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Research report

Anxiety comorbidity in bipolar spectrum disorders: The mediational role of perfectionism in prospective depressive symptoms

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ABSTRACT

Background: Bipolar spectrum disorders (BSDs) are highly comorbid with anxiety, which is associated with an extended duration and exacerbation of depressive symptoms. Unfortunately, the underlying mechanisms are not known. This study examined the role of maladaptive cognitive styles in the co-occurrence of BSDs and anxiety disorders and prediction of depressive symptoms.

Methods: Participants included 141 young adults (69.6% female, mean age=20.24, SD=2.11), in one of three groups: a BSD group (bipolar II, cyclothymia, $n=48$), a comorbid BSD/anxiety group ($n=50$), and a demographically-matched healthy control group ($n=43$), who were followed prospectively. Participants completed the Cognitive Style Questionnaire (CSQ), Depressive Experiences Questionnaire (DEQ), Dysfunctional Attitudes Scale (DAS), Sociotropy Autonomy Scale (SAS), Halberstadt Mania Inventory (HMI) and Beck Depression Inventory (BDI) at the initial assessment. One year later, participants completed the BDI and HMI again to assess severity of depressive and hypomanic/manic symptoms.

Results: A multivariate analysis of co-variance (MANCOVA) revealed significant differences between the three groups on their DAS Perfectionism, DEQ Dependency, DEQ Self-Criticism, CSQ Negative, SAS Autonomy, and Time 2 BDI scores, with the BSD/anxiety group scoring higher than the BSD only group on all measures except the CSQ. Preacher and Hayes' (2008) bootstrapping method was used to test for mediational effects of the significant cognitive style measures on depressive symptoms at follow-up. The 95% confidence intervals for the indirect effect of group on follow-up depressive symptoms through DAS Perfectionism did not include zero, indicating the presence of a significant mediating relationship for perfectionism.

Limitations: This study only used two waves of data; three waves of data would allow one to investigate the full causal effect of one variable on another. Further, a comorbid anxiety diagnosis consisted of any anxiety disorder. Further research should separate groups by their specific anxiety diagnoses; this could afford a more complete understanding of the effect of types of anxiety on prospective depressive symptoms.

Conclusions: After taking into account initial levels of depressive and hypomanic/manic symptoms, we found that those with BSD/anxiety comorbidity experienced more severe depressive symptoms, but not more severe hypomanic/manic symptoms. Further, their more severe prospective depressive symptoms are explained by a perfectionistic cognitive style.

1. Introduction

Affective lability is a common feature of human emotion. When this fluctuation in mood becomes extreme, it is characteristic of a group of disorders known as bipolar spectrum disorders (BSDs). BSDs can range from the relatively mild, such as cyclothymia, which involves fluctuations between hypomanic and subthreshold depressive symptoms, to the most severe, bipolar I disorder (BD I), characterized by extreme highs (e.g., mania) and lows (e.g., major depression) of mood and behavior (Miklowitz and Johnson, 2006; Parker et al., 2012). BSDs affect approximately 4.4% of the United States population (Merikangas et al., 2007) and are associated with many deleterious physical and interpersonal outcomes (Goodwin and Jamison, 2007). Suicidal ideation is common in BSDs (Simon et al., 2007), and 10–15% of individuals with BSD successfully carry out suicide attempts (Harrison and Barraclough, 1997; Angst et al.,

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2005). In addition, individuals with BSDs exhibit impairment in functioning, including high rates of divorce (Goodwin and Jamison, 2007) and substance abuse (Angst et al., 2002; Alloy et al., 2009b).

Mood disorders including BSDs commonly are comorbid with anxiety disorders in both clinical and epidemiological samples (Akiskal et al., 2006; McElroy et al., 2001; Zimmerman et al., 2002; Kessler et al., 2003; Goes et al., 2012). Approximately 74.9% of individuals with BD will meet diagnostic criteria for an anxiety disorder during their lifetime (Merikangas et al., 2007; Provencher et al., 2012). Among those BD individuals who do meet diagnostic criteria for an anxiety disorder, social anxiety disorder, specific phobia, and generalized anxiety disorder (GAD) have the highest comorbidity rate with estimates of 37.8%, 35.5%, and 29.6%, respectively (Merikangas et al., 2007). The comorbidity between bipolar and anxiety disorders is associated with an exacerbation and extended duration of depressive symptoms (Simon et al., 2007; Goes et al., 2012; Coryell et al., 2012). Specifically, comorbidity with obsessive compulsive disorder (OCD), panic disorder (PD), and social phobia have been associated with more frequent suicidal ideation (Simon et al., 2007) and suicide attempts (Perroud et al., 2007; Saunders et al., 2012). Along with a more severe depressive course, comorbid individuals have been shown to display shorter euthymic periods (Simon et al., 2004; Saunders et al., 2012) and a longer duration of time to remission of affective episodes (Simon et al., 2004; Sala et al., 2012). Moreover, bipolar disorder individuals with comorbid panic-agoraphobia diagnoses have been found to experience a higher number of hypomanic episodes (Akiskal et al., 2006). Regarding the treatment of BSD with anxiety comorbidity, these individuals exhibit a poorer response to mood-stabilizing medications and greater risk of medication-induced mania (Henry et al., 2003; Pini et al., 2003; Sala et al., 2012). Given that those individuals who experience BSD/anxiety comorbidity display worse symptom presentation and outcome than those with a BSD alone, one explanation may be that dysfunctional cognitive styles mediate this association.

Unfortunately, there is a dearth of knowledge as to the underlying mechanisms that may explain comorbidity between BSDs and anxiety. Inasmuch as they do co-occur, it is not unreasonable to postulate that they share common risk factors, specifically maladaptive cognitive styles. Cognitive or personality styles that have been associated with a vulnerability to both anxiety and BSDs include high levels of sociotropy and autonomy, dependency and self-criticism, as well as perfectionistic attitudes and negative inferential styles (Bögels and Zigterman, 2000; Alloy et al., 2009a, 2012).

Sociotropy and autonomy describe personality characteristics or cognitive styles that, when extreme and dysfunctional, are vulnerability markers for depression (Beck et al., 1983). Sociotropy, which can also be thought of as interpersonal dependency, has been shown to be high in depressed individuals (Hirschfeld et al., 1983; Clark and Beck, 1991). Beck (1983) argued that a highly sociotropic individual not only aims to maintain close relationships, but also seeks the approval and acceptance of others. This type of individual is likely to exhibit depression when they are confronted with a deterioration of interpersonal relationships (e.g., divorce, moving away from a friend, etc.). Conversely, an individual high in autonomy is one who invests in preserving independence, prefers solitary activities, and values work and achievement. Accordingly, failures in achievement or goal-directed behaviors (e.g., demotion, failure on an exam, etc.) are likely to lead to depression for highly autonomous individuals (Beck, 1983; Clark and Beck, 1991). Recent correlational studies have shown a link between sociotropy/autonomy and unipolar depression and anxiety (e.g., Sutton et al., 2011). Brenning et al. (2013) found that high levels of initial autonomy predicted depression prospectively. Similarly, high levels of sociotropic personality style predicted significant increases in symptoms of depression and anxiety (Alford and Gerrity, 1995; Masih et al., 2007). Brown et al. (1998) found that individuals high on autonomy scored higher on measures of social anxiety and general anxiety. In addition, autonomy is greater in BSD individuals than healthy controls and predicts onset of hypomanic/manic episodes (Alloy et al., 2009a). Thus, sociotropy and autonomy may help to explain BSD/anxiety comorbidity.

Another two negative cognitive styles similar to sociotropy and autonomy that, when dysfunctional, have been linked to high levels of depression are dependency and self-criticism (Blatt et al., 1976). Dependency can be thought of as a coping mechanism that is triggered to offset feelings of worthlessness and guilt, or as a function of needing support or feeling weak (Blatt et al., 1976). This construct manifests in approval- or affection-seeking behavior. Alternatively, self-critical individuals value their achievements, independence, and freedom from control by others, but measure their achievements based on very high internalized standards (Blatt, 1974; Blatt et al., 1976). However, their unreasonably high standards set them up for feelings of failure, disappointment, guilt, and self-blame.

It is worth noting that sociotropy and dependency and autonomy and self-criticism seem to be related constructs. Recent research has attempted to understand whether they represent complementary dimensions of vulnerability. Shahar et al. (2008) demonstrated with confirmatory factor analysis that self-criticism, sociotropy, and dependency can be considered three dimensions that have a significant, positive association with depression. Simply put, these factors are the seminal cognitive styles that may predispose an individual to depression. Interestingly, these findings also have been replicated with symptoms of anxiety. Cohen et al. (2013) found that self-criticism predicted depressive symptoms, whereas dependency predicted social anxiety symptoms. Moreover, Alloy et al. (2009a) found that self-criticism is higher in individuals with BSD than healthy controls and that higher self-criticism also predicts onsets of hypomanic/manic episodes in BSD individuals.

In Beck's (1967) and Beck et al. (1987) cognitive theory of depression, negative attitudes that an individual has towards oneself (e.g., "I'm stupid"), the outside world (e.g., "Everyone knows I'm stupid"), and one's future (e.g., "I'll always be stupid") are not only characteristics of depressed people, but also provide vulnerability to depression. These dysfunctional attitudes can be further described as perfectionistic, self-evaluative responses and beliefs that follow a negative life event in an if-then manner (e.g., "If someone I love doesn't love me, then I'm worthless"). Similarly, according to the Hopelessness Theory of depression (Abramson et al., 1989), negative inferential styles, which are comprised of the tendency to attribute stressful life events to stable and global causes, infer that negative consequences will follow from negative events, and infer that one is deficient or unworthy, also provide vulnerability to depression.

Longitudinal studies have shown that dysfunctional attitudes and negative inferential styles predict increases in depressive symptoms and first onset of major depressive episodes in unipolar samples, as well as depressive and hypomanic symptoms in bipolar spectrum samples (Alloy et al., 1999a, 2006, 2012; Francis-Raniere et al., 2006; Reilly-Harrington et al., 1999; Fresco et al., 2001). In addition, dysfunctional attitudes and negative attributional styles have been found in anxious individuals (e.g., Heimberg et al., 1989; Sanz and Avia, 1994; Burns and Spangler, 2001). However, the extent to which dysfunctional attitudes and negative inferential styles are associated with comorbidity between anxiety and BSDs is not known.

The present study builds upon existing literature and evaluates the role of maladaptive cognitive styles (sociotropy/autonomy, dependency/self-criticism, dysfunctional attitudes, negative inferential style) in the comorbidity of anxiety and BSD. We hypothesized that: (i) individuals with comorbid BSD and anxiety disorders would have more maladaptive cognitive styles than individuals with BSD only and healthy controls, (ii) individuals with comorbid BSD and anxiety disorders would exhibit more