Relationship between maladaptive cognitions about sleep and recovery in patients with borderline personality disorder

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ABSTRACT
Borderline personality disorder (BPD) has been associated with maladaptive cognitive processes including dysfunctional attitudes and a negative attribution style. Comorbid insomnia affects the course of multiple psychiatric disorders, and has been associated with the absence of recovery from BPD. Because dysfunctional beliefs and attitudes are common among patients with insomnia, the purpose of this study was to evaluate the association between maladaptive sleep-related cognitions and recovery status (symptomatic remission plus good concurrent psychosocial functioning) in patients with BPD. Two hundred and twenty three BPD patients participating in the McLean Study of Adult Development (MSAD) were administered the Dysfunctional Beliefs and Attitudes about Sleep questionnaire (DBAS-16) as part of the 16-year follow-up wave. Maladaptive sleep cognitions were compared between recovered (n=105) and non-recovered (n=118) BPD participants, in analyses that adjusted for age, sex, depression, anxiety, and primary sleep disorders. Results demonstrated that non-recovered BPD patients had significantly more severe maladaptive sleep-related cognitions as measured by the overall DBAS-16 score. These results demonstrate an association between dysfunctional beliefs and attitudes about sleep and recovery status among BPD patients. Further research is warranted to evaluate treatments targeted towards maladaptive sleep-related cognitions, and their subsequent effects on the course of BPD.

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1. Introduction

Borderline personality disorder (BPD) is a common psychiatric disorder, that is a significant cause of morbidity and mortality, and is associated with considerable societal costs (Grant et al., 2008; Soeteman et al., 2008). As a disorder, BPD is characterized by pervasive patterns of identity disturbance, interpersonal difficulties, impulsivity, and affective dysregulation that result in significant functional impairment (American Psychiatric Association, 2000). In addition, BPD patients demonstrate disturbed cognitive processes, including non- psychotic thinking (e.g., non-delusional paranoia, unusual perceptions [e.g., depersonalization], and odd thinking [e.g., ideas of reference centering on beliefs that one is stupid, bad, or evil]) and more rarely, quasi-psychotic thinking, which improve, but variably resolve, over the longitudinal course of the disorder (Zanarini et al., 1990, 2013). Moreover, patients with BPD may attend to negative stimuli, make biased evaluations, and endorse a range of critical beliefs about themselves and their experiences (Baer et al., 2012). However, it is not clear how such maladaptive cognitive strategies may be related to the development and maintenance of BPD over time (Baer et al., 2012).

Insomnia is an important factor that affects the course of multiple psychiatric disorders. Prospective morbidity studies have demonstrated that untreated insomnia is associated with an increased risk of major depressive disorder (MDD) and anxiety disorders (Ford and Kamerow, 1989; Breslau et al., 1996; Chang et al., 1997; Weissman et al., 1997; Murphy et al., 2007; Neckelmann et al., 2007; Buysse et al., 2008; Jansson-Frojmark and Lindblom, 2008; Szko-Coxe et al., 2010). In addition, insomnia is a highly treatment-resistant symptom (Carney et al., 2007; Dombrovski et al., 2007), increases the risk of relapse to depressive episodes (Paykel et al., 1995; Karp et al., 2004; Dombrovski et al., 2007), and
increases suicidal ideation and the risk of suicide (Goldstein et al., 2008; Wojnar et al., 2009; Fitzgerald et al., 2011). Although not part of the current diagnostic criteria for BPD (American Psychiatric Association, 2000), sleep-related complaints are common in the disorder, with several studies demonstrating subjective sleep disturbance in BPD (Philipsen et al., 2005; Bastien et al., 2008; Schredl et al., 2012). Given the associations between insomnia and the course of other psychiatric disorders, and cross-sectional data which has correlated subjective sleep quality with measures of BPD symptomatology and self-harm inventories (Sansone et al., 2010), research that examines the role of sleep in the course of BPD is an important area of investigation.

The cognitive model of psychopathology, which has been applied to myriad psychiatric disorders, including BPD, suggests that the processing of external events and internal stimuli is biased, leading to distortion of a patient’s construction of his/her experiences and resultant cognitive errors. Dysfunctional beliefs become incorporated into cognitive schemas, which tend to bias information processing and produce typical cognitive content of a given disorder (Beck, 2005). Cognitive models for insomnia have also been developed (Harvey, 2002), in which individuals with insomnia tend to be overly worried about their sleep and the consequences associated with their sleep disturbance, resulting in counterproductive behaviors and erroneous beliefs about sleep, which, in turn, exacerbate and perpetuate insomnia. Targeting dysfunctional beliefs about sleep is an important component of cognitive–behavioral therapy for insomnia (CBT-I), a highly efficacious therapy for both primary insomnia and insomnia comorbid with psychiatric disorders (Edinger et al., 2009; Morin and Benca, 2012). Notably, CBT-I results in decreases in maladaptive cognitions about sleep that further correlate with other areas of clinical improvement in insomnia sufferers, such as enhanced sleep efficiency and quality, suggesting that interventions targeted toward maladaptive sleep cognitions may have broad therapeutic effects (Edinger et al., 2001; Morin et al., 2002).

Despite the predisposition for maladaptive cognitive processes among BPD patients, and reports of sleep disturbance in the disorder, to our knowledge, prior studies have neither examined dysfunctional beliefs about sleep in BPD, nor assessed the association between maladaptive sleep cognitions and recovery from the disorder. Longitudinal data, collected over 16 years of prospective follow-up, from the McLean Study of Adult Development (MSAD), one of two longitudinal studies to investigate the course of BPD, suggests that 40–60% of BPD patients attain recovery from BPD, defined as remission of symptoms as well as good social and vocational functioning, but that 20–44% of BPD patients have a subsequent loss of recovery status (Zanarini et al., 2012). Recent cross-sectional analysis of MSAD data from the 16-year follow-up wave has further demonstrated an association between sleep disturbance, as measured by the Pittsburgh Sleep Quality Index (Buysse et al., 1989), and recovery status, such that non-recovered BPD patients were more likely to demonstrate impairments in global sleep quality, increased difficulties with sleep initiation, and higher rates of sedative-hypnotic use compared to recovered BPD patients, even when age, sex, and comorbid sleep and psychiatric disorders were included as covariates in adjusted analyses (Plante et al., 2013). Given the role dysfunctional sleep-related cognitions play in the development and perpetuation of insomnia, the contribution insomnia makes to the course of other psychiatric disorders, and cross-sectional data demonstrating association between sleep disturbance and absence of recovery from BPD, we examined maladaptive sleep-related cognitions in subjects participating in MSAD to explore the relationship between these dysfunctional thought processes and recovery from BPD. We hypothesized that non-recovered BPD patients would have more severe maladaptive cognitions about sleep compared to participants who had attained recovery from the disorder.

2. Methods

2.1. Subjects

The current study utilized data from the McLean Study of Adult Development (MSAD), a naturalistic, longitudinal study of the course of BPD, the methodologic details of which are described in detail elsewhere (Zanarini et al., 2003). In brief, participants were initially identified during hospitalization at McLean Hospital in Belmont, Massachusetts. Inclusion criteria at baseline included age 18–35 years; known or estimated IQ greater than or equal to 71; no prior or incident symptoms of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic etiology that could cause psychiatric symptoms; and English fluency. Three hundred and sixty-two subjects were initially enrolled: 290 meeting criteria for BPD, 72 subjects meeting criteria for other personality disorders and the remainder due to reasons such as suicidality.

After study procedures were explained, written informed consent was obtained. A masters-level interviewer conducted a comprehensive diagnostic assessment blinded to the subject’s clinical diagnoses. Three semi-structured diagnostic interviews were administered: the Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I), the Revised Diagnostic Interview for Borderlines (DBI–R), and the Diagnostic Interview for DSM-III-R Personality Disorders (DPD-R) (Zanarini et al., 1987, 1989; Spitzer et al., 1992). Inter-rater and test–retest reliability of these three measures have been found to be good to excellent (Zanarini and Frankenburg, 2001; Zanarini et al., 2002).

Participants have been subsequently reassessed at 2-year intervals. At each follow-up wave 24 months apart, staff members have reassessed Axis I and II psychopathology blind to baseline diagnoses. Informed consent has been re-obtained again in each case, and the aforementioned diagnostic battery re-administered. The follow-up inter-rater and longitudinal reliabilities of these measures have also been found to be good to excellent (Zanarini and Frankenburg, 2001; Zanarini et al., 2002). In addition to semi-structured interviews, as a part of the 16-year follow-up assessment, participants completed the Dysfunctional Beliefs and Attitudes about Sleep, 16-item version (DBAS-16; see below for details) (Morin et al., 2007). In addition, subjects were queried regarding various aspects of their medical health, which specifically included self-report of physician’s diagnosis of obstructive sleep apnea and restless legs syndrome, which are common sleep disorders that can disrupt sleep and diminish sleep quality (Earley and Silber, 2010; Loyster et al., 2010).

Study retention has been high, with 87.5% (N = 231/264) of surviving borderline patients (13 died by suicide and 13 died of other causes) re-interviewed at all eight follow-up waves. The current study utilized data from the most recent completed follow-up wave (16-year) and available information on 223 BPD patients, as we did not obtain self-report measures on eight BPD subjects.

2.2. Definition of recovery from borderline personality disorder

Recovery from BPD was defined as achieving remission of symptoms on both BPD interviews (DBI-R and DPD-R), as well as attaining good vocational and social functioning during the preceding 2 years (Zanarini et al., 2010, 2012). Consistent with prior studies from our laboratory and retrospective studies on the course of BPD, a global assessment of functioning (GAF) score of 61 or higher (which no participant had at baseline) was utilized to define good psychosocial functioning (Plakun et al., 1985; McClashan, 1986; Paris et al., 1987; Stone, 1990; Zanarini et al., 2010, 2012). To operationalize and thus enhance the reliability and meaning of this measure, a GAF score ≥ 61 required symptomatic remission from BPD and at least one emotionally sustaining relationship with a close friend, life-partner, or spouse, as well as consistent and competent participation in full-time work or school. This GAF threshold offers a reasonable description of positive overall clinical outcome with some mild symptoms or difficulties in social or occupational functioning, but generally functioning fairly well and engaging in some meaningful interpersonal relationships.

2.3. Measures of maladaptive sleep-related cognitions

The psychometric evaluation most commonly used to assess maladaptive cognitions about sleep is the Dysfunctional Beliefs and Attitudes about Sleep (DBAS) Scale, which contained in its original version 30 items that were rated on a 100-mm analog scale (Morin, 1993, 1994). To make the scale more user-friendly, a 16-item version (DBAS-16) was developed and validated that utilizes a Likert-type response (0–10) scale (Morin and Benca, 2012) which is the version utilized in this study. The DBAS-16 has been demonstrated to be reliable and valid, as evidenced by adequate internal consistency and temporal stability, as well as convergent validity demonstrated by significant correlations with other conceptually related self-report measures (Morin et al., 2007). Questions on the DBAS-16 fall into one of four thematic domains: (1) perceived consequences of insomnia (Consequence), (2) worry or helplessness about insomnia (Worry/Helplessness), (3) expectations about sleep (Expectations), and (4) attitudes about sleep medications (Medication). Five questions comprise the Consequence factor, each related broadly to the subject’s perception of how insomnia affects energy, mood, and overall functioning. The Worry/Helplessness...
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