

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 socio-demographic 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 socio-demographic 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  $5.72 \pm 1.02$  and  $5.31 \pm 1.07$ , respectively ( $p = 0.131$ ). The number of used days was more in group A than group B ( $84.77 \pm 7.52$  vs.  $79.70 \pm 10.78$ ,  $p = 0.040$ ). The number of days with more than 4 hours used was more in group A than B ( $73.47 \pm 12.82$  vs.  $64.13 \pm 17.08$ ,  $p = 0.044$ ). 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,