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Research report

Mania risk and creativity: A multi-method study of the role of motivation

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ABSTRACT

Background: Substantial literature has linked bipolar disorder and risk for bipolar disorder with creative accomplishment, but few multimodal studies of creativity are available, and little is known about mechanisms.
Methods: We use a multi-method approach to test the association of bipolar risk with several creativity measures, including creative accomplishments, creative personality traits, and a laboratory index of insight. We also examined whether multiple facets of motivation accounted for the links of bipolar risk with creativity. Among 297 undergraduates, mania risk, as measured with the Hypomanic Personality Scale was related to lifetime creativity and creative personality, but not to performance on the insight task. Motivational traits appeared to mediate the links of mania risk with both lifetime creative accomplishments and self-rated creativity.
Limitations: The study relied on a cross-sectional design and a convenience sample.
Conclusions: Future studies would benefit from exploring motivation as a positive aspect of manic vulnerability that may foster greater creativity.

1. Introduction

A substantial literature suggests that bipolar disorder is uniquely interwoven to creative accomplishments (cf. Akiskal and Akiskal, 2007). These findings provide one way to diminish the profound stigma that is all too common in bipolar disorder (Hinshaw and Stier, 2008). However, the strongest evidence for the link between bipolar disorder and creativity comes from historic biographical studies. These studies indicate that the rates of bipolar disorder are highly elevated among highly famous artists, musicians and authors (Goodwin and Jamison, 1990; Ludwig, 1992). A smaller literature focuses on creative occupations and accomplishments. In those studies, creativity appears to be particularly elevated among those with milder forms of the disorder, family members of those with disorder, and those with mild manic tendencies (Akiskal and Akiskal, 2007; Johnson et al., 2012c; Kyaga et al., 2011). Indeed, persons with bipolar spectrum disorder, but not those with bipolar I disorder, evidenced heightened lifetime creative accomplishment (Richards et al., 1988). Several studies also suggest that mania risk, as measured using indices of subsyndromal lifetime symptoms, is related to endorsement of a more creative personality style (Furnham et al., 2008; Schuldberg, 2001; Shapiro and Weisberg, 1999).

Little is known about mechanisms that contribute to the heightened creativity among those at risk for mania. Although one study suggested that mania risk was related to to higher fluency scores on the Unusual Uses Test r=.20 (Furnham et al., 2008), other researchers have failed to find consistent evidence of heightened fluency among those with bipolar disorder (Robinson et al., 2006), or to cognitive facets of creativity as assessed with the Torrance Creativity battery (Santosa et al., 2007). Nonetheless, it is often assumed that mania risk may relate to creativity due to cognitive advantages. Here, then, we consider whether mania risk relates to insight, as measured using the Compound Remote Associates Test (CRA; Bowden and Jung-Beeman, 2003). We also consider the hypothesis that the mania-creativity link could be explained by high motivation (Johnson et al., 2012c).

2. Motivational traits

Several studies have documented that commitment and effort are critical ingredients of creative success (Sternberg, 2003). Roe (1946, 1951) noted that the willingness to work hard and to work long hours are the most distinctive characteristics of famous

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scientists and artists. Meta-analyses of personality predictors revealed that ambition and the drive to achieve are important predictors of creative accomplishments in both science and art (Feist, 1998).

There is considerable evidence that bipolar disorder relates to high goal setting and ambition (see Johnson et al., 2012a,b). For example, people with bipolar disorder and those at risk for mania set higher goals in laboratory tasks after initial success compared to healthy controls (Johnson et al., 2005). People with bipolar disorder also demonstrate sustained engagement, measured by left frontal cortical EEG activity during pursuit of highly difficult goals when playing for a money reward (Harmon-Jones et al., 2008). People with bipolar disorder also endorse extremely high lifetime ambitions (Johnson et al., 2012a), and these extreme ambitions have been found to predict the onset of disorder (Alloy et al., 2012). Taken together, bipolar disorder seems to involve extremely high motivation.

However, a growing literature distinguishes extrinsic and intrinsic sources of motivation (Ryan and Deci, 2000). Intrinsic motivation is the tendency to engage in tasks because one finds them interesting, challenging, and satisfying. Intrinsic rewards can vary, but the experience of gaining insight, or the so-called "ah-ha feeling," can offer one form of intrinsic reward (Kaplan and Oudeyer, 2007; Fields, 2011). Many creative tasks offer opportunities for intrinsic motivation by virtue of being interesting and challenging and providing the "ah-ha" feeling. Extrinsic motivation is the tendency to engage tasks because of task-unrelated factors such as the promise of rewards or punishments. Another extrinsic motivator could be the opportunity to gain social admiration or recognition. Hence, intrinsic motivation, extrinsic motivation, and the more specific motivation to gain social recognition might all contribute to creative accomplishment.

Each of these sources of motivation has been linked with bipolar disorder. That is, bipolar disorder has been related to heightened experiences of flow (Fulford et al., 2009) and inspiration (Jones et al., 2014), suggesting that intrinsic motivational states may be common for those with bipolar disorder. Regarding extrinsic motivation, a large body of research suggests that people diagnosed with bipolar disorder endorse heightened motivation to pursue rewards, which can be observed before onset and predicts the onset of disorder (Johnson et al., 2012a,b). Regarding the motivation to pursue social recognition, several studies now suggest that persons at risk for bipolar disorder (as defined by lifetime subsyndromal manic symptoms) endorse high scores on dominance motivation scales (cf. Johnson and Carver, 2012). Relatedly, mania history and mania risk are associated with setting extremely high extrinsic goals involving recognition from others through popular fame, financial success and creative accomplishments (cf. Carver and Johnson, 2009; Fulford et al., 2008; Johnson and Carver, 2006; Johnson and Jones, 2009; Johnson et al., 2009). Pursuit of these goals is highly correlated with motivation to achieve social dominance (Johnson and Carver, 2012).

Although bipolar disorder involves several forms of heightened motivation, these had not been studied as predictors of the creative accomplishment observed within this disorder. One goal of this study is to examine the role of intrinsic, extrinsic, and social dominance motivation as a mediator of the links between manic vulnerability and creativity.

In studying motivation, it is important to acknowledge that motivation may have trait-like and state-like components. That is, researchers have developed and validated several measures to capture long-standing individual differences in propensities to experience heightened motivation. On the other hand, motivational systems are expected to be responsive to key features in the environment. As an example, heightened sensitivity to reward is expected to be expressed when there is an opportunity to gain incentives (Johnson et al., 2012b). Hence, in this study, we aimed to measure both trait-like and state-like components of motivation.

2.1. Present study

The first aim of the current study was to examine links between mania risk and creativity, using a multifaceted approach of creativity that incorporated lifetime creative accomplishment, creative personality traits, and insight. The second aim was to examine the role of multiple forms of motivation as potential mediators of the link between mania and creativity. Toward this second aim, multiple self-report measures of trait-like motivation were gathered. To assess the independence of these forms of motivation, an exploratory factor analysis was conducted. To consider state-like features, we also embedded an experimental manipulation of intrinsic vs. extrinsic motivation in the insight task. Because previous case reports have suggested that motivation and creativity might increase with hypomanic states (Jamison, 1993), measures of current mood and symptoms were included to determine whether any association of mania risk with creativity indices and motivational scales depended on the mood state. We hypothesized that mania risk would correlate with indices of creative accomplishment, personality, and insight, and that these links would be explained by motivation. We expected particularly strong effects of extrinsic, as compared to intrinsic, motivation indices.

3. Methods

3.1. Participants

A diverse sample ($n=378$; 124 male) was recruited through psychology classes at a major university. Students took part in studies in return for partial course credit. Persons under the age of 18 and those who were not native English speakers were excluded from the study.

3.2. Measures

3.2.1. Creativity scales

Carson Creative Achievement Questionnaire (CAQ; Carson et al., 2005). The CAQ is intended to capture creative achievement across the lifespan. Participants were asked to endorse statements describing their highest personal achievements in 10 domains (e.g. music, dance, visual arts, sciences, or culinary arts). In each domain, seven statements capture accomplishment levels ranging from common ("I play one or more instruments proficiently") to rare achievements ("My compositions have been critiqued in a national publication"). The CAQ has high test-retest reliability ($r=.81$) and excellent internal consistency reliability ($\alpha=.96$; Carson et al., 2005).

Adjective Checklist Creative Personality Scale (ACL-CPS; Gough, 1979). The ACL-CPS is a self-assessment for creative personality characteristics comprised of 30 creative ("original") and 30 non-creative adjectives or phrases scale. Participants are asked to indicate which adjectives apply to him or herself. Scores reflect the number of creative traits endorsed adjusted for non-creative traits endorsed. The ACL-CPS is reliable and correlates well with other creativity measures (Carson et al., 2005; Gough, 1979; Kaduson and Schaefer, 1991; McCrae and Ingraham, 1987).

Compound Remote Associates (CRA; Bowden and Jung-Beeman, 2003). The CRA problems were developed to measure creative insight in problem-solving. The 144 items are patterned after items in the Remote Associates Test (RAT) developed by Mednick (1962). Participants were told that they would see three