Sleep functioning in adults with trichotillomania (hair-pulling disorder), excoriation (skin-picking) disorder, and a non-affected comparison sample

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ABSTRACT

The present study assessed sleep functioning in Trichotillomania (TTM; Hair-Pulling Disorder) and Excoriation (Skin-Picking) Disorder (ExD), and a non-affected comparison group, and examined the prevalence and correlates of bedtime and sleep-related hair pulling and skin picking. Participants were adult internet survey respondents, who met diagnostic criteria for TTM (N=259), ExD (N=182), or did not meet criteria for these disorders (N=148). Individuals with TTM and ExD endorsed significantly greater sleep disturbance relative to the comparison group, even after controlling for internalizing (anxiety and depression) symptoms. Hair pulling and skin picking severity were not significantly correlated with sleep disturbance after controlling for internalizing symptoms. Pulling and picking during sleep occurred at rates of 13% and 27%, respectively. Picking severity, anxiety and depressive symptoms, and sleep disturbance were significantly increased in those who engaged in picking during sleep relative to those who did not endorse this behavior. No significant differences were found between those endorsing pulling during sleep and those not endorsing this on demographic, clinical, or sleep variables. The present study highlights the potential role of sleep disturbance in TTM and ExD, and the need for further research in this area.

1. Introduction

Trichotillomania (TTM; Hair-Pulling Disorder), and Excoriation (Skin-Picking) Disorder (ExD) are body-focused repetitive behavior disorders (BFRBDS) characterized by recurrent hair pulling and skin picking, resulting in hair loss/thinning, and tissue damage, respectively (American Psychiatric Association, 2013). The prevalence of TTM and ExD ranges from 0.6% to 3.9% (Christenson, 1991b; Duke, Bodzin, Tavares, Gefken, & Storch, 2009; Grant, Levine, Kim, & Potenza, 2005; Grant, Williams, & Potenza, 2007; King, Zohar, & Ratzoni, 1995) and 0.2–12%, (Grant et al., 2007; Hayes, Storch, & Berlanga, 2009; Keuthen, Deckersbach, & Wilhelm, 2000; Keuthen, Koran, Aboujaoude, Large, & Serpe, 2010) respectively. TTM and ExD are thought to share underlying illness features (i.e., diagnostic validators, genetic etiology, etc. Monzani, Rijndijk, Harris, and Mataix-Cols, 2014; Snorrason, Belleau et al. 2012). The DSM-5 diagnostic criteria for TTM include repeated pulling out of one’s hair causing hair loss; repeated attempts to stop or decrease pulling; significant distress or impairment related to pulling; and symptoms not better accounted for by a medical condition, other psychiatric condition, or the effects of substances. (American Psychiatric Association, 2013). In parallel, and reflecting the similarities to TTM, criteria for ExD are repeated picking (or scratching, digging, etc.) at one’s skin leading to tissue damage; repeated efforts to reduce or stop the behavior; associated impairment or distress; and symptoms not due to a medical condition, other psychiatric disorder or the effects of substances. (American Psychiatric Association, 2013). Both disorders can inflict an immense personal toll on individuals, including damaging physical effects (i.e., hair loss, scars, etc.), emotional distress (i.e., guilt, shame, embarrassment), social avoidance, or isolation, and comorbid depression and anxiety (Tucker, Woods, Flessner, Franklin, 2011; Woods, Flessner, and Franklin, 2006).

Clinical case reports suggest a minority of individuals with TTM or ExD engage in hair pulling or skin picking during sleep (Murphy, Redenius, O’Neill, & Zallek, 2007; Sack & Hanifin, 2010). However, little empirical data are available about sleep-related pulling and picking or the relationship between sleep quality and BFRBDS. ExD patients presenting to a dermatology clinic reported significantly lower sleep quality relative to other dermatology patients and healthy controls; however ExD patients also endorsed higher levels of anxiety.

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and perceived stress, which may have contributed to problems with sleep in this sample (Singareddy et al., 2003). Nevertheless, an understanding of the relationships between internalizing symptoms, commonly co-occurring with BFRBds, sleep functioning, and BFRBD symptoms remains unclear.

Furthermore, despite a few case reports of patients who pull and pick during sleep, we know little about the prevalence of these behaviors. Findings from a survey of dermatologists provide some clues, with results showing 11% had treated at least one patient with sleep-isolated hair pulling, and 20% had suspected that a patient pulled during sleep. (Murphy et al., 2007) Hair pulling during sleep has been reported in several cases of young children – all with a history of pulling in other contexts as well (Adam & Kashani, 1990; Altman, Grahs, & Fritman, 1982; De Luca & Holborn, 1984) – however we know little about the associated clinical features. In a case history of an adult TTM patient with hair pulling during sleep, video polysomnography revealed pulling occurred during periods of EEG wakefulness and was consistent with a diagnosis of Sleep-Related Dissociative Disorder (Angulo-Franco, Bush-Martinez, Nencleares-Portocarrero, & Jimenez-Genchi, 2015). Additionally, two separate case reports featuring video-based and standard polysomnography, respectively, describe sleep-isolated hair pulling in an adult (Murphy, Valerio, & Zallek, 2006) and a child (Görker, Karasalihoğlu, & Öztürk, 2010) during non-rapid eye movement (NREM) sleep and thought to constitute a NREM sleep parasomnia. Other case reports featuring polysomnography methods in three adults each suggest sleep-isolated nocturnal scratching (not associated with dermatological or other conditions) may represent a parasomnia (Nigam, Riaz, Hershner, Goldstein, & Chervin, 2016) or NREM sleep-related parasomnia more specifically. (Schenek and Mahowald, 2007). These case summaries highlight the contributions of sleep architecture to BFRB expression occurring during sleep. Most of the patients described had a history of other sleep difficulties (e.g., obstructive sleep apnea, other parasomnias, insomnia); and a history of depression was reported in a few cases. However, we lack comprehensive understanding of the associated clinical characteristics of pulling and picking occurring during sleep.

As studies of sleep in BFRBs to date have featured small sample sizes (n =30; Singareddy et al., 2003) or single cases, and lacked comparisons of sleep patterns in both TTM and ExD relative to non-affected individuals, the present study had several objectives. Specifically, this study aimed to (1) compare sleep functioning in large samples of adults with TTM and ExD relative to non-affected controls, (2) assess the relationship between hair pulling and skin picking severity and subtype (referring to two evolving independent constructs: the degree to which hair pulling and skin picking are performed with awareness or intentionally, and the degree to which hair pulling and picking are emotion or urge-driven; Flessner, Woods, Franklin, Cashin, & Keuthen, 2008; Keuthen, Tung, & Woods, 2015) and sleep functioning, and (3) explore rates and correlates of hair pulling and skin picking in bed before falling asleep and during sleep. An enhanced understanding of these relationships may help to inform assessment and treatment of BFRBds.

2. Materials and methods

2.1. Participants

Participants were adults with TTM, ExD, or healthy comparison subjects who participated in an internet survey on sleep quality. Participants with TTM were recruited via the Trichotillomania Learning Center (TLC; (www.trich.org) (now named TLC Foundation for Body-Focused Repetitive Behaviors (www.bfrb.org)). TrichStop.com (www.trichstop.com), and Trichotillomania Friends: A Yahoo group (https://groups.yahoo.com/neo/groups/Trichotillomania-friends/info). Participants with ExD were recruited through TLC, SkinPick.com (http://www.skinpick.com/stop-picking-my-skin), Stoppickingonme.com (www.stoppickingonme.com), and Pickaders: A Yahoo group (https://groups.yahoo.com/neo/groups/pickaders/info). Recruitment lasted for a 4-month period from May 2015 to August 2015. Healthy comparison subjects were recruited via Amazon Mechanical Turk (AMT) (https://www.mturk.com/mturk/welcome), an online platform in which individuals can receive small monetary compensation for completion of tasks and surveys, during a 7-day period from May 2015 to June 2015. Use of AMT for general population data acquisition has demonstrated sample heterogeneity, responses comparable to other (including laboratory-based) samples, and high test-retest reliability (Buhrmester et al., 2011; Goodman, Cryder, & Cheema, 2013; Hunt, Dennie, & Hicks, 2013; Johnson & Borden, 2012; Mason & Suri, 2012).

3. Measures

3.1. Demographics and medical history

The surveys included items assessing key demographic information, including age, ethnicity, educational level, household income, marital status. Participants also provided information on medical and psychiatric history, including past psychotropic and sleep medications, and past psychiatric diagnosis by a health professional. Participants from the comparison sample with positive psychiatric or psychotropic medication history were removed from the final sample (see Method).

3.2. Bedtime and sleep-related hair pulling and skin picking questions

The TTM and ExD participants were administered questions regarding the frequency and context of hair pulling and skin picking at bedtime; the frequency, context, and reason for knowledge of hair pulling and skin picking during sleep; and the percentage of total hair pulling and or skin picking comprised by pulling or picking during sleep. The TTM survey featured questions primarily in relation to hair pulling and the ExD survey featured the same items with respect to skin picking. Items regarding context and evidence of hair pulling and skin picking were developed through a review of the literature on BFRBs with respect to contextual cues, and sleep, in addition to a review of anecdotal report from individuals who engage in sleep-related BFRBds found through internet community question and answer forums. The first author used this information to formulate questions and answer choices, with back and forth review and editing by experts, (third and last authors). For specific wording of questions see Results.

3.3. Pittsburgh Sleep Quality Index (PSQI)

The PSQI (Buhrmester et al., 2011; Goodman et al., 2013; Hunt et al., 2013; Johnson & Borden, 2012; Mason & Suri, 2012) is a 19-item self-report measure of sleep quality and disturbance during the past month. The scale yields an overall total score and seven subscale scores for subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. The PSQI displays adequate to high test-retest reliability, (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) high internal consistency, and adequate to good convergent, divergent, and concurrent validity (Buysse et al., 1989; Carpenter and Andrykowski, 1998).

3.4. Massachusetts General Hospital Hairpulling Scale (MGH-HPS)

The MGH-HPS (Keuthen, Sullivan, & Ricciardi, 1995) assesses hair pulling urge frequency, intensity, and controllability, hair pulling frequency, resistance, and controllability, and associated distress during the prior week. It consists of seven items, each scored on a 5-point scale, with ratings of 0–4. The total score ranges from 0 to 28, with higher scores indicating greater severity. Findings from an
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