56%, but two of the separate predictors were no longer significant: Fun Seeking and Positive Emotion-focused Rumination. Thus, using the Barratt scales resulted in a slightly less nuanced picture, even while boosting slightly the variance accounted for overall.

### **Do Relations with One Risk Factor Differ as a Function of the Other Risk Factor?**

—One further goal of this work was to consider whether the variables tied to depressive symptoms differ as a function of whether the persons also have tendencies toward mania (or vice versa). To evaluate this possibility, we conducted a series of regression analyses in which (centered) IDD-L and HPS and a multiplicative interaction term were entered as predictors of each of the other variables (one at a time). In no case did an interaction approach significance. Thus, correlates of one type of risk were comparable whether the other risk was present or not.

## **Brief Discussion**

In this study a measure of tendencies toward mania was associated with one set of cognitive and emotional variables, and a measure of tendencies toward depression was associated with

a different set of cognitive and emotional variables. These associations with one measure of risk did not depend on whether the person scored high on the other measure of risk, consistent with the view that risk factors for depression are similar regardless of level of manic tendencies, and vice versa (Johnson et al. in press; Joffe et al. 1999).

One limitation of this study was that we did not collect measures of current mood along with the other measures. Thus, it remains possible that the associations we observed were mood-state dependent. In part for this reason, we collected an additional sample of data that included state measures of mood symptoms. We were not able to include all of the measures that were used in Study 1 in this sample, but we were able to collect a reasonable representation of the same set of constructs.

## Study 2

### Method

Participants were undergraduates at the University of Miami, earning credit toward a course requirement. They completed the measures in group sessions, along with other measures not relevant to the issues under discussion. Ethnicity information was not collected, but again we have no reason to believe that the sample differed materially from the University of Miami's ethnically diverse student body. As in Study 1, two steps were taken to enhance data quality: insertion of "catch" items and use of the Shipley (cut-off 23 and below) as a screener. The final sample was 394 (263 female). Sample size varies across analyses due to occasional missing data.

The HPS was used again as the index of tendencies toward mania. In this sample  $M = 20.26$ ,  $SD = 8.53$ ,  $\alpha = .87$ ; 16 participants met or exceeded the cutoff of 36. The IDD-L was used again to assess lifetime depressive symptoms. In this sample  $M = 2.53$ ,  $SD = 2.86$ ,  $\alpha = .90$ ; 106 participants satisfied criteria for a depressive episode.

**Measure of Current Mood Symptoms**—The Mood and Anxiety Symptom Questionnaire-Short Form (MASQ) was used to assess current mood symptoms. This scale was developed to differentiate symptoms of depression and anxiety into three dimensions: nonspecific symptoms of distress, anxiety-related somatic tension and arousal symptoms, and low positive affect and anhedonia symptoms associated with depression (Clark and Watson 1991; Watson et al. 1995). Factor analyses support the structure of the subscales, and evidence suggests that the validity of the scales with regard to anxiety and depression compares well with that of other self-report measures (Ruth and Mehrotra 2001). Internal consistency estimates within this study were each adequate, General Distress Subscale  $\alpha = .89$ , Anhedonia versus Positive Affect Subscale  $\alpha = .90$ , and Somatic Anxiety Subscale  $\alpha = .79$ .

**Measures Relating to Motivational, Emotional, and Cognitive Reactivity**—The BIS/BAS scales were again administered as a measure of individual differences in sensitivity to threat and reward cues. As in Study 1, BAS subscales were moderately correlated,  $r_s = .36$  to  $.47$ . The BIS subscale was not strongly related to Drive,  $r = -.08$ , ns, or Fun-seeking,  $r = -.17$ ,  $P < .01$ , but was correlated more substantially with Reward Responsiveness,  $r = .25$ ,  $P < .001$ .

The abbreviated set of items from the AIM was also included. In this sample the items pertaining to positive feelings correlated only  $.09$  with the items pertaining to negative feelings, and they were again analyzed separately.

Negative generalization was measured by the relevant subscale from the ATS-R. Positive generalization was measured by the POG. POG subscales again were relatively highly correlated in this sample,  $r_s = .46$  to  $.65$ .

This sample also completed one measure that pertains to self-control and impulsiveness, but it was a measure quite different from those used in the first sample. This was the Urgency scale from Whiteside and Lynam's (2001) measure of facets of impulsiveness, comprising Urgency, Premeditation, Perseverance, and Sensation Seeking (UPSS). The Urgency scale reflects tendencies to act or speak in direct response to feelings (typically negative feelings), without thinking (Whiteside et al. 2005); many of its items also convey that the impulsive response is later regretted (e.g., "When I feel rejected, I will often say things that I later regret," and "I often make matters worse because I act without thinking when I am upset"). These items were answered on a scale from 1 ("I agree a lot") to 5 ("I disagree a lot"), and the measure was scored by averaging responses. In previous research, the Urgency subscale was correlated with antisocial tendencies,  $r = .19$ , conduct problems,  $r = .31$ , more sexual partners,  $r = .22$ , eating disorder diagnoses,  $r = .25$ , and depressive symptoms,  $r = .23$  (Miller et al. 2003).

## Results

In this sample, the HPS correlated with the IDD-L,  $r = .31$ ,  $P < .001$ . Correlations of these two measures with the cognitive, motivational, and emotional measures (with no controls for mood) are in the middle columns of Table 2. The pattern shown there is very similar to that in Study 1. As before, IDD-L related significantly to threat sensitivity, negative affect intensity, and negative generalization. In addition, in this sample IDD-L related significantly to Urgency, whereas IDD-L had not been associated with any measure of impulsiveness in Study 1. As in Study 1, HPS scores were significantly related to all measures of reward sensitivity, all measures of positive generalization, and the measure of positive affect intensity. Unlike Study 1, HPS also was correlated with the measure of negative affect intensity, though to a lesser degree than with positive affect intensity.

As can be seen at the bottom of Table 2, the measures of current mood symptoms were also related to the IDD-L and HPS. MASQ General Distress and MASQ Somatic Anxiety were correlated with IDD-L scores; MASQ Positive Affect and MASQ Somatic Anxiety correlated with HPS scores. To determine the extent to which the associations of the risk measures with the other measures were influenced by current mood states, we computed partial correlations in which all three MASQ scales were controlled for. Because the HPS and IDD-L themselves were more correlated in this sample than in Study 1, we also controlled for the alternate measure in these analyses. The resulting partial correlations are in the two right columns of Table 2.

The pattern of partial correlations clarifies the overall picture in a fashion that offers further support to our predictions. The associations of IDD-L with threat sensitivity, Negative Generalization, and Urgency remained significant; that with Negative Affect Intensity became non-significant. In addition, inverse associations emerged with the three positive generalization scales. Associations with HPS scores remained robust for measures of incentive sensitivity, Positive generalization, Positive affect Intensity, and Urgency. The associations with Negative Affect Intensity and Negative Generalization both faded away.<sup>3</sup>

**High-risk Scorers Versus All Others**—As in Study 1, further analyses were done to diminish concern about the possibility that the overall correlations are determined primarily by variation among low- and medium-scoring participants, and to provide a closer analog to a

<sup>3</sup>A subset of this sample ( $n = 200$ ) completed the WASSUP at a time that ranged from 2–4 weeks after the other measures had been completed. Reports of setting the goal of popular fame correlated  $.38$  with HPS and  $.07$  with IDD-L; a partial correlation similar to those in Table 2 yielded a partial correlation of  $.26$ ,  $P < .001$ , between popular fame and HPS.

diagnosed sample. As before, the sample was first split into those who met or exceeded the typical cut-off criterion of 36 on the HPS ( $N = 16$ ) versus those who did not. The sample then was split into those who met the IDD-L criteria for diagnosis of an episode of major depression ( $N = 106$ ) versus those who did not. In each case, the pair of groups was compared on all cognitive, motivational, and affective variables (other than MASQ).

Of the ten significant correlates of HPS scores in Table 2, all differed significantly between hypomanic groups except for Positive Lateral Generalization and Urgency, both of which slipped to marginal levels of significance ( $P < .07$ ), and Negative Affect Intensity and Negative Generalization, which did not differ between groups. It should be noted that the latter two variables had been predicted not to relate to hypomania. Of the four significant correlates of IDD-L scores in Table 2, all differed significantly between depression groups.

**Redundant or Separate Predictors?**—As in Study 1, we went on to examine whether the correlates of IDD-L scores (and HPS scores) were redundant with one another or distinct. This was evaluated by hierarchical regression analyses in which the significant individual correlates were entered in one step, followed by the relevant symptoms measures from the MASQ in a second step (for IDD-L, General Distress and Somatic Anxiety; for HPS, Somatic Anxiety and Positive Affect).

The analysis for IDD-L scores accounted for 21% of the variance in the first step, and a total of 28% after the second step. The addition of symptom measures did not change the results of the first step. The final model included unique contributions from Negative Generalization,  $\beta = .21$ ,  $t(341) = 3.46$ ,  $P < .002$ , Urgency,  $\beta = .15$ ,  $t(341) = 2.88$ ,  $P < .005$ , General Distress,  $\beta = .20$ ,  $t(341) = 3.20$ ,  $P < .003$ , and Somatic Anxiety,  $\beta = .15$ ,  $t(341) = 2.53$ ,  $P < .02$ .

The analysis for HPS scores accounted for 43% of the variance in the first step, and a total of 50% after the second step. Again, the addition of symptom measures did not change the results of the first step. The final model included unique contributions from Drive,  $\beta = .23$ ,  $t(325) = 4.84$ ,  $P < .001$ , Fun Seeking,  $\beta = .20$ ,  $t(325) = 3.93$ ,  $P < .001$ , Positive Affect Intensity,  $\beta = .21$ ,  $t(325) = 4.56$ ,  $P < .001$ , Urgency,  $\beta = .12$ ,  $t(325) = 2.67$ ,  $P < .01$ , and Somatic Anxiety,  $\beta = .27$ ,  $t(325) = 6.29$ ,  $P < .001$ .

**Urgency**—As noted earlier, IDD-L had not related to measures of impulsivity in the first study, but did relate to the Urgency scale. We believe the difference lies in the fact that so many items of the Urgency scale convey connotations of initiation of impulses by negative feelings and subsequent regret over the impulsive act. Both of these affective responses fit the experience of depression. On the other hand, we believe that the impulsive quality that is also expressed in these items is characteristic of tendencies toward mania. Thus, we expected that the IDD-L and HPS would make independent contributions to prediction of urgency.

We tested this by a multiple regression analysis predicting Urgency, entering IDD-L and HPS in a first step, then the mood scales in a second step. The final outcome accounted for 17% of the variance in Urgency. The  $\beta$  for IDD-L scores was .27 in the first step, falling to .18 in the second step,  $t(374) = 3.32$ ,  $P < .001$ ; that for HPS was .17 in the first step and .15 in the second step,  $t(374) = 2.72$ ,  $P < .01$ . Also making a significant contribution was MASQ General Distress,  $\beta = .19$ ,  $t(374) = 2.88$ ,  $P < .005$ . It seems clear from this pattern that the Urgency scale has strong overtones of both negative affect and impulsiveness.

**Do Relations with One Risk Factor Differ as a Function of the Other Risk Factor?**—Finally, we examined whether the variables tied to depressive symptoms differ as a function of whether the persons also have mania tendencies (or vice versa). To evaluate this possibility, we again conducted regression analyses using (centered) IDD-L and HPS and a multiplicative

interaction term as predictors of each of the other variables (individually). In no case did an interaction approach significance. That is, correlates of one sort of risk appeared comparable whether the other risk was present or not.

### Brief Discussion

Results from Study 2 were generally quite consistent with those from Study 1. A measure of tendencies toward depression related to one set of variables, and a measure of tendencies toward mania related to a different set of variables. This pattern was confirmed to be robust to controls for mood symptoms of three different types as well as the alternative measure of tendency toward disturbance. The only exception to this pattern of complete differentiation was the measure of urgency, which related to both the IDD-L and the HPS. Further analysis revealed, however, that the associations with urgency were relatively independent of each other, suggesting that the measure of urgency pulls for two distinct motivational-emotional qualities simultaneously.

### General Discussion

Two studies provide information on the question of whether tendencies toward depression and tendencies toward mania have similar or different correlates among measures of motivational, cognitive, and emotional qualities. In Study 1, tendencies toward mania related (at the bivariate level) to measures of incentive sensitivity, subjectively intense positive emotions, mood regulation strategies that magnify and sustain positive emotions, positive generalization, setting of high goals, weak impulse control, and deficits in threat sensitivity. In contrast to this, tendencies toward depression related (at the bivariate level) to measures of threat sensitivity, subjectively intense negative emotions, negative generalization, down-regulation of positive emotions, and an inability to savor positive emotions.

Study 2, which had a more limited range of measures, found similar associations between tendencies toward mania and measures of incentive sensitivity, subjectively intense positive emotions, positive generalization, and impulsivity. Tendencies toward depression again related to measures of threat sensitivity, subjectively intense negative emotions, and negative generalization. Because Study 2 included a separate measure of mood symptoms, we were able to confirm in Study 2 that these associations were not mood-state dependent. We would point out however, that because of the low rate of manic symptoms expected in an undergraduate sample, we did not measure manic symptoms, but rather relied on the MASQ measure of positive affect.

The pattern of associations obtained in these studies is consistent with the position that tendencies toward mania and tendencies toward depression correlate with two different sets of cognitive, emotional, and motivational variables. The pattern of findings thus is consistent with the behavioral activation viewpoint on mania, but they offer no support for the depression avoidance or manic defense model. In neither study did associations with one measure of risk depend on the person's standing on the other measure of risk. This is consistent with the view that risk factors for depression are similar regardless of level of hypomanic tendencies, and vice versa.

**Limitations**—Before interpreting the findings further, we should note some limitations of the research. These include reliance on self-report measures of emotional and cognitive reactivity. Although the self-report measures have been well-validated, shared method variance may have led to an overestimate of effects. One would expect these measures to account for less variance in interview-based diagnoses. Despite the relatively large sample sizes, caution is warranted in interpreting the regression models: beta estimates for independent variables are



imprecise due to the large number of correlated independent variables in our model of manic tendencies (Kelley and Maxwell 2003).

Another limitation is that the cross-sectional design precludes comment on potential relevance of these variables to the course of symptoms. Previous research does suggest that overconfidence (Lam et al. 2005), reward responsivity (Meyer et al. 2001; Meyer and Hofman 2005), and impulsivity (Kwapil et al. 2000) predict increases in manic symptoms over time, but most of the measures used here have not been tested prospectively.

Finally, both of these studies relied on analog measures of manic and depressive tendencies. Findings from analog studies do not always generalize to clinical samples (Coyne 1994). Both the IDD-L and the HPS have been found to correlate robustly with diagnostic measures, but our studies did not use diagnostic measures. Neither the IDD-L nor the HPS measures functional impairment, a limitation of those measures that is particularly important with regard to the HPS. As a result, it is uncertain whether the effects obtained for the HPS are attributable to qualities associated with hypomania, qualities associated with mania, or some combination of the two.

It is also important to note that we do not know how many or which participants had already developed diagnosable episodes of either mania or depression, though it is very likely that some had done so. Thus, we cannot rule out the possibility that the associations reported here represent scars from prior episodes, rather than vulnerabilities that may predispose to future episodes. A longer-term study with more careful diagnostic assessment would be required to do that. On the other hand, one such recent study suggests that psychosocial variables are less affected by scarring than is often supposed (Beevers et al. 2007).

**Implications: The Broad View**—Despite the caveats, the findings seem to have at least two sorts of further implications. The first concerns the question of whether the various measures associated with depression or mania risk are simply variations on one another. That is, as we noted in the introduction, most previous studies have tested measures individually. It has generally been unknown whether the measures used in various studies account for separate variance in measures of manic tendencies (or depressive tendencies) or whether they are instead redundant. We found that separate measures made separate contributions.

Specifically, in Study 1 the multivariate analysis predicting IDD-L scores yielded unique effects for measures of the tendency to experience negative affect intensely, the tendency to generalize from negative events to the broad sense of self-worth, and the inability to savor positive experiences. The first of those measures is affective, whereas the others reflect cognitive reactions that follow from affect. The analysis predicting HPS scores (using the Self-control scale to index impulsiveness) yielded unique contributions from measures of tendencies to experience positive affect intensely, ruminate on positive affect, generalize from positive events, endorse the goal of popular fame, and act impulsively. The first of those measures is affective, the last reflects an action tendency, and the rest reflect cognitive tendencies. Thus, in both cases, measures of affect and measures of cognitive responses to affect made separate contributions to predicting the criterion measure. It is noteworthy that in both cases the total proportion of variance accounted for was substantial (53 and 43% for HPS, 19 and 21% for IDD-L).

If they are not redundant with one another, what do these constellations of variables represent? They appear to represent converging psychological properties organized around two different orientations to goals. On the manic side, highly engaged goal pursuit (characteristic of hypomania and mania) can be seen to benefit from the package of strong motivational tendencies to approach incentives, high salience of positive emotions, responding to those

emotions with a generalized sense of confidence about diverse life domains, setting high aspirations, and taking quick action. This sketch is very much in line with the behavioral activation viewpoint on mania. On the depression side, the observed constellation of correlates appears to coalesce around failure in goal pursuit. Being sensitive to threat, generalizing from failure to the broad sense of self-worth, regretting actions taken impulsively—all these properties seem to reflect a dysfunctional goal-seeking system.

The second potentially important implication of the findings concerns a striking conceptual parallel in the outcomes pertaining to manic versus depressive tendencies, despite the fact that the specific variables that correlated with those tendencies were quite distinct. That is, the valence of emotional reactivity differs for the two tendencies (i.e., toward depression and mania), but certain other elements are quite similar. Both tendencies related to subjectively high intensity of the relevant affect. Both related to reported tendencies to generalize cognitively after events with the relevant valence. Both tendencies are also associated with ruminative focus on the relevant affect (though we did not assess the tendency of depression-vulnerable people to ruminate on depressed affect, that association is well-established: Nolen-Hoeksema 2000; Nolen-Hoeksema et al. 1993).

In sum, tendencies toward both mania and depression seem tethered to excessive emotional and cognitive reactivity to a particular subset of the person's emotionally relevant experience. Thus, we find a nearly complete separation of specific measures, but also a striking conceptual parallel. It seems highly desirable to look more closely for processes that might provide a basis for that parallel. Candidate processes underlying such a parallel would include aspects of prefrontal cortical activity that appear to be involved in restraining and distancing oneself from emotional states (e.g., Ochsner and Gross 2005) and the serotonergic functions that may subserve these prefrontal activities (Carver et al. in press). That is, both of the constellations described above reflect high salience of a particular type of emotion. There is considerable evidence that such salience follows from low serotonergic function (Spoont 1992). The result of such salience can be excessive rumination on the emotion as well as behavioral responsiveness to the emotion (Carver et al. in press; Mansell and Pedley 2008).

Thus, despite the fact that our studies show an almost complete lack of overlap between measures associated with manic tendencies and depressive tendencies, we are not ready to reject the idea that there is a commonality between the processes that underlie those two tendencies. It still seems important to further investigate such commonalities. Among other things, evidence of such commonalities might help explain why mania so frequently relates to depressive episodes (Kessler et al. 1997). We believe, however, that commonalities that eventually emerge will prove to be quite different in nature than the kinds of variables that have been investigated thus far.

**Management of Mania**—One final point is relevant specifically to mania. To date, most psychological interventions have not fared better than psychoeducation in preventing manic symptoms (Scott and Gutierrez 2004; see Lam et al. 2003 for an exception). To date, improved medication adherence appears to be the best documented predictor of psychological treatment effects on mania (Colom et al. 2005; Simon et al. 2005). There is a clear need for better interventions that target a broader range of mechanisms. The development of these interventions, though, will likely depend on a better understanding of the psychological processes that are most involved in mania (see, e.g., Mansell et al. 2007, regarding training in inhibiting immediate behavioral reactions). Taken with other recent findings, these results suggest that positive emotional and cognitive reactivity, along with poor restraint over impulses, are important focuses for future research on tendencies toward mania. It is hoped that such findings will contribute to a knowledge base supporting the development and refinement of clinical interventions.

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**Table 1**  
Correlations of lifetime depression symptoms and hypomanic symptoms with other measures, study 1

	Alpha	M (SD)	Correlation with lifetime depression symptoms (IDDL)	Correlation with manic symptoms (HPS)	Difference between correlations
Drive	.72	3.42 (.75)	.00	.29***	**
Reward responsiveness	.68	4.43 (.47)	.06	.12	ns
Fun seeking	.71	3.88 (.75)	.03	.41***	***
Threat sensitivity	.78	3.70 (.72)	.20**	-.16*	***
Affect intensity negative	.70	3.17 (.70)	.25***	.13	ns
Affect intensity positive	.68	3.43 (.68)	-.04	.46***	***
WASSUP popular fame	.88	2.13 (.91)	.03	.38***	***
WASSUP financial	.74	2.99 (1.08)	-.11	.22**	***
Positive generalization social	.82	2.50 (.88)	-.08	.53***	***
Positive generalization lateral	.81	3.55 (.72)	-.12	.29***	***
Positive generalization upward	.77	2.70 (.88)	-.08	.50***	***
Negative generalization	.79	2.83 (.95)	.30***	.16*	ns
Positive rumination dampening	.84	1.73 (.58)	.18*	.20**	ns
Positive rumination emotion focus	.77	2.96 (.65)	.10	.31***	**
Positive rumination self-focus	.75	2.61 (.73)	.09	.26***	*
Savoring	.83	4.00 (.72)	-.24**	-.04	*
Anticipating	.77	4.01 (.63)	-.01	.03	ns
Self-control	.83	2.93 (.72)	-.05	-.39***	***
Consideration of future consequences	.84	3.56 (.63)	.14	-.19**	***
Barratt attentional impulsivity	.78	2.24 (.56)	.09	.47***	***
Barratt motor impulsivity	.73	2.08 (.46)	-.02	.50***	***
Barratt nonplanning	.72	2.24 (.48)	.03	.27***	*

Note: Total N = 235;

\*  $P < .05$ ;

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\*\*\*  
 $P < .01$ ;  
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 $P < .001$

**Table 2**  
Correlations of Lifetime depression symptoms and hypomanic symptoms with other measures, study 2

	Alpha	M (SD)	Correlation with lifetime depression symptoms (IDDL)	Correlation with manic symptoms (HPS)	Partial correlation IDDL, with MASQ and HPS controlled	Partial correlation HPS, with MASQ and IDDL controlled
Drive	.75	3.54 (.75)	.08	.51***	-.05	.46***
Reward responsiveness	.70	4.32 (.51)	.03	.30***	-.02	.25***
Fun seeking	.68	3.87 (.74)	.05	.50***	.08	.46***
Threat sensitivity	.74	3.78 (.67)	.22**	-.05	.13*	-.14*
Affect intensity negative	.71	3.55 (.71)	.26***	.21***	.10	.10
Affect intensity positive	.69	3.19 (.74)	.07	.44***	-.03	.38***
Positive generalization social	.80	2.35 (.87)	-.03	.29***	-.11*	.28***
Positive generalization lateral	.80	3.80 (.71)	-.05	.30***	-.12*	.27***
Positive generalization upward	.78	2.64 (.90)	-.01	.34***	-.11*	.29***
Negative generalization	.79	2.92 (.99)	.41***	.19**	.24***	.08
Urgency	.89	2.84 (.91)	.33***	.25***	.18**	.18**
MASQ general distress	.90	18.56 (7.37)	.42***	.17**		
MASQ somatic anxiety	.82	14.24 (5.18)	.38***	.33***		
MASQ positive affect	.90	20.61 (5.55)	-.07	.27***		

Note: Total N = 394;

\*  $P < .05$ ;

\*\*  $P < .01$ ;

\*\*\*  $P < .001$