antisocial behaviors or with aggressiveness and anger are scarce and with contradictory results. Therefore, the study aimed to analyze the relationship between aggressiveness and sleep, evaluated objectively. It is expected to obtain a negative relationship between sleep quality and aggressiveness and anger.
Materials and Methods: The subjective assessment consisted of a sociodemographic survey, the Spanish version of the Aggressiveness Questionnaire (Andreu et al., 2002), and the Spanish adaptation of the State-Trait Anger Expression Inventory (STAXI; Miguel-Tobal, Cano-Vindel, Casado, & Spielberger, 2001). The objective evaluation of sleep was performed by polysomnography. For this purpose, the participants were summoned at the same time to the Sleep Laboratory of the University of Granada. Light, noise, and temperature conditions were controlled and were the same in all evaluations. The subjects received instructions on sport, napping, food, and stimulant consumption on the day of the test. Upon arrival at the laboratory, electrodes were placed in the lateral pathways as recommended by the AASM, concerning the opposite preauricular area. The sleep signals were analyzed manually. Participants had a code to link their responses to the questionnaires, thus maintaining anonymity. The questionnaires were applied in a computerized form.
Results: The prediction models of the anger and aggression variables explained by the sleep variables were not statistically significant. Nevertheless, the adjusted coefficient of determination was high in some cases: trait anger (R2adjusted = .38); anger expression and control (R2adjusted = .24); verbal aggressiveness (R2adjusted = .47; p = .035) and anger (R2adjusted = .2). The variables with the greatest explanatory power were sleep efficiency, REM latency, and total sleep time.
Conclusions: The results seem to go in the direction of the hypothesis: the higher the sleep efficiency, the lower the aggression and anger. Nevertheless, the results are not significant, perhaps because of the low sample size or because some subjects reported a poorer sleep quality due to the discomfort of the evaluation. Despite the lack of significance in most of the models, we analyzed the most explanatory variables and observed that the most explanatory variables were sleep efficiency, time the subject spent awake after first falling asleep, total sleep time, and REM latency. This means that surely a larger sample size would give statistically significant results since some of the correlations are high.
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RELATIONSHIP BETWEEN SUBJECTIVE SLEEP QUALITY AND AGGRESSIVENESS

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Introduction: Sleep is associated with different emotions and behaviors. However, studies relating sleep quality or sleep problems with antisocial behaviors or with aggressiveness and anger are scarce and with contradictory results. Therefore, this study aimed to analyze the relationship between perceived sleep quality and levels of aggression. The working hypothesis was that poorer sleep quality would be related to higher levels of aggressiveness and anger
Materials and Methods: A total of 130 participants of Spanish nationality (39 men; 30%) were evaluated, with a mean age of 31 years (SD = 12.88). A total of 80.76% had university studies. The evaluation involved a sociodemographic survey, the Spanish version of the Aggressiveness Questionnaire (Andreu et al., 2002), the Spanish adaptation of the State-Trait Anger Expression Inventory (STAXI, Miguel-Tobal, Cano-Vindel, Casado and Spielberger, 2001). A one-week sleep diary was used to assess subjective sleep quality. The data were averaged for each person. The entire evaluation was applied online, using two Google Forms: one for the questionnaires and another for the sleep diary (since it had to be completed seven nights).
Results: Different simple linear regression models were performed using anger and aggressiveness as dependent variables and sleep variables (sleep efficiency, number of awakenings, mean duration of awakenings, and latency to sleep). In no case were models found whose fit was statistically relevant. In fact, at the clinical level, the models did not seem to have a high percentage of explained variance. Similarly, in the Pearson correlations between variables, no statistically significant relationships were observed beyond isolated relationships. Even so, it was observed that the variables with the greatest explanatory capacity were the mean number of awakenings and the mean sleeping time.
Conclusions: The results obtained do not support the hypothesis put forward. It should be noted that the results in the literature are inconsistent and this may be due to the use of subjective measures of sleep quality assessment. It may also be because this relationship only occurs in people with sleep problems or disturbances, whose sleep quality is severely affected for sustained periods.
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SELF-AWARENESS BY WATCHING OWN POLYSOMNOGRAPHY FOR CONTINUOUS POSITIVE AIRWAY PRESSURE

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Introduction: Patients with obstructive sleep apnea (OSA) are suspected by observation of the surroundings rather than subjective symptoms, and continuous positive airway pressure (CPAP) is started according to the test results. This results in a lack of insight into the OSA and lowers CPAP compliance.
Materials and Methods: This is a randomized controlled study in patients with OSA of an apnea-hypopnea index over 15. All patients with OSA were confirmed through polysomnography and divided into group A in which the patients watched the event of their own sleep apnea and group B without watching the video. After a CPAP titration, all patients had cognitive behavior therapy from the doctor in charge of the sleep center. Then, patients were randomly assigned to either group A or group B and received a CPAP machine. The patients in group A watched their own sleep apnea events that occurred during polysomnography and went home. The patients of group B went home without watching the video. The usage of CPAP was assessed on day 90, and patients were considered as adherent when using their CPAP machine for more than 4 hours per day for 70% of the observed days.
Results: A total of 60 patients (30 in each group) were investigated. Group A and group B were compared. On day 90, the average usage per day of groups A and B were 5.72±1.02 and 5.31±1.07, respectively (p=0.131). The number of used days was more in group A than group B (84.77±7.52 vs. 79.70±10.78, p=0.040). The number of days with more than 4 hours used was more in group A than B (73.47±12.82 vs. 64.13±17.08, p=0.044). The number of CPAP adherence was more in group A than group B (n=29, 96.7% vs. n=22, 73.3%, p=0.011).
Conclusions: To see is to believe. Showing patients their own apnea events can be a plausible option to enhance CPAP adherence.
Acknowledgements: This study was registered in the Clinical Trial Registry of Korea (https://cris.nih.go.kr): KCT 0005250.

SLEEP AND THE OPTIMISATION OF MUSICAL LEARNING AND PERFORMANCE

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Introduction: This in-progress study aims to quantify the impact that changes in measurable sleep markers have on key objective aspects of musical learning and performance. A growing body of research shows that both quality and quantity of sleep affect memory and learning. Sleep, and specifically certain stages of sleep, are believed to be necessary to consolidate a memory so that it can be successfully accessed in the future. Chronic sleep deprivation degrades the ability to learn, process, and absorb novel information.
The impact that chronic sleep deprivation has on memory and fine motor skills has been looked at in the context of sports performance and within the general population in elegant studies including Dr. Walker's "Practice with sleep makes perfect: sleep-dependent motor skill learning." (Neuron,

2002). In the context of optimising performance capacity, this area is only beginning to be addressed by scholars in the field of music. However, research in this field has not adequately addressed the detrimental effects of chronic low-grade sleep deprivation on musical learning and performance.

Materials and Methods: The empirical testing of musical skills has long been problematic. This is due to elements of subjectivity that are present to varying degrees throughout the assessment process. This paper relies upon a combination of established best practices and novel techniques to introduce and develop a new battery of tests designed to quantitatively measure musical ability in three key areas: rhythmic stability, sight-reading, and memorisation. Freshly conceived testing protocols and materials designed to minimise subjectivity in scoring have been incorporated, as have measures to reduce confounding factors. This new battery of tests includes elements drawn from assessment tools as old as the Watkins-Farnum Performance Scale, which was published in 1954, to modern technology such as Korg's BEATLAB Rhythm Trainer, the first iteration of which was produced in 2016. In the case of musical memorisation, recent research developed in non-musical disciplines has been re-purposed and adapted for application in musical research. This new collection of tests and protocols better aligns with the goal of empirically measuring important musical skill sets. It does this whilst minimising the need for expensive and cumbersome equipment. Sleep stages and other parameters of sleep will be tracked with the recently validated Somnofy system (Toften, 2020).

Results: Validation trials are currently underway with promising preliminary results.

Conclusions: Filling the current gap in knowledge within the fields of sleep research and music and the quantification of the role sleep has on musical skill acquisition has the potential to contribute to the way sleep researchers understand the impact sleep has on human performance, and revolutionise the way music students approach their learning, music educators optimise their teaching, and professional performers execute their concerts.

Acknowledgments:

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SLEEP DISORDERS AND AWARENESS OF CARDIOVASCULAR PREVENTIVE MEASURES IN GENERAL POPULATION AGED 25–64 YEARS IN RUSSIA/SIBERIA: WHO INTERNATIONAL PROGRAM MONICA-PSYCHOSOCIAL

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Objective: to establish associations of awareness and attitude towards cardiovascular diseases (CVDs) prevention in people with sleep disorders in an open population of Novosibirsk aged 25–64 years.

Materials and Methods: We carried out screening surveys of representative samples of the 25–64 years old population: in 2013–2016 – V screening (427 men, mean age– 34±0.4 years, response rate – 71%; 548 women, mean age– 35±0.4 years, response rate – 72%); in 2015–2018 – VI screening (275 men, mean age – 49±0.4 years, response rate – 72%; 390 women, mean age – 45±0.4 years, response rate – 75%) using the protocol of the WHO international program «MONICA-psychosocial». Jenkins sleep evaluation questionnaire was used to evaluate sleep disorders.

Results: Participants with sleep disorders believed that they were «not entirely healthy» (men – 65.5%, $\chi2$ =57.825, df=8, p<0.001 and women – 69.6%, $\chi2$ =96.883, df=4, p<0.001); had health related complaints (men – 78.2%, $\chi2$ =24.179, df=2, p<0.001 and women – 85.2%, $\chi2$ =55.144, df=2, p<0.001), and clearly did not care enough about their health (men – 32.7%, $\chi2$ =29.31, df=4, p<0.001 and women – 34.1%, $\chi2$ =28.116, df=4, p<0.001). Men with sleep disorders more often assumed that they were more likely to get a serious illness within the next 5–10 years ($\chi2$ =12.976, df=4, p<0.01). Participants with sleep disorders were confident that modern medicine can prevent (men – 10.9%, $\chi2$ =19.079, df=2, p<0.001 and women – 13.3%, $\chi2$ =21.944, df=2, p<0.01) and successfully treat (men – 3.6%, $\chi2$ =24.142, df=8, p<0.01 and women – 3.7%, $\chi2$ =15.538, df=8, p<0.05) only some heart diseases. Men and women with sleep disorders are more likely to seek medical attention in case of severe pain or discomfort in the heart area, but do not seek medical advice if this pain or unpleasant sensation is mild (men – 63.6%, $\chi2$ =14.867, df=6, p<0.05 and women – 60%, $\chi2$ =17.872, df=6, p<0.01). Among the participants with sleep disorders men more often believe that the doctor «knows more than me» (36.4%), and women (48.1%) chose an answer: «I will not necessarily agree with the opinion of the doctor after a general examination, until a thorough evaluation has been carried out by specialists» ($\chi2$ =5.917, df=2, p<0.05). Women with sleep disorders were more likely to continue to work if they did not feel very well (54.1%, $\chi2$ =12.455, df=4, p<0.05) or their body temperature rose (37.8%, $\chi2$ =12.937, df=4, p<0.05).

Conclusions: Persons with sleep disorders generally have a more negative attitude towards their health and are skeptical about the possibilities of modern medicine to prevent and treat CVDs, which is reflected in their attitude to work and preventive check-ups.

SLEEP DISORDERS IN ADULTS WITH TUBEROUS SCLEROSIS COMPLEX: A QUESTIONNAIRE-BASED STUDY

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Introduction: Tuberous Sclerosis Complex (TSC) is a rare systemic disease with an almost constant neurological involvement, and in which epilepsy and TSC-associated neuropsychiatric manifestations (TAND) represent the major burden. Also sleep disorders (SD) are highly prevalent, yet still largely under-recognized and under-treated. The objective of this study was to assess the prevalence of SD in adult patients with TSC, and to evaluate the relationship between sleep, epilepsy and TAND.

Materials and Methods: we administered Pittsburgh Sleep Quality (PSQI) and Insomnia Severity Index (ISI) to adult patients referring to different Italian centers. We also collected information on epilepsy and TAND.

Results: We analyzed 114 questionnaires (mean age 31.7 years). An epilepsy diagnosis was reported by 82.3%, with persistent seizures in 67.7% of them. At least one TAND was reported by 73.4% of participants. An existing SD diagnosis was reported by 24 subjects (21.2%).

PSQI and ISI revealed a positive score, respectively, in 52 (46.0%) and 30 patients (26.5%).

PSQI was positive in 26.7% seizure free patients versus 61.9% patients with active epilepsy (p=0.003), and the association remained significative (p=0.01) even applying a multivariate logistic model considering age, antiseizure medications (ASM), TAND and nocturnal epileptic seizures. ISI positive scores have been detected in 1/30 (3.3%) seizure free patients and in 26/63 (41.3%) of those with persistence of seizures (p=0.0004). This association was also confirmed by a univariate logistic regression analysis, estimating that active seizures increased the risk of having a positive ISI score (p=0.004, OR=3.01). After adding in a multivariate logistic model the independent variables listed above, the association remained significant (p=0.007, OR=2.98).

PSQI was positive in 43/83 patients (51.8%) with the presence of TAND and in 9/30 of patients (30%) without (p=0.06). A univariate logistic regression analysis estimated that a comorbid neuropsychiatric condition increased the risk of having a positive PSQI score (p=0.04, OR=0.92). However, after adding in a multivariate logistic model the independent variable of active epilepsy, TAND ceased to be a significant risk factor for positive PSQI (p=0.12, OR=0.75). As for ISI, it resulted positive in 27/83 patients (32.5%) with TAND and in 3/30 (10%) of those without (p=0.03). This association was also confirmed by a univariate logistic regression analysis, which estimated that TAND increased the risk of having a positive ISI score (p=0.02, OR=1.47). After adding in a multivariate logistic model the