

## **Feasibility of a protocol involving psychophysiology and sleep recordings in a partial hospital program for youth with anxiety and OCD**

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Anxiety and obsessive-compulsive disorder (OCD) are prevalent in youth and cause significant impairment and distress (Beesdo et al, 2009; Piacentini et al., 2003). Cognitive behavioral therapy (CBT) with exposures is the gold standard treatment for adolescents with anxiety and OCD (POTS Team, 2004; Franklin et al., 2011), yet a significant proportion of youth do not achieve symptom remission (Freeman et al., 2018). Youth with anxiety and OCD also report high rates of sleep problems (Alfano et al., 2007; Storch et al., 2008); evidence suggests that self-reported problems with sleep predict slower improvement and poorer clinical outcomes in exposure-based CBT (Ivarsson & Skarphedinsson, 2015). It has been hypothesized that exposures work by facilitating fear extinction learning (Craske et al., 2008). Given the role of sleep in emotional memory consolidation and retrieval, it is plausible that variations in sleep may interfere with the effectiveness of exposures (Davidson & Pace-Schott, 2020). To better understand the relationship between sleep and fear extinction learning, we are conducting a multi-method study in a clinical sample of adolescents (ages 13-17) participating in a CBT-based partial hospital program (PHP) for youth with anxiety and OCD. Participants complete a multi-method assessment (over 10 days during the early portion of their treatment), which includes standardized clinical interviews, sleep questionnaires, sleep diaries, actigraphy recordings, and overnight electroencephalogram (EEG) with a novel device that can be used in the home. During the last 3 days of the 10-day window, participants complete a computerized task assessing initial fear learning (day 1), fear extinction learning (day 2) and extinction recall (day 3) as measured by skin conductance responses (SCR). The central hypothesis is that shorter sleep quantity and greater sleep disruption are associated with reduced fear extinction learning and reduced fear extinction recall in these adolescents. The aim of this poster is to report on the clinical characteristics of our sample, and examine the feasibility of our protocol and data collection procedures. Additionally, we will report on participant experience, acceptability of the protocol, and challenges encountered. To date, 10 participants have been enrolled ( $M_{\text{age}} = 15.3(0.43)$ , 60% females) with 90% of participants having completed the 10-day study period. Completion rate for baseline parent and child surveys is 70% and 90%, respectively. Full EEG data collection has been completed by 50% of participants, with an additional 20% having completed a portion of the recordings. Fear extinction task was completed in full by 50% of participants, with an additional 30% having completed two of the three data points. Primary challenges include lower than expected completion rates of fear extinction task due to absences from PHP, and uneven data quality in EEG recordings. Participants reported no concerns with the use of actigraphy devices. Feedback on the use of at-home EEG device has been mixed, with some participants reporting issues keeping the device in position for the whole night. No participant declined the fear extinction task. Despite these challenges, preliminary results indicate that the protocol is feasible and tolerated in a youth PHP for anxiety and OCD. *This work is supported by the Bradley Hospital COBRE Center for Sleep and Circadian Rhythms in Child and Adolescent Mental Health funded by the NIGMS grant number P20GM139743. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*