Obsessive compulsive symptoms and sleep difficulties: Exploring the unique relationship between insomnia and obsessions

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ABSTRACT

Background: Sleep complaints have been linked with Obsessive Compulsive Disorder (OCD), though there is a dearth of research exploring the association between a range of disturbed sleep indicators and obsessive compulsive symptoms (OCS). Two separate studies were conducted to rigorously investigate this relationship in further detail, considering a number of different sleep indices and also the heterogeneous nature of OCS.
Methods: Study 1 ($n = 167$) examined the relationship between OCS and the gold standard self-report assessments for delayed bedtime, sleep quality, nightmares, and insomnia symptoms. Study 2 ($n = 352$) replicated the primary findings from Study 1 in an independent sample and with an alternative measure of OCD, which takes into account the different OCS dimensions.
Results: Results revealed a significant, independent link between obsessions and insomnia symptoms, but not between insomnia and compulsions. When examining the different OCS dimensions, insomnia was again found to bear a specific relationship to obsessions, above and beyond that with the other dimensions. Although depression is often highly comorbid with both OCD and sleep disturbances, depressive symptoms did not explain the OCS-sleep relationship in either study, suggesting a unique association between obsessions and insomnia.
Conclusions: Findings indicate that high levels of intrusive thoughts exhibit a specific association with insomnia symptoms—one that is not observed with other OCS. Future research may help elucidate the mechanisms and causal nature of this relationship.

1. Introduction

Sleep is a basic human need that, if disrupted, significantly impacts functioning and is associated with a range of negative physical and psychological consequences. The correlation between sleep disturbances and psychopathology has been repeatedly underscored in recent years (Morin and Ware, 1996). The strongest connection is with major depression, as sleep complaints appear to serve as a prodromal feature of depressed mood, mood dysregulation, and elevated risk for suicide (Bernert and Joiner, 2007). Poor sleep has also been implicated in anxiety and related conditions (Allen et al., 1992; Buckner et al., 2008; Germain, 2013; Konofal

et al., 2010); a community-based investigation revealed that individuals with insomnia had up to a 17-fold increased risk for clinically significant anxiety (Taylor et al., 2005).

One condition for which disrupted sleep may play a central role is Obsessive Compulsive Disorder (OCD). OCD reflects a chronic and extremely debilitating phenomenon (Benito and Storch, 2011), with approximately 1–2% of the population meeting full diagnostic criteria and 8.7% endorsing subclinical obsessive compulsive symptoms (OCS) (Adam et al., 2012; Angst et al., 2004). The core features of OCD are remarkably heterogeneous, including intrusive thoughts (i.e., obsessions) and behavioral rituals (i.e., compulsions), both of which can be grouped into several primary dimensions comprised of repugnant obsessions, contamination/washing, checking, symmetry/ordering, and hoarding (Mataix-Cols et al., 2005).

As indicated by case reports and anecdotes, many individuals with OCD complain of poor sleep (Papadimitriou and Linkowski,

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2005), and yet there is relatively little empirical research to-date investigating the nature of disturbed sleep in relation to OCS. OCD patients have been documented to endorse poor quality of sleep, as indicated by more awakenings, decreased total sleep time, nightmares, and trouble falling asleep (Papadimitriou et al., 2005; Storch et al., 2008). Some clinicians have also noted that rituals and compulsions can delay bedtimes, as patients may often wait until others are asleep to engage in particular rituals, which can be extremely time-consuming (Coles and Sharkey, 2011). In a pediatric OCD sample, a variety of sleep-related problems were found to be positively associated with symptom severity (Storch et al., 2008). Individuals with OCD have also been shown to have delayed bedtimes compared to a control population; in one study, up to 42% of patients with severe OCD met criteria for a circadian rhythm sleep disorder, delayed sleep phase syndrome, relative to less than 1% in the general adult population (Turner et al., 2007). In a similar vein, Coles et al. (2012) found that undergraduate students with delayed bedtimes (i.e., after 1 a.m.) reported higher rates of OCS, an association that held even after controlling for negative affect.

Research on the sleep architecture of OCD has produced somewhat mixed results. Several early polysomnographic sleep studies using electroencephalographic recordings found that, in comparison to healthy controls, patients with OCD had decreased total sleep time, decreased stage 4 sleep, increased awakenings, shortened rapid eye movement (REM) latency, and decreased REM efficiency (Hohagen et al., 1994; Insel et al., 1982; Rapoport et al., 1981). However, other studies using samples of OCD, excluding comorbid depression, have found fewer significant differences, indicating that secondary depression may account for the association between sleep disturbances and OCD (Bobdey et al., 2002; Kluge et al., 2007; Robinson et al., 1998).

Altogether, poor sleep has been implicated as a common issue in OCD, but the nature and intensity of sleep disturbances remains poorly defined. Past studies have focused on specific sleep indices, such as sleep timing (e.g., delayed bedtimes), but have lacked a more comprehensive examination of a range of sleep variables. A second question that remains is the degree to which disturbed sleep is associated with OCS prior to the development of full-blown OCD. Past research has not yet definitively determined which sleep indices are linked with OCS during young adulthood, the crucial period of time when OCD most commonly onsets (Angst et al., 2004; Weissman et al., 1994). A closer look at the role of depressive symptoms is also called for to examine the specificity of the associations between OCS and sleep disturbances. Finally, past research has not explored the heterogeneous nature of OCS in relation to disturbed sleep, also leaving open the possibility that any given sleep indicator may exhibit a distinct relationship to obsessions, compulsions, or the symptom dimensions. A range of factors, such as subclinical dysphoria (Ricciardi and McNally, 1995), have been shown to be uniquely related to obsessions versus compulsions, and the same is true when the symptom dimensions are considered (Mataix-Cols et al., 2005).

The overarching aim of the current study was to conduct a detailed examination of the relationship between sleep disturbances and OCS in a large analog sample. Non-clinical studies have been identified as an appropriate and important first step towards future work in clinical populations for a number of reasons, including the dimensionality of the frequency and severity of OCS, the similarity in OCS features and etiological factors across clinical and non-clinical samples, parallel prevalence rates of OCS across different populations, and feasibility considerations (Abramowitz et al., 2014; Olatunji et al., 2008). This sample was furthermore selected given that OCS frequently onset or are exacerbated during the young adult time period (Angst et al., 2004), and sleep disturbances are also common within this age group (Taylor et al., 2013).

In Study 1 we considered the relationship between these symptoms and a range of sleep indicators, including nightmares, quality of sleep, and insomnia. Building off the investigation by Coles et al. (2012), we hypothesized that those with delayed bedtime would endorse significantly higher levels of OCS than those without delayed bedtime. Given that the proposed sleep indicators often covary, we furthermore sought to examine if any noted association with OCS would remain after controlling for the other sleep variables. A second aim was to examine the specificity of any identified associations, controlling for levels of depression. In Study 2 we first set out to replicate the primary findings identified in Study 1, using an alternative measure of OCS. The second aim of this study was to examine the relationship between insomnia and the different OCS dimensions. Based on the extant literature, we hypothesized that greater OCS would be associated with delayed bedtime and higher levels of insomnia. Our other aims were more exploratory in nature, given the dearth of past research, and we therefore did not propose additional hypotheses.

2. Study 1 − methods

2.1. Participants

The sample consisted of 167 young adults at a large university in the United States. Ages within the current sample ranged from 18 to 32 ($M = 19.21$, $SD = 1.46$), and 58% were female. The racial/ethnic composition of the sample was as follows: African American (7.5%), Asian American (2.6%), Caucasian (77.6%), Hispanic/Latino (9.2%), and other (3.1%).

2.2. Procedure

Participants completed the study in exchange for research-familiarization credit. Informed consent was obtained prior to the administration of a battery of self-report questionnaires; participants completed the experiment in a group setting of 15−20 individuals. All experimental guidelines were in accordance with American Psychological Association standard ethical guidelines, and IRB approval was obtained prior to data collection.

2.3. Measures

2.3.1. Yale-Brown Obsessive Compulsive Scale (YBOCS; Goodman et al., 1989b)

The YBOCS is a scale that captures the severity of OCS in both clinical and non-clinical samples (Frost et al., 1995; Goodman et al., 1989a). In the current investigation, the self-report version of the YBOCS was used, which has been found to have acceptable convergent validity with the interview version in both clinical and non-clinical samples (Steketee et al., 1996). Participants first complete a symptom checklist of common obsessions and compulsions that are described in plain language and use examples. They are then asked to complete 10 items regarding the severity of the obsessions and compulsions they endorsed on the checklist (Baer, 1991), using a 0−4 scale, with higher scores reflecting greater severity of OCS. A total score is calculated by summing the severity items, along with separate subtotals for obsessions and compulsions. The reliability and internal consistency of the self-report version of the YBOCS has been established (Baer et al., 1993; Frost et al., 1995; Steketee et al., 1996). The internal consistency in the present sample was .92.

2.3.2. Insomnia Severity Index (ISI; Morin et al., 1993)

The ISI is considered a gold standard self-report scale measuring insomnia symptom severity and represents a commonly used