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CHRONOREXIA AND ORTHOSOMNIA: TOWARDS THE DEVELOPMENT OF SCALES TO MEASURE UNHEALTHY OBSESSIONS WITH SLEEP

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Introduction: In 2015 Van den Bulck warned that commercially available wearable sleep monitors might lead to an unhealthy obsession with healthy sleep and referred to it as "Chronorexia". In 2017 Glazer Baron et al. documented cases of patients who presented with such an obsession, which they referred to as "Orthosomnia". Both terms were inspired by earlier work on anorexia and orthorexia. This paper argues that there are two concepts that can be linked to those two terms and will use **Orthosomnia** to refer to an obsession with healthy sleep and **Chronorexia** for the belief that *one does (and should) not need a lot of sleep*. Two measurement scales are presented for examining these concepts in questionnaire form.

Materials and Methods: 500 adults 18 and older took part in an online survey. Chronorexia and Orthosomnia were assessed with a battery of 22 questions for each concept. The questionnaire included the FAS, CIRENS, PSQI, pre-sleep arousal, Shuteye Latency, social jetlag, and the Big 5 personality traits.

Results: Chronbach's Alpha was high for the Chronorexia (alpha=93.8) and the Orthosomnia (alpha=92.9) scale, and both showed normal distributions. Both scales, while orthogonal, correlate with lower levels of self-control, higher levels of fatigue, and higher levels of negative arousal. Neither was strongly related to chronotype. There were notable differences in subscales. Orthosomnia correlated with a much higher reporting of not being able to sleep in under 30 minutes, of waking up during the night, and of using sleep medication, while Chronorexia correlated with lower self-rated sleep quality.

Conclusions: Both concepts showed good internal and external validity. They were orthogonal, so they clearly refer to different phenomena. Surprisingly, perhaps, both concepts had similar relationships with several negative sleep outcomes, supporting the idea that both, indeed, are unhealthy beliefs about sleep. While further research is needed, the extent to which either belief predicts outcomes in a clinical setting, or seeking medical attention is an interesting avenue for examining the predictive use of these scales.

DETECTING CLINICALLY SIGNIFICANT DEPRESSIVE BURDEN IN SLEEP CLINICS THROUGH PHYSIOLOGICAL PARAMETERS: PRELIMINARY DATA AS TO SLEEP STAGES AND HEART RATE

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Introduction: Due to the powerful link between sleep and mood regulation, sleep architecture imbalance may lead to an emergence of depressive symptoms. Moreover, the presence of a depressive condition frequently involves subjective and objective sleep disturbance.

In addition to sleep disorders, mood states have been associated with cardiovascular functioning and regulation modifications, revealing an increased heart rate (HR) and a diminished heart rate variability during low mood states, stronger under conditions of sleep.

In this brief report, we present preliminary data from our ongoing clinical study, designed to develop medically graded software device based on a machine learning algorithm used to aid in identifying a clinically significant burden of depressive symptoms (CDB) in individuals referred to sleep clinics (SCs) for polysomnography (PSG) assessment.

These preliminary analyses aimed to compare sleep stages and HR between subjects with and without CDB (+CDB, -CDB respectively) to identify those physiological parameters able to discriminate between the two

groups.

Materials and Methods: Cross-sectional, observational, single-arm, multi-center study conducted in 2 SCs in the United States.

Inclusion criteria: 1) age ≥ 18 and ≤ 75 years, 2) informed consent, 3) ability to read and understand the instructions for the study, 4) willingness to undergo a *full night PSG study*. **Exclusion criteria:** subject 1) has a pacemaker, 2) suspected or known current alcohol/drug abuse.

CBD was defined through the Patient Health Questionnaire 9 (PHQ9, 9 items) at the cut-point score of ≥ 10 .

For descriptives, continuous and categorical variables were compared between the two groups by T-Test and Chi-square tests, respectively. Multivariate analysis of variance was applied to HR and sleep stages, with age, number of psychotropic medications, and current cardiac diseases as covariates. The significance level was 0.05.

Results: 128 subjects (83 -CDB and 45 +CDB) referred to two SCs in the United States were consecutively recruited and analyzed.

The two groups did not differ in the distribution of gender, BMI, diagnosed sleep-wake disorders, and physical activity on regular basis. They significantly differ in age (-CDB >+CDB), current psychotropic medications and number of clinician-diagnosed current anxiety, major depressive and bipolar disorders (+CDB>-CDB), current cardiac diseases (-CDB >+CDB).

Compared to subjects -CDB, subjects +CDB showed statistically significant: higher HR in deep (N3) and REM sleep stages, higher number of cortical arousals in N3, and increased time spent in N3 and REM, associated with an early onset of REM.

Conclusions: Despite the small sample size, we found preliminary indications suggesting an unbalanced autonomic control on cardiac function during sleep in +CBD subjects, reflecting increased sympathetic activity in +CDB subjects. Moreover, +CDB patients present an alteration of sleep architecture, as reported consistently in the literature.

On these bases, optimizing the use of PSG data routinely collected in sleep clinics may be of great importance to identify a CDB in this setting, minimizing the chances of misdiagnosis, and foster appropriate and individualized therapeutic strategy.

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DISTRESSING NIGHTMARES AND BAD DREAMS DURING THE COVID-19 PANDEMIC ARE ASSOCIATED WITH DEPRESSIVE SYMPTOMS, SOMATIC SYMPTOMS, AND DELUSIONAL IDEATION

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Introduction. Distress associated with bad dreams and nightmares is a commonly used measure to assess psychological impact of dysphoric or intensified dreaming. It has previously been associated with negative mental health outcomes, including depression, anxiety, and suicidality. Recent theories of nightmare-formation propose an interaction between environmental stressors and individual psychological/physical reactivity as factors in the etiology of nightmares and bad dreams. Numerous studies have documented a marked increase in frequency of bad dreams and nightmares during the pandemic, but little is known about factors associated with this trend. Sub-clinical delusional ideation is increasingly of interest, since it represents forms of distorted or intensified cognition in non-clinical populations and is likely reactive to a variety of stressors. Somatic symptoms (SS) are another marker of stress, which is expressed through unusual or increased non-specific bodily symptomatology. The objectives of the present study were to investigate the relationship between nightmare/bad dream distress and different markers of psychological distress during the COVID-19 pandemic: depressive symptoms, delusional ideation, and somatic symptoms.

Materials and Methods 1516 participants (Canada=634, Mexico=378, USA=315, UK=54, other countries=135; female=976, male=477, other/no answer=63; average age=34.8, s.d.=12.9, range=16-83) completed an online questionnaire between June 17, 2020 and March 24, 2021.