



## Sleep disturbance and emotion dysregulation as transdiagnostic processes in a comorbid sample



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### ABSTRACT

Sleep disturbance and emotion dysregulation have been identified as etiologic and maintaining factors for a range of psychopathology and separate literatures support their relationships to anxiety, depression, PTSD, and alcohol dependence (AD) symptom severity. Previous studies have examined these relationships in isolation, failing to account for the high rates of comorbidity among disorders. It is not yet known whether these processes uniquely predict symptom severity in each of these domains. Participants were 220 patients in residential substance abuse treatment, who had experienced a potentially traumatic event and exceeded screening cutoffs for probable PTSD and problematic alcohol use. Controlling for emotion dysregulation and the interrelationships among the outcome variables, insomnia was uniquely associated with anxiety ( $B = .27, p < .001$ ), depression ( $B = .25, p < .001$ ), PTSD ( $B = .22, p < .001$ ), and AD ( $B = .17, p = .01$ ) symptom severity. Similarly, controlling for insomnia, emotion dysregulation was uniquely associated with anxiety ( $B = .40, p < .001$ ), depression ( $B = .47, p < .001$ ), PTSD ( $B = .38, p < .001$ ), and AD ( $B = .26, p < .001$ ) symptom severity. Insomnia and emotion dysregulation appear to be transdiagnostic processes uniquely associated with symptom severity across a number of different domains and might be important treatment targets for individuals with PTSD and AD.

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High rates of comorbidity among disorders have been consistently found in both epidemiological (e.g., Kessler, Chiu, Demler, & Walters, 2005) and clinical (e.g., Brown, Campbell, Lehman, Grisham, & Mancill, 2001) samples, and increase drastically when subclinical presentations are considered (cf. Nolen-Hoeksema & Watkins, 2011). Recent transdiagnostic approaches to psychopathology have aimed to identify common etiologic and maintaining processes that underlie these disorders and account for the high rates of comorbidity. To be considered transdiagnostic, a process must vary along a continuum, ranging from normal experience to dysfunction and disturbances must be evidenced across disorders (e.g., Nolen-Hoeksema & Watkins, 2011). Two potential transdiagnostic processes that have been identified in the literature are emotion dysregulation and insomnia (Harvey, Murray, Chandler, & Soehner, 2011; Kring & Werner, 2004).

### Emotion dysregulation & psychopathology

Emotion dysregulation refers to difficulties modulating emotional experiences in a way that is responsive to both the immediate context of the situation and the long-term objectives of the individual (Fairholme, Boisseau, Ellard, Ehrenreich, & Barlow, 2010; Kring & Werner, 2004). Studies have found support for emotion dysregulation as a maintaining factor for a range of psychiatric disorders, including panic disorder (Levitt, Brown, Orsillo, & Barlow, 2004), social phobia (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005), generalized anxiety disorder (Mennin, Heimberg, Turk, & Fresco, 2005), obsessive–compulsive disorder (Coughe, Timpano, & Goetz, 2012), unipolar depression (Liverant, Brown, Barlow, & Roemer, 2008), posttraumatic stress disorder (PTSD; Tull, Barrett, McMillan, & Roemer, 2007), and alcohol dependence (AD; Fox, Hong, & Sinha, 2008). Studies have also consistently found relationships between psychopathology symptom severity and an overreliance on maladaptive emotion regulation strategies (such as avoidance, rumination, suppression, and worry) and reduced use of more effective emotion regulation strategies (such as problem

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solving and reappraisal). A recent meta-analysis found that both anxiety and depression were associated with increased avoidance, rumination, and suppression and decreased problem solving (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Strong associations have also been found between self-reported difficulties in emotion regulation and PTSD severity above and beyond related constructs such as negative affect (Tull et al., 2007). Likewise, patients with alcohol dependence reported significantly greater difficulties regulating their emotions compared to a social drinking control group (Fox et al., 2008). Emotion regulation skill deficits have also been shown to predict alcohol use during and after AD treatment (Berkling et al., 2011). Collectively, these findings suggest that emotion dysregulation might be an important maintaining factor for a range of disorders, highlighting the need for additional research to better understand the nature of this relationship.

### Sleep disturbance & psychopathology

Sleep disturbance is specified as a diagnostic criterion for many mood and anxiety disorders (APA, 2000). Evidence from epidemiological studies shows that insomnia-type sleep disturbance is ubiquitous, occurring across the range of psychopathology (e.g., Ford & Kamerow, 1989), including panic disorder (Sheehan, Ballenger, & Jacobsen, 1980), social phobia (Stein, Kroft, & Walker, 1993), generalized anxiety disorder (Fuller, Waters, Binks, & Anderson, 1997), obsessive-compulsive disorder (Insel et al., 1982), depression (Buysse et al., 2008), PTSD (Ohayon & Shapiro, 2000), and AD (Brower, Aldrich, Robinson, Zucker, & Greden, 2001). This high rate of co-occurrence has led some to suggest that sleep disturbance might be an etiologic and maintaining factor for psychopathology (cf. Harvey et al., 2011). Studies have consistently found a unique relationship between insomnia severity and psychopathology symptom severity. Taylor, Lichstein, Durrence, Reidel, and Bush (2005) found a strong relationship between insomnia severity and both anxiety and depression severity while controlling for potentially confounding variables such as demographic and other health-related factors. Insomnia severity is strongly related to PTSD severity, controlling for psychiatric comorbidity and other sociodemographic variables (Germain, Buysse, Shear, Fayyad, & Austin, 2004). Although the nature of the relationship between sleep disturbance and alcohol use is complex, increasing evidence supports a bidirectional relationship with insomnia increasing the risk for alcohol consumption and heavy alcohol use adversely altering the neurobiological substrates associated with sleep (Brower, 2001). Furthermore, the presence of insomnia predicts AD chronicity and relapse above and beyond age of onset, psychiatric history, AD severity, depression severity, and other sociodemographic variables (Brower et al., 2001).

### Present study

Despite separate literatures linking emotion dysregulation and insomnia to symptom severity in each of these four domains, no study has examined the simultaneous relationship of these two processes to psychopathology. Regarding the relationship between emotion dysregulation and sleep disturbance, research increasingly supports that these two factors are reciprocally related. A number of studies have found support for a deleterious relationship between insomnia and emotion regulation, such that acute sleep disturbance impairs emotion regulation capabilities (e.g., Yoo, Gujar, Hu, Jolesz, & Walker, 2007). A separate literature supports the idea that emotion dysregulation, or more specifically, an over-reliance on maladaptive emotion regulation strategies, can impair sleep (Gruber, Eidelman, & Harvey, 2008; Guastella & Moulds, 2007). This has led theorists to propose that sleep disturbance

and emotion dysregulation might be mutually maintaining factors (Harvey et al., 2011). However, it is not yet known how emotion dysregulation and insomnia might operate together to predict psychopathology symptom severity. The majority of studies that have examined the relationship of each of these processes to psychopathology severity have utilized non-comorbid samples and have typically relied on between-group analyses (e.g., comparing clinical to non-clinical participants). Previous studies have failed to adequately account for comorbidity among these four domains of psychopathology, limiting the nature of the conclusions that can be drawn. Therefore, the present study sought to examine the simultaneous, unique predictive power of emotion dysregulation and insomnia on psychopathology symptom severity across four separate but related domains of psychopathology: anxiety, depression, PTSD, and AD. We hypothesized that both emotion dysregulation and insomnia would be related to symptom severity in each domain while controlling for interrelationships among the other domains.

### Methods

#### Participants & procedure

All incoming clients at a residential substance use treatment facility were informed about the opportunity to participate in an ongoing study (investigating efficacy of psychotherapy for trauma) by their program therapist. Exclusion criteria were current psychosis or acute mania/hypomania. Interested clients who reported experiencing a potentially traumatic event (PTE) completed the *PTSD Checklist* (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) and the *Alcohol Use Disorders Identification Test* (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) to screen for study eligibility according to widely-used clinical cutoffs. Individuals scoring  $\geq 44$  on the PCL (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) and  $\geq 8$  on the AUDIT (Babor, de la Fuente, Saunders, & Grant, 1992) were invited to a comprehensive assessment session, where participants completed an Institutional Review Board-approved, documented informed consent procedure. A total of 220 adults (108 women) consented and completed the measures applicable to the current study as part of a baseline assessment applicable to the larger study (see Table 1).

#### Measures

##### *Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)*

The DERS is a 36-item questionnaire comprised of six subscales assessing different dimensions of emotion dysregulation, including: nonacceptance of emotion (NONACCEPT), difficulties engaging in goal-directed behaviors (GOALS), impulse control difficulties (IMPULSE), limited access to effective regulatory strategies (STRATEGIES), reduced emotional clarity (CLARITY), and a lack of emotional awareness (AWARE). Higher scores reflect greater difficulties regulating emotion across each domain. A recent study evaluating the factor structure of the DERS found that dropping AWARE significantly improved the scale's psychometric properties (Bardeen, Fergus, & Orcutt, 2012). AWARE exhibits relatively weaker correlations with the other subscales and the total score (see Table 2; also see Bardeen et al., 2012; Tull et al., 2007). Inspection of the items revealed that AWARE is comprised of all reverse scored items. Reverse scored items have frequently been found to negatively impact scale psychometric properties and methodologists have argued against including such items in scale development (Brown, 2006; Rodebaugh, Woods, Heimberg, 2007; Spector, Van Katwyk, Brannick, & Chen, 1997). Thus, for the

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