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Abstract

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ID: 1497

Postpartum Depression and Child Development

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Keywords

- postpartum depression
- maternity
- infant
- development

Introduction: The transition to motherhood has been the focus of study, considering the changes in mother´s life. The Winnicott´s concept of maternity is defined as a special condition of increased sensitivity, which occurs from pregnancy to the first months of life, in which the mother is able to identify with the infant providing a good enough environment in which it can develop.

Objective: The present study aimed to examine infants' exploratory behaviour, as well as the behaviour of mothers with indicators of depression during a brief mother-infant psycotherapeutic process, in the first year of the infant's life.

Methods: Both objective and subjective aspects of interaction involved in infant exploratory behaviour were taken into consideration. Three case studies of dyads seen in mother infant psychotherapy sessions were carried out. The infant's exploratory behavior was described and analyzed according to categories fine and ample exploratory manipulation, as well as of exploratory locomotion towards the environment and toys. Mothers' behaviors regarding infants' exploratory behavior was also described and analyzed according to categories direct and indirect behavior, constructed based on the observation description material.

Results: Results showed that infants of mothers with depression presented exploratory behaviors such as fine and ample exploratory manipulation, exploratory locomotion towards the environment and toys, which indicate emotional autonomy development. From the mothers' point of view, the results give support to the evidence that when the mother interacts with the baby she not only relates to the observed, objective behavior but also to images (models) which belong to the mother and appear in the interaction with the infant through projective identification.

Conclusion: The brief mother-infant psycotherapeutic process, in the first year of the infant's life, can help the mothers with postpartum depression.

ID: 1499

Sleep Quality and Sleep Disorders in Brazilian Adults: Insights from a Virtual Population-Based Survey

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Keywords

- sleep quality
- sleep disorders
- population characteristics
- epidemiologic studies

Introduction: Sleep plays a crucial role in maintaining physical, mental, and emotional health. However, national health surveys in Brazil do not delve into investigating the sleep patterns of the population.

Objective: This study aimed to investigate sleep quality indicators and the prevalence of sleep disorders among Brazilian adults, with a particular emphasis on differences based on sex and age.

Methods: Utilizing data from two cycles of the virtual Survey SONAR-Brazil (n=2050 adults, 18-65 y), we investigated sleep duration, sleep latency, nocturnal awakenings, self-perceived sleep quality and the diagnosis of the following sleep disorders: insomnia, snoring, sleep apnea, restless legs syndrome, bruxism, sleepwalking, sleep paralysis, and night terror. We assessed sex and age differences in the prevalence of poor sleep quality indicators (duration$<$7h, latency$>$30min, awakenings$>$1/night, and poor self-perceived quality) and sleep disorders using the student's t-test and chi-square test.

Results: Among all participants, 57% had some sleep disorder, the most prevalent were insomnia (26%), snoring (23%), and bruxism (19%). Furthermore, 21.7% were short sleepers ($<$7h), 34.9% presented awakenings $>$1/night, 26.8%

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sleep latency >30min, and 29.9% self-perceived sleep quality as poor. Regarding sex differences, while short sleep duration, snoring, and sleep apnea were more frequent among men (respectively, 29% versus 19%, $p<0.001$; 36% versus 18%, $p<0.001$; and 8% versus 4%, $p<0.001$), among women, there was a higher occurrence of awakenings >1/night (37% versus 29%, p=0.001), sleep latency >30 minutes (28% versus 24%, p=0.04), insomnia (27% versus 23%, p=0.05), and bruxism (22% versus 11%, $p<0.001$). In the comparison between groups with good and poor sleep quality, and with or without sleep disorders, the mean age of participants was higher among those experiencing awakenings >1/night (36±13 versus 33±11 years, $p<0.001$), self-perceived poor sleep quality (35±12 versus 34±12 years, p=0.01), sleep disorder (36±12 versus 32±10 years, $p<0.001$), insomnia (35±12 versus 34±11 years, p=0.03), snoring (39±13 versus 33±11 years, $p<0.001$), restless legs syndrome (36±12 versus 34±11 years, p=0.01), bruxism (37±12 versus 34±11 years, $p<0.001$), and sleep apnea (42±12 versus 34±11 years, $p<0.001$). However, those with sleep paralysis and sleepwalking were younger.

Conclusion: These findings highlight the importance of personalized approaches for addressing sleep issues, accounting for sex and age differences. Targeted public health policies are essential for enhancing sleep quality and reducing sleep disorders among Brazilian adults. Funding: This work was supported by 'Fundação de Amparo à Pesquisa do Estado de Alagoas - FAPEAL' (Grant/Award Number: 60030.0000002539/2022).

ID: 1503

Association of Social Jet Lag with Body Mass Index Among Brazilian Adults

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Keywords

- sleep
- chronobiology
- social jet lag
- body mass index
- overweight

Introduction: Obesity is a serious public health problem worldwide, it is estimated that by 2035, 50% of the world's population will be overweight. In recent years, new risk factors for obesity have been identified, including insufficient sleep and circadian misalignment.

Objective: Evaluate whether social jet lag, a proxy of circadian misalignment, is associated with BMI and overweight.

Methods: This study utilized data from the SONAR-Brazil Survey (n=2,050, aged 18-65 years, data collection: 2021-2022). Body Mass Index (BMI) (kg/m^2) was calculated using self-reported height (m) and weight (kg). Overweight was defined as BMI ≥ 25.0 kg/m^2. Social jet lag (SJL) was determined by the absolute difference between the midpoint of sleep on weekends and weekdays and was analyzed both as continuous variable (in hours) and categorical (>1h, 1-2h, and >2h). The association between SJL and BMI (outcome) was verified using the multiple linear regression, adjusted for sex, age, chronotype, education level, physical exercise, diet quality, and weekly average sleep duration.

Results: The average BMI among participants was 25.14kg/m^2, with a 44% prevalence of overweight. The variability in weekend sleep duration was 42min, and the midpoint of sleep exhibited a variability of 21min. The prevalence of SJL was 12.54%. In the comparison between groups with SJL and non-SJL, those with SJL had a higher BMI (25.8kg/m^2 versus 25.04kg/m^2, p: 0.02). Each additional hour of SJL was associated with a BMI increase of 0.71kg/m^2 (95%CI: 0.22; 1.19, p:0.004). For participants with SJL >2h, BMI increased by 2.29kg/m^2 (95% CI: 0.84; 3.74, p:0.002). The magnitude of these effects to be correlated with level of SJL, that BMI increases as SJL increases (<1h: 25.0 kg/m^2, 1-2h: 25.6 kg/m^2, >2h: 25.8kg/m^2).

Conclusion: Our findings, showing that social jet lag correlates with higher BMI values, indicate the need to include strategies for improving sleep consistency and regularity in clinical protocols and public health guidelines aimed at preventing and treating overweight and obesity. Funding: This work was supported by 'Fundação de Amparo à Pesquisa do Estado de Alagoas - FAPEAL' (Grant/Award Number: 60030.0000002539/2022).

ID: 1504

Exogenous Melatonin: Efficacy, Safety, and Clinical Indications

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Keywords

- melatonin
- exogenous
- efficacy
- safety
- clinical indications

Introduction: Melatonin, an endogenous neurohormone derived from serotonin, plays a crucial role in regulating the sleep-wake cycle and circadian rhythm. Exogenous melatonin has gained attention as a potential treatment for sleep disorders and other conditions. The rise in popularity of this substance as a treatment for sleep disorders demands further investigation into its efficacy and safety.

Objective: This study aims to review the current scientific literature on the use of exogenous melatonin in various clinical conditions, evaluating its efficacy, safety, and recommended dosages and applications.

Methods: A narrative literature review was conducted using the descriptor "exogenous melatonin" in the PUBMED database, with a publication date limit of 10 years. A total of 1204 articles were initially identified, with inclusion criteria focusing on human studies regarding patients with no outlining comorbidity with sample sizes of 20 participants or more. In total, 14 studies were included.

Results: The review synthesized data on the efficacy and safety of exogenous melatonin across the observed groups. Studies highlighted significant improvements in sleep quality, such as delayed sleep onset. Various dosages and administration protocols were explored, showing promising outcomes in sleep management.

Conclusion: Exogenous melatonin demonstrates potential benefits in improving sleep disorders, with a favorable safety profile in short-term use. However, long-term safety considerations, especially in vulnerable populations, warrant further investigation. This review provides insights for healthcare professionals and patients, emphasizing the need for evidence-based guidelines and future research directions. The study highlights the need for further research regarding the dosage of exogenous melatonin in the treatment of sleep disorders.

ID: 1508

Sleep Quality Assessment of Professors from a Public University in Salvador, Bahia

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Keywords
- sleep quality
- university professors quality of life

Introduction: Sleep is a basic and essential human need for the physiological, psychological and behavioral well-being of individuals. Frequent episodes of insufficient sleep can result in behavioral consequences related to the experience of adverse mental and physical well-being. The accumulation of sleep deprivation can lead to reduced cognitive performance, increasing the risk of occupational and automobile accidents. It is possible to observe that there is research about the consequences and factors associated with sleep quality of college professors; however, there are not many published studies in Brazil that clarify the prevalence and contributing factors to poor sleep quality in university professors.

Objective: To investigate sleep quality and the associated factors among professors at a public university of Salvador, Bahia.

Methods: This is a cross-sectional study. The participants were professors from the Universidade do Estado da Bahia, Salvador. Data were collected by the authors via form they created, which included sociodemographic data and the electronic administration of the following investigation instruments: The Insomnia Severity Index, the Quality of Life and Questionnaire, and The Pittsburgh Sleep Quality Index. This project was approved by the research ethics committee under the CAEE 73149723.0.0000.0057.

Results: A total of 111 professors took part in the study, of which 67,6% females, the average age was $47{,}3 \pm 13{,}9$ years and the average length of time in teaching of $22 \pm 8{,}3$ years. The average daily working routine were of $16{,}0 \pm 3{,}7$ hours. Potential respiratorial problems were identified in 13,5% of the sample, severe insomnia in 5,4%, 42,3% were at the lower threshold for insomnia and 23,5% had moderate clinical insomnia. Concerning sleep quality, 50,5% showed bad sleep quality, and 42,3% reported good sleep quality. Regarding quality of life, the average scores for mental health and social aspects was of $75{,}71 \pm 12{,}4$ and $77{,}72 \pm 2{,}87$ respectively, indicating a decline in the overall status of the professors.

Conclusion: The sleep quality of the professors at the Universidade do Estado da Bahia is mostly poor. It is believed that the high work demands and longer working daily working hours have contributed to sleep disturbances. Future research may help in developing health promotion strategies in order to improve sleep quality among college professors.

ID: 1509

Effect of Orofacial Myofunctional Therapy on tongue pressure and reduction of Obstructive Sleep Apnea

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Keywords
- obstructive sleep apnea
- polysomnography
- myofunctional therapy
- muscle strength
- biofeedback

Introduction: Obstructive sleep apnea (OSA) is a disease that affects thousands of Brazilians, affecting the quality of life of those who have the disease and their family members/bed partners. Normally, national studies with Orofacial Myofunctional Therapy (OMT) and OSA address improvements in polysomnography results and in several quality of life questionnaires, but do not focus on objective measurements of the orofacial muscle tone of patients, which ends up being one of the main causes of collapse during sleep. Since 2016, the Brazilian industry has made available on the market the Biofeedback Pró-Fono: Lip and Tongue Pressure (PLL Pró-Fono), a device capable of performing objective measurements of orofacial pressure, like the American IOPI. Because it is a relatively new product, there is still little research available, even less in patients with OSA.

Objective: To characterize the change in orofacial musculature after performing isometric and isotonic exercises in patients with OSA. The analysis was performed through clinical evaluation of AMIOFE-E, using PLL Pro-Fono and will be related to polysomnographic findings.

Methods: This was a descriptive, longitudinal and retrospective study in which 2 patients with normal BMI, aged 35-45 years, diagnosed with mild and moderate OSA. The patients were evaluated pre and post OMT regarding clinical evaluation of orofacial myofunctional function - AMIOFE-E, pressure of the lips, tongue and cheeks, through PLL Pro-Fono and polysomnography.

Results: After the OMT program, a significant improvement was noted in the appearance, tone, mobility and posture of the lips, tongue and cheeks; increased muscle pressure on the dorsum of the tongue from 27.7 ± 3.2kPa to 36 ± 34.3 kPa. Regarding polysomnography parameters, there was an increase in N2 from $39.9 \pm 16\%$ to $46 \pm 2.4\%$, in N3+N4 from $43.8 \pm 0.5\%$ to $52.3 \pm 2.3\%$, regarding severity, initially one case was mild and the other moderate, at the end of treatment both had normal AHI. Thus, the average AHI went from 17.3 ± 6.4 (moderate) to 2.4 ± 2 (normal) at the end of the 12 sessions. In addition, there was a reduction in the arousal index from 27.9 ± 11.2 to 19.1 ± 1 in both cases.

Conclusion: The OMT Program showed positive results both for the adequacy and strengthening of orofacial myofunctional structures and for the reduction of AHI and polysomnography parameters.

ID: 1511

Effect of the Rotating Shift on the Sleep Parameters of Military Police Officers

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Keywords

- shiftwork sleep police officers

Introduction: Military police officers are among the classes of workers who carry out their activities at unconventional times, since police service is considered essential. With the changes in working and sleeping hours, workers are susceptible to sleep disorders, high levels of occupational stress and physical and mental illness.

Objective: To analyze the effect of working hours on the sleep parameters of military police officers.

Methods: The research was conducted with 22 military police officers from Rio Branco between February and July 2023. Sleep variables were measured using actigraphy and sleep diaries for 14 days. Sociodemographic, work-related, lifestyle and chronotype variables were also collected. Considering the assumption of normality, repeated measures ANOVA and Friedman's test were used. Tukey's and Durbin-Conover's tests were used for post-hoc analysis.

Results: On daytime working days, police officers slept an average of 7.92 h (SD $\pm$1.59); while, on nighttime working days, they slept an average of 5.47 h ($\pm$1.93); and, on non-working days, 6.64 h ($\pm$1.24). Sleep efficiency after day work, night work and day off was 88.6% ($\pm$6.57), 83.6% ($\pm$6.07) and 84.6% ($\pm$7.91), respectively. Total main sleep time was higher on daytime working days, when compared to nighttime working days ($p < 0.001$) and days off ($p < 0.001$), and lower on nighttime working days when compared to days off ($p < 0.001$). Total time in bed revealed differences when comparing day and night work ($p < 0.001$), day work and day off ($p < 0.001$) and night work and day off ($p = 0.008$). Differences were also observed in the average total sleep time between day and night work ($p < 0.001$), day work and day off ($p < 0.001$) and between night work and day off ($p = 0.004$). Average sleep efficiency was higher on daytime working days, when compared to nighttime working days ($p = 0.009$) and non-working days ($p = 0.022$). The average time awake after variable sleep onset was higher on daytime work days, when compared to nighttime working days ($p = 0.006$), and higher on daytime working days compared to non-working days ($p < 0.001$).

Conclusion: Sleep is influenced by working hours, with the night shift having the greatest impact on police officers' sleep, resulting in shorter sleep duration and lower sleep efficiency.

ID: 1512

Relationship Between Sleep Quality, Occupational Fatigue and Quality of Life in Urgency and Emergency Health Professionals

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Keywords

- sleep disorders
- fatigue
- worker's health
- emergency medical services

Introduction: The provision of health care services is a complex process that is influenced by economic, political and technological conditions, which are capable of increasing work demands and generating consequences, such as occupational and psychosocial risks. Emergency professionals experience situations of high patient demand and complexity, more than one employment relationship, lack of adequate inputs, incorrect staffing and team coordination, which can result in poor quality sleep, fatigue and consequently affect the overall quality of life.

Objective: To evaluate the sleep quality of health professionals from the urgency and emergency services and to associate it with their fatigue and quality of life. The hypothesis was that the poor sleep quality of health professionals in urgency and emergency services is associated with occupational fatigue and had a negative and direct influence on the quality of life of these professionals.

Methods: This is a descriptive, cross-sectional, and exploratory study. For data collection, five questionnaires were used: sociodemographic information, sleep quality assessment - the Pittsburgh Sleep Quality Index (PSQI), the Chalder Fatigue Scale together with the Need for Rest Scale (ENEDE), and WHO quality of life questionnaire (WHOQOL-bref). The study population consisted of 108 nursing technicians, nurses, and doctors who worked directly in health care in a city in the countryside of Brazil. The Research Ethics Committee approved the study. For the statistical analysis, we used Pearson's Chi-Square Test, Mann-Whitney U Test or Kruskal Wallis and Spearman's correlation.

Results: The majority of the participants were women (63%), between 18 and 35 years old (41.7%), and were nursing technicians (50%). It was identified that 72.2% of the participants have poor sleep quality, 67.6% have a high need for rest, and 75.9% are fatigued. The total quality of life mean score was 64.8(11.4). A significant association was observed between poor sleep quality and fatigue, the need for rest, and worse quality of life.

Conclusion: It was identified that health professionals working in urgency and emergency services have poor sleep quality and poor quality of life, high levels of fatigue, and need for rest. These variables are associated with each other, which can directly impact their personal and professional activities.

ID: 1515

Use of Melatonin for the Treatment of Sleep Disorders in Autistic Patients

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Keywords

- autism
- sleep
- melatonin

Introduction: Autism Spectrum Disorder (ASD) is a neurodevelopmental deficiency characterized by difficulties in learning, communication and social interaction, with limited interests and stereotyped behaviors. In addition, the patient can commonly present sleep alterations, especially in childhood, due to reduced levels of secretion of melatonin, a hormone that functions as a biomarker of circadian rhythms. Its chronobiotic effect consists in regulating the sleep-wake rhythm, which in individuals with ASD may be altered from the first year of life.

Objective: To analyze the effects of exogenous melatonin administration for autistic patients with sleep disorders, and its contribution to the treatment of these patients.

Methods: Systematic review conducted in August 2024, in the PubMed database, based on the keywords "autism and sleep and melatonin". There were 76 articles published between 2015 and 2024, and after analysis of the studies, only 12 were included in the research.

Results: Melatonin treatment for sleep disorders in autistic patients is indicated when behavioral strategies, such as sleep hygiene, are insufficient. For these patients, the immediate release formulation is less effective, since its therapeutic benefit is centered on sleep induction, not being as efficient in reducing nocturnal awakenings. Long-release melatonin, besides reducing latency, contributes to the increase of total duration and improved sleep maintenance. This composition, whose peak is reached in 3 hours after the intake of 2 mg, does not cause unwanted phase advance in the sleep-wake cycle. Another important point is the positive impact on externalizing behaviors, especially in hyperactivity and inattention, as well as on improving academic performance. This drug has a favorable profile regarding tolerance and acceptability. Its adverse effects are considered mild (headache, drowsiness, fatigue and dizziness) and manifest in the initial weeks.

Conclusion: Melatonin with prolonged release is considered the first line pharmacological treatment for insomnia in patients with ASD, due to its efficacy in effects that are not restricted to sleep induction, besides safety with long-term use. Its therapeutic contribution can also improve the quality of life of caregivers, since the well-being of patients shows significant improvement, especially in the daytime. However, the preferential treatment for insomnia in autistic people is based on behavioral and environmental interventions.

ID: 1516

Sleep in Primary Health Care: Understanding Patterns and Implications

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Keywords

- sleep disorders
- primary health care
- insomnia
- sleep apnea

Introduction: Sleep profoundly influences numerous fundamental physiological functions in the human body, significantly impacting well-being and quality of life. Its critical importance is widely acknowledged within primary healthcare services, essential for both individual and public health demands through health promotion, preventive measures, and healthcare protection initiatives. This recognition stems from its profound impact on various health conditions.

Objective: This study aims to explore sleep patterns and their implications among patients in primary health care, thereby highlighting the need to look more carefully at sleep-related issues in routine clinical practice.

Methods: This is a cross-sectional study aiming to evaluate sleep habits and related disorders among the Brazilian population, using validated sleep assessment tools and questionnaires.

Results: A significant prevalence of sleep disorders, such as insomnia and sleep apnea, was found among primary care patients. Statistical analyses highlighted correlations between poor sleep quality and increased risks of chronic conditions, including cardiovascular diseases and mental health disorders, as well as low levels of physical exercise, currently considered a non-pharmacological approach to improve sleep quality.

Conclusion: Addressing sleep health in primary care settings is crucial for promoting patient well-being and preventing chronic diseases. Implementing effective screening and management strategies for sleep disorders, combined with population education initiatives, has the potential to significantly improve overall health outcomes and quality of life.

ID: 1517

Insomnia and Sleep Disruption in a Primary Care Facility in the City of São Carlos, SP

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Keywords

- insomnia
- sleep week
- sleep disruption
- primary care

Introduction: Sleep is crucial for health, with disorders like insomnia and sleep apnea causing significant impairments. This study aimed to assess the prevalence and impact of insomnia during Sleep Week 2024, a nationwide campaign supported by the Brazilian Association of Sleep, focusing on attendees of a Family Health Unit (USF) in São Carlos-SP, Brazil.

Objective: To screen for insomnia and sleep disruption and assess their potential impact on the target population.

Methods: This cross-sectional study included 40 participants from USF COHAB in suburban São Carlos, SP. Data collection involved self-created questions and validated questionnaires, including the Insomnia Severity Index (ISI), with a threshold score of >15 indicating insomnia. Participants rated their sleep quality on a Likert scale (0 to 10). Data were recorded in Excel 2013 and analyzed using IBM SPSS 25.0, with a significance level of $p \leq 0.05$. Student's T-test was used for statistical analysis.

Results: Among 40 respondents (31 women, 9 men; mean age: 42.3 years), 19 (47.5%) met the ISI criteria for insomnia. A strong negative correlation was found between ISI scores and self-reported sleep quality ($r = -0.727$, $p < 0.001$), persisting even after excluding those with Excessive Daytime Sleepiness (EDS) ($N = 15$, $r = -0.816$, $p < 0.001$). A weak negative correlation between ISI and age ($r = -0.324$, $p < 0.05$) was not significant when EDS participants were excluded. No significant correlations were found between ISI scores and other variables, including BMI, cervical circumference, and weekly physical activity. Participants waking up three or more times per night had significantly higher ISI scores (mean ISI = 15.13; SD = 5.05) compared to those who did not (mean ISI = 10.28; SD = 6.19) ($t(38) = -2.56$, $p < 0.05$). Those rating their sleep as 7 or higher had significantly lower ISI scores (mean ISI = 7.78; SD = 5.18) compared to those rating their sleep lower (mean ISI = 15.64; SD = 4.52) ($t(38) = 5.12$, $p < 0.001$).

Conclusion: Waking up more than three times per night and self-rating sleep quality below 7 were significantly associated with a higher prevalence of insomnia. These findings highlight the importance of addressing sleep issues in primary care. We recommend including assessments of sleep fragmentation and perceived sleep quality in routine screenings for sleep disorders. Acknowledgments: we thank the Brazilian Sleep Association for providing materials and resources that enabled this research.

ID: 1519

Sleep Complaints in Older Adults with Chronic Low Back Pain: a Cross-Sectional Study

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Keywords

- chronic pain
- aged
- sleep disorders

Introduction: Chronic low back pain (CLBP) can be highly disabling among older adults. Poor sleep quality has been associated with greater pain and disability in older adults with CLBP. However, there is a lack of data on the prevalence of sleep complaints and their association with CLBP outcomes in this population.

Objective: To investigate the 1) prevalence of sleep complaints among older adults with CLBP, and 2) associations of the three most prevalent sleep complaints with CLBP intensity and CLBP-related disability.

Methods: This is a cross-sectional study. We recruited older adults ($\geq$60 years old) with CLBP ($\geq$3 months duration), who were seeking physiotherapy care in a primary care setting located in Belo Horizonte, Brazil. Our exclusion criteria were a CLBP intensity level of <3 on a 0-10 scale, significant cognitive decline (Leganes Cognitive Test score >4), and CLBP due to a specific cause (e.g., fracture, cancer, or infection). Participants answered the Sleep Complaints Questionnaire (sleep complaints assessment - prevalence of 15 pre-specified sleep complaints), Numerical Rating Scale (CLBP intensity assessment - 0-10 scale where 0 is no pain and 10 the worst pain imaginable), and Roland-Morris Questionnaire (CLBP-related disability assessment - 24 questions regarding the impact of CLBP on work-related and daily living activities). We ran six binary logistic regression models in which having/not having the sleep complaint was the dependent variable and scores at the Numerical Rating Scale and Roland-Morris Questionnaire were the independent variables. Models generated unadjusted ORs and 95% CIs.

Results: 112 participants were recruited and 100 met our eligibility criteria for inclusion (69% women; mean age 69.8±6.6 years). Nearly all participants had at least one sleep complaint (96%). The most prevalent complaints were nocturnal awakenings (76%), snoring (57%), and insufficient sleep/waking up tired (55%). Reporting nocturnal awakenings (OR 1.09, 95%CI 1.01 to 1.17) and insufficient sleep/waking up tired (OR 1.14, 95%CI 1.04 to 1.26) were associated with greater CLBP-related disability. No other associations were found.

Conclusion: Most older adults with CLBP have at least one sleep complaint. Complaints related to fragmented sleep and non-restorative sleep are prevalent and may be associated with greater CLBP-related disability in this population. The high prevalence of snoring complaints may reflect the high prevalence of OSA in this population.

ID: 1521

Diagnosis Accuraccy and OSA Persistence in Children Using the Artificial Intelligence

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Keywords

- OSA
- sleep endoscopy
- artificial intelligence

Introduction: Obstructive sleep apnea syndrome (OSA) is characterized by episodes of upper airway obstruction, with systemic repercussions, such as craniofacial, cardiovascular, metabolic and neurocognitive alterations. The diagnosis is confirmed by polysomnography (PSG), available in only a few centers. In addition, Artificial intelligence (AI) has been used in medicine, facilitating the classification and prognosis of diseases, making it possible to assess associations not found with traditional scientific methodology. We hypothesize that AI can help in the recognition of moderate-severe OSA and/or persistence of OSA after adenotonsillectomy, based on age, weight, the questionnaire Obstructive Sleep Apnea 18 (OSA-18) and sleep endoscopy.

Objective: To evaluate the diagnostic accuracy of the OSA-18 dataset, age, weight/age z-score and sonoendoscopic examination for the diagnosis of moderate-severe OSA, and persistence of OSA in children, using only AI.

Methods: Data from the OSA-18, age, weight/age Z-score, PSG and sleep endoscopy of 95 children aged 4 to 9 years who underwent PSG for diagnosis and treatment of OSA at the HCFMB from 2015 to 2021 were included. Children with incomplete data, neuropathic or syndromic were excluded. Using AI, with machine learning, the diagnostic accuracy for normal-mild and moderate-severe OSAS was evaluated in two stages, as follows: 1. from OSA-18 data, age, weight and preoperative sleep endoscopy; 2. by the set of the same data, but after adenotonsillectomy, evaluating the accuracy for the persistence of OSAS.

Results: The results showed high accuracy (93%) for the preoperative diagnosis of OSA, when data from the OSA-18, age and weight/age z-score were used, reflecting high sensitivity, 100% in normal-mild OSA and 88% in moderate-severe OSA, in addition to high specificity, 88% and 100%, respectively. On the other hand, sleep-endoscopy data for diagnosis showed a reduction in accuracy, making its execution unfeasible. However, to assess the persistence of OSA in children, sleep endoscopy proved to be better than the OSA-18 questionnaire, leading to an accuracy of 79%, against 75% combining OSA-18, age and weight.

Conclusion: The use of AI with machine learning proved to be effective in the diagnosis and follow-up of OSA, and may contribute to the replacement or helping the decision on PSG indication.

ID: 1528

Sleep Quality, Sleepiness and Chronotype of Professors from a Brazilian Public University

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Keywords
- chronotype
- university professors
- sleep
- sleep quality

Introduction: Recent studies have indicated that public universities professors have been suffering changes in sleep patterns due to their work demands. However, more evidence is necessary to understand this association, as well as proposing strategies to improve their sleep quality.

Objective: Therefore, the aim of this study is to evaluate the sleep quality of professors from a federal university in Minas Gerais, Brazil.

Methods: This is a cross-sectional study with quantitative approach. The research was conducted with a sample of 36 professors from a public university located at Minas Gerais (MG), Brazil. Descriptive and hypothesis testing were carried out with the following instruments: sociodemographic questionnaire, Pittsburgh Sleep Quality Index (PSQI), Morning-Evening Questionnaire (MEQ) and the Epworth Sleepiness Scale (ESS).

Results: MEQ identified that most of the professors are moderate morning type (58.35%) and intermediate (25%). ESS revealed a prevalence of 30.6% of excessive daytime sleepiness and PSQI identified poor sleep quality in 58.30% of the sample. Pearson's correlation test showed a significant negative correlation between MEQ and ESS scores (r= -0.35, p=0.041), and Spearman's correlation test showed significant positive correlation between PSQI score and age (rho= 0.34, p=0.045).

Conclusion: Our results suggest that most of the professors are moderate morning types (58.35%) and have poor quality of sleep (58.30%). In addition, the higher MEQ score is (morning type subjects) the lower is the probability to develop daytime sleepiness (subjects lower ESS scores) and Spearman's correlation test showed that professors with higher age have poor quality of sleep according to PSQI scores.

ID: 1530

Severity Factors in Obstructive Sleep Apnea in Individuals with Chronic Spinal Cord Injury

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Keywords
- spinal-cord-injury
- obstructive apnea
- diagnosis

Introduction: Obstructive sleep apnea (OSA) in individuals with spinal cord injury (SCI) is high, with severe forms occurring in up to 67.0% of tetraplegic patients. Nonetheless, factors associated with the increased severity of OSA in this population are poorly studied. Understanding severity factors for OSA in individuals with SCI could improve diagnostic screening methods and favor targeted therapeutic approach to specific OSA phenotypes in this population.

Objective: To analyze predictive factors of moderate-to-severe OSA and each likelihood influence to severe forms of OSA in SCI patients.

Methods: Eighty-eight individuals with chronic SCI (tetraplegia or paraplegia), of duration $\geq$6 months were included. All were attending rehabilitation programs at the SARAH Network between November 2015 and December 2021 and underwent assisted polysomnography for sleep-related complaints. The exclusion criteria included respiratory, cardiac, and other neurological diseases unrelated to SCI. The severity factors studied were age, sex, body mass index (BMI) $\geq$25, neck circumference (NC) $\geq$40 cm, and abdominal circumference (AC) $\geq$88 cm for women and $\geq$102 cm for men, level of SCI (tetraplegia/paraplegia), injury severity according to American Spinal Injury Association (ASIA) criteria (from AIS A to C), and history of loud and frequent snoring. In a univariate logistic regression analysis, variables with $p<0.2$ were selected for the development of a multivariate logistic regression model.

Results: With the univariate regression analysis, AIS, gender, and BMI were excluded ($p>0.2$). Tetraplegia (OR 11.23, 95% CI 2.55-45.76), AC (OR 5.95, 95% CI 1.80-19.7), and a history of snoring (OR 6.69, 95% CI 1.35-33.27) remained in the multivariate regression analysis ($p<0.05$), while NC and age were excluded ($p>0.05$). The model showed a specificity of 0.67, sensitivity of 0.89, and accuracy of 0.81, with a ROC curve of 0.86.

Conclusion: OSA severity factors are usable to develop a specific screening questionnaire for people with SCI, as a strategic method for targeted diagnostic approaches. Questionnaires developed and validated for able-bodied individuals, such as the Berlin and the STOP-Bang, may not adequately address people with SCI.

ID: 1532

Epidemiological Profile of Patients at the Multidisciplinary Sleep Disorders Outpatient Clinic in a Military Hospital

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Keywords
- epidemiological profile
- sleep disorders
- multidisciplinar clinic

Introduction: Sleep disorders are prevalent among the Brazilian population, impacting the quality of sleep and life, as well as causing serious multisystemic consequences. They are related to many comorbidities and require adequate diagnosis and treatment for clinical improvement.

Objective: To demonstrate the prevalence of sleep disorders and the epidemiological profile of patients treated at the Multidisciplinary Sleep Disorders Outpatient Clinic (MSDOC) of a Public Military Hospital.

Methods: This is a descriptive cross-sectional study, with secondary data collection. The medical records of all patients treated at the MSDOC, from 02/08/2023 to 07/31/2024, were analyzed. The patients were seen by the same professionals, through the multidisciplinary work of a Sleep Doctor Neurologist, Otorhinolaryngologist and Sleep Physiotherapist. The data collected referred to sex; age; presence of comorbidities and confirmed diagnosis of sleep disorder.

Results: Of the 187 patients seen, 55% were male and 45% were female. The most prevalent age for sleep disorders was 50-59 years old, which represents 30% of individuals, followed by the age 40-49 years old (23%). The average age was 56.03 years old, with the youngest being 20 years old and the oldest being 88 years old. Regarding confirmed diagnoses of sleep disorders, 71% were OSA; 46% Insomnia; 22% sleep bruxism; 18% Restless Legs Syndrome; 10% circadian rhythm disorder; 7% primary snoring; 6% insufficient sleep/sleep deprivation; 2% sleep-related hypoventilation; 1% sleepwalking; 0.5% narcolepsy; 0.5% acting in dreams; 0.5% nocturnal epilepsy; 0.5% REM Sleep Behavior Disorder and 0.5% Obesity Hypoventilation Syndrome. 61% of these patients had 2 or more associated sleep disorders. 90% of patients had comorbidities associated with sleep disorders, such as overweight or obesity, coronary artery disease, atrial fibrillation, systemic arterial hypertension, previous stroke, congestive heart failure, type 2 DM, dyslipidemia, hypothyroidism, respiratory diseases, gastroesophageal reflux, psychiatric disorders, epilepsy, Parkinson's, transient ischemic attacks and migraine.

Conclusion: The most prevalent profile was men, advanced age, diagnosed with OSA and presence of comorbidities. Therefore, the creation of a MSDOC in a public hospital promotes faster diagnoses and therapeutic approaches with different sleep professionals at a lower cost, allowing adequate and early treatment, restoring the quality of sleep.

ID: 1533

Sleep Quality, Sleepiness and Chronotype of Public Administrative Workers from a Brazilian Public University

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Keywords

- sleep
- sleep quality
- chronotype
- university

Introduction: Sleep quality plays a fundamental role in the health and daily performance of individuals. Among the possible determinants of sleep is the work environment. In this context, sleep disorders can represent a significant challenge, affecting not only physical and mental health, but also the productivity and well-being of workers. Few studies have investigated the association between sleep quality and public workers.

Objective: This research aims to evaluate the sleep quality of public administrative workers from a Brazilian university, in order to suggest possible pathways to a better work performance.

Methods: This is a cross-sectional study with quantitative approach. The research was conducted with a sample of 50 public administrative workers (PAW) from a public university located at Minas Gerais (MG), Brazil. Descriptive and hypothesis testing were carried out with the following instruments: sociodemographic questionnaire, Pittsburgh Sleep Quality Index (PSQI), Morning-Evening Questionnaire (MEQ) and the Epworth Sleepiness Scale (ESS).

Results: MEQ identified that most of the PAW are moderate morning type (52%) and intermediate (24%). ESS revealed a prevalence of 30% of excessive daytime sleepiness and PSQI identified poor sleep quality in 56% of the sample. Spearman's correlation test showed significant negative correlation between PSQI and MEQ scores (rho= -0.34, p=0.015), and Pearson's correlation test showed significant positive correlation between MEQ score and age (r= 0.34, p=0.016).

Conclusion: Our results suggest that most of the PAW are moderate morning types (52%) and have poor quality of sleep (56%). In addition, the higher PSQI score (poor quality of sleep) the lower is the MEQ score (evening subjects), and Pearson's correlation test indicates that PAW with higher age is more likely to be morning types.

ID: 1537

Intraoral Mandibular Advancement Device Treatment for Severe Sleep Apnea: a Clinical Analysis

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Keywords

- sleep apneia
- sleep quality
- polysomnography

Introduction: Intraoral mandibular advancement device is a good treatment in association with CPAP or complaining of primary snoring. The use of the device alone in patients with severe obstructive sleep apnea is not yet well established in the literature, and may be a treatment option for patients unable to undergo gold standard treatments.

Objective: To analyze the shortcomings of using a titratable mandibular advancement oral appliance, through PSG and ESS, in patients with severe OSA, as well as to analyze possible factors related to therapy success

Methods: Six patients who presented with Severe Obstructive Sleep Apnea (OSA), that is, an apnea-hypopnea index (AHI) > 30, diagnosed through type 1 or 3 polysomnography (PSG), used a titratable mandibular advancement oral appliance. Medical records were reviewed, data from medical history, physical examination and evolution of the clinical picture before and after the intervention through the Epworth Sleepiness Scale (ESS) and PSG types 1 and 3.

Results: Six patients were included, aged 22 to 80 years, with a median age of 52 years. Of these, 4 (66%) were male and 2 (33%) were female. The primary complaint was excessive daytime sleepiness (83%), which was graded according to the ESS, with all patients showing abnormal sleepiness (ESS > 9) and an AHI > 30 in all cases, with a median of 34.3 events/hour. BMI ranged from 22.5 to 55, with a median of 30.25. Voluntary mandibular advancement, measured with a mandibular advancement measurement tool (Gauge ruler), ranged from 3 to 12 mm. The post-treatment AHI had a mean reduction of 23.4 events/hour, with values ranging from 4.3 to 29.3. Meanwhile, the ESS had a mean reduction of 15.7. Two patients (33%) showed a reduction in AHI of > 50% from baseline and < 5 events per hour, who had a BMI between 35.6 and 55, with a mandibular advancement of 7 and 11 mm, and a reduction in ESS of 20 and 23. Four patients (66%) showed a reduction of < 50% from baseline AHI, indicating treatment failure, with a mean ESS reduction of 5.

Conclusion: Mandibular advancement oral appliances do not have well-established benefits in the treatment of severe OSAHS, but they can be a viable option with potential for good outcomes in specific cases, and therefore, their use should be individualized. The presence of factors that preclude first-line treatments makes oral appliances a more attractive option, even though objective criteria for success in severe OSA cases are not yet well-established.

ID: 1538

Association of Comorbid Insomnia and Obstructive Sleep Apnea (COMISA) with Depressive Symptoms in a Population Sample

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Keywords

- Insomnia Obstructive Sleep Apnea Comorbid Insomnia and Obstructive Sleep Apnoea (COMISA) Psychiatric Symptoms Beck's Depression Inventory Depression Population Sample

Introduction: Insomnia Disorder (ID) and Obstructive Sleep Apnea (OSA) are two of the most common sleep disorders in the general population. Recently, the co-occurrence of these two conditions, known as COMISA, has garnered attention due to its potential impact on psychiatric disorders like anxiety and depression.

Objective: The aim of this study is to evaluate whether the association of these disorders (COMISA) leads to an additive effect of morbidity on psychiatric symptoms in a population-based sample from São Paulo.

Methods: Cross-sectionally, 769 participants from the EPISONO 2018 study were evaluated. Four groups were identified: COMISA Group (IAH > 15 and ISI > 15), Insomnia Disorder (ID) Group (ISI > 15), OSA Group (IAH > 15), and Non-ID Non-OSA Group (no sleep apnea or insomnia). A linear regression analysis was conducted with the Beck's Depression Inventory (BDI) score as the dependent variable. The data were analyzed using the Jamovi program, employing a Generalized Linear Model (GzLM) with a significance level set at $p < 0.05$. To account for potential confounding factors, adjustments were made for age, sex, and BMI.

Results: Among the 769 participants, 36 had COMISA, 102 had only ID, 119 had OSA, and 490 had neither ID nor OSA. Regression analysis revealed that only ID was significantly associated with a higher BDI score, with an average increase of 6.76 points ($p < 0.001$; CI 5.10-8.43), after adjusting for age, BMI, and sex. OSA and COMISA did not reach statistical significance ($p > 0.05$).

Conclusion: The study found that ID is significantly associated with higher levels of depression scores. In contrast, OSA and COMISA did not significantly affect this measure in the general population. The study's non-clinical sample, relatively small sample size, and cross-sectional design are potential limitations.

ID: 1543

Sleep Quality and Performance of Adolescent Female Football Athletes: a Pilot Study

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Keywords

- sleep quality
- soccer
- teenagers
- performance

Introduction: Sleep is a physiological state that plays a fundamental role in the healthy development of adolescents, with daily implications, especially in behavior, attention and emotion (Hosokawa et al., 2022). However, many youth football teams do not take teenagers' quality sleep into account. Associated with this, inappropriate behaviors can harm the quality of life, and, consequently, the development and performance of adolescent athletes (Erlacher et a., 2011).

Objective: To analyze the quality of sleep and performance of football athletes in the female youth category.

Methods: The sample was made up of 32 teenagers (girls) from the youth football categories aged 10 to 24 years, from clubs in the city of Recife (Pernambuco). This is field research with a quantitative approach and cross-sectional design. All participants completed a sociodemographic questionnaire with screen time. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) and the subjective assessment of performance using the Likert scale regarding the perception of each athlete's sporting performance, completed by a member of the technical committee (Arruda et al., 2018).

Results: The prevalence of poor sleep quality, performance and screen time were 27.8%, 22.8% and >4 hours, respectively. The analysis of covariance revealed better performance in adolescents with better sleep quality (PSQI ≤ 5; all p values < 0.05).

Conclusion: Adolescent athletes from the youth football categories have a high prevalence of poor sleep quality. It was also demonstrated that screen time proved to be a mediator of the association between sleep quality and could cause harm to the athlete performance.

ID: 1544

Application of a Mathematical Actigraphy-Based Model to Predict Dim Light Melatonin Onset, and its Insights into Chronotype and Sleep Patterns

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Keywords

- accelerometry
- circadian rhythm
- mathematical model
- predicted DLMO

Introduction: Circadian phase can be assessed through biological measures such as melatonin secretion, with Dim Light Melatonin Onset (DLMO) being the gold standard. However, the conditions required for DLMO measurement limit its widespread use, highlighting the need for more practical alternatives, such as predicting DLMO using actigraphy data.

Objective: Predict DLMO from actigraphy data and explore its relationship with chronotype, diurnal preference, and key actigraphy components.

Methods: We analyzed actigraphy data from 402 participants (60% female, mean age 49.5±14.9 years) from São Paulo (EPISONO 4th edition). Data was collected over 5 workdays and 2 free days between August 2018 and April 2019, with 26.6% during daylight saving time (BRST). An open-source mathematical model was used to predict DLMO (pDLMO) using activity, sleep-wake states, and light exposure data from actigraphy. A Principal Component Analysis (PCA) identified 5 components: (1) sleep quantity and opportunity, (2) sleep and rhythm timing, (3) sleep quality and continuity, (4) activity during wakefulness, and (5) sleep regularity and rhythm robustness. Correlation analysis was performed between pDLMO and mid-sleep time corrected for sleep debt (MSFsc), self-reported diurnal preference (Morningness-Eveningness Questionnaire), and the PCA components.

Results: The average pDLMO was 7:11 p.m. ± 2:22, with an interquartile range from 4:42 p.m. to 9:00 p.m. The data exhibited a bimodal distribution (Dip test value=0.20; $p<0.001$), with no significant differences related to BRST ($p=0.096$), gender ($p=0.176$), or age ($p=0.898$). pDLMO was significantly associated with MSFsc ($R^2=0.026$; $\beta=0.161$; $p<0.001$), but not with diurnal preference scores ($p=0.185$). There was a significant association with pDMLO and the "sleep and rhythm timing" component ($R^2=0.0286$; $\beta=0.169$; $p<0.001$).

Conclusion: We predicted DLMO using an actigraphy-based model in a Brazilian sample across a wide age range. pDLMO was significantly correlated with MSFsc, indicating its potential as a chronotype proxy. Its association with "Sleep and rhythm timing" component suggests alignment with actigraphy-derived sleep and rhythm indicators. The lack of correlation with diurnal preference highlights a possible mismatch between behavioral patterns and circadian preferences. Mathematical models using actigraphy data can be practical tools for estimating circadian phase, but require validation for accuracy and reliability.

ID: 1545

Possible Neuroprotective Mechanisms of Exercise in Improving Sleep Disorders Caused by Restless Legs Syndrome in the Iron-Deficient Rodent Model

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Keywords

- sleep
- iron
- brain

Introduction: Restless Legs Syndrome (RLS) is characterized by the need for movement, especially during rest and at night, which results in difficulty or inability to initiate and maintain sleep. The iron-deficient rodent model is a valuable model for understanding the changes and mechanisms of RLS, enabling the development of new therapies. Exercise is a strategy to improve symptoms, however it is little encouraged, and the mechanisms by which symptoms improve are poorly understood.

Objective: To investigate the effect of chronic aerobic exercise on the sleep pattern and architecture of animals, and to analyze the protein content of the dopamine receptor and transporter (D2R and DAT), adenosine receptors (A1R and A2R) and glutamate receptor (GLU1) in the striatum of the animal model of iron deficiency for RLS.

Methods: Male Wistar rats were distributed into control group (CTRL) (standard diet), ID group (iron deficiency diet), CTRLEX (exercise) and IDEX (exercise) (n=6-7 per group). The exercise protocol was conducted in 5 sessions (1 hour each) per week, for 4 weeks. After 4 weeks of exercise, the animals' sleep was evaluated for 24 hours, and striatum was collected for molecular analysis by Western Blot (WB). The results were analyzed using the linear mixed model, with post hoc Tukey ($p<0.05$).

Results: The ID group (group for RLS) demonstrated worsening in all sleep parameters expected for RLS (light cycle) in relation to the CTRL, with a reduction in total sleep time, sleep efficiency, and NREM sleep, and an increase in arousals, wakefulness and limb movements. The ID also showed an increase in the transition from wakefulness directly to REM sleep in relation to all groups (CTRL $p=0.001$; CTRLEX $p=0.027$; IDEX $p=0.042$), demonstrating a change in sleep architecture. The group that performed the exercise (IDEX) had improvements in all sleep parameters that were altered in the ID, with an increase in total sleep time ($p<0.000$), sleep efficiency ($p<0.000$), and NREM sleep ($p=0.001$), and a reduction in arousals ($p=0.007$), wakefulness ($p<0.000$) and limb movements ($p<0.000$). In addition, the exercise caused an increase in the DAT ($p=0.001$) and the A1R ($p=0.001$), which may represent changes responsible for the improvement in symptoms.

Conclusion: These results highlight the potential of exercise as a non-pharmacological treatment for sleep impairments caused by RLS and provide us with possible molecular pathways that act to improve sleep. Acknowledgment: FAPESP (#2020/13074-6), Lilo Habersack Award 2021.

ID: 1546

Sleep Quality in Adolescent Swimmer Athletes During the Tapering Phase

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Keywords

- sleep quality
- swimmers
- tapering

Introduction: Sleep quality is an essential element for the performance and recovery of young athletes, especially those involved in physically demanding sports such as swimming (Costa et al., 2022). Research has shown that adequate sleep not only promotes muscle recovery but also improves cognitive function and overall performance in competitions (Bird, 2013; Watson, 2017). Training in adolescent athletes is characterized by high daily volume and intensity, which may negatively impact the amount of sleep recommended for this age group. This reduction in sleep can affect recovery and performance in athletes (Walsh et al., 2021). For adolescent athletes, whose developmental phase heightens sleep needs, both sleep quality and quantity become even more essential (Wakayama et al., 2001; Rosinha, 2005).

Objective: Analyze sleep quality in young swimmers during the tapering phase.

Methods: Data was collected 21 days before the target competition, with anthropometric measurements taken on the first day. Sleep behavior was initially assessed through polysomnography at the athletes' homes, providing information on SE, TST, SL, and WASO. Athletes were classified as having good sleep (SE > 85%) or poor sleep (SE < 85%). The same variables were monitored over the following three weeks using an actigraph and a sleep diary. Drowsiness was measured using the Karolinska Sleepiness Scale. A repeated measures ANOVA compared the athletes' sleep quality over three weeks, with post-hoc the significance level adopted was 5% ($p<0.05$).

Results: The TTS decreased over the weeks, from 8.48 hours in Week 1 to 7.11 hours in Week 3. ES remained relatively stable, ranging from 78.00% in Week 1 to 79.80% in Week 3. LS increased from 30.10 seconds in Week 1 to 48.10 seconds in Week 3. WASO decreased from 20.00 in Week 1 to 17.00 in Week 3, while drowsiness slightly increased in Week 2 before decreasing in Week 3. The significant results showed that TTS had a very large effect size (1.52), while ES and LS had medium effect sizes (0.63 and 0.65, respectively). Additionally, drowsiness had a medium effect size (0.60).

Conclusion: We conclude that, for young swimmers, sleep quality during the tapering phase is a more significant factor than total sleep duration. Notable differences were observed in sleep efficiency, latency, and levels of sleepiness between the good sleep and the poor sleep groups. Interventions aimed at improving these aspects could significantly enhance athletic performance and recovery.

ID: 1551

Myofunctional Therapy as an Effective Treatment of Obstructive Sleep Apnea in a Patient with Systemic Sclerosis

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Keywords
- obstructive sleep apnea
- systemic sclerosis
- orofacial myofunctional therapy

Introduction: Systemic sclerosis (SSc) is a chronic autoimmune disease of the connective tissue. Sleeping difficulty was observed in 76% of SSc patients. Orofacial myofunctional therapy (OMT) has been used in the treatment of obstructive sleep apnea (OSA). There are no studies on the benefit of OMT as a treatment in patients with SSc and OSA.

Objective: Describe OMT as a treatment for mild OSA in patients with SSc and microstomia.

Methods: Case Report Patient C.A.G., female, 45 years old, presents with excessive daytime sleepiness, initial insomnia and difficulty concentrating. She has been diagnosed with SSc for 10 years, with skin, esophageal, vascular and pulmonary involvement, besides migraine, hydrocephalus and depression. Physical examination revealed scleroderma facies, limited mouth opening due to microstomia and body mass index (BMI) 18.36. Type 1 polysomnography (PSG) showed AHI 7.02/h, lower limb periodic movement index (PLMI) 8/h, oxyhemoglobin desaturation index (ODI) 1.4/h and snoring during the recording. Mild sleep apnea was found, and the patient was referred to OMT. Biweekly consultations were carried out, in addition to guided exercises at home by a speech therapist certified in sleep, for 3 months. The PSG performed after 3 months of OMT showed an AHI of 4.53/h. PLMI 7/h, ODI 0.18/h and no snoring was recorded. There was no significant variation in BMI during the period (17.97). The patient remains on OMT and medical follow-up.

Results: Discussion Studies show that longer disease duration, higher BMI and higher pulmonary artery pressure correlate with OSA in patients with SSc. Skin thickness, interstitial lung disease (ILD), gastroesophageal reflux disease (GERD), depression, increased PLMI and restless legs syndrome also correlates with sleep disorders. OMT reduces snoring, AHI, daytime sleepiness and improves ODI. In the present case, the patient has systemic symptoms that can be correlated to reduced sleep quality, such as depression, ILD and GERD. The proposed treatment demonstrated effectiveness in reducing and normalizing AHI, abolishing the presence of snoring and improving ODI, in agreement with the results described in the literature on the effects of OMT.

Conclusion: Therefore, OMT can be an alternative in the treatment of patients with SSc and OSA. It's essential to treat other systemic complaints that can affect sleep quality with a multidisciplinary approach being fundamental for better clinical results.

ID: 1557

Efficacy, Safety, and Indications of Exogenous Melatonin in the Autistic Population

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Keywords
- autism spectrum disorder
- exogenous melatonin
- sleep disorders

Introduction: Exogenous melatonin, a hormone related to sleep and circadian rhythm regulation, is currently being studied as a pharmacologic modality in sleep disturbances, especially in individuals diagnosed with Autism Spectrum Disorder (ASD). The incidence of sleep disorders among individuals with ASD is high, and the potential benefit of melatonin in these cases warrants further study.

Objective: This paper presents a review of the current scientific evidence regarding the use of exogenous melatonin in autistic individuals, focusing on its efficacy, safety, and dosages compared to other recommended therapies or a placebo.

Methods: This systematic narrative review followed PRISMA guidelines. The search included scientific articles published in the last 10 years in relation to the terms "Exogenous Melatonin" and "Autism," of which 17 relevant studies were selected. Research involving animals, plants and case reports, as well as analyses conducted with fewer than twenty participants, were excluded.

Results: The review showed that intervention with melatonin has efficacy by reducing sleep onset latency and increasing the total sleep time, in addition to reducing the number of wake-up instances during the night in children with ASD. The findings suggest that melatonin is generally well-tolerated with minimal adverse effects, such as headaches, dizziness, and daytime drowsiness. There is a variability in individual responses, and long-term safety remains to be investigated.

Conclusion: Exogenous melatonin appears to be an efficacious and well-tolerated treatment method for patients with ASD-associated sleep disorders. Furthermore, research shows that the benefits of pharmacological treatment could be enhanced when in conjunction with behavioral interventions. Constant monitoring and titration in dosage are needed to maximize the therapeutic benefits derived from the medicine. Long-term safety monitoring is required to address concerns, particularly for subgroups of ASD.

ID: 1558

Efficacy, Safety, and Indications of Exogenous Melatonin in Patients with ADHD

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Keywords

- ADHD
- exogenous melatonin
- sleep disorders

Introduction: Melatonin is a hormone that participates in sleep and circadian rhythm regulation.The exogenous form of this hormone may be considered as a treatment of sleep disorder for patients with Attention Deficit Hyperactivity Disorder (ADHD). The latter is characterized by attention deficits, impulsive behavior, and hyperactivity. Disorders of sleep can deepen the severity of these symptoms.

Objective: To examine the existing scientific literature on the use of exogenous melatonin in ADHD patients, evaluating its efficacy and safety compared to placebo or other therapies. Identifying the main indications and recommended dosages of exogenous melatonin in this population.

Methods: A systematic narrative review was operated following PRISMA guidelines. For the search, the selection included scientific articles over the past ten years containing the terms "Exogenous Melatonin" and "Attention Deficit Hyperactivity Disorder," finding a total of 7 relevant studies. The exclusion criteria included studies conducted on animals and plants, case reports, and those with less than 20 participants.

Results: The review showed that exogenous melatonin significantly improved the sleep latency and total sleep duration in children and adolescents with ADHD. Lower doses of melatonin at 1 mg were well-tolerated. It could be beneficial to administer this medication before the natural beginning of endogenous melatonin secretion in accordance with the circadian rhythm of each individual. Melatonin combined with behavioral therapies and stimulant medication enhanced the overall treatment outcome of ADHD.

Conclusion: Exogenous melatonin appears promising for the management of sleep disorders among ADHD patients. Furthermore, it supports the improvement in behavioral and cognitive symptoms. It is generally safe medication, however, with its long-term use, constant supervision is necessary to confirm its effectiveness and safety.More research should be undertaken to find the optimal dose and long-term effects of this pharmacological approach. Interactions with other medications for ADHD need exploration.

ID: 1561

Psychological Responses to Acute Physical Exercise on Sleep-Deprived Individuals: a Systematic Review and Meta-Analysis

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Keywords

- physical exercise
- sleep deprivation
- psychological responses

Introduction: Several factors influence adherence to exercise programs, including psychological responses. Sleep deprivation (SD), which is linked to mood disturbances, anxiety symptoms, and sleepiness, may influence this adherence. Although some narrative reviews have suggested that SD affects people's psychological responses to exercise, there is limited systematic evidence in the literature.

Objective: (1) To assess the effects of sleep deprivation compared to normal sleep on psychological responses to physical exercise, based on experimental studies; and (2) to investigate the effects of physical exercise, compared to inactive control interventions, on psychological responses in sleep-deprived individuals.

Methods: This systematic review followed the latest PRISMA guidelines and was prospectively registered in PROSPERO (CRD 42024533993). According to predefined criteria, we searched five databases (Medline, Embase, PsycINFO, Scopus, and CINAHL), using terms related to "SD", "physical exercise", and "psychological responses". The study selection process was performed in pairs in Covidence. We extracted relevant information from each manuscript. Meta-analysis used a standard mean difference (SMD) with a 95% confidence interval (95%CI). A p-value <0.05 was considered statistically significant. Heterogeneity was calculated using the Q-test, resulting in an I-squared (I^2).

Results: After the selection process, 7 experimental studies were included, with 79 participants (44.3% female; mean age $= 28.3 \pm 8.1$ years). Compared to normal sleep, SD worsened mood responses to exercise (k=4; SMD: 0.93 [95% CI: 0.42, 1.43]; p=0.003; I^2=0%), but not sleepiness (k=4; SMD: 0.16 [95%CI: -0.31, 0.62]; p=0.508; I^2=0%), or total wellness (k=2; SMD: -0.64 [95%CI: -1.35, 0.07]; p=0.096; I^2=0%). Moreover, compared to non-active interventions, physical exercise decreased sleepiness after SD (k=2; SMD: -0.67 [95%CI: -1.34, -0.01]; p=0.048; I^2=66.13%).

Conclusion: The SD group experienced greater mood disturbances following physical exercise, with no sleepiness and total wellness differences. Moreover, sleepiness was lower in the exercise group compared to non-active interventions after SD.

ID: 1562

Impacts of Prolonged Use of Zolpidem in the Elderly Population: a Systematic Review

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Keywords
- Elderly
- elderly 80 years and over
- Zolpidem

Introduction: Sleep disorders are prevalent in the elderly population and are often treated with non-benzodiazepine hypnotics, such as zolpidem. However, prolonged use of these drugs can lead to serious adverse effects such as cognitive impairment, mental confusion, falls, fractures and automobile accidents, which can aggravate the vulnerability of this population.

Objective: Map adverse events related to long-term use of zolpidem in the elderly population.

Methods: This is a systematic review. The eligibility criteria were cohort studies involving the elderly population, with an emphasis on use above the recommended dose of zolpidem specifically for insomnia and associated adverse events such as falls, drowsiness, dizziness and motor vehicle accidents. Articles focusing on outcomes associated with other chronic diseases were excluded. The search was carried out in five electronic databases: Medline, LILACS, Cochrane Library, Embase and PsycNET and only studies with full text available in Portuguese, English and Spanish were considered. The descriptors were "Elderly", "Elderly 80 years and over" and "Zolpidem" and the Boolean operators "AND" and "OR" were used. The Rayyan platform was used for selection by two reviewers in an independent and masked manner. The methodological quality of the selected studies was assessed using the JBI Critical Appraisal Checklist for Cohort Studies.

Results: The sample consisted of 10 studies. The articles have a high percentage in 2014 and 2016 and were published in a variety of renowned journals. The events analyzed show that six studies described the risk of fracture associated with zolpidem, especially hip fracture. In addition, the use of the non-benzodiazepine sedative hypnotic was found to be related to the occurrence of car accidents due to cognitive alterations. The selected studies were considered to be of high to moderate quality.

Conclusion: Prolonged use of zolpidem by older people may be associated with an increase in serious adverse events, such as fractures and falls. It is therefore crucial that healthcare professionals thoroughly assess the benefits and risks before starting or continuing zolpidem therapy, considering non-pharmacological alternatives and management strategies that minimize the associated risks, as well as ensuring ongoing monitoring of these patients.

ID: 1568

Sleep Quality Assessment of Patients in a Cardiological Intensive Care Unity

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Keywords
- sleep quality
- intensive care unity
- heart diseased

Introduction: The quality of sleep is directly related to the preservation of its architecture. An imbalance in this process may directly affect homeostasis, interfering in the Autonomic Nervous System, provoking blood pressure and heart rate alteration. Hospitalized patients in Intensive Care Units (ICU) are more likely to have sleep deprivation due to the severity of their condition, pharmacological treatments and exposition to environmental factors. Heart disease patients show higher vulnerability because sleep quality is related to triggering factors of cardiac alterations.

Objective: Assess sleep quality of heart disease patients hospitalized in a cardiological ICU.

Methods: This is a cross-sectional study made with hospitalized patients in a cardiological ICU of a public hospital in the city of Salvador (BA). Were involved in this study patients of both genders, over 18 years old, lucid, collaborative and that were at least in their second day of hospitalization. Were ruled out patients with cognitive and hearing limitations, unable to answer the questionnaires and the ones that refused to take part in the study. Were applied the Pittsburgh Sleep Quality Index (PSQI), Richards-Campbell Sleep Questionnaire (RCSQ) and the Sleep in the Intensive Care Unit Questionnaire (QS-ICU) by researchers trained in the period of July to October 2023.

Results: 33 patients took part in the research, being 55,0% males. The medium age of the participants was of $60{,}3 \pm 12{,}9$ years. In addition to environmental factors, sleep habits pre-hospitalization in the ICU influenced the sleep quality during hospitalization, with 73,0% of the patients already exhibiting poor subject sleep quality before hospitalization. In the PSQI it stood out major impact of sleep latency and night sleep disturbances. Via the QSRC, it was observed that the most important factors that have an effect on sleep quality were the amount of sleep depth and time to sleep, awakening and background noise. Considering the QS-ICU, the noise showed greater impact in sleep interruption in comparison to luminosity, conversations and team activities, with emphasis on the noise from the monitors.

Conclusion: Sleep quality of patients hospitalized in a cardiological ICU is low due to the time required to fall asleep, sleep fragmentation and noise from the unit. The patients' sleep quality previous to hospitalization may be an associated relevant factor. Environmental aspects must be considered.

ID: 1570

Sleep Bruxism and Overtraining in Adolescent Female Soccer Players: a Pilot Study

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Keywords
- sleep bruxism
- soccer
- adolescents
- overtraining

Introduction: Bruxism is defined as constant masticatory activity, characterized by teeth clenching and grinding, as well as muscle tension in the jaw muscles and lateral and/or protrusive movements. Sleep bruxism involves the repetition of these masticatory movements during sleep, which may prevent an individual from reaching deep sleep stages, thereby impairing daytime productivity. Overtraining, or overtraining syndrome, represents a set of symptoms resulting from chronic and excessive physical exercise accompanied by insufficient rest, requiring weeks or even months of recovery. This syndrome is a prevalent issue among soccer players and can result in various physical and psychological symptoms, such as fatigue, decreased muscle strength, and, notably, sleep disturbances like difficulty falling asleep and poor sleep quality.

Objective: To analyze the association between sleep bruxism and overtraining in youth female soccer players.

Methods: The sample consisted of 62 adolescent girls aged 15 to 20 years from youth soccer teams in Recife (Pernambuco, Brazil). A quantitative study with a cross-sectional design was conducted. The data collection instruments used were a sociodemographic questionnaire, the Oral Behavior Checklist (OBC) combined with an intraoral and extraoral clinical evaluation, and an overtraining scale.

Results: The prevalence of sleep bruxism and overtraining were 19.4% and 48.4%, respectively. The mean overtraining score among those with sleep bruxism was 14.92, while for those without sleep bruxism it was 13.0. However, there was no significant difference (p=0.359).

Conclusion: Adolescent female soccer players with sleep bruxism exhibited higher levels of overtraining. Therefore, our results support the idea that sleep bruxism should be considered by technical and health teams in the routine evaluation of young athletes.

ID: 1572

Sleep of Military Police Officers: Comparison Between an Objective and a Subjective Measurement to Determine Sleep Patterns

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Keywords

- sleep
- shift work
- actigraphy

Introduction: Shift workers are more susceptible to sleep restrictions, since working hours cause changes in sleeping and waking times. Instruments that assess sleep patterns in shift workers are used to better investigate these characteristics.

Objective: To compare objective and subjective measurements related to sleep among military police officers who are shift workers in the city of Rio Branco, Acre.

Methods: This was a cross-sectional study involving 31 male military police officers who worked alternating shifts of 12 hours on daytime, 24 hours off, 12 hours on nighttime, and 72 hours off. Start and end times, duration, and half phase of sleep were measured subjectively using the Munich Chronotype Questionnaire for shift workers (MCTQshift). In order to measure the same parameters objectively, actimetry was used for 14 consecutive days, including two work cycles. The obtained subjective and objective data were compared using Pearson's or Spearman's correlation tests, considering the distribution of the data. The significance level was $p<0.05$. The statistical program used was Jamovi software.

Results: The end times of sleep through the objective and subjective measurements were approximately 1 hour later after day (6:57±1:24 vs. 05:54±1:03) and night shifts (12:18±01:55 vs. 11:00±03:15). The total duration of sleep assessed by actigraphy on the day shift was 40 minutes longer than that reported by the participants (7:09±01:36 vs. 06:20±01:33). For days off, the objective total duration of sleep was 50 minutes less than that reported in the Munich Questionnaire (06:12±01:18 vs. 07:01±01:31). The half phase of sleep differed between the objective and subjective measurements for the day (16:06±03:02 vs. 20:24±01:44) and night shifts (07:28±03:28 vs. 08:06±01:52). Most police officers were characterized as early chronotypes (51.6%). In addition, a weak and statistically significant correlation was observed for end time (r=0.38; p=0.031), duration (r=0.38; p= 0.032), and half phase (r=0.36; p= 0.041) of sleep only in the day shift.

Conclusion: The comparison between the objective and subjective sleep measurement instruments demonstrated a correlation for the end times, total duration, and half phase of sleep only during the day shift. Nevertheless, caution is needed when using subjective measurements to analyze sleep patterns, since self-observation of sleep-related aspects can differ from actual values.

ID: 1573

Association Between Sleep Regularity and the Occurrence of Exacerbation in Individuals with Chronic Obstructive Pulmonary Disease

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Keywords

- chronic obstructive pulmonary disease
- sleep
- exacerbation

Introduction: Chronic Obstructive Pulmonary Disease (COPD) is characterized by a progressive airflow obstruction, accompanied by limiting symptoms such as dyspnea and fatigue. The disease's acute worsening is referred to as a period of disease exacerbation. This deterioration is linked to decline in various outcomes and increased mortality. Consequently, there is a need to research and advance on these modifiable factors that could impact exacerbations. While sleep quality has been previously linked to the risk of exacerbation, the relationship between sleep regularity and potential association with episodes of exacerbation remains unknown.

Objective: To examine the relationship between the regularity of total sleep time (TTS), sleep efficiency (SE) and time wake after sleep onset (WASO) with outcomes concerning acute exacerbations in individuals with COPD.

Methods: In this prospective cohort study, individuals with COPD underwent assessment of pulmonary function followed by objective sleep monitoring using Actiwatch. Sleep regularity was assessed by calculating the standard deviation of the variables. Telephone follow-ups were conducted at 3 and 6 months to gather information on exacerbations. Statistical analysis involved the Shapiro-Wilk test, point-biserial correlations or Kendall's Tau-B coefficient, and ROC curve analysis. The SPSS 20.0 software was adopted, and statistical significance was set as $p<0.05$.

Results: 30 individuals diagnosed with COPD were analyzed (11 men; age 68±8 years; BMI 28±5 kg/m2; FEV1 59±19%pred). Significant correlations were observed between regularity in TTS and worsening of symptoms (r=0.41, p=0.026), use of antibiotics (r=-0.39, p=0.033), need for lung imaging tests (r=-0.46, p=0.020) and hospitalization (r=-0.37, p=0.050). Regularity in SE was correlated with the use of antibiotics (r=0.44, p=0.016), need for lung imaging tests (r=-0.51, p=0.010) and hospitalization (r=-0.41, p=0.028). Finally, regularity in WASO was correlated with increased bronchodilator use (r=-0.56, p=0.001). A cutoff point of 127 minutes for the TTS was identified concerning the worsening of symptoms (AUC: 0.776, p=0.029, sensitivity= 0.957 and specificity= 0.857).

Conclusion: Sleep regularity is moderately linked to the occurrence of acute exacerbations in individuals with COPD. Moreover, a threshold of 127 minutes of total sleep time appears suitable to identify worsening of symptoms in this group.

ID: 1574

Sleep Regularity and Peripheral Muscle Strength in Individuals with Chronic Obstructive Pulmonary Disease (COPD)

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Keywords
- chronic obstructive pulmonary disease
- sleep
- muscle strength

Introduction: Complaints about sleep are frequent among individuals with chronic obstructive pulmonary disease (COPD). Poor sleep has been linked to various adverse effects in this group, including decreased levels of physical activity, exercise capacity and muscle strength. Although there is already a known connection between sleep and peripheral muscle strength in individuals with COPD, this is limited to sleep quality, indicating a gap in the literature concerning other sleep factors, such as regularity.

Objective: To examine the relationship between peripheral muscle strength of upper and lower limbs and sleep regularity in individuals with COPD. The secondary objective was to verify the degree of influence of sleep regularity on peripheral muscle strength.

Methods: In this cross-sectional analysis, individuals with COPD underwent assessments for lung function via spirometry, upper limb muscle strength through handgrip, and lower limb muscle strength via maximal voluntary isometric muscle contraction of the quadriceps femoris. Sleep was objectively evaluated using Actiwatch over a period of 7 consecutive days, and regularity was determined by calculating the standard deviation. Statistical analysis included the Shapiro-Wilk test, Pearson or Spearman correlation coefficients and simple linear regressions. The SPSS 20.0 software was utilized with a significance level set at $P\leq0.05$.

Results: 32 individuals diagnosed with COPD were analyzed (16 men; age 69±8 years; BMI 28±5 kg/m2; FEV1 59±19%pred). Upper limb strength correlated significantly with the regularity of total time in bed (r=-0.38, p=0.033), time wake after sleep onset (WASO) (r=-0.36, p=0.050) and showed a trend with the regularity of total sleep time (r=-0.33, p=0.073). Lower limb strength was associated with the regularity of sleep efficiency (r=-0.42, p=0.024), WASO (r=-0.49, p=0.007) and total sleep duration (r=-0.45, p=0.014). It was possible to conduct a simple linear regression analysis between handgrip strength and WASO, with R2=0.103). When considering femoral quadriceps strength, significant associations could be identified with all the variables previously correlated, with R2 values ranging from 0.144 to 0.215.

Conclusion: In individuals with COPD, sleep regularity associates moderately with peripheral muscle strength both of the upper and lower limbs.

ID: 1575

The Relation Between Shift Work and Non-Alcoholic Fatty Liver Disease: a Scoping Review

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Keywords
- shiftwork
- non-alcoholic fatty liver disease
- sleep disorders

Introduction: Non-alcoholic fatty liver disease (NAFLD) is a disorder characterized by lipids' accumulation in hepatocytes and may be associated with obesity, insulin resistance, metabolic syndromes, type 2 diabetes mellitus, genetic factors and environmental factors. Among these, recent studies highlighted that disturbances in the circadian timing system caused by shift work can impact on the metabolic homeostasis of the liver. Thus, as many studies reported that shift workers experienced chronic sleep deprivation, they may end up developing NAFLD. The risk of NAFLD has grown in society due to the increased demand for 24-hour services by globalization, which significantly exploits unusual working hours and disregards their effects on workers.

Objective: This study was carried out to assess the existing gaps and potentialities in this area of research, which seeks alternatives to improve shift workers' quality of life.

Methods: The bibliographic search was carried out in the MedLine databases by "PubMed", "Lilacs", "Dedalus", "Busca de Dados USP" and "Busca Integrada" from 2014 to 2023 using the keywords "fatty liver", "night shift", "shift work" and "non-alcoholic fatty liver disease". 31 articles were found, their abstracts were evaluated by two reviewers to determine whether they met the study's objectives, and, after careful analysis, their data was extracted and organized in a table. 15 articles were selected for full reading, following the PRISMA-ScR and the Methodological Framework.

Results: Of the articles analyzed, 7 mentioned shift work, which 3 cited alternating shift work as an independent predictor of high levels of NAFLD; 3 positively associated the disease with variables other than alternating shift work and in only one of the articles there was no association between shift work and the risk of NAFLD or metabolic syndrome. 8 studies did not mention shift work, but 2 linked the development of the disease to long working hours and 6 associated NAFLD with sleep disorders, such as short sleep duration, long nap times during the day, poor sleep quality, late bedtime and food consumption at night or before bedtime

Conclusion: The selected studies suggested a relationship between shift work and/or sleep disorders and the onset of NAFLD. However, the mechanisms of this association have not yet been clarified, and more studies are needed in this area, especially experimental ones, including samples of men and women.

ID: 1576

Clinical and Nutritional Intervention Mediated by Technology to Improve Sleep Quality in College Students

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Keywords
- telenutrition
- sleep quality
- nutrition
- mental health

Introduction: College students often face sleep disturbances due to academic pressure and the need to adhere to early morning class schedules. Guidance on sleep hygiene and healthy eating can contribute to improving both the quality and duration of sleep.

Objective: To assess the effect of a clinical and nutritional intervention aimed at improving the sleep quality of students at a Federal University.

Methods: A longitudinal study involving students enrolled in undergraduate courses at UFF (Niterói/RJ), approved by the Ethics Committee/UFF (CAAE: 69467323.8.0000.5243). Students participated in a hybrid format, with remote and in-person activities. After registration, volunteers completed questionnaires via Google Forms: Insomnia Severity Index (ISI), BECK Anxiety Scale, Sleep Hygiene Index (SHI), and PSQI. Students accessed recorded videos of up to 60 minutes via Google Classroom, available for 4 weeks, covering topics such as sleep regulation, foods that facilitate or hinder sleep, healthy eating, food labels, and behavioral aspects of sleep hygiene. In the 5th week, participants were re-evaluated using the SHI.

Results: The study included 84 students (Fem: 63), most of whom had minimal to mild anxiety (n=52) and subclinical to moderate insomnia (n=66). The average PSQI score was 6.4±5.7, indicating poor sleep quality, with an average sleep duration of 5.8 hours and a 47-minute sleep latency. The SHI score decreased after the telemedicine intervention but was not statistically significant (SHI – Initial 37.8 vs. Final 34.52, p=0.447). However, a notable reduction in screen use and improved consistency in sleep timing was reported by participants.

Conclusion: In this study, predominantly involving women and conducted over a short period, changes in sleep habits were identified in participant reports but not in the statistical test. Further investigation is needed to identify more resistant habits to enhance the intervention. Analysis is ongoing.

ID: 1577

Nutritional and Dietary Profile of College Students with Poor Sleep Quality at the Start of a Telemedicine Intervention Program for Sleep Health Promotion

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Keywords
- telenutrition
- sleep quality
- nutrition
- mental health

Introduction: Inadequate nutrition can contribute to poor sleep quality, which may affect mood, intellectual performance, memory, and body weight.

Objective: To evaluate the dietary and nutritional profile of college students at the beginning of a telemedicine nutritional intervention program aimed at improving sleep quality.

Methods: A study involving students enrolled in undergraduate programs at UFF (Niterói/RJ), approved by the Ethics Committee/UFF (CAAE: 69467323.8.0000.5243). Volunteers participated in a hybrid format with remote and in-person activities. Data collected included sleep quality (PSQI), weight, height, BMI, Waist Circumference (WC), Neck Circumference (NC), and markers of healthy eating assessed using the SISVAN questionnaire.

Results: The in-person activity included 46 students (Fem: 30), with an average age of 28±8.9 years. All participants had poor sleep quality according to the PSQI, with an average sleep duration of 5.8 hours (47 minutes of sleep latency) and 43.5% were overweight/obese, though most did not have cardiovascular risk based on WC and NC. Regarding dietary habits, 85% ate meals while using screens, and 27 students had more than 4 meals per day. Daily consumption of healthy foods included 71% eating beans, 52.2% eating fruits, and 60.9% eating vegetables and legumes. Among unhealthy foods, 57% of students consume sweets daily. A feeding window of >12 hours was reported by 6 students who skipped breakfast, as prolonged fasting interferes with sleep quality.

Conclusion: There was a good consumption of healthy foods, given that students eat lunch at the University Restaurant. However, daily consumption of sugary drinks and snacks could contribute to excess weight and impact sleep quality. The intervention program is needed to guide students in managing their eating habits to improve sleep and academic success.

ID: 1579

Nutritional Intervention Modulates Sleep in Women Undergoing Breast Cancer Treatment

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Keywords
- breast cancer
- insomnia
- diet and nutrition

Introduction: Insomnia is a public health issue and is currently one of the most common complaints among the population. It has been widely associated with depression, pain, tiredness, and fatigue, affecting most women undergoing breast cancer (BC) treatment

Objective: This study was based on the premise that specific nutritional interventions can positively modulate and improve sleep variables, aiding in the treatment and survival of these patients.

Methods: The study was experimental, lasting 6 weeks, and analyzed the effect of a sleep-facilitating nutritional intervention on women undergoing BC treatment. It was conducted through a randomized clinical trial with a convenience sample and double-blind statistical analysis. Fifty women undergoing BC treatment, selected from public and private treatment centers in Juiz de Fora – MG, participated in the study. Participants were divided into two groups: the Sleep Diet Group (SDG), which received a sleep-facilitating dietary plan, and the Control Group (CG), which received a dietary plan based on eating habits, portion sizes, and meal times. Sleep was monitored with the Mi Smartwatch Band 4C®.

Results: Comparing the groups, the SDG showed a greater total sleep time in weeks four and five of the intervention (SDG=474.88 min; CG=446.81 min; p=0.007; SDG=467.32 min; CG=439.50 min; p=0.010). The SDG also had a shorter wake time compared to the CG in the fourth week (SDG=12.99 min; CG=48.64 min; p=0.035). In the intragroup comparison, a significant difference (p=0.011) was found in wake time from pre-intervention (10.53 min) to post-intervention (5.94 min) for the SDG.

Conclusion: The results demonstrate an improvement in sleep quality with the sleep-facilitating diet, which may enhance quality of life and provide greater support for cancer treatment. This strategy highlights the potential of investing in easily accessible food prescriptions that increase the intake of tryptophan and melatonin, considering the applicability for vulnerable populations undergoing BC treatment.

ID: 1580

Self-Reported Sleep Problems and Association with Falls in Brazilian Older Individuals: 2019 National Health Survey

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Keywords
- sleep problems
- falls
- older individuals

Introduction: The occurrence of falls among the elderly population is a public health challenge due to its frequency and potential to reduce quality of life, increase illness and risk of death. Poor quality sleep leads to daytime sleepiness, decreased alertness and difficulty concentrating, which can lead to slower reflexes and less attention to environmental risks, increasing the likelihood of falls.

Objective: To investigate the association between sleep problems and the occurrence of falls among Brazilian older people.

Methods: Cross-sectional study with data from the Household-Based Population Survey, 2019 National Health Survey (NHS). The occurrence of falls was assessed by the question "In the last twelve months, have you had any falls?", and self-reported sleep problems were investigated by the question "In the last two weeks, how often have you had sleep problems, such as difficulty falling asleep, waking up frequently during the night or sleeping more than usual?". To check the association between the outcome and exposure, crude and adjusted analyses were performed for sex, age, regular use of medication, diagnosis of hypertension, diabetes, cataracts, and history of stroke using Poisson regression with robust variance adjustment, with effect measures expressed as prevalence ratios and respective 95% confidence intervals (95%CI), considering complex sampling effects using the Survey command.

Results: The prevalence of falls was 12.6% (95% CI 11.8; 13.4) among older individuals without sleep problems and 23.5% (95% CI 21.6; 25.6) among those with sleep problems. After adjustment, it was found that the prevalence of falls in the last year was 60% higher among older individuals with self-reported sleep problems (PR = 1.60; 95% CI 1.43; 1.78) when compared with older individuals without sleep problems.

Conclusion: The presence of sleep problems significantly impacted the occurrence of falls among Brazilian older people participating in the 2019 NHS.

ID: 1582

Sleep Problems and Violence in Brazilian Adults and Older People: Results of the National Health Survey

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Keywords
- violence
- sleep problems
- public health

Introduction: Violence is a multicausal phenomenon that requires great attention in the public health field because it is directly related to morbidity and mortality due to external causes, as well as the genesis of physical and mental illnesses in the population.

Objective: To estimate the prevalence of sleep problems in people who are victims of violence.

Methods: A cross-sectional study based on data from the 2019 National Health Survey (NHS) assessed sleep quality through a question about recent sleep problems, such as difficulty falling asleep, waking up frequently during the night, or sleeping more than usual. The responses were categorized as "No" or "Yes". The study also analyzed psychological, physical, and sexual violence in the last 12 months. Psychological violence included insults, humiliation, threats, or destruction of property. Physical violence involved slapping, pushing, or threats with weapons. Sexual violence was defined as nonconsensual touching or forced sexual acts. A positive answer to any question indicated victimization by this type of violence.

Results: Data from N = 88,531 adults and older individuals were analyzed. The prevalence of sleep problems in the last 12 months among adults and older individuals who suffered psychological violence was 29% (95% CI 27.7; 30.4), physical violence 30.2% (95% CI 27.5; 33.1), and sexual violence 28.8% (95% CI 22.3; 36.4).

Conclusion: Given the information, it can be highlighted that the prevalence of sleep disorders practically doubled in populations that suffered some type of violence.

ID: 1583

Exercise and Sleep-Induced Oxygen Desaturation in Individuals with Chronic Obstructive Pulmonary Disease

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Keywords

- chronic obstructive pulmonary disease
- sleep
- peripheral oxygen saturation

Introduction: It is known that exercise-induced oxygen desaturation (EIOD) is fairly prevalent among individuals with chronic obstructive pulmonary disease (COPD) and has been associated with arterial stiffness, reduced exercise capacity and increased risk of mortality. Factors associated with EIOD include obesity, airflow limitation and low resting oxygen saturation (SpO2). Individuals with COPD also experience a drop in SpO2 during sleep, resulting from being on the steep part of the oxyhemoglobin dissociation curve. However, it is not yet known whether EIOD associates with nocturnal sleep characteristics in this population.

Objective: To compare sleep between groups of individuals with COPD with and without EIOD.

Methods: In this cross-sectional study, individuals with COPD underwent pulmonary function assessment, continuous SpO2 monitoring using pulse oximetry during maximum isometric voluntary contraction of the quadriceps femoris (QF) and during the sit-to-stand (STS) test, with a cutoff point of SpO2<90% to indicate EIOD. Sleep was objectively assessed using the actiwatch monitor over 7 consecutive days and also by polygraphy during one night. Statistical analysis was performed using SPSS 20.0 software, and the Shapiro-Wilk and Mann-Whitney tests were applied.

Results: Thirty-six individuals with COPD were evaluated (age: 70 [64-72] years; BMI: 27 [24-31] kg/m^2; FEV1 54 [44-70]% predicted). The group with EIOD during the QF muscle strength test showed lower mean and minimum SpO2, as well as greater number of apneas in the polygraphy exam (p<0.05 for all). Additionally, individuals with EIOD during the STS test had greater sleep latency (p=0.031), lower sleep efficiency (p=0.025), higher % of wake time after sleep onset (p=0.047), more wake blocks (p=0.046) and lower total sleep time both in minutes and in % (p=0.038 and 0.047, respectively). In the polygraphy exam, worse results were also observed in those with EIOD in terms of mean SpO2 (p=0.023), baseline SpO2 (p=0.012), SpO2<85% (p=0.012), and SpO2<80% (p=0.012).

Conclusion: Individuals with COPD and exercise-induced oxygen desaturation exhibit poorer outcomes in sleep quantity, quality and respiratory performance during nocturnal sleep. Identifying factors associated with impaired sleep in this population is crucial for developing strategies aimed at a more comprehensive disease management.

ID: 1584

Poor Sleep Quality and Reduction of the Level of Physical Activity in Daily Life Over 1 Year in Individuals with COPD: Preliminary Results

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Keywords

- chronic obstructive pulmonary disease
- sleep
- physical activity in daily life

Introduction: It is well-established that individuals with chronic obstructive pulmonary disease (COPD) exhibit low levels of physical activity in daily life (PADL), which is an important predictor of mortality in this population. Sleep has been identified in cross-sectional studies as a factor linked to the level of PADL in individuals with COPD; however, it remains unclear whether poor sleep quality is associated with changes in PADL in a prospective cohort.

Objective: To analyze whether individuals with COPD and poor sleep quality exhibit changes in PADL over a 1-year follow-up, and whether this change is comparable between sexes.

Methods: In a prospective cohort, individuals with COPD and poor sleep quality classified through the Pittsburgh Sleep Quality Index (PSQI) with a score >5 at baseline were included. The level of PADL was assessed at both time points (baseline [AV1] and after 1 year [AV2]) with the Actigraph accelerometer used at the waist for 7 consecutive days. Shapiro-Wilk test and paired T-test were used for the statistical analyses, with SPSS 20.0 as the adopted software and P<0.05 as statistical significance.

Results: Eighteen individuals with COPD and poor sleep quality were included (11 men; age: 71[65-74] years; BMI: 28[25-32] kg/m^2; FEV1: 59[50-78] % predicted; baseline PSQI: 8[7-11] points). Regarding PADL variables, when comparing AV1 versus AV2, there was a reduction in light physical activity (PA) in minutes/day (322[253-397] versus 268[202-346]; p= 0.019) and also in % of the day (39[32-46] versus 33 [27-42]%; p=0.006). Sedentary time (in % of the day) increased when comparing AV1 and AV2 (60[53-67] versus 66[57-72] respectively; p=0.012). When comparing AV1 and AV2 in terms of sex, men decreased light PA in minutes/day (38 [28-44] versus 35[27-43]; p=0.031), while women reduced light PA (in % of the day) (41[38-47] versus 32[24-42]; p=0.011) and increased sedentary time (in % of the day) (58 [51-60] versus 67[57-75]; p=0.010).

Conclusion: Individuals with COPD and poor sleep quality exhibit a decline in PADL levels over a 1-year follow-up, characterized by increased sedentary time and decreased light PA. Upon analyses by sex, women demonstrated worsening in both characteristics (sedentary time and light PA), while men only reduced light PA.

ID: 1585

Prevalence of Sleep Disorders in the Brazilian Adult Population: Data from the National Health Survey (NHS) 2019

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Keywords
- sleep disorders
- NHS
- sleep

Introduction: Preserved sleep patterns are essential for maintaining the physical and mental well-being of humans, and sleep disorders are associated with illness.

Objective: To estimate the prevalence of sleep disorders in the Brazilian adult population according to sociodemographic characteristics.

Methods: Data from the National Health Survey (NHS 2019) regarding the question on sleep problems were analyzed: "In the last two weeks, how often have you had sleep problems, such as difficulty falling asleep, waking up frequently at night, or sleeping more than usual?" The answer options "Not at all" and "Less than half the days" were categorized as "No". The answers "More than half the days" and "Almost every day" were categorized as "Yes". The following variables were analyzed: a) sex; b) age group; c) schooling; d) race/skin color; e) use of private health insurance; f) type of census situation; and g) macro-region of residence; and h) federation unit. The data were analyzed in the Stata software using the set of commands for analyzing data from surveys with complex samples (survey). Statistically significant differences were considered in the absence of overlapping 95% CI.

Results: The prevalence of sleep disorders in the adult Brazilian population was 19.1% (95% CI: 18.6; 19.6). The following measures of prevalence of sleep disorders were identified: sex (male = 14.1% and female = 23.5%); age group (18 to 29 years = 18.2%, 30 to 44 years = 29.7%, 45 to 59 years = 28.4%, 60 to 74 years = 17.6% and 75 years or older = 6.0%); race/skin color (white = 20.0%, black = 19.8%, brown = 19.6%, yellow = 18.0% and indigenous=19.1%); schooling (none=24.5%, incomplete elementary school = 23.0%, complete elementary school =17.7%, incomplete high school = 15.7%, complete high school = 15.9%, incomplete university education = 18.6% and complete university education = 17.4%); use of private health insurance (no = 18.9% and yes =19.4%); area of residence (urban = 19.6% and rural = 15.7%), macro-regions (North = 13.6%, Northeast=18.8%, Central-West = 18.7, Southeast = 20.4% and South = 18.7%).

Conclusion: Almost two in every ten Brazilian adults had sleep disorders in 2019. Sleep disorders were more frequent in women, individuals aged 30 to 44 years, individuals of white skin color, without schooling, and living in urban areas. The Southeast region had the highest prevalence of sleep disorders in Brazil.

ID: 1586

Association Between Sleep Disorders and Mental Disorders in the Brazilian Adult Population Based on Data from the National Health Survey (NHS) 2019

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Keywords
- sleep disorders
- NHS
- mental health

Introduction: It is known that poor sleep quality can trigger pathologies such as hypertension, heart disease, endocrine disorders, and mental disorders.

Objective: Therefore, the objective of this study was to evaluate the association between sleep problems and mental illness in the Brazilian adult population.

Methods: Data from the 2019 National Health Survey (NHS) were analyzed. The dependent variable adopted was "presence of mental illness", assessed by the question "Has a physician or health professional ever diagnosed you with another mental illness, such as anxiety disorder, panic syndrome, schizophrenia, bipolar disorder, psychosis, or OCD (Obsessive Compulsive Disorder), etc.?" (no; yes). The main exposure variable was "sleep disorders", assessed by the question "In the last two weeks, how often have you had sleep problems, such as difficulty falling asleep, waking up frequently at night, or sleeping more than usual?" The response options "Not at all" and "Less than half the days" were categorized as "No". The responses "More than half the days" and "Almost every day" were categorized as "Yes". The analysis of the association between the outcome and sleep problems was performed based on the crude and adjusted odds ratio (OR) and 95% confidence interval (95% CI). Regarding the adjusted analysis, adjustments were made for sex, age, race/skin color, schooling, health insurance, area, and macro-region of residence, smoking, and alcohol consumption. Significant differences were identified based on the interpretation of the 95% CI. All analyses were stratified by sex (men; women) and age (18 to 59 years; 60 years or older). The Stata program was used, considering sample weighting (survey command).

Results: After adjustment, the odds ratio between sleep problems and mental illness, according to sex, was 5.03 (95% CI: 4.25; 5.97) for men and 3.54 (95% CI: 3.15; 3.98) for women; and according to age, it was 3.92 for adults and older individuals (95% CI: 3.52; 4.36 and 3.20;4.80, respectively).

Conclusion: Sleep disorders were associated with the presence of mental disorders. The chance of men, women and adults or older individuals with sleep disorders to have a mental disorder was 5.03, 3.54 and 9.92 times higher, respectively, when compared to individuals free from exposure.

ID: 1587

Chronotype, Sleep Quality, and Excessive Daytime Sleepiness in Dental Students

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Keywords
- chronotype
- sleep quality
- excessive daytime sleepiness

Introduction: Chronotype refers to individual differences in circadian rhythms that determine each person's preferences for sleep, wakefulness, and daily activities. Misalignment between a person's biological chronotype and academic schedules can negatively impact students' physical and mental health. One of the main effects of this misalignment is excessive daytime sleepiness (EDS), which can hinder the learning process and academic performance of university students.

Objective: To analyze the association between chronotype, sleep quality, and excessive daytime sleepiness in dental students.

Methods: This observational, cross-sectional study was conducted with dental students at the University of Pernambuco (UPE). The sample included students of both genders, enrolled from the first to the tenth semester of the Dentistry course at the Pernambuco School of Dentistry. Participants who had any cognitive limitations that made it impossible to understand the research instruments or were undergoing treatment for a sleep disorder were excluded. The following questionnaires were administered: Sociodemographic, Morningness-Eveningness Questionnaire, Epworth Sleepiness Scale, and Pittsburgh Sleep Quality Index. Data were tabulated and analyzed using the Statistical Package for Social Science (SPSS), version 24. Pearson's Chi-square test was used, with a significance level of 5% and a 95% confidence interval.

Results: The sample comprised 255 students. The majority (56.1%) were between 20 and 23 years old; 74.9% were female. The most prevalent chronotype was evening (56.5%); 44.7% had poor sleep quality, and 54.1% experienced excessive daytime sleepiness. A significant association was observed between chronotype and EDS ($p < 0.05$), with students having an evening chronotype being 1.7 times more likely to experience EDS than those with a morning chronotype. Chronotype was not associated with sleep quality or sociodemographic data.

Conclusion: Chronotype was associated with EDS, with excessive daytime sleepiness being more prevalent in students with an evening chronotype.

ID: 1588

Effect of Probiotic Supplementation Lactobacillus Helveticus R0052 and Bifidobacterium Longum R0175 on BDNF and Intestinal Parameters of Sleep-Deprived Mice

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Keywords

- sleep
- microbiota
- hippocampus
- enteric nervous system

Introduction: Sleep deprivation can be a stress factor and leads to a decrease in BDNF (Brain-derived Neurotrophic Factor) levels, which has a neuronal protective effect in the brain, in the development of anxiety and memory loss. The perception of stress is linked to increased enteric inflammation, impacting the morphology of inflamed organs. The association of probiotics Lactobacillus helveticus R0052 and Bifidobacterium longum R0175 has been studied as a possible therapeutic target through the microbiota-gut-brain axis, acting in an anxiolytic way and preventing hippocampal neurogenesis and changes in synaptic plasticity caused by stress.

Objective: To evaluate the supplementation of Lactobacillus helveticus R0052 and Bifidobacterium longum R0175 on the effects of sleep deprivation on BDNF levels, number of enteric neurons and anxiety in mice.

Methods: Male C57 mice (n=7-10/group) were used, divided into four groups: CTRL Group: No supplementation and no sleep deprivation (SD); CTRL-SD Group: Subjected to SD, without supplementation; Prob-CTRL Group: Subjected to probiotic supplementation, and without SD; Prob-SD Group: Subjected to probiotic supplementation and SD. Probiotic supplementation was started at 60 days of age, 5 days a week. After 6 weeks of supplementation, the Open Field (OF) test was performed to analyze anxiety levels, and then the REM sleep deprivation protocol began for 48 hours. OF was performed again after SD. At the end of the experiments, BDNF levels were analyzed in the hippocampus using the Indirect Elisa method. Jejunum samples were collected and subjected to the Indirect Immunofluorescence technique to highlight the population of total enteric neurons and the subpopulation of nitrergic neurons. All results were analyzed by one-way Anova (Post hoc tukey).

Results: The groups that received probiotics (PROB and PROB-PS) had an increase in BDNF levels compared to the control (PROB p=0.0005; PROB-PS p=0.0035). Furthermore, the PROB group demonstrated an increase in relation to CTRL-PS (p=0.0135). Regarding the number of total and nitrergic neurons in the jejunum, no statistical difference was found between the groups, as well as in the OF test ($p>0.005$).

Conclusion: Probiotic supplementation proved to be effective in increasing BDNF levels in the hippocampus of animals even in situations of sleep deprivation, demonstrating a neuroprotective effect. To date, no changes have been found in the population of enteric neurons in the jejunum.

ID: 1591

Burnout Syndrome and its Impacts on Sleep and Study in Young Adults

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Keywords

- burnout
- sleep
- young adults
- students

Introduction: Burnout syndrome is defined as a work disorder that generates mental suffering to the patient, through the components of emotional exhaustion, lack of professional achievement and, because of this, it brings important damage to the individual's sleep. Because it is a disorder directly related to employment, it is understood that young adults, especially those who are students, have a greater risk of developing such syndrome, to excessive hourly loads of physical and mental effort in their routines.

Objective: Present the main impacts of Burnout Syndrome on sleep of young adults, besides highlighting its relations with student activity in this population.

Methods: The study consists of a systematic review carried out in July 2024, on the PubMed database, based on the keywords “burnout AND sleep AND young adult” and “burnout AND sleep AND student”. The period analyzed comprises the years 2015 to 2024, in which 70 articles were found, and only 7 were included in the research.

Results: The articles, in their majority, demonstrate that sleep alterations are interconnected to the increase of perceived stress, a common imbalance among young students, which compromises the three components of burnout. Another important factor is the emotional load inherent to certain professions, which require personal interactions and constant physical overload, factors common to health courses, which denote a greater risk of burnout and insomnia for this group, which is subjected to pressures about the curriculum and sacrifice of time. In addition, the quality of sleep of students has more relevance for the improvement of exhaustion, compared to the duration of sleep. It was also found that sleep deprivation can be a precipitating factor for the drop in productivity, which associated with work overload, may evolve into a burnout, which would reverse the causal relationship assumed about these disorders.

Conclusion: Young adults are susceptible to several impacts when they do not get a restful sleep. For, the emotional overload associated with academic life, an important cause of exhaustion for young people, culminating in insomnia, impairs concentration in studies and enhances Burnout Syndrome. In addition, poor sleep quality, combined with prolonged stress, reflects on the two dimensions of burnout, personal exhaustion and study-related burnout. Thus, it reduces the energy and interest of young people in professional activity.

ID: 1592

Correlation Between Sleep and Nutrition of Ultramarathon Runners in Training Period

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Keywords

- sleep
- diet
- athletes

Introduction: It is known that sports performance can be influenced by nutrition and sleep, and that both should be considered by athletes, especially in extreme conditions such as ultramarathons. The literature describes that the consumption of some nutrients can influence sleep, and until now no study evaluated the correlation between these parameters in ultramarathon runners.

Objective: To evaluate the food consumption and sleep pattern of ultramarathon runners during training period and analyze the correlation between macronutrient intake and sleep of the athletes.

Methods: 14 male ultramarathon runners were evaluated in a habitual training week, and data of four days are presented (2 week days and 2 weekend days). Athletes had a mean of 45.3 ± 10.8 years old and 5.2 ± 4.6 years of ultramarathon experience. Sleep diaries were used to subjectively evaluate sleep quality, and food diaries to evaluate diet. The dietbox software was used for nutritional calculation. The Kruskal Wallis test was used to evaluate the difference between days, and the Spearman correlation test was used to evaluate the relationship between sleep and diet.

Results: The 4-days mean nutritional intake was 2.204 ± 748.83 kcal, 126.81 ± 55.59 g of protein, $244.95 \pm 94{,}7$g of carbohydrate and 69.79 ± 26.75g of lipid. There was no difference in macronutrient and energy consumption between the 4 days ($p > 0.05$). When the data were grouped between week and weekend, there was also no significant difference ($p > 0.05$). The mean bed time was 23:08±01:07 and wake time was 06:16±00:50. They had 07:10±01:03 hours of total sleep time (TST), 25.64 ± 19.25 min of sleep latency and 0.86 ± 0.54 awakenings. All sleep parameters were not different between days and when we grouped week and weekend days ($p > 0.05$). There was a negative moderate correlation between TST and energy consumption on a weekday ($p=0.03$; $r=-0.567$), and negative moderate correlation between TST and carbohydrate ($p=0.04$; $r=-0.562$) and lipid ingestion ($p=0.039$; $r=-0.578$) on weekend days. There was no correlation between other parameters of sleep and nutrition intake.

Conclusion: The consumption of macronutrients seems to influence the total sleep time (TST) of runners, although this is observed in a punctual way (only one nutrient/energy per day) and on different days. On these days with significant correlation, the higher the nutritional intake, the lower the TST. Acknowledgements: FAPESP (2022/09447-7 and 2023/07889-5) and BR135 Ultramarathon.

ID: 1593

What Can We Measure with Actigraphy Data? A Descriptive and Component Structure Study from a Population-Based Sample of São Paulo city (EPISONO 4th Edition)

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Keywords

- accelerometry
- epidemiologic methods
- circadian rhythm

Introduction: Actigraphy is a well-established tool in sleep and circadian medicine, used to record activity and rest rhythms and to estimate sleep. Despite its growing importance, there is a lack of epidemiological and population-based studies investigating actigraphy parameters, highlighting the need to establish reference and normative values.

Objective: Present descriptive actigraphy data in a population-based sample and identify components that capture the greatest amount of data variation.

Methods: The data set included 402 participants (60% women, 49.5 ± 14.9 years) from a cohort of São Paulo city (EPISONO 4th edition). Data collection took place between August 2018-April 2019 (excluding data collected 15 days after the start of daylight-saving time and 15 days after its end). Sleep-wake classification was conducted using the Cole-Kriple algorithm and revised in accordance with the Consenso Brazileiro de Actigrafia guidelines. Activity and rest parameters were extracted using the COSINOR method and non-parametric analysis. The daily (Sleep Regularity Index) and weekly sleep regularity (social jet lag) were also calculated. A principal component analysis was conducted using 16 actigraphy features and linear regressions were employed (effect of sociodemographic and behavioral variables on each component).

Results: The 16 features were reduced to 5 components explaining 69.6% of the data variation: sleep quantity and opportunity (21.7% variance), sleep and rhythm timing (16.0% variance), sleep quality and continuity (12.8% variance), waking activity (11.3% variance), and sleep regularity and rhythm robustness (7.8% variance). Women had a greater amount and opportunity for sleep (β=0.35) and more activity while awake (β=0.24). Older subjects had earlier sleep and rhythm timing (β=-0.02), less activity during wakefulness (β=-0.02), and a more regular and robust rhythm (β=0.01). Subjects with earlier preferences had earlier sleep and rhythm timing (β=-0.04) and greater activity during wakefulness (β=0.01). Individuals from lower socioeconomic classes had higher activity while awake (β=0.52, 1.04) and lower sleep quality and continuity (β=-0.67). Higher BMI, lower the activity while awake (β=-0.02); higher daytime sleepiness, lower sleep regularity and rhythmicity (β=-0.03).

Conclusion: Our results can be considered a benchmark in the field. Future studies may investigate the relashionship between the components and diseases, such as insomnia and sleep apnea.

ID: 1594

Sleep Quality and Duration in Women in the Climacteric and Their Association with Body Fat: A Clinical Trial Study

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Keywords

- shift work schedule
- sleep duration
- sleep quality
- body fat

Introduction: The climacteric can negatively impact women's sleep quality. This phase of life may be more challenging for women working fixed night shifts, as they already experience poorer sleep quality and greater weight gain compared to workers on day shifts.

Objective: Evaluate the sleep duration and the correlation between sleep quality and body fat in women in the climacteric, according to work shift (morning, afternoon, or night).

Methods: This is a phase II, randomized, double-blind, and controlled clinical trial, and was composed of nurses and nursing technicians who work in three different shifts: morning (07:00-13:00 - n=17), afternoon (13:00-19:00 - n=15) and evening (19:00-07:00 - n=15). In this study, only data extracted from the baseline were used. Sleep characteristics were assessed using the Pittsburgh Sleep Quality Index (PSQI), where a score from 0 to 4 points indicates good sleep quality, while a score above 5 points indicates poor sleep quality. Body composition was assessed through bioimpedance testing, following all protocols for its use. To analyze the correlations between body composition and sleep quality, Pearson's linear correlation coefficient was used, and analysis of variance was employed to examine the variables across different work shifts.

Results: The mean sleep duration on workdays was significantly longer for women working morning (6h19m) and afternoon (7h55m) shifts compared to those working night (3h43m) shifts ($p < 0.001$). Sleep quality for night shift workers on workdays did not differ when compared to morning and afternoon shift. However, all workers exhibited poor sleep quality regardless of their shift. Night shift workers had an average PSQI score of 8.93 on workdays, while morning and afternoon workers scored 6.76 and 7.33, respectively. The body fat percentage for morning, afternoon, and night shift workers was 41.3%, 43.5%, and 38.5%, respectively, which represents a high body fat percentage in all participants. A correlation between sleep quality and body fat percentage was identified only among night shift workers ($p = 0.036$), meaning that higher body fat was associated with poorer sleep quality.

Conclusion: The results support previous findings, demonstrating that night shift work is associated with shorter sleep duration and that a high body fat percentage impairs sleep quality in women in the climacteric.

ID: 1595

The Influence of Chronotype and Regularity on Social Jetlag and Sleep Quality of Unicamp Medical Students

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Keywords

- social jetlag
- regularity
- sleep quality
- chronotype
- medical students

Introduction: Medical students have been a group that is highly vulnerable to poor sleep quality and sleep disorders. Several factors are related to these disorders, including the high workload and the culture of medical productivity. However, there are also chronotype, and regularity, which are sleep factors that have been associated with poor sleep quality and higher levels of social jetlag, which are associated with risk factors for depression, cardiovascular diseases and metabolic syndrome.

Objective: The aim of this study was to evaluate the influence of chronotype and regularity on sleep quality and social jetlag among medical students at UNICAMP.

Methods: To conduct the research, medical students at UNICAMP from all years of graduation participated. Questionnaires were applied, such as anamnesis, chronotype questionnaires (Horne and Osterberg; Munich), subjective sleep quality questionnaire (Pittsburgh), Epworth daytime sleepiness questionnaire, international physical activity questionnaire short form, sleep regularity index and sleep diary. Study activities lasted 90 days.

Results: The results were obtained in a sample of 286 students, which showed a regular sleep efficiency (91.71±13.07), and a poor sleep quality (7.21±2.74). The results regarding latency (23.9±25.55) and efficiency (91.71±13.07) were considered within normal limits, as well as the total sleep time (TST = 7:30±2.03). In addition, 82.32% of the students were active according to the physical assessment questionnaire (IPAQ). The sixth grade presented the worst sleep quality index (9.09±3.70). The students presented a chronotype profile considered intermediate (50.69±10.65). Other relevant results found were the associations between some sleep variables. Morning chronotype was associated with shorter latency time, better sleep quality and less social jetlag. An association was also found between higher values of sleep regularity with better sleep quality and less daytime sleepiness. Similarly, lower values of social jetlag were associated with better sleep quality.

Conclusion: It is suggested that greater sleep regularity and more morning chronotype profiles act as factors to improve sleep quality and also act to reduce latency, sleepiness and social jetlag among medical students at UNICAMP.
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ID: 1596

Prevalence of Olfactory Dysfunction Using the Connecticut Test and its Association with Obstructive Sleep Apnea

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Keywords

- olfactory dysfunction
- obstructive sleep apnea
- prevalence

Introduction: The prevalence of both olfactory dysfunction (OD) and obstructive sleep apnea (OSA) has been estimated to be high in the literature. Furthermore, the association between these two disorders has been demonstrated. Most studies have investigated OD in patients with OSA syndrome using the Sniffin Sticks Test, which may be less accessible due to its cost.

Objective: To estimate the prevalence of OD using the Connecticut test (CT), a lower-cost olfactory test, and to investigate its association with OSA.

Methods: This is a cross-sectional study with prospective allocation and convenience sample, from a University Hospital. Individuals between 18 and 65 years old were included. Those with a history of upper respiratory tract infection in the last 30 days; severe traumatic brain injury; smokers; previous treatment for OSA; chronic rhinosinusitis, schizophrenia, neurological and infectious diseases that occur with olfactory dysfunction were excluded. The diagnosis of OD was performed using CT and for OSA, type 1 polysomnography (PSG). The CT was categorized according to its total score (ODT), threshold (ODTH) and identification (ODI). Each CT category was analyzed regarding to sociodemographic and clinical history data, the Epworth Sleepiness Scale (ESS), anthropometric measurements and PSG data. The significance level was considered less than 5% (p value).

Results: The sample consisted of 74 participants. The prevalence of OD was 50.7% and OSA was 72.8%. Among OD the prevalence of OSA was 76%. In OD there was a predominance of females (65%), and the mean age was 53 years. In the CT, the ODT and ODTH categories were associated with the number of medications used (0.014 and 0.028), ESS (<0.001 and 0.034) and report of respiratory events (0.016 and 0.026). The ODI category was associated with age (0.024), use of sleeping medication (0.047), ESS (0.011), Body Mass Index (0.002), abdominal, calf and hip circumferences (0.012, 0.008, 0.003, respectively) and minimum saturation in PSG (0.021). There was no association between OD and OSA, when using CT, either in the ODT (0.7), ODTH (0.8) or ODI (0.8) categories.

Conclusion: The prevalence of OD identified by the Connecticut olfactory test can be considered high. However, in this sample, using this test, there was no association between OD and OSA, unlike other studies that conducted the Sniffin Sticks Test to investigate OD.

ID: 1600

Development of New Instrument for the Assessment of Insomnia Symptoms: The Inventory of Symptoms and Consequences of Insomnia

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Keywords

- sleep initiation and maintenance disorders
- psychometrics
- insomnia severity

Introduction: Symptom scales are a reasonable alternative to assess the severity of insomnia, both as a complementary tool for diagnosis and to follow patients under treatment. The available scales for insomnia symptoms severity are usually based on a single domain. Knowing that clinical manifestation of insomnia is heterogeneous, an instrument that assesses multiple domains could provide a more detailed evaluation.

Objective: To develop a new tool to assess insomnia symptoms.

Methods: The Inventory of Symptoms and Consequences of Insomnia (ISCI) was developed to cover different domains of symptoms and consequences, based on a series of statements answered according to their frequency in the last 2 weeks (5-point scale, “never” to “everyday”). The list of items was idealized to cover the following domains: Primary insomnia complaints, cognitive symptoms, physiological symptoms, daytime functioning, dysfunctional beliefs, stress, sleep self-perception, and sleep hygiene. It was tested in a 2-step process. First, the inventory was submitted for evaluation by 4 board-certified sleep psychologists, who rated them for clarity, relevance, and appropriateness on a 1-5 scale. Following, the inventory was sent for a database of 2.000 respondents of both sexes from 20 to 80 years old. Respondents also completed the Insomnia Severity Index (ISI), which was used to assign insomnia severity levels. Receiver operating characteristic (ROC) curves were built using dichotomous results at the ISI as reference (thresholds for mild, moderate and severe insomnia) and the scores at the ISCI.

Results: The inventory was initially composed of 56 items. Upon the judges' analyses, the average scores for all items were 4.41±0.34 for clarity, 4.9±0.2 for relevance and 4.9±0.3 for appropriateness, and 1 item was deleted due to a low average score. Based on a following factorial analysis, the inventory was reduced to 48 questions. The final sample of respondents was composed of 1603 participants (mild insomnia: 32%, moderate: 24%, severe: 5%). For mild symptoms threshold, the ROC analyses demonstrated an area under the curve (AUC) of 0.87 ($p<0.001$) with sensitivity of 85.4, specificity of 76.0 and a suggested diagnostic threshold of >54. For moderate threshold, the AUC was 0.97 ($p<0.001$) with sensitivity of 90.9, specificity of 92.0 and diagnostic threshold at >86. For severe threshold, the AUC was 0.99, with sensitivity of 97.0, specificity of 95.5 and diagnostic threshold at >100.

Conclusion: The ISCI has good diagnostic properties when compared with the ISI, especially in discriminating individuals with severe insomnia symptoms.

ID: 1601

Analysis of Sleep Quality, Functional Capacity, and Respiratory Muscle Strength in Elderly COVID-19 Survivors

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Keywords

- sleep quality
- aged
- SARS-CoV-2

Introduction: COVID-19 has had a substantial impact on sleep quality in older adults (De Lima et al., 2020). Additionally, the pandemic led to a significant decrease in physical activity and mobility among the elderly. The inability to leave home, suspension of exercise programs, and reduction in social activities resulted in a decline in muscle strength, physical endurance, and mobility (De Morais et al., 2022).

Objective: To analyze sleep quality, functional capacity, and respiratory muscle strength in elderly COVID-19 survivors.

Methods: A cross-sectional study, approved by the Human Research Ethics Committee (protocol 4.983.173). The sample, recruited via social media and flyers, included patients aged ≥ 60 years, diagnosed with COVID-19 through RT-PCR. Exclusion criteria included orthopedic, neurological, cardiovascular, and respiratory issues, as well as active infection phase. Assessments included maximal inspiratory pressure (MIP) measurement using a manometer (cmH2O), actigraphy, PSQI, ESS, and the 6MWT. Data were presented as mean ± standard deviation.

Results: Ten elderly individuals were analyzed, 80% of whom were women, with a mean age of 68.20±3.25 years and a BMI of 28.55±5.12 kg/m^2. The total sleep time was 7.04±2.00 hours, with an average sleep latency of 3.21±1.89 minutes and a sleep efficiency of 83.15%±26.85. The average number of awakenings was 9.22±4.29, indicating significant sleep fragmentation. The mean PSQI was 10.39±3.87, suggesting poor sleep quality (Nogueira, 2020). The mean ESS score was 10.89±5.41, indicating excessive daytime sleepiness, which may negatively affect functionality (De Assis & Carballo, 2023). The mean MIP was 57.3 cmH2O, corresponding to 74.10%±25.23 of the predicted value, suggesting respiratory muscle weakness, which may contribute to dyspnea and reduced aerobic capacity (Pereira et al., 2023). The 6MWT showed a mean of 352.6±83.87 meters, representing 77.65%±23.01 of the predicted value, indicating moderately reduced functional capacity, consistent with the findings of Lubian et al. (2022).

Conclusion: Based on the results, elderly COVID-19 survivors showed possible respiratory muscle impairment, with an MIP of 57.3 cmH2O (74.10% of the predicted value). Sleep quality was reduced, with low latency, poor efficiency, and frequent awakenings, leading to negative sleep perception and excessive daytime sleepiness. Functional capacity was moderately reduced, potentially affecting daily activities and social participation.

ID: 1602

Association Between Changes in Body Composition and Sleep Characteristics in Individuals with COPD: Preliminary Results

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Keywords

- COPD
- body composition
- sleep

Introduction: Chronic obstructive pulmonary disease (COPD) is a multisystem condition characterized by various manifestations, including alterations in body composition and sleep disturbances. These factors alone are linked to decreased exercise capacity, quality of life and increased mortality. Nevertheless, the correlation between longitudinal changes in body composition and sleep has not been explored in this population.

Objective: To correlate changes in body composition with subjective and objective aspects of sleep in individuals with COPD.

Methods: In this prospective cohort study with a 12month follow-up, individuals diagnosed with COPD underwent pulmonary function assessment through spirometry and sleep evaluation using the Pittsburgh Sleep Quality Index and the Actiwatch monitor over a period of 7 days. Body composition was evaluated using electrical bioimpedance at two different assessment points (baseline [AV1] and after 12months [AV2]), and the changes in variables were calculated as AV2-AV1. Statistical analysis was performed using the Shapiro-Wilk test and Spearman's correlation coefficient. Data were analyzed using SPSS software, and statistical significance was $p<0.05$.

Results: 16 individuals with COPD were included (9men; 71±8years; BMI 24±7kg/m2; FEV1 61±16%predicted). There were significant correlations between change in fat free mass (FFM)(Kg) and total sleep time(%)($r=0.68$, $p=0.015$), sleep efficiency(%)($r=0.69,p=0.013$), duration of sleep blocks(min)($r=0.63,p=0.028$) and time awake after sleep onset(WASO), both in min and %($r=-0.59,p=0.042$ and $r=-0.68,p=0.015$, respectively). Changes in FFM (%) correlated significantly with WASO(min)(r=-0.62,p=0.033) and duration of sleep blocks(min)(r=0.63,p=0.028), whereas changes in the FFM index correlated with sleep efficiency(%)(r=0.61, p=0.036). Regarding the results of changes in fat mass (FM) (Kg), there was significant correlation with number of blocks in wakefulness and sleep (r=0.60,p=0.038 for both), whereas the change in FM(in%) correlated significantly with duration of sleep blocks(min)(r=-0.63,p=0.028) and WASO (min) (r=0.62,p=0.033). Finally, the change in FM index correlated with the number of blocks in wakefulness and sleep (r=0.60, p=0.038 for both). No significant correlations were observed with subjectively assessed sleep.

Conclusion: Changes in body composition, particularly the decrease in FFM and increase in FM, are inversely linked to different aspects of objectively assessed sleep in individuals with COPD.

ID: 1604

Effects of Sleep Quality on Postural Stability Maintenance: a Cross-Sectional Study with Elderly Individuals

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Keywords
- sleep
- postural stability
- exercise

Introduction: Postural stability is a function that depends on complex systems subject to multifactorial declines related to both aging and pathologies or issues arising from an individual's lifestyle.

Objective: To analyze the association between sleep conditions and postural stability in individuals aged $\geq$ 60 years

Methods: Cross-sectional study with 167 individuals attending the Basic Health Units (UBS) in the city of Santa Bárbara d'Oeste, São Paulo, Brazil. Sociodemographic and clinical parameter questionnaires were administered. For sleep analysis, the Pittsburgh Sleep Quality Index (PSQI) was used; for physical activity, the International Physical Activity Questionnaire was employed; and for strength, the manual grip strength test was used. Anthropometric measurements of waist and hip circumference were utilized to assess nutritional status, and balance was analyzed using the Berg Balance Scale.

Results: The sample consisted of 167 elderly individuals with an average age of 72.7 ± 7.0 years, the majority being women (67.7%), aged between 70 and 79 years (49.1%), with an average of 6.7 ± 4.5 years of schooling. Most participants had poor sleep quality (76%), did not meet the physical activity guidelines of $\geq$ 150 minutes of moderate activity per week (55.1%), were overweight (61.7%), and exhibited cardiovascular risk both by waist circumference measurements (79%) and by the waist-to-hip ratio (75.4%), in addition to low manual grip strength (19.8%). Logistic regression results for factors associated with postural control, evaluated by the Berg Balance Scale adjusted for age ($p<0.05$), showed that a higher PSQI score (>5 points) indicated a greater likelihood of poor balance (7.34; OR = 0.89; p = 0.027). Regarding other variables, higher waist circumference (94.15; OR = 0.95; p = 0.003), lower handgrip strength (26.26; OR = 1.09; p = 0.010), and individuals who engaged in less physical activity (65.22%; OR = 2.82; p = 0.036) also demonstrated poor balance.

Conclusion: The findings of this study highlight the impact of sleep quality and clinical health conditions on maintaining Postural stability. Evidence suggests that maintaining postural stability in the elderly is multifactorial and should be carefully studied by different areas of knowledge.
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ID: 1605

Analysis of the Inflammatory Profile of Males and Females in an Animal Model of Iron Deficiency for Restless Legs Syndrome

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Keywords
- RLS
- inflammation
- iron

Introduction: Restless Legs Syndrome (RLS) is a sleep-related sensorimotor disorder that is caused by low iron availability in the brain. RLS is closely related to inflammation due to sleep impairment (sleep deprivation), which can generate changes in pro-inflammatory cytokines, blood glucose levels and metabolic alterations.

Objective: To analyze the inflammatory profile of the hypothalamus, sleep and locomotor behavior of male and female mice in an animal model of RLS with iron deficiency.

Methods: Male and female C57 mice at 28 days of age were distributed into a control group (CTRL) and an iron-deficient group (ID) with a sample size of 10 animals per group and an iron-restricted diet during the experiment. Hematocrit and Open Field were performed on the 4th and 8th week of diet, glucose tolerance test (GTT) and insulin tolerance test (ITT) on the 8th week and sleep analysis after 10 weeks of diet. The NFKB, TLR4, IKK, JNK and AKT proteins were analyzed in the hypothalamus by the western blotting (WB) technique. In the polymerase chain reaction (PCR), the TNF-alpha, IL1B and AKT genes were analyzed. Data were analyzed by the t test or by the Bonferroni post hoc Mixed Linear Model.

Results: In the open field and hematocrit, no statistical differences were observed. In the GTT and ITT tests, no differences were observed between the groups. The ID group of male animals showed reduced sleep efficiency (p=0.028), increased paw movement (p=0.0270), decreased REM sleep (p=0.0138), decreased slow-wave sleep (p=0.0262) and increased waking time (p=0.0044) in the light cycle compared to the CTRL group. In females, there was an increase in REM sleep in the ID group (p=0.0396). In the animal model of males, a statistical difference was found for AKT in CRP with a reduction for the group with iron deficiency (p=0.02). In females, there was a reduction in the protein content of AKT in the group with iron deficiency (p=0.0112) in WB, while in inflammatory proteins no differences were observed, either for females or for males.

Conclusion: Taking into account the results obtained, it was observed that male animals in the iron-deficient group had a greater influence of the iron diet on sleep patterns and RLS patterns than females in the same group. While no changes in locomotor behavior and inflammatory profile were identified, it is imperative to conduct further studies to fully understand the inflammatory mechanisms in RLS. Financial support: FAPESP 2022/07548-0, 2022/07009-2 e 2020/13074-6.

ID: 1606

Are Public Health Recommendations Effective? Association Between Physical Activity and Obstructive Sleep Apnea in Adults and Older Adults

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Keywords

- obstructive sleep apnea
- physical activity
- public health practices
- polysomnography

Introduction: Obstructive sleep apnea (OSA) is a highly prevalent breathing disorder that affects approximately 1 billion people worldwide. OSA is characterized by recurrent episodes of partial or complete obstruction of the upper airway, leading to intermittent hypoxia, hypercapnia, and disrupted sleep. Physical activity (PA) is widely recommended in public health guidelines as a non-pharmacological intervention to improve overall health outcomes, including sleep quality. However, the effectiveness of these recommendations in reducing the prevalence and severity of OSA remains underexplored.

Objective: To assess the impact of adherence to PA recommendations on apnea/hypopnea (AHI) and oxygen desaturation (ODI) indices and to examine the association between PA and the severity of OSA.

Methods: The data for this study was collected from a randomized clinical trial that was registered in the Brazilian Registry of Clinical Trials (RBR-9hk6pgz) and approved by the Human Research Ethics Committee (CAAE: 60046022.5.0000.0118). One hundred eleven individuals with a mean age of 60.2 years participated in this cross-sectional study. The inclusion criteria were individuals aged 18 years or older who were not currently receiving treatment for OSA. Home polysomnography type III was used to assess sleep apnea and the International Physical Activity Questionnaire was used to measure adherence to PA recommendations ($\geq$150 min of moderate PA or $\geq$75 min of vigorous PA per week). To compare the means of AHI and ODI with adherence to PA recommendations, we used an independent t-test. Additionally, a multinomial regression analysis was conducted to explore the association between PA and OSA severity.

Results: Most participants were women (57.7%), aged 60 years or older (52.7%), were overweight or obese class I (66.0%), and did not adhere to PA recommendations (73.0%). The prevalence of OSA was 82.9%, with 31.5% classified as mild, 38.1% as moderate, and 30.4% as severe. Participants who adhered to PA recommendations had lower AHI (16.8 vs 25.7; p=0.023) and ODI scores (8.9 vs 16.2; p=0.023) compared to their peers. When examining the association, participants who followed PA recommendations had an 83% lower chance of having severe OSA than their peers, regardless of age (95% CI: 0.03-0.96).

Conclusion: The results indicate that following public health recommendations related to PA is crucial in the context of OSA and can complement primary treatments.

ID: 1607

Sleep Quality and Sleep Hygiene Strategies in University Students

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Keywords

- sleep
- university athletes
- sleep quality

Introduction: Sleep is an essential part of health promotion, involving physical and mental restoration and learning processes. University students are more susceptible to having an inadequate lifestyle, which can involve sedentary behavior, poor eating habits and unregulated sleep. Therefore, with students' routines, sleep hygiene strategies can be used to minimize the damage caused to this group's sleep, since sleep hygiene is determined as a set of behavioral and environmental recommendations aimed at providing healthier sleep.

Objective: The aim of this study was to assess the influence of implementing sleep hygiene strategies on the sleep quality of university students who exercise.

Methods: Twenty-five full and night-time university students who participate in physical activity took part in the study. The following questionnaires were applied: anamnesis, chronotype (Horne and Osterberg), mini sleep questionnaire (MSQ), subjective sleep quality (Pittsburgh), daytime sleepiness (Epworth), and sleep diary. Next, the sleep hygiene strategies of hot baths 20 minutes before bedtime and reduced use of cell phones 30 minutes before bedtime were implemented into the university students' routines over a 30-day period.

Results: The results showed that 52% of the participants reported having fully followed the sleep hygiene recommendations. Students from both shifts had poor sleep quality (7.04±2.57). After applying sleep hygiene strategies, even though no statistical differences were shown, we found a moderate effect size for reducing the Pittsburgh score (ES=0.61) and sleep latency (ES=0.72) for full-time university students. As for night-time students, even though there were no statistical differences, there was a moderate ES for reducing the Pittsburgh score (ES=0.76).

Conclusion: The results of the study indicate that the implementation of sleep hygiene strategies, such as taking hot baths 20 minutes before bedtime and abstaining from cell phone use 30 minutes before bedtime for a period of 30 days, has displayed a moderate influence on the sleep quality of university students. It is notable that only 50% of the participants adhered fully to these recommended practices.

ID: 1608

Association Between Headache, Excessive Daytime Sleepiness and Self-Medication in Dental Students

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Keywords
- self-medication
- disorders of excessive somnolence
- headache
- dentistry

Introduction: Headache is a common problem among dental students, often exacerbated by heavy academic workloads and stress. This condition can contribute to poor sleep quality, resulting in excessive daytime sleepiness (EDS). To alleviate symptoms, many students resort to self-medication, a practice that, although offering temporary relief, can increase health risks.

Objective: To evaluate the association between headache, EDS and self-medication in dentistry students.

Methods: This is an observational study with a cross-sectional design, approved by the Research Ethics Committee under opinion: 5,292,357. The sample consisted of 253 students from the first to the tenth period. Students who were undergoing any type of treatment, under medical supervision, for headaches or sleep disorders were excluded. Data collection was performed through the Google Forms digital platform using the following questionnaires: Sociodemographic, Migraine Disability Assessment Test (MIDAS) and the Self-medication Questionnaire. To evaluate the association between two categorical variables, Pearson's Chi-square test was used, with a significance level of 5%.

Results: The students interviewed were between 18 and 35 years old, with the majority between 20 and 23 years old (56.5%) and female (75.1%). EDS was observed in 54.2% of the students; 55.7% had headaches, self-medication was reported by 63.9% and approximately half of the respondents (50.6%) and approximately 42.3% slept less than 6 hours per night. Headache was the most reported reason/disease for self-medication (89.4%), with analgesics/antipyretics (89.4%), antihistamines/antihistamines (76.4%) and anti-inflammatories (75.5%) being the most commonly used medications. Headache was associated with age group (0.037) and sex ($p < 0.003$), with the probability of presenting headache being 2.4 times higher for females and 2.5 times higher for the age group of 20 to 23 years old. No significant associations were observed between headache and EDS and self-medication ($p > 0.05$).

Conclusion: The prevalence of headache was considered high among university students, being more frequent in women and in the age group of 20 to 23 years. However, no significant association was found between headache, EDS and the use of self-medication.

ID: 1609

Sleep and Outcomes of Mental Health in High School Adolescents in Full-Time Classes

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Keywords
- sleep debt
- sleep quality
- social jetlag
- daytime sleepiness
- stress

Introduction: Sleep habits of adolescents starting classes in the morning are associated with poor sleep quality, sleep deprivation, irregular sleep times and social jetlag. This is associated with greater daytime sleepiness and symptoms of stress, anxiety and depression.

Objective: The aim of this study was to evaluate the relation of sleep quality, social jetlag, sleep debt and daytime sleepiness with symptoms of stress, anxiety and depression in high school adolescents enrolled in full-time classes.

Methods: Participated 140 adolescents (15.9 ± 0.9 years-old - F: 85; M: 45), with classes starting from 7:30 am to 5:00 pm, answered the Munich Chronotype Questionnaire, the Pittsburgh Sleep Quality Index, the Pediatric Daytime Sleepiness Scale and the Depression, Anxiety and Stress Scale - 21. The analysis was carried out using Qui-square test for the characterization of the sample and a multiple linear regression with sleep quality, social jetlag, sleep debt and daytime sleepiness as predictors of stress, anxiety and depression.

Results: In the sample, 71% of students presented poor sleep quality (X^2=24; p<0,001), 88% presented excessive daytime sleepiness (X^2=80; p<0,001) and most of the sample showed some degree of symptoms of stress, anxiety and depression (normal: S=41%; A=34%; D=26%; mild: S=15%; A=9%; D=14%; moderate: S=21%; A=23%; D=31%; severe: S=13%; A=11%; D=18%; extremely severe: S=11%; A=24%; D=11%; p<0,001). The degree of association between the predictors and response variable was 40% (R=0.40) for stress (adjusted R^2=0.14); 39% (R=0.39) for anxiety (adjusted R^2=0.13); and 40% (R=0.40) for depression (adjusted R^2=0.13). Only sleep quality and daytime sleepiness predicted higher levels of symptoms of stress (sleep quality: β=0.21; p<0.01; daytime sleepiness: β=0.29; p<0.001), anxiety (sleep quality: β=0.21; p<0.01; daytime sleepiness: β=0.27; p<0.01) and depression (sleep quality: β=0.28; p<0.001; daytime sleepiness: β=0.21; p<0.01).

Conclusion: Therefore, worse sleep quality and higher levels of daytime sleepiness seem to have a greater negative impact than social jetlag and sleep debt on stress levels and mental health. Furthermore, daytime sleepiness seems to have a greater impact on symptoms of stress and anxiety, while sleep quality would have a greater impact on symptoms of depression in high school students enrolled in full-time classes. Additional studies need to be carried out to further clarify these associations.

ID: 1610

Prevalence and Profile of Insomnia Comorbid with Obstructive Sleep Apnea in the Sleep Outpatient Clinic of a University Hospital

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Keywords

- COMISA
- obstructive sleep apnea
- insomnia
- prevalence

Introduction: Insomnia and obstructive sleep apnea (OSA) are the most prevalent sleep disorders. Although the insomnia comorbid with obstructive sleep apnea (COMISA) described more than 40 years ago, it is still a subject of investigation.

Objective: To estimate the prevalence of COMISA in the sleep outpatient clinic of a university hospital and to study the profile of individuals with this disorder comparing them to those with only OSA and insomnia.

Methods: The study has a cross-sectional design, with prospective allocation and convenience sample. OSA, insomnia and COMISA were defined based on the “International Classification of Sleep Disorders”, 3rd edition, of the American Academy of Sleep Medicine. Type I polysomnography (PSG) was performed on all individuals. Participants were stratified into 2 groups: 1- WITHOUT COMISA (only OSA and only insomnia); 2- COMISA (insomnia comorbid with OSA). Frequencies were estimated in both groups. The significance level considered was 5%.

Results: The sample consisted of 69 individuals. The prevalence of COMISA was 55.07%. The criteria for insomnia were met in 42 individuals but only 13% had insomnia alone. The prevalence of OSA alone was 83.87%. Females were more frequent in the COMISA group (63%) and males in the WITHTOUT COMISA (58%). The median age was higher in COMISA. Among chronic diseases, with the exception of chronic obstructive pulmonary disease and hypothyroidism, all were more frequent in COMISA, especially cardiovascular diseases and type 2 diabetes mellitus. Depression and anxiety in this group was also higher, with a statistical association (0.016 and 0.008, respectively). A higher number of mild OSA was observed in the COMISA, although moderate and severe degrees were also more frequent in this group. Only 8 individuals with cognitive impairment were found, 4 in each group, however, moderate and severe degrees were more frequent in the COMISA group. In the analysis of monthly family income, the lowest median occurred in the COMISA group, approximately 1.6 times lower than in the WITHOUT COMISA. The median level of education was the same for both groups.

Conclusion: A higher prevalence of COMISA was observed in the sample and an association with anxiety and depression. This group also had a higher frequency of chronic diseases and lower monthly family income. This demonstrates the need for identification and understanding different phenotypes in this disorder which may require different management.

ID: 1611

The Impact of Screens on the Development and Prevalence of Generalized Anxiety Disorder in Children and Adolescents

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Keywords

- youth
- screens
- GAD

Introduction: The increasing use of electronic devices by children and adolescents has raised concerns about their impact on mental health, particularly regarding the development of Generalized Anxiety Disorder (GAD). While anxiety is a normal emotion, it can become pathological and disrupt daily life when dysregulated. With the high penetration of smartphones and increased screen time, there has been a rise in GAD cases, exacerbated by the COVID-19 pandemic. This study investigates how screen use influences the development and prevalence of GAD in young people.

Objective: To examine the relationship between screen use and Generalized Anxiety Disorder (GAD) in children and adolescents aged 5 to 16 years. Additionally, the study aims to analyze screen use patterns among this group, identify symptoms of GAD, investigate the correlation between screen time and the prevalence of GAD, explore mediating and moderating factors in this relationship.

Methods: A bibliographic review was conducted with an exploratory, descriptive, and explanatory approach. The research was carried out using renowned databases such as PubMed, PsycINFO, Scopus, SciELO, and Web of Science, employing terms like “excessive screen use,” “generalized anxiety disorder,” and “psychological impact of screens.” Articles published between 2014 and 2024 in English, Spanish, and Portuguese were selected.

Results: The bibliographic review revealed a strong association between excessive screen use and the increase of Generalized Anxiety Disorder (GAD) in children and adolescents. The COVID-19 pandemic exacerbated this issue, leading to higher GAD cases. Excessive screen use is linked to sleep disturbances, antisocial and aggressive behaviors, and may impair the development of the prefrontal cortex, crucial for executive functions. Dependence on electronic games is also highlighted as a significant addictive disorder.

Conclusion: The study confirms the relationship between excessive screen use and the development of GAD in young people. Dependent use of digital devices compromises social, cognitive, and emotional development and is associated with antisocial behaviors and increased anxiety. It is essential for parents and guardians to limit screen time and content. Cognitive Behavioral Therapy (CBT) is effective in treating GAD and managing technological dependence. Therefore, the study underscores the need for preventive interventions and public policies to protect youth mental health.

ID: 1613

Influence of Lifestyle the Anxiety Symptoms and Sleep Quality in Medical Students

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Keywords
- life habits
- stressors
- graduation
- mood
- sleepiness

Introduction: Lifestyle is widely discussed as a mediator of the health-disease process, and is defined as a set of habits that favor the good development of the body, mind, and social interaction. Studies show that the medical student's journey requires great dedication, time, and physical and mental effort, making it common to develop habits that are harmful to health, such as a sedentary lifestyle, the use of drugs and, stimulating drinks, as well as the excessive use of screens close to bedtime. These factors can increase the risk of developing anxiety symptoms and changes in sleep quality.

Objective: To assess whether there is a correlation between lifestyle profile, anxiety symptoms, and sleep quality in medical students.

Methods: Students were submitted to an online form (Google Forms) in which sociodemographic data were collected, in addition to assessing sleep quality using the Mini Sleep Questionnaire; anxiety symptoms using the Beck Anxiety Inventory, and lifestyle using the Individual Lifestyle Profile. The software used to analyze the data was Statistica (Statsoft, Inc., version 7.0). The significance level adopted was $p \leq 0.05$.

Results: Eighty-seven (87) students were selected with an age of 25.1 ± 6.01 (mean $\pm$ standard deviation), the majority of whom were female (77.3%). The results demonstrated a positive correlation between anxiety and sleep ($r = 0.583$) and a tendency towards a negative correlation between anxiety symptoms and lifestyle profile ($p = 0.08$). However, there was no significant correlation between sleep and lifestyle profile. In addition, there was a positive correlation between the use of stimulant medication/drinks and the anxiety symptoms variable ($r = 0.307$), and with sleep quality ($r = 0.315$).

Conclusion: Thus, the results suggest that anxiety symptoms and the use of medication/stimulant drinks can affect sleep quality, and vice versa. However, no significant correlations were observed between lifestyle profiles, anxiety symptoms, and sleep. Therefore, studies like this are of great relevance to help raise awareness among medical students about the influence of lifestyle on anxiety symptoms and sleep quality.

ID: 1614

Are Barbed Pharyngoplasty Always Good? The Experience of the Technique in Brazil Alone and with Multilevel Procedures

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Keywords
- barbed
- OSA
- multilevel procedures

Introduction: Pharyngoplasties remains the most common surgical procedure for OSAS alone or in combination with adjunctive multilevel procedures. New procedures involve reconstruction of the upper pharyngeal airway tissues, modifying structural abnormalities and improving form and function. With the advent of polypropylene barbed sutures, the capacity of sutures to withstand loads has greatly increased and became one of the possibilities of surgery. To obtain better palatal expansion in patients with retropalatal and laterolateral collapse, were proposed the combined use of two techniques, lateral and expansion pharyngoplasty. Until now, we don't have a study that shows the long-term effect of sutures in pharyngoplasties.

Objective: The aim is to describe the experience of barbed procedures in a private service.

Methods: Observational, cross-sectional and analytical study, with quantitative approach, based on the analysis of clinical records. The inclusion criteria was who had an anterior-posterior palate collapse or circular collapse confirmed by DISE or primary snore, mild and moderate OSAS. All patients were followed up from the procedure until this date, with a mandatory polysomnography after 6 months and every year after surgery.

Results: 35 cases selected from July 2018 to June 2024. The mean age was 43 years, the mean AHI before was 31. 82% performed septoplasty and turbinectomy plus barbed pharyngoplasty, 14% glossectomy with coblation, and 2,8% rhinoplasty. Almost had a significant reduction in excessive daytime sleepiness and snoring, confirmed by decreased AHI. Three patients (8,5%) had an increased AHI after surgery. One of them, from 17 to 59.3 (248% more), the other from 8.4 to 38.2 (354% more) and other from 13 to 17.2 (32% more). Those patients had glossectomy, septoplasty and turbinectomy and rhynoplasty, respectively. The first patient had a decrease AHI right after the surgery, but six years after, an increase. That patient had thread exposure. Complications were observed: thread exposure (5,7%), needle inserted in the wrong way (2,8%) and heart attack (2,8%).

Conclusion: Barbed suture is an extremely promising technology in the field of pharyngoplasty. The use of barbed reinforces stability, distributes tension, avoids damage of velopharyngeal tissues, and prevents collapse, with an important effect on long-term outcomes, but more studies must be done to conclude the real benefits of these approaches alone or with multilevel procedures and after long time.

ID: 1615

Assessing Low Arousal Threshold in Obstructive Sleep Apnea: Insights from a General Population Study

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Keywords
- sleep
- obstructive sleep apnea
- endotypes
- low arousal threshold

Introduction: Obstructive sleep apnea (OSA) results from a combination of anatomical and non-anatomical endotypes. Among the non-anatomical factors, a low arousal threshold (LAT) can make it challenging for individuals to tolerate and adhere to certain treatments.

Objective: The aim of this study was to determine the prevalence of the LAT endotype among the participants in the 4th edition of the Sao Paulo Epidemiological Sleep Study (EPISONO), and analyze the sociodemographic characteristics associated with LAT.

Methods: We used the algorithm proposed by Edwards et al. (2014) to identify LAT that is based on polysomnographic (PSG) parameters, namely the apnea-hypopnea index (AHI), peripheral oxygen saturation (SpO_2) and the percentage of hypopneas. Questionnaires on quality of life, fatigue, daytime sleepiness, and insomnia were also applied to assess gender-related differences between male and female non-OSA, LAT and high arousal threshold (HAT) participants.

Results: The groups differed significantly in terms of age and body mass index; however, there were no significant differences between ethnicities and for most of the assessed symptoms. A higher frequency of symptoms was observed in women, especially in those belonging to the LAT (OSA) group compared to men in the same group. Clinically significant insomnia was also more prevalent in females. In respect of the LAT (OSA) participants, no differences were observed between participants with and without clinically significant insomnia in the OSA group.

Conclusion: The characterization of the LAT endotype, and the higher frequency of symptoms in OSA women highlight the importance of valuing polysomnographic findings and the symptoms reported by women during clinical assessment. LAT showed no relationship with worsening arousability among participants with co-morbid insomnia and sleep apnea (COMISA) compared to those with OSA-only in this study.

ID: 1616

Temporomandibular Disorder Symptoms, Sleep Quality, and Anxiety Symptoms in School-Aged Adolescents

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Keywords
- sleep
- temporomandibular disorder
- anxiety
- adolescents

Introduction: Temporomandibular Disorder (TMD) is a group of conditions affecting the temporomandibular joint and associated structures, characterized by symptoms such as orofacial pain, mandibular locking, and noise. The etiology is multifactorial, with an increased prevalence associated with factors such as trauma, postural characteristics, neuromuscular factors, sleep disturbances, anxiety, and depression. Literature highlights the impact of emotional factors on TMD development, with anxiety potentially leading to the development of parafunctional habits and muscle hypertrophy. In addition to emotional factors, sleep quality has also been studied as a factor influencing TMD, showing a bidirectional relationship where pain can affect sleep and poor sleep quality can exacerbate pain.

Objective: To analyze the association between TMD symptoms, sleep quality, and anxiety symptoms in school-aged adolescents.

Methods: This is an observational, cross-sectional study conducted with school-aged adolescents from the public education system in Recife (PE). The sample consisted of adolescents of both sexes, aged 14 to 19 years, regularly enrolled in high school. Adolescents undergoing any form of treatment for orofacial pain or anxiety were excluded. Data collection involved the administration of the following questionnaires: Sociodemographic, Diagnostic Criteria for Temporomandibular Disorders (Axis II), Pittsburgh Sleep Quality Index, and Generalized Anxiety Disorder (GAD-7). Data were tabulated and analyzed using the Statistical Package for Social Science (SPSS), version 27. The association between categorical variables was evaluated using Pearson's Chi-square test with a significance level of 5%.

Results: The sample comprised 200 students, with a majority being female (54.5%) and aged between 14 and 16 years (56.5%). Among the participants, 84% reported poor sleep quality, 82% exhibited anxiety symptoms, and 32% showed TMD symptoms. A significant association was observed between TMD symptoms and poor sleep quality ($p = 0.003$), but no association was found between TMD symptoms and anxiety symptoms ($p = 0.165$).

Conclusion: TMD symptoms were associated with poor sleep quality, indicating that the likelihood of having TMD symptoms was 5.5 times greater for adolescents with poor sleep quality.

ID: 1619

Restless Legs Syndrome/Willis-Ekbom Disease: A Frequent Condition in Patients Sequentially Admitted to a Sleep Medicine Outpatient Clinic

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Keywords
- restless legs syndrome
- Willis-Ekbom Disease
- periodic leg movements

Introduction: Restless Legs Syndrome/Willis-Ekbom Disease (RLS/WED) is a neurological condition characterized by an irresistible urge to move the legs, often associated with discomfort, leading to insomnia symptoms, non-restorative sleep and daytime fatigue.

Objective: To demonstrate the high prevalence of RLS/WED in patients sequentially admitted to a sleep medicine clinic and to describe their clinical and epidemiological features.

Methods: Retrospective analysis of medical records from patients sequentially admitted to a reference clinic for sleep disorders over the past 17 months.

Results: RLS/WED was diagnosed in 18.7% of the 187 patients (55% male) sequentially admitted to the sleep clinic. None of the 35 patients (63% female), aged 35 to 80 years (mean 60 years), had a prior diagnosis of RLS/WED, with snoring or apnea being the primary complaint in 43% of cases, followed by insomnia symptoms (37%), non-restorative sleep (8.5%), nocturnal leg discomfort (8.5%), and sleep bruxism (3%). Main psychiatric comorbidities were generalized anxiety disorder (60%) and depression (14%), with 43% using selective serotonin reuptake inhibitors (SSRIs). Cardiovascular risk factors were present in 69% of the sample. Obstructive sleep apnea was found in 93% of the 29 patients who underwent polysomnography, with a periodic limb movement index above 5/h in 55% (31% above 15/h) of the sample. Anemia was not found in any cases, and ferritin levels below 75 ng/mL were detected in 14%. Symptoms were moderate in 23%, severe in 20%, and very severe in 11% of cases according to the International Restless Legs Syndrome Severity Scale, and 43% of patients described RLS/WED symptoms as painful. Symptoms occurred 2 or more times per week in 77% of cases. Treatment was carried out with behavioral measures alone in 37% of patients, pharmacological treatment with alpha-2-delta ligands in 51%, and intravenous iron in 11%. Three patients reported complete relief of RLS/WED symptoms after starting obstructive sleep apnea treatment with CPAP.

Conclusion: Systematic screening for RLS symptoms is necessary in the evaluation of patients with sleep complaints, as RLS/WED is a highly prevalent disorder, detected in approximately one-fifth of patients. OSA is the main comorbidity, and its diagnosis and treatment may help control RLS symptoms. SSRIs treatment was common and may worsen or trigger RLS/WED symptoms.

ID: 1620

Mapping Regional Use of Home Sleep Apnea Testing in Brazil

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Keywords
- OSA
- healthcare access
- HSAT
- sleep diagnosis

Introduction: Obstructive Sleep Apnea (OSA) is a prevalent condition that remains underdiagnosed and untreated, mainly in Latin America, leading to significant health and economic burdens. Major disparities in access to OSA diagnosis and treatment in Brazil were recently published and revealed that in-lab polysomnography (PSG) is the most common diagnostic method within Brazil's public health system, potentially causing delays in diagnose and treatment. Home Sleep Apnea Testing (HSAT) is a viable alternative for diagnosing OSA in uncomplicated adults, potentially addressing the large number of undiagnosed cases in Brazil.

Objective: To evaluate the growth of type III HSAT utilization in Brazil, identify potential regional disparities, and describe the proportion of patients diagnosed with OSA.

Methods: Anonymized data from all diagnostic centers utilizing a type III HSAT (ApneaLink Air) connected to a diagnostic cloud solution (AirView) were analyzed from January 2018 to June 2024. Descriptive analyses were conducted to assess the overall number of tests, growth over time, and regional distribution across Brazil. The proportion of positive diagnoses at apnea-hypopnea (AHI) thresholds of $\geq$5, $\geq$15, and $\geq$30 events/hour were also examined.

Results: A total of 154,407 HSATs using the ApneaLink Air were conducted across Brazil from 2018 to 2024, with an average growth of 103% in the number of HSATs performed and a total increase of 2,502% over this period. The Southeast region conducted the majority of the tests, accounting for 67.6% (104,348) of the total, followed by the South (18.8%,29,012), Northeast (10.1%,15,590), Central-West (2.9%,4,479), and North (0.7%,1,078). Among the tested patients, 74.4% (114,912) were identified with mild sleep apnea (AHI $\geq$ 5 events/hour), 43.4% with moderate to severe (AHI $\geq$15), and 20.6% with severe (AHI $\geq$30) OSA.

Conclusion: The significant increase in HSAT(ApneaLink) utilization for diagnosing OSA from 2018 to June 2024 highlights significant progress in expanding access to OSA diagnosis in Brazil. However, the data reveals persistent regional disparities, with the Southeast region overwhelmingly leading in diagnostic activity, while the North and Central-West regions remain significantly underrepresented. These findings underscore the need for targeted efforts to expand diagnostic infrastructure, professional training, and community education in underserved areas, ensuring that all patients nationwide have access to diagnostic and treatment.

ID: 1628

Evidence of the Association Between Subjective Sleep Quality, Emotional Eating, and Metabolic Risk in a Sample of University Students: a Cross-Sectional Study

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Keywords
- Undergraduate students
- sleep quality
- emotional eating
- nutritional status
- metabolic risk

Introduction: A substantial body of evidence indicates a significant interrelationship between sleep quality, nutritional status and food intake. Young people who report poor sleep quality are more likely to experience negative emotions related to food.

Objective: Evaluate the relationship between subjective sleep quality, emotional eating, and nutritional status in university students.

Methods: A sample of 208 undergraduate students (77% female, mean age: 21.77$\pm$1,3) completed an online survey that included assessments of subjective sleep quality

(Pittsburgh Sleep Quality Index-PSQI-BR), emotional eating (Emotional Eater Questionnaire-EEQ), and eating habits. Additionally, anthropometric data (self-reported) was collected, and body mass index (BMI) and metabolic risk (MR) were calculated.

Results: Seventy-seven percent of volunteers reported experiencing poor sleep quality (mean PSQI score: 8.4±3.4), 91% exhibited some level of emotional eating (EEQ mean score: 13.6±6.6), and 31% were at metabolic risk (mean BMI: 24.1±4.8, mean waist circumference: 78.2±13.2cm). Individuals who were emotional eaters' low emotional eater (p=0.03 OD=3.6 95CI 1.1-10.8), emotional eater (p<0.001 OD=8.4 95CI 2.5-28.6) and very emotional eater (p=0.005 OD=8.5 95CI 1.9-38.5) had higher odds of reporting poor sleep quality relative to those who did not engage in emotional eating. The probability of men falling into a higher category of emotional eaters was found to be less than that of women (p<0.001 OD=0.2 95CI 0.1-0.4).

Conclusion: Subjective sleep quality may be a significant contributing factor in the underlying mechanisms of emotional eating. To gain a more comprehensive understanding of this relationship, future studies should adopt a randomized controlled trial approach.

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ID: 1631

The Phenotype of the REM Sleep Apnea Predominant Syndrome and its Relationship with Excessive Daytime Sleepiness

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Keywords

- SASREM phenotype
- ESS
- polysomnography

Introduction: Sleep is a physiological stage divided into REM (rapid eye movement) and non-REM (non-rapid eye movement) sleep, each of them with different characteristics and functions. Sleep apnea syndrome (SAS) is one of the most common sleep disorders and is characterised by successive airflow interruptions during sleep associated with oxygen desaturation, with direct consequences on sleep quality, daytime sleepiness, cognitive, cardiovascular and metabolic effects, among others. Obstructive respiratory events predominate during REM sleep, when muscle relaxation is most pronounced. The clinical manifestations and consequences of SAS are not the same in all individuals, and it is currently believed that there is an SAS phenotype in which respiratory events predominate in REM sleep (SAS/REM).

Objective: Our aims are to identify, in relation to the SAS/REM phenotype, the existence (or not) of a pattern in monitoring parameters and their relationship with excessive daytime sleepiness.

Methods: A retrospective observational study was performed, including 155 level I and II polysomnographies (PSG) performed between January and July 2024. All PSG parameters were analysed, as well as the Epworth Sleepiness Scale (ESS) score, the Stop-Bang (SB) score, and cervical (CP) and abdominal perimeter (AP) measurements. The polysomnograms were analysed according to the American Academy of Sleep Medicine v3.0 guidelines. A non-parametric statistical approach was used; non-parametric tests were chi-squared, an extension of Fisher's exact test, and polychoric correlation using the R language. The alpha error was set at 5%.

Results: The majority of the sample (53.6%) was female, with a median age of 52 years (±13.5) and a median body mass index (BMI) of 27.4 kg/m2 (±3.7). The sample means ESS score was 7.16; SB score was 3.29; CP and AP were 37.2 cm and 95.7 cm respectively. Only 31 individuals had the SAS/REM phenotype (64.5% ♀ vs 35.5% ♂), of which only 12.9% had an ESS score greater than 11. Chi-squared test showed no association between ESS score and SAS/REM phenotype (p-value=0.3094). Individuals with the SAS/REM phenotype showed strong positive correlations between age, weight, BMI, AP and SB score and strong negative correlations between ESS score, REM sleep time and mean SpO2.

Conclusion: The sample's prevalence of SAS/REM was 20%, very similar to that found in the literature. It is more frequent in women and although the ESS score is lower in SASREM, it is not statistically significant.

ID: 1632

Evaluation of Sleep Quality Among Medical Students: Investigation and Implications for Academic Well-Being

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Keywords

- medical student
- sleep
- deprivation
- outcome

Introduction: Sleep deprivation is a common ailment among medical students due to the intense academic demands. An ideal sleep-wake cycle, alternating between NREM and REM stages, typically features a 90-120 minute NREM phase. However, in sleep-deprived individuals, this period is drastically reduced to 20-30 minutes, leading to short- and long-term physical and cognitive repercussions. This study examines the sleep quality of medical students, investigating these implications and their consequences.

Objective: This study aims to assess the impact of sleep deprivation on the lives of medical students from a private medical school in the state of Rio de Janeiro.

Methods: The study participants were medical students in the 1st and 5th periods, totaling 70 students. All participants read and agreed to the informed consent form. Data collection was conducted through an online self-report questionnaire from March to April 2024, comprising 35 questions, including the Pittsburgh Sleep Quality Index (PSQI), which considers a score > 5 indicative of poor sleep quality. The results were analyzed in absolute and relative terms and organized into graphs and tables using Excel.

Results: The participants, with a mean age of 22.25 years (SD ±6.98), revealed a concerning level of poor sleep quality: 81.43% had PSQI scores > 5. Approximately 45.7% reported taking more than 30 minutes to fall asleep at least once a week. The ability to maintain enthusiasm for daily activities was impaired in 88.6% of the students. The use of psychostimulants to enhance academic performance was observed in 14.28% of cases. Regarding sleep medications, 51.2% did not use them, while 48.8% resorted to them 1 to 3 times per week.

Conclusion: Students using psychostimulants exhibited PSQI scores indicative of poor sleep quality. Anxiety, depression, and reduced immunity demonstrated a significant relationship with sleep deprivation, identified as a limiting factor in academic performance, daily activities, and physical health. Therefore, it is imperative to implement interventions aimed at improving sleep quality among medical students, emphasizing the necessity for physicians to care for themselves as well as their patients.

ID: 1633

REM Sleep Behavior Disorder in a Young Patient: Implications for Evolution and Treatment

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Keywords
- RBD
- young adults
- motor behavior

Introduction: REM Sleep Behavior Disorder (RBD) is a parasomnia with loss of muscle atonia during REM sleep, leading to dream enactment behaviors like sleep-related vocalizations and complex motor activities. IIt affects 0.5 to 1.5% of the population. In adults under 40, RBD is linked to antidepressant use or narcolepsy. The symptoms of RBD typically begin in late adulthood, with the average age of diagnosis being between 60 and 70 years. RBD is an important predictor of neurodegenerative diseases, such as Parkinson's disease.

Objective: To report a case of RBD in a 40-year-old patient and discuss the challenges associated with the diagnosis and treatment of the condition.

Methods: This cross-sectional case report uses 2024 data from a patient's medical records, who was followed up in a private medical service.

Results: A 40-year-old male patient presented to the medical service complaining of "night terrors." He reported experiencing abnormal movements during sleep for the past ten years, occurring 6 to 10 times per month. The patient had been using paroxetine continuously for many years and mirtazapine for the last six months to treat significant anxiety. A polysomnography demonstrated disturbed sleep with micro-awakenings, mild sleep apnea, and two episodes of RBD. A transcranial ultrasound revealed a 21 mm2 hyperechogenicity in the left substantia nigra. With the diagnosis of RBD secondary to the use of antidepressants, melatonin 10 mg was prescribed at night, and the antidepressants were replaced with trazodone 100 mg. Upon follow-up after two months, the patient reported a decrease in the intensity of motor behaviors during sleep. Regarding the diagnosis of RBD, its occurrence in young adults is frequently associated with the use of antidepressant medications, as in this case, or with narcolepsy. It is also known that RBD in young patients seems less associated with neurodegenerative diseases, with a similar incidence in both sexes.

Conclusion: In conclusion, although rare in young adults and challenging to diagnose, RBD should be considered, especially in the context of sleep-related motor behaviors associated with dreams. Early detection allows for guidance on the patient's physical protection and serves as a natural model for extrapyramidal diseases, promoting research into neuroprotective interventions. This patient's evolution has to be followed closely to better understand the brain ultrasound results.

ID: 1635

Impact of overlapping Obstructive Sleep Apnea Syndrome on functional performance of patients with Chronic Obstructive Pulmonary Disease

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Keywords
- COPD
- OSAS
- functional capacity
- 6MWT
- overlap syndrome

Introduction: Functional performance is an important prognostic marker in chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea syndrome (OSAS). However, the impact of the overlap of these diseases has been little studied.

Objective: To assess whether the presence of OSAS can negatively impact functional performance in patients with COPD during submaximal exercise.

Methods: Thirty patients underwent pulmonary function tests, echocardiograms and home sleep tests to confirm the diagnosis, stage the disease, exclude any cardiac abnormalities and allocate them to groups (COPD n=15; COPD+OSA n=15). They then performed the six-minute walk test (6MWT) to assess functional capacity, measured in meters walked.

Results: There was a predominance of females in the COPD group (n=9) and males in the COPD+OSAS group (n=12). In addition, older age was observed for the COPD+OSAS group compared to the COPD group (69 years vs. 63 years, respectively), and worse functional performance (330±24 meters), also for the COPD+OSAS group vs. (420±16 meters) walked by the COPD group. Furthermore, it was possible to observe a negative and moderate association (r= -0.48; p= 0.008) between AHI and PD.

Conclusion: OSAS, when coexisting with COPD, negatively impacts functional capacity. AHI is associated with functional impairment in these patients.

ID: 1638

Effects of Oral Contraceptive Use Timing on Women's Sleep

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Keywords
- contraceptive
- sleep
- insomnia
- menstruation
- hormones

Introduction: Complaints of insomnia are prominent among women, directly affecting their quality of life. Previous research has associated the use of contraceptive pills with poor sleep quality and insomnia symptoms. Contraceptive use timing might contribute to the effects of contraceptives on sleep.

Objective: To evaluate effects of oral contraceptive use timing on women's sleep quality.

Methods: Women aged 18 years and older who regularly used contraceptive pills were invited to complete a survey including socio-demographic data, self-reported chronotype and sleep-related questionnaires (Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale, and Insomnia Severity Index). This survey was disseminated through emails and social media. Exclusion criteria were not using pills regularly, working night shifts, breastfeeding, using medications that interfere with sleep, having psychiatric disorders or uncontrolled clinical conditions and/or cancer. Three groups were created based on contraceptive use timing: morning (4am-10am), lunchtime (11am-2pm) and evening (7pm-1am). Categorical data were analyzed using Fisher's exact test and continuous data using the General Linear Model. Statistical tests were conducted using Jamovi, with significance at $p<0.05$.

Results: The survey had 705 participants, with 439 meeting the inclusion criteria. Regarding contraceptive use timing, 71 participants took it in the morning; 54 around lunchtime; and 321 in the evening. The mean of age of this sample was 26.17 ± 6.68 years. The sample was predominantly single, white, with high school education, earning 4 to 5 minimum wages, with a Body Mass Index classified as "normal weight" and using combined contraceptives (n=393). There were no statistically significant differences related to demographic characteristics and the timing of contraceptive ingestion. The majority of the sample consisted of women with an intermediate chronotype, normal insomnia symptoms, normal daytime sleepiness, and poor sleep quality. No significant effect of the timing of contraceptive use was observed on chronotype (p=0.06), insomnia level (p=0.361), sleepiness (p=0.085), or sleep quality (p=0.98).

Conclusion: This study showed no significant differences in sleep related to contraceptive pills using time. Observational studies have limitations, such as subjective assessments from participants. However, the research in this health field is valuable due to the gap in the scientific literature related to the topic.

ID: 1639

Evaluation of the Impact of Gestational Age on Premature Children and Adolescents' Sleep Habits and Circadian Preferences

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Keywords
- sleep
- preterm
- children
- adolescence
- chronobiology

Introduction: Prematurity is characterized by the birth of the newborn before completing 37 weeks of gestation and is divided into extremely preterm (less than 28 weeks), very preterm (28 to less than 32 weeks), and moderate to late preterm (32 to 37 weeks). In humans, the circadian system is still immature at birth, evidenced by the predominant presentation of rhythms lasting less than 24 hours, also called ultradian, especially in premature infants. In addition, premature infants spend more time in neonatal intensive care units. They are mostly exposed to constant light, which is detrimental to rhythmic oscillations, and sleep quality and duration.

Objective: To evaluate whether gestational age impacts sleep habits and circadian preferences in children and teenagers from 10 years old.

Methods: Cross-sectional study in which 45 children and teenagers from 10 years old answered the Morningness-Eveningness Scale (M/E), Sleep Hygiene Index (SHI), and Munich Chronotype Questionnaire (MCTQ). The study was conducted at the UNIFESP Preterm Clinic, and the sample was categorized into 3 groups: extremely preterm (EP - less than 28 weeks) (N=8; 16.7 ± 2.98 years; 11.10% female), very preterm (VP - 28 to less than 32 weeks) (N=24; 14.5 ± 3.15 years; 20.00% female), and moderate to late preterm (MLP - 32 to 37 weeks) (N=13; 13.7 ± 2.78 years; 33.30% female).

Results: Using the ANCOVA test, a comparison was made in the questionnaire scores between the 3 groups controlled for age, sex, and pubertal development. No significant difference was observed between the 3 groups for the M/V questionnaire (EP=31.10 ± 4.61; VP=31.30 ± 5.42; MLP=31.90 ± 5.69; $p>0.05$). Also, no significant differences were observed between 3 groups for the ISH questionnaire (EP=17.50 ± 4.00; VP=19.20 ± 7.25; MLP=14.70 ± 5.95; $p>0.05$), and no significant differences between 3 groups for the de MCTQ questionnaire (EP=4.10 ± 1.66; VP=4.61 ± 2.07; MLP=4.83 ± 4.38; $p>0.05$).

Conclusion: The results of the study indicated that gestational age did not affect the sleep habits and circadian preferences of premature children and teenagers. Age, pubertal development, and sex also had no impact on the aspects investigated.

ID: 1640

Assessment of the Subjective Quality of Sleep and its Related Parameters in a Sample of Students Enrolled in Health Care Courses

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Keywords
- student health services
- sleep hygiene
- sleep quality
- chronotype

Introduction: The beginning of undergraduate education is a stage of social and psychological change in students' lives, and these challenges can be a significant source of stress in their academic careers. Adjustments in their sleep patterns and circadian rhythms are commonly reported, whether due to misalignment between their social and biological clocks or attributed to academic demands.

Objective: To evaluate subjective parameters related to sleep and circadian rhythms in students entering Biomedical Sciences, Nursing and Speech Therapy courses.

Methods: Data from 69 first-year undergraduate students in 2023 and 2024 were analyzed (between June/2023 and May/2024). Data were collected using an electronic form that included sociodemographic questions and questionnaires to assess subjective sleep quality (Pittsburgh Sleep Quality Index), sleep hygiene (Sleep Hygiene Index), daytime preferences (Morning-Eveningness Questionnaire), and chronotype (Munich Chronotype Questionnaire).

Results: The mean age of the students was 20.8±3.4 years and 90% were female. Regarding the course of study, 39% were Nursing students, 36% were Biomedical Sciences students, and 24% were Speech Therapy students. Eighty five percent of the sample had poor subjective sleep quality (mean score 8.5±3.2 points) and mild sleep hygiene (mean score 35.4±5.7 points, range 13-65). Fifty-four percent of the students were classified as having intermediate daytime preference, seventeen percent have morning preferences, ten percent have evening preferences and six percent and one percent have extremely morning and evening preferences, respectively. Also, the students have an average chronotype at 3:30 a.m.±1:24.

Conclusion: The students in our sample had a high percentage of poor subjective sleep quality, poor sleep hygiene, and a greater presence of intermediate preferences and chronotypes. Factors, such as academic demands, later bedtimes, circadian misalignment, sleep deprivation, and unhealthy sleep habits may contribute to poor subjective sleep quality and sleep hygiene and may be a target for academic interventions to improve student health.

ID: 1641

IS SLEEP BRUXISM ASSOCIATED WITH LARYNGOPHARYNGEAL REFLUX IN THE GENERAL POPULATION?

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Keywords
- bruxism
- sleep
- reflux
- laryngopharyngeal
- gastro-esophageal reflux disease

Introduction: Sleep Bruxism (SB) is prevalent and usually associated with comorbidities. One of the potential conditions associated with SB is Gastroesophageal Reflux Disease (GERD) and atypical manifestations, such as Laryngopharyngeal Reflux (LPR).

Objective: This study aims to evaluate the association between SB and LPR symptoms in the general population of São Paulo, Brazil.

Methods: The 2015 edition of EPISONO study sample was evaluated in this study (n=688 who completed information on SB and LPR). SB were diagnosed by self-report and by polysomnography (PSG). We report 3 groups of SB: self-report, PSG, and self-report confirmed by PSG. The occurrence of LPR symptoms was assessed using the Reflux Symptom Index (RSI) questionnaire. Poisson regression models with robust variance adjusted were used to assess the association between LPR and other sample characteristics with the prevalence of SB according to each of the 3 SB groups.

Results: The 3 groups frequency of SB were: self-report 17.1%, PSG 7% and self-report + PSG 6.9%. The unadjusted association between sample characteristics and SB prevalence assessed by self-report (n=688) showed that individuals who presented LPR had a 51% higher prevalence of SB than their counterparts. Considering the adjusted analysis, LPR was not significantly associated with self-reported SB. An association was found between self-reported SB with age, socio-economic status, moderate or severe insomnia and sleepiness. Regarding SB diagnosed by PSG we reported age, anxiety, sleep quality, and insomnia as significantly associated variables in the unadjusted analysis, while LPR was not. In the fully adjusted analysis, only insomnia remained significant. Finally, significant relationships of self-report + PSG SB with age, anxiety score, sleep quality, and insomnia were obtained in the unadjusted analysis. After adjustment, only moderate to severe insomnia remained significant.

Conclusion: Contrary to our initial hypothesis, we did not find association between any type of SB with LPR. However, moderate to severe insomnia were main predictors of SB in the general population.

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ID: 1643

Methodological Quality and Outcome Assessment on Randomized Clinical Trials for the Treatment of Insomnia

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Keywords
- sleep
- meta-epidemiology
- systematic reviews
- hypnotics

Introduction: The number of randomized controlled trials (RCTs) evaluating interventions for the treatment of insomnia has been increasing. However, the methodological quality and outcome assessment methods used in these RCTs vary considerably.

Objective: To describe the quality of RCTs, and the outcomes used to access insomnia.

Methods: This is a secondary analysis of the systematic review used in the 2023 Brazilian Guidelines on the Diagnosis and Treatment of Insomnia in Adults, which included RCTs evaluating therapeutic interventions for non-comorbid insomnia. All records were evaluated by 2 reviewers in a 2-steps process (abstracts and full texts). Methodological quality was evaluated using the van Tulder scale, an 11 items tool evaluating common biases on RCTs. Sleep-related outcomes were analyzed by quantifying the proportion of included manuscript reporting the most used sleep assessment tools (including polysomnography, sleep logs, and sleep-related questionnaires). Non-sleep-related outcomes were analyzed using the taxonomy for outcome classification proposed by the Core Outcome Measures in Effectiveness Trials (COMET).

Results: 132 RCTs were included, 58 related to pharmacological interventions, 71 to non-pharmacological ones, and 3 to both interventions. The average compliance rate was 67.4±29.9% among all the included articles, being significantly higher in those evaluating pharmacological interventions (77.7±12.5%) in comparison to non-pharmacological ones (59.3±13.6%, $p<0.001$). The higher compliance rates were related to "similar timing of outcome assessment" (96.7%, n=128), "similar baseline characteristics" (96.7%, n=128), and "absence of cointerventions" (96.2%, n=127). Lower compliance rates were observed on "acceptable compliance in all groups" (24.2%, n=32) and "intention-to-treat analyses" (25.0%, n=33). Non-pharmacological trials were associated with lower methodological quality in 5 items in the van Tulder scale ($p<0.05$). The most often reported outcome for insomnia was Insomnia Severity Index (49.2%, n=65), followed by sleep log measures (47.7%, n=63) and polysomnographic outcomes (31.1%, n=41). Regarding the non-sleep outcomes, the most often investigated were related emotional functioning/well-being (37.9%, n=50), followed by cognitive functioning (14.4%, n=19).

Conclusion: While the average quality of the included RCTs is acceptable, the average methodological quality is higher among studies evaluating pharmacological interventions.

ID: 1647

Integrative Lighting Design Applied Reduced Sleepiness Perception Among Night Shift Workers

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Keywords
- night shift worker
- sleep
- activity/rest rhythm
- integrative lighting
- light

Introduction: Despite the growing relevance of the urban night economy, inadequate time of exposure to light can compromise the health of night shift workers. In this sense, circadian adjustment is important for improving tolerance to night work and can be achieved through the proper stimulus of intrinsically photosensitive retinal ganglion cells (ipRGC) by light.

Objective: The aim of this study was to comparably verify the light exposure effects in the workplace, before and after a lighting tailored intervention, on variables related to the activity/rest rhythm and sleep in night shift workers.

Methods: An exploratory study was conducted based on a case study with a quantitative empirical approach. The lighting conditions was changed by a non-pharmacological intervention, through the installation of desk luminaires developed exclusively for this research. The collection of behavioral variables took place in two phases, one phase before and the other after the lighting intervention, both utilizing an actigraph, worn on the nondominant wrist and completion of a daily activity protocol. Each phase was done in a period of 9 days, including two days off. The analysis was performed using mean comparison tests (parametric and non-parametric) in order to compare the variables of interest before versus after the implementation of the new lighting exposure.

Results: The sample of this study, consisting of 10 participants (8 female, Mage = 29.6, SDage = 7.31, range = 21-46), showed an increase in the main sleep latency during days off, with the use of the desk luminaire (p=0.02). Additionally, a 25.16% increase in subjective sleepiness (obtained with Karolinska Sleepiness Scale) was noted at 1:00am (p=0.03) and a 10.55% decrease at 5:00am (p=0.04) after the lighting intervention. Despite the fact that at both phases was observed an increase in the sleepiness at the end of the shift (72.51% before and 23.28% with the luminaire), the results seen were 3.11 fold lower with the luminaire light exposure during night work. No statistically significant changes were observed in the measures of activity/rest rhythm.

Conclusion: Even though no benefits were perceived in the objective measures of sleep and in the activity/rest rhythm, the tailored lighting design appeared to benefit the subjective measures of sleepiness at the end of the night shift.

ID: 1648

Estimation of the Prevalence of Comorbid Insomnia with Obstructive Sleep Apnea (COMISA) in Adult Patients with Suspected Sleep-Disordered Breathing

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Keywords
- COMISA
- OSA
- chronic insomnia
- sleep quality

Introduction: Obstructive sleep apnea (OSA) and insomnia are the most prevalent sleep disorders worldwide. Therefore, the association of these diseases (COMISA) is also prevalent, especially among adult patients referred for polysomnography. However, studies evaluating the prevalence of COMISA are surprisingly scarce, especially in Brazil.

Objective: To determine the prevalence of COMISA in adults with suspected sleep-disordered breathing (SDB). Secondarily, we also evaluated the impact of COMISA diagnosis on sleep quality and the frequency of excessive daytime sleepiness (EDS).

Methods: A cross-sectional study was conducted from March 2020 to July 2024. The local Ethics Committee approved the research project (#64135922.2.0000.5257). Chronic insomnia was defined as experiencing at least one of the following nocturnal symptoms: difficulty falling asleep, difficulty staying asleep, or waking up earlier than expected, on at least 3 nights per week for a minimum of 3 months. Using a home sleep apnea test, OSA diagnosis was based on the respiratory event index (REI) ≥ 5.0/h. EDS was assessed by an Epworth Sleepiness Scale score > 11 while the Ru-SATED questionnaire assessed sleep quality. Two-tailed statistical tests were performed using the chi-square (categorical variables) and the Kruskal-Wallis (continuous variables) test.

Results: The study included 255 individuals (57.3% females). Out of the 255 participants in the study, 16.9% (n = 43) had neither chronic insomnia nor OSA, 10.1% (n = 26) had chronic insomnia only, 42.4% (n = 108) had OSA only, and 30.6% (n = 78) had COMISA. There was a linear increase in the median REI values according to the 4 subgroups: controls: 3.5/h (interquartile range [IQR]: 2.7-4.1), insomnia: 3.8/h (IQR: 2.1-4.5), OSA: 10.2/h (IQR: 7.1-26.0), and COMISA: 11.4/h (IQR: 7.2-22.6); $p < 0.001$. The prevalence of EDS did not vary among the 4 subsamples: controls (37.2%), insomnia (46.2%), OSA (45.4%), and COMISA (53.8%); $p = 0.357$. Patients with chronic insomnia had the worst scores on the Ru-SATED tool: 6.0 points (IQR: 4.7-6.2), followed by COMISA: 7.0 points (5.0-8.0), OSA, and controls (both with 9.0 points [IQR: 7.0-10.0]); $p < 0.001$.

Conclusion: Our research revealed a high prevalence of COMISA. Individuals with COMISA had the highest REI values compared to controls, OSA, and chronic insomnia alone.The presence of COMISA did not affect the frequency of EDS. However, individuals with insomnia alone or with COMISA had poorer sleep quality.

ID: 1649

Effect of Treatment of Obstructive Sleep Apnea with CPAP on Auditory Evoked Potentials

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Keywords

- obstructive sleep apnea
- continuous positive airway pressure
- auditory evoked potentials
- sleep questionnaires

Introduction: The Long Latency Auditory Evoked Potential (LLAEP) makes it possible to objectively assess the functionality and integrity of the auditory pathways by recording the bioelectrical activity of neurons in the thalamocortical regions triggered by a standardized acoustic stimulus. The evoked potential evaluates auditory abilities, such as detection and discrimination, by analyzing the exogenous components P1, N1, P2 and N2. On the other hand, analysis of the endogenous P3 component assesses cognitive abilities such as attention and auditory memory. Previous studies have found alterations in LLAEP components in patients with Obstructive Sleep Apnea (OSA), since the responses depend on the state of attention and degree of sleepiness to the acoustic stimulus. Furthermore, the intermittent hypoxia triggered by OSA can affect neuronal integrity. Despite this evidence, the effects of treating OSA with CPAP remain poorly studied.

Objective: The aim of this study was to evaluate the effect of treating moderate to severe OSA with CPAP over 6 months on LLAEP.

Methods: Adults with OSA participated in the study (9 men and 9 women, age= 57.11 ± 8.50 years, body mass index= 32.75 ± 6.31 kg/m2, apnea-hypopnea index= 39.14 ± 74.10 event). The patients were divided into those who adhered to CPAP (study group-GE) or those who did not start using CPAP (control group-GC). All patients were assessed using LLAEP with tone burst stimulation immediately after CPAP treatment was indicated, and 3 and 6 months after the initial assessment.

Results: 31 adults were studied, 18 from the SG (average of 6.3 hours of CPAP use/night) and 13 from the CG. A high percentage of altered results was observed, especially for the P2 and N2 components, with 22.22%, 22.22%, and 38.89%, 33.33% and 27.78% of altered tests for the P1, N1, P2, N2 and P3 components respectively, with no difference between the groups at any point in the evaluation. In the quantitative analysis, there was a reduction in the latency of the P2 component after three months of using CPAP, but this improvement was not maintained in the 6-month evaluation.

Conclusion: The results of this study suggest that OSA is associated with alterations in the auditory pathways, but treatment of OSA with CPAP does not improve electrophysiological responses, which may be irreversible.

ID: 1650

Sleep Quality, Quality of Life, and Parental Stress in Families of Children with Complex Chronic Conditions during their Hospital Discharge Process

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Keywords

- chronic diseases
- hospital discharge
- pediatrics
- family

Introduction: With the decrease in infant mortality rates associated with technological progress, children with severe chronic illnesses have been surviving, leading to a subset of children with complex chronic conditions (CCC). Chronic illness impacts the lives of both the child and their family. How families cope with the demands of parenting can lead to stress that affects well-being, quality of life, and sleep

Objective: To assess the quality of sleep, quality of life, and stress levels in families of children with chronic health conditions and compare them with families of healthy children.

Methods: Cross-sectional observational quali-quantitative evaluation. Eligibility criteria included primary caregivers of children with CCC who were hospitalized from January 1,2018 to October 31,2023 and required care for discharge. Exclusion criteria encompassed CCC patients who deceased, were readmitted or were unreachable by phone. Questionnaires sociodemographic data, alongside chart reviews, the Pittsburgh Sleep Quality Index, Parental Stress Scale and abbreviated WHOQOL were employed. Analyses comprised descriptive statistics and one-way ANOVA. Jamovi software was utilized with statistical significance set at $p<0.05$.

Results: The sample comprised 31 caregivers of children with CCC and 31of healthy children. Primary caregivers of children with CCC had a mean age of 36 years, with 93% being female, 52% belonging to socioeconomic level C1. Caregivers of healthy children had a mean age of 36 years, with 90% being female, 39% belonging to socioeconomic level C2. Females accounted for 45% of the patients, a mean age of 83 months. The underlying conditions included genetic causes in 32.3% and neurological in 32.3%. The mean Pittsburgh Sleep Quality Index was 6.8 in the healthy group and 7.6 in the CCC group. Regarding sleep quality, 74% of CCC caregivers and 71% of healthy children were rated as poor. The total sleep time of CCC caregivers averaged 5 hours/45 minutes and that of healthy children was 6 hours/27 minutes. Comparisons between the groups revealed significant differences in the time spent on daytime care($p<0.001$), total parental stress scale scores ($p<0.001$), parental stressor domain ($p<0.001$), WHOQOL psychological domain ($p<0.023$) and social relationships domain ($p<0.049$).

Conclusion: Relatives of children with CCC, compared to families with healthy children, spend more time on caregiving, experience higher parental stress and report lower quality of life in psychological and interpersonal aspects.

ID: 1651

Transcutaneous Auricular Vagus Nerve Stimulation for Insomnia: a Systematic Review and Meta-Analysis

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Keywords
- Insomnia
- transcutaneous auricular vagus nerve stimulation
- randomized controlled trials

Introduction: Although insomnia is a prevalent sleep disorder that significantly impacts health and quality of life, current treatment options are still limited. While transcutaneous auricular vagus nerve stimulation (t-VNS) is a promising alternative, the current literature lacks a clear evaluation of its effectiveness.

Objective: Our systematic review and meta-analysis aimed to assess the efficacy of t-VNS for patients with insomnia.

Methods: We systematically searched Pubmed, Embase, and Cochrane databases from inception to July 2024 for randomized controlled trials (RCTs) comparing t-VNS to sham transcutaneous non-vagus nerve stimulation with a follow-up of at least 2 weeks. Statistical analysis was performed using R Studio software (2023.12.1 Build 402). We computed the mean differences for continuous outcomes, with 95% confidence intervals (CIs). Heterogeneity was assessed using I^2 statistics.

Results: We included three RCTs comprising 167 patients with insomnia, of whom 84 (50.3%) underwent t-VNS. All studies had a follow-up of 4 weeks, and only one analyzed 8 weeks of intervention. While t-VNS significantly improved the Pittsburgh Sleep Quality Index (MD -4.61; 95% CI -6.89, -2.33; $p<0.001$; $I^2=19\%$), statistical significance was not reached for anxiety (SMD -0.42; 95% CI -1.22, 0.38; $p=0.30$) and depression (MD 2.41; 95% -0.01, 4.83; $p=0.051$) scales. Only one study evaluated polysomnographic alterations and found a statistically significant decrease in insomnia severity index, better sleep efficiency, increased N3 deep sleep period and shortened sleep latency in t-VNS group.

Conclusion: Our findings offer preliminary evidence that t-VNS could serve as an alternative treatment for reducing sleep impairment in patients with insomnia. However, our limited number of studies and small sample size underscores the need for future RCTs to evaluate this hypothesis with greater statistical power, providing a more robust understanding of t-VNS efficacy.

ID: 1656

Influence of Unintentional Air Leaks on PAP Devices: a literature review of Bench Model

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Keywords
- bench model
- sleep apnea
- upper airway obstruction
- positive airway pressure

Introduction: Obstructive sleep apnea (OSA) due to airway collapse can lead to snoring and apnea. It disrupts sleep, potentially causing intermittent hypoxia and increased sympathetic activity. Effective treatment is crucial; PAP (positive airway pressure) therapy is beneficial but often limited by patient adherence. Since 2002, various bench models have been developed to evaluate PAP devices, compare their performance, simulate respiratory disorder curves, and verify report accuracy. Non-idealities, such as unintentional air leaks, can affect the performance of these devices.

Objective: The aim of this study is to review and evaluate bench models and the response of different PAP devices during simulated unintentional air leaks (UIV).

Methods: The following databases were used to carry out this literature review: PubMed, Scopus, Web of Science, Embase, SciELO and Google Scholar, using keywords like “bench model,” “sleep apnea,” “PAP devices,” and “positive airway pressure.” Inclusion criteria were studies using bench models to simulate sleep apnea, evaluating PAP devices' effectiveness, published in the last 10 years, and peer-reviewed. Relevant data were collected and analyzed, including the type of bench model, presence of UIV and upper airway model (UAV). Of the 17 articles found, only 12 met the criteria.

Results: The literature review included 06 studies using various bench models to simulate respiratory events during sleep apnea. In 2014, Netzel et al. used a “Hamburg” test lung without NIV (non-invasive ventilation) and a Starling resistor as a UAV model. Zhu et al. in 2015 and 2016 used the lung simulator ASL 5000 with a Starling resistor and leak rates of 0.4 L/s. Isetta et al. used a computer-controlled generator with UIV and a servo-controlled valve in 2015 and 2016. Zhu et al. in 2017 conducted studies with leak rates from 0.5 to 0.91 L/s. In 2023, Fasquel et al. varied leak rates from 0.4 to 0.94 L/s. Unintentional leaks, up to 0.83 L/s, can lead to underestimating the pressure required by automatic PAP devices and overestimating the pressure applied to the respiratory airways.

Conclusion: The reviewed studies show the evolution in simulating sleep apnea using bench models. Leak rates from 0.4 to 0.94 L/s can underestimate the required pressure for OSA treatment and overestimate airway pressure. Accurate bench models are essential for evaluating PAP device performance.

ID: 1658

The Indiscriminate Use of Zolpidem: The Urgency of New ANVISA Regulations to Ensure Safe and Responsible Use

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Keywords

- zolpidem
- public health
- ANVISA

Introduction: The growing concern about the inappropriate use of zolpidem, a sleep-inducing drug essential in the treatment of insomnia, motivated Anvisa to implement stricter control measures. Recently approved, these measures determine that all products containing zolpidem can only be prescribed upon Prescription Notification B (blue) as of August 1, 2024. This decision aims to ensure that the treatment of insomnia is supervised by qualified professionals, in order to substantially reduce the risks of dependence and other adverse effects.

Objective: This study aims to analyze the indiscriminate use of zolpidem and to evaluate the need for implementation of new regulations by Anvisa, with the purpose of ensuring a safe and responsible use of the drug.

Methods: An integrative review of studies available on the BVS and PUBMED platforms was carried out, covering the last few years. The PICO question used was: "How can the implementation of new regulations by ANVISA impact the safety and control of zolpidem use, considering the current indiscriminate use?". The descriptors applied were "Zolpidem", "Public Health" and "ANVISA". A total of 655 articles were found, identified and listed on the Rayyan platform, 480 of which were found in PUBMED and 175 in the BVS. Of these, 174 were excluded because they were duplicates. Then, 55 articles were selected for full reading, following inclusion criteria that included relevance to the central theme and exclusion criteria, such as paid, incomplete or unpublished articles in indexed journals.

Results: The implementation of the new regulations for zolpidem aims to mitigate the indiscriminate use of the drug. The analysis revealed a significant reduction in the prevalence of prescriptions in countries that adopted similar measures where regulation resulted in a considerable drop in zolpidem prescription. This study reinforces the need for stricter regulations in Brazil to ensure safe and responsible use of zolpidem, preventing risks associated with dependence and serious adverse effects.

Conclusion: The new regulations for zolpidem are a crucial measure to control inappropriate use of the drug. International experience demonstrates the effectiveness of stricter regulations in reducing indiscriminate use and the associated risks. The implementation of these measures in Brazil is essential to ensure a safe and responsible use of zolpidem, minimizing dependence and serious adverse effects, especially when combined with other sedatives.

ID: 1659

The Effects of Physiotherapy Intervention on Sleep Quality, Orthopedic Parameters, and Pain: Preliminary Results

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Keywords

- sleep
- pain
- inflammation
- orthopedics
- physiotherapy

Introduction: Orthopedic pain can negatively impact sleep quality and, consequently, physiotherapy rehabilitation, as persistent pain interferes with sleep cycles, resulting in inadequate physical recovery. This leads to a reduced response to physiotherapy treatment, prolonging the rehabilitation process and diminishing the effectiveness of interventions.

Objective: The objective of this study was to analyze the effects of a physiotherapy intervention on sleep quality, pain, and orthopedic parameters.

Methods: Eleven patients (6 women and 5 men) with orthopedic dysfunction underwent 20 sessions of physiotherapy rehabilitation. Before and after the intervention, the patients completed sleep quality questionnaires (Pittsburgh Sleep Quality Index, Mini Sleep Questionnaire), sleepiness (Epworth Sleepiness Scale), social jetlag (Munich Chronotype Questionnaire), Oxford Questionnaires, orthopedic tests, and pain assessments (Visual Analogue Scale - VAS).

Results: The results showed that after the intervention, women experienced improvements in sleep quality (PSQI, $p=0.01$), sleep efficiency (PSQI, $p=0.01$), regularity ($p=0.03$), orthopedic parameters ($p=0.01$), and pain reduction ($p=0.007$). Men showed improvements in sleep quality (PSQI, $p=0.03$) and sleep efficiency (PSQI, $p=0.03$), pain reduction ($p<0.001$), as well as a large effect size for the improvement in orthopedic parameters ($ES = 1.02$). No correlations were found between the variables.

Conclusion: The preliminary results suggest that physiotherapy rehabilitation led to improvements in sleep quality, functional aspects, and pain, highlighting the importance of physiotherapy interventions for sleep, recovery, and the quality of life of patients.

ID: 1662

Association Between Sleep and Intrinsic Capacity in Older Adults in Petrolina

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Keywords
- aging
- intrinsic capacity
- sleep

Introduction: Intrinsic capacity (IC), defined as the combination of an individual's physical and mental capacities, has been recognized as a valuable predictor of adverse health outcomes in the elderly population. Although the association between sleep quality and outcomes such as quality of life, cognitive function and mortality is well defined in the literature, its relationship with IC remains uncertain.

Objective: The objective of this study was to investigate the association between sleep quality and intrinsic capacity in older adults.

Methods: This cross-sectional study utilized data from the FREVO (Risk Factors for Aging) cohort, which prospectively assessed elderly people in Petrolina, Brazil. The sample comprised 246 elderly participants (77% women; mean age 70.3±6.6 years; mean BMI 26.9±4.76 kg/m2; 23% with more than 12 years of education). Sleep quality was assessed using the Pittsburgh Sleep Quality Index (0-21 points). The six domains of IC (cognition, locomotion, vitality, vision, hearing and psychological state) were individually assessed using the Montreal Cognitive Assessment (0-30 points), Short Physical Performance Battery (0-12 points), Mini Nutritional Assessment (0-14 points), Snellen Chart (0-10 points), Whisper Test (0-8 points), and Geriatric Depression Scale (0-15 points). For the final IC score, the six domains were dichotomized, with a total score ranging from 0-6 points. Descriptive statistics and a multiple regression analysis adjusted for sex, age, BMI and education level were performed using Jamovi software version 2.5.6.0.

Results: The mean sleep score was 5.6±3.5 and the mean IC score was 3.4±1. The mean scores for the IC domains were 19.3±5.3 for cognition, 9.9 ± 1.8 for locomotion, 12.1±1.8 for vitality, 5.4±2.7 for vision, 5.3±2.5 for hearing and 3.0±2.5 for psychological state. The statistically significant models showed that sleep quality (r=0.25; p<0.001) and age (r=0.25; p<0.001) had weak positive correlation with IC.

Conclusion: The results indicated that elderly people with poorer sleep quality and older age had worse IC.

ID: 1665

Algorithm for Atrial Fibrillation Detection during Biologix Sleep Study

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Keywords
- atrial fibrillation
- model
- neural network
- sleep apnea
- obstructive

Introduction: Atrial fibrillation (AF) is common in patients with obstructive sleep apnea (OSA). However, AF is not systematically evaluated during sleep studies.

Objective: To develop an artificial neural network (ANN) algorithm for detection of AF in patients with suspected OSA undergoing Biologix sleep study.

Methods: The study was conducted in two parts. In the first part, we used 4 public databases and RR intervals were detected by electrocardiogram (ECG). The k-fold cross-validation method (k=10) was used to develop and validate an ANN algorithm to detect AF from RR intervals. The ANN model produced cardiac rhythm (AF or normal) predictions for every group of 60 heart beats throughout each exam. In the second part of the study, the Biologix oximeter photoplethysmography (PPG) signal was used to detect heart beats. We used data from patients that underwent simultaneous type 1 polysomnography with ECG and Biologix.

Results: In the first part, the model was trained on 18M RR intervals, with 50% being positive for AF. The model was then tested on 36M intervals, from 249 patients, of which 169 (68%) and 9M beats (22%) were positive for AF. The ANN model, evaluated across all folds, had an area under the curve per beat of 0.994 [95% CI: 0.992-0.996]. The sensitivity to detect AF was 92% [95% CI: 86-95%], specificity of 98% [95% CI: 90-99%] and accuracy of 93% [95% CI: 90-96%]. In the second part, 9 patients (5%) had AF confirmed by polysomnography ECG. The mean F1-score for the quality of R peak detection on PPG was 0.95 [95% CI: 0.85-1]. Patient classification using PPG data had sensitivity of 100% [95% CI: 63-100%] and specificity of 100% [95% CI: 97-100%], with McNemar's test yielding p<0.01.

Conclusion: The ANN algorithm developed is accurate in detecting AF using both the ECG RR intervals and the PPG from the Biologix oximetry system. Therefore, the new algorithm can detect AF in patients with suspected OSA undergoing Biologix sleep study.

ID: 1666

The Sleep Quality in Medical Students: Insights from a College with Active Learning Strategies

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Keywords
- students
- medical
- PSQI
- sleep quality

Introduction: University students face disruptions in their circadian rhythms due to long hours, stress, and emotional challenges. Medical students, in particular, are vulnerable to sleep problems, which can affect their academic performance. Sleep restriction impairs neurocognitive function and emotional self-regulation.

Objective: This study aims to evaluate the impact of academic routines on the sleep-wake balance of medical students.

Methods: A cross-sectional study was conducted with medical students using a questionnaire on Google Forms®. The study employed recognized questionnaires from literature, such as the Pittsburgh Sleep Quality Index (PSQI), the

Epworth Sleepiness Scale (ESS), and included questions on physical activity and screen use before bedtime. The research was carried out at a university with an active learning methodology located in the Northwestern region of São Paulo.

Results: Among the 189 students surveyed, 76.71% reported unsatisfactory sleep quality according to the PSQI. First-semester students averaged 5 hours and 45 minutes of sleep, which was higher than the second semester's average of 5 hours and 4 minutes. From the third semester onward, there was a slight recovery in sleep averages, with a gradual increase in rest hours. In the seventh semester, there was a peak in sleep averages at 5 hours and 56 minutes. However, an analysis of variance revealed no significant difference (p=0.0605) between semesters. Sleep efficiency ranged from 87% in the first semester to 77% at the end of the course. Regarding daytime sleepiness, 75% of participants in the first semester exhibited abnormal sleepiness. In the sixth semester, 79.1% of participants also showed the same pattern. This trend was not observed in the eleventh semester, when 80% of participants displayed normal sleepiness. Additionally, 79.4% engage in physical activity and 97.4% use screens in bed before sleeping.

Conclusion: Sleep deprivation and irregular schedules have a significant negative impact on academic performance. Regular physical activity has been associated with improved sleep quality, while excessive screen use may interfere with the circadian rhythm, exacerbating sleep problems. Future research should further investigate how these habits affect sleep quality and develop effective strategies for sleep management to promote better health and academic performance.

ID: 1669

Sleep Abnormalities in Stroke: a Case Report

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Keywords

- sleep
- stroke
- sleep hygiene
- actigraphy

Introduction: Sleep disorders are highly prevalent in stroke patients, compromising their functional outcome and quality of life.

Objective: To describe the systematic evaluation and management of sleep disturbances in a post-stroke patient during his in-patient multidisciplinary rehabilitation program.

Methods: A 56-year male patient suffered the first episode of a nucleocapsular ischemic stroke on 06/22/2023. He presented with hypertension, dyslipidemia and type 2 diabetes. During the in-patient rehabilitation, he underwent a systematic sleep assessment including Epworth daytime sleepiness (EDS) Pittsburgh scales and objective sleep rhythm measurements provided by a wrist actigraphy (ActTrust2™, Condor Instruments, Brazil) for 13 days. Daily sessions of personalized sleep hygiene were delivered by the nursing team to establish regular sleep, reduce naps during week. Shoulder pain was controlled by the medical team.

Results: EDS (7/24) and Pittsburg (8/21) scales did not reveal sleep disturbances. Actigraphy assessment demonstrated a dysregulated sleep pattern, characterized by 4/5 episodes of daytime naps of $\pm$ 50 minutes during the day, in addition to frequent awakenings and an average total sleep time (TST) of 7h55min. After interventions, actigraphy measures demonstrated a standardization of bedtime and wake-up times, a reduction in daytime naps, increased TST to 8h43min, and fewer awakenings. No difference was observed in sleep onset latency. Objective sleep measures alerted the patient to keep the sleep hygiene protocol, even after hospital discharge.

Conclusion: Objective sleep abnormalities obtained by an actigraphy could guide a personalized sleep hygiene intervention. Self-report scales did not capture sleep disturbances in this stroke patient.

ID: 1671

Sleep Quality, Excessive Daytime Sleepiness and Depressive Symptoms in Adolescents from the City of Recife/PE: a Preliminary Study

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Keywords

- sleep quality
- adolescents
- symptoms of depression

Introduction: Adolescence is a phase of life marked by biological, emotional and social changes that affect the lives of individuals, with sleep being essential to ensure a good quality of life. Therefore, poor sleep quality, which results in excessive daytime sleepiness, directly affects central aspects of adolescents' lives, may result in serious and even irreparable damage, such as depression and other mood changes.

Objective: To analyze the association between sleep quality, excessive daytime sleepiness (EDS) and depressive symptoms in adolescents.

Methods: An observational, cross-sectional study was carried out in a public school in the Brazilian city of Recife (PE), with a sample of 200 adolescents of both genders, aged between 11 and 15 years old. The instruments used for data collection were the Pittsburgh Sleep Quality Index (PSQI); Epworth Sleepiness Scale (ESS) and the Children's Depression Inventory (CDI). Person's Chi-square test was used for data analysis, with a margin of error of 5% and a confidence level of 95%. IBM SPSS version 2.7 software was used to perform the analyses.

Results: Most adolescents were male (53.5%), aged between 13 and 14 years old (59.5%), who presented poor sleep quality (64.5%), excessive daytime sleepiness (32.5%) and depressive symptoms (16%). Sleep quality was associated with depressive symptoms ($p = 0.031$), though not with EDS.

Conclusion: An association was observed between sleep quality and the symptoms of depression in adolescents.

ID: 1673

Assessment of the Ru-SATED Questionnaire for Evaluating Sleep Quality in Adults with Severe Asthma Using Biologics

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Keywords

- sleep quality
- Asthma
- OSA

Introduction: The Ru-SATED questionnaire is a practical tool for evaluating sleep quality. Despite its extensive validation, including in the Brazilian population, its use in individuals with severe asthma undergoing biological treatment is limited.

Objective: To determine the effectiveness of the Ru-SATED questionnaire in assessing the sleep quality of adults with severe asthma using biologics.

Methods: A cross-sectional study was conducted from March 2020 to July 2024. The local Ethics Committee approved the research project (#40853020.9.0000.5257). Severe asthma patients using biologics who completed the Ru-SATED instrument and underwent a home sleep apnea test were included. A ratio of 1:2 was used to compare the sample of severe asthma patients with a randomly selected control sample. Chronic insomnia was defined as experiencing at least one of the following nocturnal symptoms: difficulty falling asleep, difficulty staying asleep, or waking up earlier than expected, on at least 3 nights per week for a minimum of 3 months. The Insomnia Severity Index (ISI) was used to determine the severity of insomnia. Obstructive sleep apnea (OSA) diagnosis was based on the respiratory event index ≥ 5.0/h. Two-tailed statistical tests were performed using the chi-square test (categorical variables) and the Mann-Whitney test (continuous variables).

Results: The study included 129 individuals (43 with severe asthma and 86 controls). Patients with severe asthma had significantly lower Ru-SATED scores than controls: 7.0 points (interquartile range [IQR]: 5.0-9.0) versus 8.0 points (IQR: 6.0-10.0); $p = 0.021$. The prevalence of chronic insomnia was significantly higher in patients with severe asthma than in controls: 53.5% versus 38.4%; $p = 0.030$. Individuals with chronic insomnia had significantly lower Ru-SATED scores than those without chronic insomnia: 6.0 points (IQR: 5.0-8.0) versus 9.0 points (IQR: 7.0-10.0); $p < 0.001$. There was no significant difference in the ISI scores between patients with severe asthma and controls ($p = 0.418$). Prevalence of OSA was significantly higher in the control group than in severe asthma patients: 77.9% versus 58.1%; $p = 0.024$.

Conclusion: Compared to controls, severe asthma patients had poorer sleep quality as assessed by the Ru-SATED, in addition to a higher incidence of chronic insomnia and a lower prevalence of OSA. These findings suggest that their poorer sleep quality is associated with the presence of chronic insomnia rather than the occurrence of OSA.

ID: 1675

Intervention with Exogenous Melatonin in Female Shiftworkers During Climacteric Phase: Effects on Sleep Quality on Workdays

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Keywords

- climacteric
- melatonin
- sleep quality

Introduction: Menopause is the period when menstruation permanently ceases, defined by 12 consecutive months of amenorrhea, typically occurring between the ages of 45 and 55. Climacteric encompasses perimenopause and postmenopause and is characterized by hormonal changes, such as decreased follicular activity and fertility, as well as alterations in the menstrual cycle. Many women experience symptoms of climacteric syndrome, such as hot flashes, insomnia, and irritability. Studies show that sleep disturbances increase during this transition, regardless of other factors.

Objective: To analyze the effects of exogenous melatonin administration on sleep quality on workdays in 46 women in the climacteric phase.

Methods: This study, a randomized clinical trial, was conducted with 46 nursing working three shifts: (7h-13h, n=16), (13h-19h, n=15) and (19h-7h, n=15) in a hospital in São Paulo. In each shift, the volunteers were divided into intervention group and placebo group. The intervention group received 0.3mg of 6-sulfatoxymelatonin to be taken on alternate nights. The placebo group received an identical placebo capsule with the same instructions. Data collection used the Pittsburgh Sleep Quality Index (PSQI). Data analysis was performed with Stata 16 and Jamovi, including descriptive analysis, Generalized Linear Model (GLM) adjusted for race, and post hoc analysis for groups with statistical differences.

Results: The study volunteers had a mean age of 47.2 years and 34.7% had already gone through menopause. A significant difference in sleep quality on workdays was observed between groups ($p<0.01$) and in the interaction between group and menopausal status ($p<0.05$) before and after the intervention, regardless of the race, was found. Post hoc analysis showed a significant difference between groups ($p<0.05$) with a 22.1% improvement in sleep quality on workdays in the intervention group. In addition, the intervention group that went through menopause improved 29.63% their sleep quality compared to the placebo group that went through menopause ($p<0.05$). Finally, the intervention group that had not had menopause improved by 14.62% sleep quality to the placebo group that had menopause on workdays ($p<0.05$).

Conclusion: The administration of exogenous melatonin was shown to be effective in improving sleep quality on workdays in climacteric women, especially in those who had already gone through menopause, regardless of the race.

ID: 1676

Sleep Disorders Gaining Visibility and Traction in Brazil, as a Result of Multistakeholder Actions

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Keywords
- noncommunicable diseases
- diabetes
- obesity
- sleep disorders
- sleep apnea

Introduction: The association between sleep disorders (SD) and noncommunicable diseases (NCDs) is well established but often overlooked. Most SD are NCDs themselves and risk factors for prevalent NCDs, such as diabetes, hypertension, cardiovascular diseases, obesity, and mental health disorders. Since 2022, our multisectoral alliance has been working to engage decision-makers and healthcare professionals (HCPs) in SD prevention and care.

Objective: Raise awareness of the importance of preventing and treating SD as a key component to reduce premature mortality from NCDs, improve mental health and well-being, and achieve the United Nations Sustainable Development Goal 3.4 (SDG 3.4) by 2030.

Methods: Among the activities we have been undertaking are: a) organizing online and in-person events to educate stakeholders and reach consensus; b) developing informative materials for HCPs and decision-makers, and calls-to-action directed mainly at the Ministry of Health; c) proposing public hearings and policies in partnership with parliamentarians; d) submitting articles to international journals; and e) recommending the inclusion of SD in the National Health Plan, in the National Clinical and Therapeutic Guidelines for NCDs, and the development of a National Guideline and Line of Care for SD.

Results: Some of the latest achievements include: a) the Secretary of Health of São Paulo, the largest Brazilian city, will start a pilot Line of Care for SD, and the Ministry of Health is adding questions on SD to the Brazilian National Survey on NCDs and risk factors (VIGITEL), both announced at our largest annual meeting in April 2024, inspired by the discussions we have been promoting; b) 2,000 print materials sold out in a few weeks, prompting a reprint; c) support for a National Parliamentary Sleep Health Front, with a public hearing on the topic already scheduled for the end of 2024; d) an opinion article published in the BMJ in November 2023; and e) our recommendations for SD diagnosis and care included in the National Health Plan 2024-2027, as well as in the National Clinical and Therapeutic Guidelines for type 2 diabetes.

Conclusion: We will continue advocating, alerting, and educating decision-makers and healthcare professionals on this matter to ensure that the evidence on the key role of preventing and treating SD is integrated into policies, programs, and practices.

ID: 1677

Correlation Between Sleep Parameters and Physical Activity Levels in Post-Covid-19 Patients: Cross-Sectional Study

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Keywords
- post COVID-19
- physical activity
- sleep

Introduction: SARS-CoV2 has had repercussions on the health of affected patients, even after hospital discharge, potentially causing changes in sleep parameters and impairing sleep quality. However, physical activity can influence sleep health by regulating the sleep-wake cycle through modulation of the neurohormonal system and reduction of inflammatory responses.

Objective: To correlate sleep parameters with physical activity levels in post-COVID-19 patients.

Methods: A cross-sectional study, registered under number 5,536,992, conducted between November 2022 and June 2023 at the Cardiopulmonary Rehabilitation Laboratory of the Department of Physical Therapy at the Federal University of Pernambuco. Sleep parameters were assessed using actigraphy, including wake-up time, time in bed, total sleep time, and number of awakenings. Additionally, sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), and physical activity level was assessed using the International Physical Activity Questionnaire (IPAQ). Results are presented as mean and standard deviation. Pearson and Spearman correlation tests were used.

Results: Forty-eight patients were selected, with an average age of 41.2 ± 14.4 years and a prevalence of females (64.6%). Negative correlations were observed between moderate activity frequency and wake-up time ($p=0.037$; $r=-0.302$), time in bed ($p=0.030$; $r=-0.314$), and total sleep time ($p=0.036$; $r=-0.303$). Negative correlations were also found between moderate activity duration and time in bed ($p=0.006$; $r=-0.391$) and between moderate activity duration and total sleep time ($p=0.027$; $r=-0.319$). Positive correlations were observed between vigorous activity frequency and the number of awakenings ($p=0.032$; $r=0.310$), and between walking frequency and duration and sleep quality according to the PSQI score ($p=0.002$; $r=0.438$) ($p=0.002$; $r=0.41$), respectively.

Conclusion: The study found negative correlations between moderate physical activity frequency and wake-up time, time in bed, and total sleep time, as well as between moderate activity duration and total sleep time. Positive correlations were found between vigorous activity frequency and the number of night awakenings, and between walking frequency and duration and sleep quality. Therefore, implementing regular physical activity protocols is important for treating sleep disorders in post COVID-19 patients and preventing complications related to poor sleep quality.

ID: 1678

Sleep Complaints in Depressed Youth: the Severity of the Illness Recognized by Diagnostic Interview for Children and Adolescents

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Keywords

- afective disorders
- sleep
- youth

Introduction: Affective disorders are common forms of mental illness. In adults, sleep disturbances have been linked to greater depression severity associated with suicidal behavior. However, the prevalence of sleep complaints among children with depression remains unclear. Additionally, these complaints may impose a significant and potentially lifelong burden on the developing child.

Objective: This study aimed to investigate whether depressed youth with more sleep complaints exhibit higher depression scores and how these sleep issues impact their overall functioning.

Methods: The study's target population consisted of 142 youths with current major depressive disorder (MDD) and sleep complaints, as identified using the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria and Diagnostic Interview for Children and Adolescents (DICA-IV), from two research databases, consecutively referred to an outpatient clinic. The severity of depression in these youths was measured using the 16- item Children's Depression Rating Scale (CDRS). The level of functioning over the past month was evaluated with the Children's Global Assessment Scale (CGAS). A one-way ANOVA was conducted to compare the CDRS T-scores and CGAS scores among youths with 1 to 4 sleep complaints.

Results: All subjects (n=142) in this sample reported sleep complaints (mean age $= 11 \pm 8.1$ years; 54.9% boys), with 57% of the sample younger than 12 years (n=81). The average Children's Depression Rating Scale (CDRS) T-score was 78.7 ± 7.1. Among the participants, 88.7% experienced initial insomnia, 54.2% had night awakenings, 34.5% had early awakenings, and 31% exhibited hypersomnia. Youths with three or more sleep complaints had significantly higher CDRS T- scores [$F(3, 138) = 5.7$, $p = 0.001$], particularly among adolescent boys [$F(3, 138) = 3.1$, $p = 0.027$]. The presence of multiple sleep problems did not significantly affect the overall behavioral dysfunction according to the Children's Global Assessment Scale (CGAS) score [$F\ (3, 138) = .96$, $p = 0.41$].

Conclusion: We identified an association between severe depression and disrupted sleep processes that was not linked to overall daytime behavioral dysfunction. Specific sleep complaints may have differential impacts on the daytime function of depressed youth, increasing the risk of suicidal behavior. A detailed assessment of sleep complaints in youths with depressive episodes and the prevalence of sleep complaints in depressed youths needs further clarification.

ID: 1679

Propranolol-Induced Sleepwalking: A Case Report

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Keywords

- sleepwalking
- parasomnia
- propranolol

Introduction: Sleepwalking is a type of non-REM parasomnia typically observed in children and adolescents; however, it has been reported in approximately 1 to 7% of adults. These episodes generally occur during slow-wave sleep (N3), the deepest stage of non-REM sleep. When sleepwalking occurs in adulthood, identifying potential triggers such as underlying medical conditions or medications is crucial, given the broad spectrum of possible impacts on daily life, mental health, safety, and relationships.

Objective: We report a case of a young female who developed nocturnal awakenings suggestive of non-REM parasomnia after initiating pharmacological treatment for migraines.

Methods: The patient, a 23-year-old female, had a history of migraines progressing over the previous six months. She started on Propranolol 40 mg daily as a prophylactic measure at night. Following the initiation of this medication, her family members reported that she began experiencing nocturnal awakenings, described as "walking around the house" and "talking during the night," while still asleep. These episodes occurred once or twice a week, causing significant disruption to her social and professional life. The patient also had a history of epileptic seizures secondary to cerebral venous thrombosis, which had occurred four years prior to the actual event. An electroencephalogram was performed, yielding normal results, and a video-polysomnography (PSG) did not reveal any pathological nocturnal events. However, four episodes of abrupt awakenings during the N3 stage of sleep were identified throughout the PSG night. Upon discontinuation of Propranolol, the patient reported the cessation of these events.

Results: Literature reports suggest that medications such as beta-blockers can trigger sleepwalking. The proposed mechanism is that propranolol, being a lipophilic drug, crosses the blood-brain barrier and interferes with the physiology of melatonin production, a hormone critical for the regulation of the sleep-wake cycle. It works by blocking beta-adrenergic receptors in the pineal gland, thereby preventing norepinephrine from binding and activating the signaling pathway necessary for melatonin synthesis, which may be implicated in the pathophysiology of non-REM parasomnias in these cases.

Conclusion: Therefore, it is crucial to recognize in clinical practice that certain medications can induce parasomnias with adult onset, as such disorders may pose significant risks to the overall health of the patient.

ID: 1681

Impact of Treating Obstructive Sleep Apnea with Continuous Positive Airway Pressure (CPAP) on the Prevention of Cardiovascular Events in Patients with Metabolic Syndrome: A Systematic Review

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Keywords
- obstructive sleep apneas
- CPAP ventilation
- metabolic syndromes

Introduction: Obstructive Sleep Apnea (OSA) is a condition in which the upper airway (UA) collapses intermittently during sleep, resulting in total (apnea) and partial (hypopnea) obstructions, associated with Metabolic Syndrome characteristics. These breathing pause episodes increase breathing effort and reduce intrathoracic pressure, raising ventricular transmural pressure and causing cyclic drops in oxygen saturation (intermittent hypoxia) and micro-arousals, leading to fragmented and shallow sleep. Intermittent hypoxia worsens cardiovascular effects during sleep. The standard treatment for moderate to severe OSA is the use of a Continuous Positive Airway Pressure (CPAP) device. This device keeps the upper airways open during sleep, resulting in increased oxygen saturation in the blood and reduced awakenings associated with respiratory events.

Objective: The objective of this systematic review is to understand the impact of CPAP use on cardiometabolic parameters in patients with Obstructive Sleep Apnea Syndrome and Metabolic Syndrome, in order to prevent cardiovascular events.

Methods: Inclusion criteria were randomized controlled trials with patients with Metabolic Syndrome and Obstructive Sleep Apnea receiving treatment with Continuous Positive Airway Pressure. The outcome assessed was the improvement in cardiometabolic parameters for prevention of cardiovascular events. Chosen databases were PubMed-MEDLine and Biblioteca Virtual em Saúde. Google Spreadsheets was used for data synthesis and presentation.

Results: A total of 13 articles were included for data extraction. The use of CPAP resulted in no or minimal changes in the initial state of the metabolic and cardiovascular profile of most patients. However, groups that showed some form of beneficial change after CPAP treatment were those that had a small change in Systemic Arterial Hypertension. Furthermore, metabolic disorder indices, such as insulin resistance, lipid profile, obesity and leucine, did not undergo significant changes after using the selected intervention. Most of the effects described are related to the reduction of systolic and diastolic pressure with little or no change in the metabolic profile of these patients.

Conclusion: CPAP treatment does not bring great benefits to the cardiovascular and metabolic profile of patients with Obstructive Sleep Apnea Syndrome and Metabolic Syndrome. However, it is essential to carry out more studies with an emphasis on this topic.

ID: 1685

Quality of Sleep and Quality of Life in People with Sleep Bruxism

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Keywords
- quality of sleep
- quality of life
- sleep bruxism

Introduction: Sleep Bruxism (SB) has emerged as a prevalent and distressing condition. Several associated factors have been explored for SB in children, adults, and older adults, including behavioral abnormalities and sleep disturbances. Additionally, it examines the negative effects of bruxism on overall health and quality of life. We hypothesized that SB, whether associated with other sleep disorders or not, negatively impact both the quality of sleep, the overall quality of life and mental well-being of affected individuals.

Objective: The hypothesis of this study is that SB, whether associated with other sleep disorders or not, can negatively impact both the quality of sleep and the overall quality of life and mental well-being of affected individuals.

Methods: This cross-sectional study included participants aged 15 to 80 years, residing in São Paulo, Brazil. All participants provided signed consent forms. The questionnaires used were Bruxism Questionnaire, Pittsburgh Sleep Quality Index (PSQI); Epworth Sleepiness Scale (ESS); Beck Anxiety Inventory (BAI); Well-Being Index (WHO5); Oral Health Impact Profile (OHIP-14). The questionnaires were completed in an online format, with a sample of 532 people. Statistical analysis: Correspondence Analysis to evaluate the profile of each age group was performed. Logistic Regression models are used with the dependent variables: gender, age, quality of life, sleep quality, and well-being. A significance level of 5% is adopted.

Results: Women were 1.78 times more likely to experience SB than men (Odds Ratio (OR) = 1.78; 95% Confidence Interval (CI): 1.17 to 2.72). Women had 2.40 times more likely to experience Nocturnal Clenching compared to men (OR = 2.40; 95% CI: 1.55 to 3.70). Those who experience SB, have 3.05 times more anxiety symptoms (BAI); OR = 3.05; 95% CI: 1.18 to 7.86) and 5.76 times lesser well-being (WHO5); (OR = 5.76; 95% CI: 3.20 to 10.37). Those who reported sleep bruxism had nearly 20 times more somnolence (ESS); (OR = 19.75; 95% CI: 2.62 to 148.67).

Conclusion: Women had 78% higher risk of SB, compared to men. It is concluded that SB had a negative impact on the quality of life and sleep.

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ID: 1687

Correlation Between Sleep Quality, Quality of Life, and Pulmonary Function in Post-COVID-19 Individuals

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Keywords

- sleep quality
- life quality
- actigraphy
- spirometry

Introduction: Prolonged effects, known as long COVID, have impacted health even after the acute phase. These sequelae include reduced quality of life, sleep disturbances, and alterations in pulmonary function (Stefanou et al., 2022; Ma et al., 2022). Patients often experience chronic fatigue, anxiety, depression, and decreased vitality, which hinder daily activities (Malik et al., 2021). Additionally, disruptions in the sleep-wake cycle exacerbate feelings of tiredness (Gupta et al., 2020), and impaired pulmonary function may worsen these disturbances (Puchner et al., 2021; Lou et al., 2017).

Objective: This study aims to explore the ongoing impact of COVID-19 on sleep quality, quality of life, and pulmonary function.

Methods: This cross-sectional study, approved by the Human Research Ethics Committee (protocol 4.983.173). Participants aged $\geq$18 years with confirmed COVID-19 via RT-PCR were recruited through social media and flyers. Participants underwent clinical evaluation, spirometry (measuring FVC, FEV1, and FEV1/FVC ratio), actigraphy, and subjective sleep assessment using the PSQI and the ESS. Quality of life was assessed with the SF-36. Data were presented as mean $\pm$ standard deviation.

Results: Daytime sleepiness (ESS) negatively correlated with physical limitations ($r = -0.438$) and functional capacity ($r = -0.411$), indicating that greater daytime sleepiness is linked to more physical limitations and reduced functional capacity. Poor sleep quality (PSQI) also negatively correlated with vitality ($r = -0.394$), showing worse sleep quality relates to lower energy. PSQI positively correlated with forced vital capacity (FVC) ($r = 0.554$), suggesting impaired lung function is linked to worse sleep perception. The FEV1/FVC ratio positively correlated with functional capacity ($r = 0.402$), showing better lung function associated with better physical performance. Physical limitations negatively correlated with total sleep time ($r = -0.497$), indicating more physical difficulties leading to less sleep. Reduced FVC negatively correlated with vitality ($r = -0.467$), reflecting lower energy and well-being with decreased lung function.

Conclusion: COVID-19 survivors face significant issues with daytime sleepiness, sleep quality, and pulmonary function. Increased daytime sleepiness and poor sleep quality are associated with physical limitations and lower vitality. Addressing these through targeted rehabilitation may improve overall quality of life.

ID: 1688

Assessment of Sleep Quality in Medical Students from the State of Tocantins

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Keywords

- sono
- estudantes de medicina
- qualidade do sono
- desempenho acadê
- mico
- saú
- de mental

Introduction: Adequate sleep is essential for maintaining overall health, including mental, physical, and cognitive well-being. However, the academic demands faced by students often disrupt this balance, making it difficult to manage both personal and academic responsibilities effectively. This stress can lead to an increased vulnerability to sleep disorders, which in turn negatively affect health and academic performance.

Objective: This study aims to evaluate the sleep quality of medical students, identify potential sleep-related issues, and propose strategies to enhance their well-being and academic outcomes.

Methods: A cross-sectional study was conducted using an online questionnaire created by the researchers, distributed to 63 medical students between May and July 2024. Participants included medical students of all academic years and genders, with students from other institutions excluded. Recruitment was carried out via social media, accompanied by an electronic consent form. The questionnaire collected sociodemographic data (age, gender, weight, height, marital status, academic year), information on residence type, weekly study hours, and incorporated the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Berlin Questionnaire, and Stop-Bang Questionnaire. A literature review was performed using the Snowball technique, starting with the NIH PubMed database, including articles published between 1999 and 2024 in Portuguese, English, or Spanish, excluding irrelevant studies. A total of 15 articles were selected.

Results: The findings indicate that many students struggle with maintaining quality sleep and staying awake during daytime activities. A significant percentage reported a high likelihood of dozing off while sitting, reading, or watching television. Notably, 95% of participants slept less than 8 hours per night and frequently experienced daytime fatigue. Literature suggests that these sleep difficulties may be linked to increased anxiety, impaired memory and cognition, and deteriorating academic performance and mental health.

Conclusion: There is a critical need for stress management programs and initiatives that promote healthy sleep habits. The implementation of sleep hygiene workshops and

psychological support services is recommended to improve the quality of life and academic performance of medical students. Future research should continue to investigate this issue.

ID: 1689

Restless Mouth Syndrome, Speech Therapy Work – Case Report

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Keywords
- obstructive sleep apnea
- restless legs syndrome
- myofunctional therapy
- photobiomodulation
- stomatognathic system

Introduction: Restless Mouth Syndrome (RMS), also related to the description of Burning Mouth Syndrome (BMS), is characterized by a burning sensation and intraoral pain with no associated medical or dental etiology. There are only 12 reported cases of burning mouth syndrome (BMS) at least partially responsive to dopamine agonists. Restless Legs Syndrome (RLS) is a sensory-motor disorder whose main element is the intense and almost irresistible need to move the legs, which ends up interrupting and impairing sleep. In recent years, studies have suggested that Restless Legs Syndrome (RLS) may not be limited to the legs, but may involve other isolated anatomical regions of the body, with or without symptoms in the legs.

Objective: To report the case of a 67-year-old female patient with the complaint: "I can't sleep because of Restless Mouth Syndrome" who underwent specific orofacial myofunctional therapy (SOMT).

Methods: Anamnesis was taken on the history of the disease, signs and symptoms, activities of daily living, sleep and application of the following scales: RLS/RMS Severity Scale; Snoring Analog Scale (SAS) and WHOQOL-BREF quality of life questionnaire, before and after SOMT. She had a history of difficulty maintaining healthy sleep, tiredness and daytime sleepiness, the need to move her mouth at any time of the day, with worsening at night and a diagnosis of moderate obstructive sleep apnea (AHI = 21.7 e/h) and PLMS = 0.7 movements per hour, with RLS and RMS, and underwent SOMT. The SOMT consisted of muscle relaxation exercises and thermotherapy associated with photobiomodulation techniques and Intravascular Laser Irradiation of Blood (ILIB), which consists of irradiating the blood with a low-intensity laser.

Results: The SOMT consisted of 8 sessions, one per week lasting one hour. There was a reduction in the RLS/RMS Severity Scale from severe (30 points) to moderate (20 points); an improvement in quality of life, an improvement in SAS, a reduction in the sensation of discomfort in the oral cavity, even going for two consecutive weeks without discomfort.

Conclusion: OMT combined with photobiomodulation and ILIB techniques reduced oral symptoms and improved sleep quality.

ID: 1691

Positive Pressure Titration Associated with Nocturnal Supplemental Oxygen Therapy for Patients with Grade III Obesity and Obstructive Sleep Apnea Syndrome During Hospitalization: A Case Report

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Keywords
- sleep apnea
- obstructive
- noninvasive ventilation
- oxygen inhalation therapy

Introduction: Positive pressure is the most effective treatment for OSAS, with CPAP being the main therapeutic line. However, when this does not bring results, it may be necessary to use bilevel PAP in cases of hypercapnia during hospitalization due to decompensation. In situations where obstructive events are not initially resolved with CPAP, therapy should be restored by NIV. Oxygen administration is necessary when, $SpO2 \leq 88\%$ in ambient air, in the supine position and awake or $SpO2 \leq 88\%$ for a period of more than 5 continuous minutes, even if obstructive events are controlled.

Objective: To report the most advanced stages of a patient undergoing noninvasive ventilation after decannulation for the treatment of OSAS.

Methods: A case was referred from the ward to the sleep outpatient clinic of a public referral hospital in Recife-PE. Patient A. N. S. de M., female, 66 years old, BMI=40.84kg/m^2, with COPD, SAH, DM, Chagas disease, moderate tracheobronchomalacia and grade I laryngeal stenosis, was admitted for removal of suture thread secondary to previous tracheostomy. Due to the need for oxygen therapy, with the presence of phenotypes characteristic of OSAS and OHS, blood gas analysis and polygraphy were performed. After diagnostic confirmation, for therapeutic choice, the following were used: 1st-4th days: Auto-CPAP (6-11cmH2O); 5th day: Auto-CPAP added with O2 (2l/min), 6th day: Bilevel (IPAP 15cmH2O; EPAP 8cmH2O; target VT at 8-10ml/kg) and on the 7th day: CPAP fixed at 8.6cmH2O with use of O2 at 2l/min.

Results: Initial blood gases analysis (BGA): pH=7.38, PaO2=54.5, PaCO2=59, HCO3=34.6; and initial polygraphy: AHI=40.9, ODI=49, SpO2min=63%, SpO2mean=87%, SpO2-basal=92%, SpO2<90%=400min, SpO2<85%=145min, SpO2<80%=21min). After days 1st-4th: AHI = 1.9, median pressure = 7.9 and SpO2 time <88% (T88) = 3h12min (35%); BGA in ambient air: pH = 7.44, PaO2 = 67.8, PaCO2 = 43.8, HCO3 = 29.3). After the 5th day: AHI = 4.9, median pressure = 8.3cmH2O and T88 = 10min (2%); with blood gases: pH = 7.42, PaCO2 = 40.8; PaO2 = 67.5, HCO3 = 26.2. After the 6th day: AHI = 5.0, T88 = 16min (2%), ODI = 13.2; without BGA. After the 7th day: AHI = 0.0 and T88 = 18min (2%), ODI = 6.6; without BGA. After the 7th day: AHI=0.0 and T88=18min (2%), ODI=6.6; no BGA.

Conclusion: As a better result was observed with the 7th day therapy, the patient continues treatment with fixed CPAP at 8.6cmH2O with the use of O2 at 2l/min, without complaints and well adapted.

ID: 1692

Insomnia and Risk of Alzheimer's Disease Development: a Systematic Review and Meta-Analysis

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Keywords

- insomnia
- Alzheimer's disease
- sleep disorders

Introduction: Insomnia, characterized by difficulty falling asleep, has been associated with a higher risk of cognitive impairment in older adults. In this meta-analysis, it was examined whether insomnia interferes with the development of dementia.

Objective: To identify the relation of Alzheimer disease development and insomnia.

Methods: We used the PRISMA checklist for this systematic review and meta-analysis. Cochrane, PubMed, and Scopus databases were searched for studies comparing the association between insomnia and Alzheimer's Disease. Odds ratio (OR) was used for binary outcomes with 95% confidence interval (CI). Statistical analysis was performed using R software 4.4.1.

Results: A total of five studies were included, comprising 30,472,935 patients, of whom 13.5% had insomnia. The analysis showed that insomnia was not associated with higher risk of development of Alzheimer (OR 1.39; 95% CI 0,97-2.01; $p = 0.01$, I^2=83%). The analysis of depression and risk of Alzheimer showed significantly different distributions between groups (OR 1.70; 95% CI 1.27-2.27; $p = 0.0004$; I^2=99%) in favor of the depression-free group.

Conclusion: In this meta-analysis of 5 studies, we can observe that there is no relation between insomnia and the risk of developing Alzheimer's disease.

ID: 1695

Association of Obstructive Sleep Apnea, Insomnia and the Combination (COMISA) with Hypertension, Diabetes and Dyslipidemia: The ELSA-Brazil Study

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Keywords

- obstructive sleep apnea
- hypertension
- insomnia
- diabetes
- dyslipidemia

Introduction: Obstructive sleep apnea (OSA) and insomnia and the combination, namely COMISA (Comorbid Insomnia and Sleep Apnea) may be associated with cardiovascular risk factors and worse cardiometabolic outcomes.

Objective: We aimed to evaluate the associations between OSA, insomnia and COMISA with hypertension (HTN), type 2 diabetes mellitus (DM2) and dyslipidemia (DLP).

Methods: Participants from the ELSA-Brazil underwent clinical and sleep assessments including OSA (defined by the apnea-hypopnea index $\geq$ 15 events per hour by a portable sleep monitor), insomnia (defined by any complaint of difficulty initiating or maintaining sleep in parallel of reporting daytime fatigue in the last 30 days) and COMISA. We stratified our sample in 4 groups: 1) control (no OSA and insomnia); 2) OSA (OSA without insomnia) 3) Insomnia (insomnia without OSA); 4) COMISA. HTN, DM2 and DLP were diagnosis using standard definitions. A multivariate analysis was used to determinate whether OSA, insomnia or COMISA were independently associated with HTN, DM2 and DLP adjusting for age, sex, self-reported race, body mass index, physical activity, and excessive drinking.

Results: We studied 2062 participants (age 49$\pm$8 years; 42.7% men; 26.2% HTN,15.4% DM2, 54.4% DLP). 23% had OSA, 11.6% had insomnia and 5.2% fulfilled the COMISA diagnosis. Comparing to controls and insomnia groups, patients with OSA and COMISA were older, had higher values of adiposity parameters, and higher frequency of HTN, DM2 and DLP. Multivariate analysis revealed that OSA was independently associated with HTN (OR:1.59; 95% CI: 1.08, 2.35), in contrast, we did not observe significant associations with DM2 and DLP. There was no association among the groups Insomnia and COMISA with HTN, DM2 and DLP.

Conclusion: OSA, but not insomnia or COMISA, is independently associated with HTN in the ELSA-Brazil study.

ID: 1696

Does Insomnia Impact Blood Pressure Control in Patients with Hypertension?

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Keywords

- insomnia
- hypertension

Introduction: Insomnia is a sleep disorder characterized by difficulty in initiating or maintaining sleep, or waking up earlier than desired, despite having adequate opportunities for sleep. The prevalence of insomnia has been increasing worldwide, with reported rates ranging from 7% to 19% in adults. Recent evidence suggests that insomnia may play a role in the onset of hypertension (HTN), but its impact on patients with established HTN remains uncertain.

Objective: To evaluate blood pressure (BP) control in the office (considering BP <140/90 mmHg) in both groups. As secondary objectives, we assessed the groups concerning clinical characteristics, the number of antihypertensive medications used, and the percentage of apparent treatment-resistant hypertension (aTRH).

Methods: Consecutive patients seen at the Hypertension Clinic of the Heart Institute (InCor), University of São Paulo, were evaluated. The patients were assessed through interviews; the application of validated questionnaires, and a clinical evaluation that included medical history, the number of antihypertensive medications used, comorbidities, collection of anthropometric data and standardized BP measurement (three measurements using a validated digital device, averaging the 2nd and 3rd measurements). The sample was analyzed, stratifying patients with and without insomnia.

Results: A total of 700 consecutive patients were evaluated (63.6% female, median age of 64 years, 46.8% with obesity, mean antihypertensive classes:4.3±1.5). Insomnia was present in 53% of the sample. The groups with (n=371) and without (n=329) insomnia were homogeneous concerning age and the presence of obesity. However, patients with insomnia had significantly more women (72.2% vs. 53.8%; p<0.001). Compared to patients without insomnia, those with insomnia presented similar rates of office BP control (29,9% vs. 31,3%, p=0.69). Similarly, the percentage of patients using ≥4 antihypertensives was similar between the groups (72% vs. 66.9%; p=0.143). The group with insomnia showed a trend toward a higher frequency of aTRH compared to patients without insomnia (72.5% vs. 66.3%; p=0.073).

Conclusion: Insomnia is highly prevalent among patients with HTN from a tertiary Cardiology center. These preliminary data show that the BP control rate was similar in groups with and without insomnia; however, a trend for a higher rate of aTRH in the insomnia group suggests a potential relevance of this sleep disorder in the context of HTN.

ID: 1697

Correlation of Body Mass Index and Oxygen Desaturation Index in the Elderly

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Keywords

- sleep apnea
- sleep
- body mass index
- elderly

Introduction: Obstructive sleep apnea (OSA) is a condition whose prevalence is high worldwide, reaching up to 50% in some countries (Bonsignore, et al. 2024). Among individuals over the age of 70, OSA may be related to reduced alertness, increased risk of falls and mortality (Onen et al. 2022). These risks increase when this population is underdiagnosed, and developing assessment methods can be crucial in directing treatment among this population.

Objective: Evaluate the correlation between body mass index (BMI) and cervical circumference, and the oxygenation desaturation index (IDO) among the elderly.

Methods: Descriptive cross-sectional study, carried out between January and July 2022, including individuals aged > 60 years, assisted in basic health units (UBS), evaluated using type IV polysomnography (Biologix®). To analyze the frequency distribution and association data, the chi -square test was used, the Mann-Whitney test was used to compare medians, and the Spearman test was used to correlate between variables. In all tests, p<0.05 was used. The study was approved by the Research Ethics Committee (CAAE:53050921.8.0000.5168) and the informed consent form was applied to the participants

Results: The sample consisted of 38 elderly people, with a median age of 68 years (63.5-70.0), with a prevalence of females (71%). When evaluating BMI, the median was 28 kg/m 2, 17 (44.7%) were above 30 kg/m 2, 10 (26.3%) with 25 to 29.9 kg/m 2, 10 (26, 3%) 18.6 to 24.9 Kg/m 2 and 1 (2.6%) below 18.5 Kg/m 2. The median cervical circumference found was 39.0 cm (36.3-41.8), with 38 cm being the median for females and 45 cm for males. The population presented an IDO of 10.6 events/hour in its median (4.4-21.8) indicating mild OSA in the studied population. The group of female individuals reached a median of 5.1 events/hour, represented as mild OSA and the male group 15.0 classified as moderate OSA. In the correlation analysis between BMI and ODI, a moderate correlation was observed (r:0.53) and, when observing the correlation between age and cervical circumference, strong parallelism was observed (r:0.78), indicating that the greater the age and cervical circumference, the greater the risk for OSA.

Conclusion: BMI and high neck circumference among elderly individuals present a moderate and strong correlation, respectively, with ODI.

ID: 1698

Long-Term Adherence to Positive Pressure Therapy in Patients with Obstructive Sleep Apnea and Obesity

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Keywords

- obesity
- obstructive sleep apnea
- positive pressure
- treatment adherence

Introduction: Obstructive Sleep Apnea (OSA) is a disorder frequently associated with obesity, which is a risk factor for its development, around 50% to 60% of patients with obesity have OSA. Treatment of OSA involves positive airway pressure (PAP) therapy. However, adequate adherence to PAP therapy (use >4 hours per night on 70% of nights) can be requested and telemonitoring can be a tool to improve adherence.

Objective: To analyze long-term adherence to PAP therapy in obese patients with OSA using telemonitoring as a tool.

Methods: Cross-sectional study of analyzing patient records from a sleep physiotherapy clinic, between March 2020 to November 2022. The study was approved by the ethics committee, used a non-probabilistic for convenience sample, and included individuals over 18 years old, both sexes, who had used PAP therapy for more than a year. Incomplete data records and patients with neurological or neurodegenerative disorders were excluded. Data obtained through the outpatient telemonitoring protocol were considered, on the seventh day of using the device (D7), on the fifteenth day (D15), the thirtieth day (D30), the ninetieth day (D90) and after one year of use. All patients use basic CPAP with an integrated humidifier, fixed pressure and a nasal mask. Data were analyzed in Microsoft Excel and the Pearson correlation test was used to assess the association between adherence predictors and usage time after one year ($p < 0.05$). The results were presented as mean, standard deviation and percentage.

Results: One hundred and fifty-four records were analyzed, after the exclusion criteria, 38 remained. The sample was composed of 55% women, a mean age of 53.95 ± 10.65 years, BMI of 36.58 ± 5.55 kg/m^2, initial AHI of 45.14 ± 24.18, ODI of 40.49 ± 17.44, and TSpO2<90% of 144.69 ± 126.13 minutes. The average pressure used was 8.89 ± 1.37 cmH2O, 59.5% of patients maintained the pressure titrated in the initial adaptation after one year of use, 21.5% the pressure was increased, 19.0% there was a reduction in pressure. Four hundred and two telemonitoring consultations were recorded in one year, estimating an average of 10.6 consultations/year per patient. Adherence therapy rates were 89.87% at D7, 92.88% at D30, 90.42% at D90, and 82.70% after one year and the residual AHI was 7.02 ± 12.28 at D7, 5.26 ± 8.45 at D30, 5.33 ± 10.14 at D90 and 2.51 ± 2.67 after one year of usage. Correlations were observed between polysomnography data and device usage time: T<90% versus % of days with >4h usage (r=0.43; p=0.007); T<90% versus % average usage time (r=0.386; p=0.01); average SpO2 versus % of days with >4h usage (r=-0.339; p=0.037); and average SpO2 versus % average usage time (r=-0.437; p=0.008).

Conclusion: Obese patients with OSA demonstrated good adherence to PAP over one year, despite a trend of decreasing adherence over time. It was not necessary to use high pressures to maintain a controlled residual AHI (< 5) after one year of use in this population. Better adherence was noted in those with higher time of SpO2<90%, suggesting that more severe cases tend to use the device more.

ID: 1703

Insomnia and Risk of Cancer: a Systematic Review and Meta-analysis

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Keywords
- insomnia
- cancer
- risk of cancer

Introduction: Insomnia, marked by ongoing trouble with falling asleep or staying asleep, has been progressively associated with several health problems, including cancer. Studies suggest that long-term insomnia can interfere with the body's circadian rhythms and immune function, which might elevate the risk of developing cancer.

Objective: Insomnia can predict a high risk of cancer.

Methods: Cochrane, Embase and PubMed databases were searched for studies comparing people suffering from insomnia to non-insomnia people in the context of risk of cancer. A Random-effects model was employed to compute the Hazard Ratios (HR) with 95% Confidence Intervals (CI). Statistical Analyses were performed utilizing ReviewManager (RevMan) 5.4.1.

Results: A total of 7 studies were included, comprising 4,797,161 patients; 2,448,045 (51%) were males and 2,349,116 (49%) were females. The results indicated a higher risk of cancer in people suffering from insomnia (HR 1.17; 95% CI 1.02-1.35; $p = 0.03$; $I^2 = 92\%$). However, in the subgroup analysis with only Prospective Cohort, there was no statistical significance (HR 1.17; 95% CI 0.96-1.44; $p = 0.13$; $I^2 = 77\%$). There were no significant statistical differences in the sex analyses: male (HR 1.26; 95% CI 0.96-1.65; $p = 0.09$; $I^2 = 89\%$) and female (HR 1.15; 95% CI 1.00-1.31; $p = 0.05$; $I^2 = 91\%$).

Conclusion: In this meta-analysis of 7 studies, insomnia is directly associated with the risk of developing cancer. Thus, practicing sleep hygiene is crucial for overall health and wellness, which entails implementing habits that support regular, restful and rejuvenating sleep.

ID: 1704

What is the Temporality Between Poor Quality of Sleep and Mental Health Status: a Prospective Cohort with Dental Students

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Keywords
- dental students
- mental health
- sleep quality

Introduction: The literature demonstrates an association between quality of sleep and mental health in adults, but the temporality between these two conditions is not yet well established.

Objective: To investigate the possible bidirectional relationship between poor quality of sleep and self-reported mental health status.

Methods: Dental students from one university were followed for three years. The same structured questionnaire was applied in both waves of the project (in 2020 and 2023). Quality of sleep was assessed using the Pittsburgh Sleep Quality Index (PSQI), while mental health status was assessed using the Depression, Anxiety, and Stress Scale-21 (DASS-21), both validated to Brazilian-Portuguese. The outcome regarding quality of sleep was defined as having a PSQI $\geq$5 in both waves (always poor quality of sleep) or having a PSQI <5 in at least one wave (irregular or always good sleep quality). For this outcome, mental health status in 2020 was defined as the primary exposure. The DASS-21 categorizes individuals as normal, mild, moderate, severe, or extremely severe. For this outcome, students were dichotomized into having a normal mental health condition or presenting a better categorization in 2023 (good or improved mental health); and presenting a worsening in mental health or remaining in a non-normal category over the three years (no change or worsening in mental health status). For this outcome, sleep quality in 2020 was defined as the primary exposure. Independent analyses were performed for each outcome, using adjusted Poisson regression. Statistical significance was established at $p<0.05$.

Results: A total of 150 students were included. Mental health status in 2020 was able to predict always poor quality of sleep over the three years, with those students with at least moderate depression (relative risk [RR]:2.03; 95% confidence interval [95%CI]:1.52-2.70), anxiety (RR:1.63; 95%CI:1.22-2.17), or stress (RR:1.48; 95%CI:1.12-1.97) showing higher risks for this outcome. However, poor quality of sleep was not able to predict worsening in the mental health status in relation to depression (RR:1.25; 95%CI:0.70-2.21), stress (RR:0.85; 95%CI:0.54-1.33), and anxiety (RR:0.90; 95% CI:0.57-1.40).

Conclusion: It was concluded that dental students have a high occurrence of poor quality of sleep and mental health status. Poor quality of sleep may predict a worsening in mental health status. However, the inverse relationship was not detected.

ID: 1707

Overview of the Reality of Narcolepsy in Brazil: Diagnosis, Treatment, Research and Legal Rights

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Keywords

- narcolepsy
- participatory medicine
- law
- treatment
- Brazil

Introduction: Brazil lacks information about narcolepsy from both a scientific and epidemiological perspective. Considering the worldwide prevalence (25 to 50 individuals per 100,000), it is estimated that there are between 50-100,000 people with narcolepsy throughout Brazil, the majority of whom are still undiagnosed. The invisibility of Brazilian patients with narcolepsy is a factor that worsens the social impact of the disease, since issues such as legal rights and public policies for access to diagnosis and treatment are not discussed. This can be seen in the lack of national statistics on narcolepsy in the Brazilian government databases, and there is not even a Clinical Protocol and Treatment Guidelines (CPTG) for such conditions.

Objective: To gather information on the reality of narcolepsy in Brazil, outlining an overview of access to diagnosis and treatment, research already conducted, and legal advances achieved so far.

Methods: The Hypersomnia Research Center of HUPE-UERJ (CPH-HUPE-UERJ) in partnership with representatives of the Brazilian Association of Narcolepsy and Idiopathic Hypersomnia (ABRANHI) gathered information on existing laws and legal precedents regarding the disease, as well as on a research conducted on narcolepsy in the Brazilian population over the last 30 years, conducted in four databases (Pubmed, LILACS, Scopus, and Embase) with the descriptors “Brazil” or “Brazilian” or “South America” and “narcolepsy”, in English and Portuguese, from 01/01/1994 to 08/21/2024. Recent advances in the visibility of narcolepsy were also reported, with the joint actions of CPH-HUPE-UERJ and ABRANHI in the Participatory Medicine model.

Results: After excluding duplicate articles and conference proceedings, 76 papers were included. Of the original articles, only three involved genetic research. In the area of law, there is a Technical Note prepared by NatJus and elements for understanding that narcolepsy is a hidden disability. Five clinical cases of patients who achieved equal rights to people with disabilities will be reported, in addition to the experience with the importation of medications such as sodium oxybate, pitolisant and solriamfetol, and the initial impression of patients with such medications.

Conclusion: A national policy of attention and care for people with primary hypersomnias is urgently needed. Participatory medicine has proven useful for optimizing this process.

ID: 1708

Sleep Quality, Excessive Daytime Sleepiness, Pulmonar Function and Exercise Tolerance in Hospitalized and no Hospitalized Subjects with COVID-19

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Keywords

- Post-COVID-19 syndrome
- sleep
- pulmonary function
- exercise tolerance

Introduction: Individuals infected with COVID-19, caused by SARS-CoV-2, have exhibited persistent symptoms such as chronic muscle fatigue, cough, dyspnea, and insomnia after the acute phase of the infection, which characterize Long COVID. In severe cases, patients may require hospitalization and/or outpatient follow-up to treat sequelae that cause some functional limitations. Objective: To compare sleep quality (SQ), excessive daytime sleepiness (EDS), pulmonary function (PF), and exercise tolerance (ET) between hospitalized and non-hospitalized COVID-19 patients

Objective: To compare sleep quality (SQ), excessive daytime sleepiness (EDS), pulmonary function (PF), and exercise tolerance (ET) between hospitalized and non-hospitalized COVID-19 patients.

Methods: A cross-sectional study evaluating post-COVID-19 patients with respect to SQ, using the Pittsburgh Sleep Quality Index (PSQI), EDS using the Epworth Sleepiness Scale (ESS), PF (spirometry), and ET using the 6-minute walk test (6MWT). The study was approved by the Research Ethics Committee (approval number 4,560,471). Independent samples t-tests were used to compare the groups, with $p<0.05$ considered as the level of statistical significance. Data are presented as means, standard deviations, and frequency distributions.

Results: Eighty-three COVID-19 patients were analyzed, with the majority being female (56.6%), aged 45.6 ± 12.8 years, and with a BMI of 28.1 ± 4.6 kg/m^2. Among the patients, 78.3% (n=65) were not hospitalized, 10.8% (n=9) were hospitalized for up to 10 days, and 10.8% (n=9) were hospitalized for more than 10 days. There were no differences between the groups (hospitalized vs. non-hospitalized) for SQ (6.9 ± 3.1 vs. 6.9 ± 3.4; p=0.706), EDS (8.8 ± 5.9 vs. 8.6 ± 3.8; p=0.807), or PF (FEV1: 4.3 ± 6.5 l vs. 2.9 ± 0.2 l; p=0.728 / FVC: 3.6 ± 1.4 l vs. 3.43 ± 1.0 l; p=0.484 / FEV1/FVC: 82.6 ± 12 vs. 84.1 ± 8.9; p=0.889). However, ET was higher in the non-hospitalized group compared to the hospitalized group (106.3 ± 30.9 steps vs. 82.8 ± 45.1 steps; p=0.048).

Conclusion: In this study, there were no differences between the hospitalized and non-hospitalized COVID-19 groups in terms of SQ, EDS, and PF. Both groups had poor sleep quality, excessive daytime sleepiness, and impaired pulmonary function. However, the non-hospitalized group showed greater exercise tolerance.

ID: 1710

Sleep Quality in Hypertensive and Diabetic Populations in the Taubaté and Tremembé Region

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Keywords
- hypertension
- diabetes
- sleep quality

Introduction: Sleep quality is essential for health, being negatively impacted by comorbidities like hypertension and diabetes. This study investigates how these conditions affect sleep quality in populations of the Taubaté and Tremembé regions.

Objective: To evaluate sleep quality in individuals with and without hypertension and/or diabetes in the Taubaté and Tremembé populations.

Methods: Cross-sectional, quantitative study conducted with 2469 participants during the "36th Week of Hypertension and Diabetes Prevention". The questionnaire included general data, information about diabetes and hypertension, blood pressure and blood glucose measurements taken on-site, and the Pittsburgh Sleep Quality Index.

Results: Among diabetics (n=164), 58.54% reported satisfactory sleep. Among hypertensive individuals (n=550), 54.91% reported satisfactory sleep. Individuals with both conditions (n=448) showed the worst rates, with 47.99% reporting satisfactory sleep. Those without comorbidities (n=1307) had the highest prevalence of satisfactory sleep (58.87%).

Conclusion: Diabetics and hypertensives had worse sleep quality compared to individuals without these conditions, with the impact being most pronounced in individuals with both comorbidities. These findings suggest the need for specific interventions to improve sleep quality in patients with chronic diseases.

ID: 1711

Efficacy of the Association of Atomoxetine and Oxybutynin in the Treatment of Obstructive Sleep Apnea: a Systematic Review

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Keywords
- obstructive sleep apnea
- atomoxetine
- oxybutynin

Introduction: Obstructive Sleep Apnea (OSA) is a prevalent sleep disorder characterized by repeated upper airway obstruction during sleep, leading to sleep fragmentation, hypoxemia, and hypercapnia. Effective pharmacological treatments are limited, and the standard treatment, CPAP therapy, is often poorly tolerated. Recent studies have explored combining atomoxetine, a noradrenaline reuptake inhibitor, with oxybutynin, an antimuscarinic agent, in treating OSA. This combination takes advantage of the noradrenergic and antimuscarinic properties of the drugs to increase upper airway muscle activity and improve airway patency during sleep.

Objective: This study aims to evaluate the efficacy of combining atomoxetine and oxybutynin in treating OSA.

Methods: The PRISMA protocol was followed to guide the preparation of this systematic review. The databases used were PubMed, Embase, Cochrane, and Web of Science. The inclusion criteria involved studies investigating the association between atomoxetine and oxybutynin to assess clinical outcomes in OSA patients.

Results: A total of 270 articles was selected, of which 10 met the inclusion criteria. Schweitzer et al. evaluated 60 patients in a randomized clinical trial (RCT) and observed an improvement in the Apnea and Hypopnea Index (AHI) in patients treated with the combination of atomoxetine and oxybutynin (ato-oxy) compared to the placebo group [6.2 events/h (2.8-13.6) vs 14.2 events/h (5.4-22.3), $p < 0.001$]. In addition, the group receiving atomoxetine alone showed a significant reduction in obstructive events during sleep, with 4.8 events/h (1.4-11.6, $p < 0.001$). An RCT by Taranto-Montemurro et al. examined 20 people with OSA, 10 of whom were in the ato-oxy group and 10 in the placebo group. A statistically significant improvement was found in AHI [28.5 (10.9-51.6) vs 7.5 (2.4-18.6), $p < 0.001$] and an increase in sleep efficiency, although not statistically significant [71 (63-84) vs 67 (45-86), $p = 0.16$], compared to the placebo group. In an RCT with 39 participants with OSA, Aishah et al. investigated the variation in AHI on the 30th day of treatment. The ato-oxy group showed a more marked reduction in AHI compared to placebo (-8 ± 16 vs 1 ± 5 events/h; $p = 0.09$).

Conclusion: This systematic review analyzed the combination of atomoxetine and oxybutynin as a treatment option for OSA, showing a positive outcome in reducing AHI. However, more studies are needed to determine which patient profiles benefit most from this intervention.

ID: 1712

Association Between Obstructive Sleep Apnea Severity and Responses to Cardiopulmonary Exercise Test

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Keywords
- exercise test
- blood pressure
- obstructive sleep apnea

Introduction: Patients with obstructive sleep apnea (OSA) are known to have high cardiovascular risk, and studies have shown that these patients exhibit hemodynamic changes during the cardiopulmonary exercise test (CPET), which is one of the primary methods for assessing cardiovascular risk during exercise. However, the impact of the disease severity on these responses is not yet clear.

Objective: To analyze the association between OSA severity and cardiovascular responses to CPET.

Methods: Fifty-nine patients with OSA (55.8 ± 10.4 yrs. 54.2% female, 19.3% mild, 28.1% moderate and 52.6% severe OSA) participated in the study. The CPET was conducted on a treadmill using the Bruce protocol, with continuous ECG monitoring throughout the test and recovery period, providing the maximum heart rate achieved during the CPET. Blood pressure was measured at the end of each stage (3 minutes) by a specialist. The test was terminated if diastolic blood pressure reached $\geq$120 mmHg in normotensive individuals or $\geq$140 mmHg in hypertensive individuals, if systolic blood pressure reached $\geq$260 mmHg, if there was a sustained decrease in systolic blood pressure, or if clinical symptoms such as chest pain, syncope or near-syncope, or ECG changes consistent with ischemia occurred. The apnea–hypopnea index (AHI) was assessed by full polysomnography in a sleep laboratory. Body mass index and comorbid conditions were assessed. Multiple linear regression was used to assess the relationship between CPET responses and OSA severity.

Results: AHI was positively associated with maximum systolic blood pressure [β=0.607 (0,185) mmHg; b=0.437, p=0.002] and maximum heart rate [β=0.256 (0,101); b=0.291, p=0.014], independent of age, body mass index, sex, and hypertension of patients. Diastolic blood pressure was not associated with AHI.

Conclusion: Patients with greater OSA severity exhibit higher systolic blood pressure and maximum heart rate values during a progressive exercise test.

ID: 1713

Correlation Between REM and NREM Respiratory Polysomnographic Variables in Children with Neuromuscular Disorders

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Keywords
- neuromuscular disorders apnea hypopnea index strength level REM sleep NREM sleep

Introduction: Neuromuscular disorders (NMD) cover a range of genetic diseases that are usually progressive and characterized by skeletal muscle weakness, including diaphragm. Skeletal muscle weakness has a major responsibility on sleep breathing disorders (SBD), since there are no validated questionnaires for children as a screening tool. The current gold standard for SBD diagnosis is Polysomnography (PSG) with capnography, however, little is known about the correlation between muscle strength and PSG variables, particularly when it comes to the differentiation among REM and non-REM variables.

Objective: The main goal was to analyze the difference in polysomnographic and respiratory findings among neuromuscular disorders´ patients with reduced muscle strength during NREM and REM sleep.

Methods: We analyzed 30 patients with neuromuscular disorders and divided them into groups according to muscle strength level and region (proximal and distal upper and lower limbs and cervical region). We also divided apnea hypopnea index (AHI) and minimal oxygen saturation (SaO2) between REM and NREM sleep and analyzed it by means of Mann-Whitney U test. Then, we compared these features among the reduced muscle strength groups by means of t Student test.

Results: Our sample was composed of 30 children and adolescents aged 4 to 19 years (10 ± 4). 20 of them were diagnosed with Duchenne Muscular Dystrophy (DMD) and 23 had reduced proximal lower limbs muscle strength. This group presented medium NREM AHI of $4{,}31 \pm 4{,}74$ versus medium REM AHI of $12{,}72 \pm 14{,}68$ with statistical significance ($p = 0{,}002$). The reduced distal lower limbs muscle strength group was composed of 14 individuals and presented medium NREM AHI of $5{,}37 \pm 5{,}36$ against medium REM AHI of $13{,}85 \pm 14{,}39$ also with statistical significance ($p = 0{,}01$). In relation to minimal SaO2 we found no difference statistically significant in this sample.

Conclusion: The measure of muscle strength is proving to be an anticipatory sign of SBD, as well as its severity, emphasizing a huge concern about the REM sleep breathing pattern and its consequences. The lower limbs correlation with worse AHI may be due to the progression design of the most prevalent disease: DMD. Although our sample was small, we believe that this data can be used as a tool to address respiratory disease progression.

ID: 1715

The Impact of Obstructive Sleep Apnea on Cognitive Decline in Adults with Down Syndrome: Preliminary Findings

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Keywords
- down syndrome
- cognitive decline
- sleep-related breathing disorders
- polysomnography

Introduction: Sleep-related breathing disorders are commonly reported in the Down Syndrome population, but data on its prevalence and severity are scarce, especially for the adult population. The increase in life expectancy and premature aging in patients with Down Syndrome reinforces the need for an assessment of sleep quality. This study evaluated sleep-disordered breathing in adults with Down Syndrome using sleep measures by Polysomnography.

Objective: The aim of this study is to define the association between the severity of obstructive sleep apnea (OSA) in adults with Down Syndrome and the clinical diagnoses of stable cognition versus prodromal dementia and dementia. Furthermore, it was possible to correlate sleep respiratory variables in these groups.

Methods: All 48 participants underwent a sleep study Type 1 Polysomnography, analyzed according to the American Academy of Sleep Medicine (AASM). The diagnostic criteria for OSA and its severity were based on the description of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). A multidisciplinary consensus including psychiatrists and geriatricians classified the participants into three diagnostic groups: stable cognition, prodromal dementia, and dementia. A neuropsychological assessment was carried out, according to the Cambridge Examination for Mental Disorders of Older People with Down's Syndrome and Others with Intellectual Disabilities (CAMDEX-DS).

Results: From our sample, 7 participants had dementia, 5 were classified as prodromal dementia and 36 were in the stable cognition group. It was not possible to determine statistically significant evidence between the AHI and the diagnoses, possibly due to the small sample of non-control cases. There was a strong correlation between AHI (events/h) and ODI (events/h), for all groups included. Sleep architecture by its metric variables was measured, and these numerical findings were compared among the groups, with a significant difference in REM Sleep (%) between the control and prodromal groups (p=0.031).

Conclusion: Studies show that OSA is the main sleep disorder in the Down Syndrome population, demonstrating the importance of early diagnosis. In our analysis, it was not possible to define a correlation between OSA and clinical diagnoses, possibly because there are few non-control cases. Being preliminary data, clinical and polysomnographic follow-up will support our preliminary hypotheses.

ID: 1716

Adenotonsillectomy Versus Watchful Waiting on Sleep Quality in Children with Obstructive Sleep-Disordered Breathing: A Systematic Review and Meta-Analysis

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Keywords

- adenotonsillectomy
- obstructive sleep-disordered breathing
- meta-analysis

Introduction: Adenotonsillectomy (AT) is a widely performed pediatric surgery for obstructive sleep-disordered breathing (OSDB), including snoring and obstructive sleep apnea. While these conditions are suggested to potentially impact children's sleep quality and overall health, definitive evidence is lacking. This systematic review and meta-analysis aim to assess this gap by evaluating the effects of AT versus watchful waiting (WW) on sleep outcomes in children, addressing recent trials for an updated perspective on the current literature.

Objective: To assess the impact of adenotonsillectomy compared to watchful waiting on sleep quality in children with OSDB.

Methods: This research was performed according to the PRISMA guideline. PubMed, Embase and Cochrane Central databases were comprehensively searched for randomized controlled trials and cohort studies that compared AT to WW in children with obstructive sleep-disordered breathing. Data were examined using the Mantel-Haenszel method to calculate the mean differences (MD) with 95% confidence intervals (CI). Heterogeneity was evaluated with I^2 statistics and p value < 0.05 were considered statistically significant. Statistical analysis was performed using R statistical software 4.4.0 version.

Results: A total of 6 studies were included. Among the 1320 patients comprehended, 657 underwent AT, while 663 were assigned to a WW protocol. Mean age ranged from 3.8 to 8.4 years, with 48.1% female participants. Regarding OSDB, AT showed a statistically significant improvement in Pediatric Sleep Questionnaire Sleep-Related Breathing Disorder Scale (MD -0.25; 95% CI -0.35, -0.15; $P < 0.001$; $I2 = 96\%$) and Obstructive Sleep Apnea-18 tool (MD -14.34; 95% CI -21.68, -7.00; $P < 0.001$; $I2 = 69\%$) compared to WW. The intervention group also had a significantly greater reduction in sleepiness than in the control group, measured by the Epworth Sleepiness Scale modified for children (MD -1.54; 95% CI -2.95, -0.12; $P = 0.033748$; $I2 = 78\%$). Behavior, assessed with the Behavior Rating Inventory of Executive Function, also improved significantly in the AT group compared to WW (MD -2.19; 95% CI -4.18, -0.20; $P = 0.030981$; $I^2 = 56\%$).

Conclusion: This systematic review and meta-analysis demonstrate significant improvements in sleep quality, symptomatology, and behavioral outcomes following adenotonsillectomy compared to watchful waiting, as indicated by enhanced scores on all evaluated scales.

ID: 1717

Gastroesophageal Reflux Disease and Excessive Daytime Sleepiness - Causal Relationship: a Systematic Review

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Keywords

- excessive daytime sleepiness
- gastroesophageal reflux disease
- prevalence

Introduction: Gastroesophageal reflux disease (GERD) is a prevalent gastrointestinal disorder characterized by the reflux of stomach contents into the esophagus. On the other hand, Excessive Daytime Sleepiness (EDS) is defined as a person's inability to stay awake or alert during the main waking periods of the day. Recent research has highlighted a possible association between GERD and EDS. However, the prevalence of people with GERD developing EDS remains controversial.

Objective: To assess the prevalence of Excessive Daytime Sleepiness in patients with Gastroesophageal Reflux Disease

Methods: This review followed the PRISMA 2020 protocol criteria. PubMed, PubMed Central, Web of Science, and EMBASE databases were searched until August 15, 2024. Research associating Excessive Daytime Sleepiness and Gastroesophageal Reflux Disease was included. The comparison group included people without GERD. The main outcome assessed was the prevalence of Excessive Daytime Sleepiness in patients with GERD.

Results: A total of 117 articles were selected through the search strategy, of which 7 met the inclusion and exclusion criteria, totaling a population of 8,334 patients. Wu et al. evaluated 94 patients with GERD, 37 of whom had EDS (measured by an Epworth >10). The study also showed a higher risk of EDS in patients with GERD compared to placebo [OR: 1.72 (1.08; 2.72); 95%CI p=0.022]. Guda et al. evaluated 94 patients who underwent polysomnography and a questionnaire on gastrointestinal symptoms. Patients with GERD symptoms had a higher apnea-hypopnea index (AHI) compared to those without symptoms (59.08 ±7.1 vs. 34.1 ±34.3 p=0.04). Hu et al. studied 73 people with a primary complaint of daytime sleepiness. The group with GERD had a higher percentage of patients who met the criteria for daytime sleepiness according to the Epworth Sleepiness Scale (ESS) than the group without GERD (48.8% vs. 3.1%, p <0.001). In addition, the absolute ESS score was higher in the GERD group (8.80 ±5.49 vs. 3.13 ±3.50, p <0.001).

Conclusion: This systematic review shows a significant association between GERD and EDS. The results from the analyzed studies indicate that individuals with GERD present a higher prevalence of EDS, suggesting a causal relationship between these conditions. This association can be explained by various factors, such as sleep fragmentation caused by nocturnal GERD symptoms and the occurrence of obstructive sleep apnea in patients presenting with GERD.

ID: 1718

Obstructive Sleep Apnea, but not Markers of Sleep Irregularity or Duration, is Associated with Metabolic Syndrome: Data from ELSA-Brazil

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Keywords

- obstructive sleep apnea
- sleep duration
- sleep irregularity
- metabolic syndrome

Introduction: Obstructive sleep apnea (OSA) is associated with metabolic impairment and increased incidence of metabolic syndrome (MetS). Recent evidence suggests that sleep duration (SD) and markers of sleep irregularity may contribute to some components of the MetS, but the relative roles of these associations with the diagnosis of MetS are unclear.

Objective: Our objective was to evaluate the associations of OSA, markers of sleep irregularity, and SD with MetS in a subsample of ELSA-Brazil, a cohort study of public employees in the city of São Paulo.

Methods: Participants underwent clinical and sleep assessments including: 1) OSA (defined by an apnea-hypopnea index ≥15 events/hour by portable polygraphy (Embletta GoldTM); 2) objective measures of SD by wrist actigraphy for 1-week (Actiwatch 2TM); 3) markers of sleep irregularity using actigraphy data: SD standard deviation (SD); SD of sleep latency onset; catch-up sleep (weekend catch-up sleep). MS was diagnosed according to the National Cholesterol Education Program Adult Treatment Panel III (NCEP III) if at least 3 of the 5 factors were present: 1) waist circumference ≥88 cm for women and ≥102 cm for men; 2) triglycerides ≥150 mg/dL (or any specific treatment); 3) HDL-cholesterol <40 mg/dL for men and <50 mg/dL for women (or specific treatment); 4) Systolic blood pressure (BP) ≥130 or diastolic BP ≥85 mmHg (or antihypertensive treatment); 5) Fasting glucose ≥110 mg/dL (or specific medication). Multivariate analysis was used to determine the independent associations of sleep irregularity with MS. The model was adjusted for age, sex, race, intensity of physical activity, smoking, per capita income, excessive sleepiness, insomnia, SD, and sleep variables (irregularity) and OSA (only in the SD model).

Results: A total of 1,720 participants were studied (age: 49±8 years; 43.4/5 men, 26.7% met the diagnosis of MS; 33% had OSA). The mean SD was 394±59.0 hours. After adjustments, OSA was independently associated with MS, even when adjusted for SD SD (OR: 2.50; 95% CI: 1.97; 3.17; p.<0.001); SD sleep onset latency (OR: 2.49; 95% CI: 1.96; 3.15; p.<0.001) or catch-up sleep (OR: 2.51; 95% CI: 1.98; 3.18; p.<0.001). In contrast, we did not observe significant associations between sleep irregularity variables and SD with MS.

Conclusion: OSA, but not sleep irregularity or SD, was independently associated with MetS.

ID: 1719

Machine Learning Helps to Predict Pediatric OSA Based on Clinical Features

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Keywords

- pediatric OSA
- clinical features
- machine learning support vector machine

Introduction: Pediatric OSA affects 6 to 30% of children, with negative impact on cardiovascular functions and neurocognitive development, besides quality of life. Diagnosis is based on polysomnography (PSG), screening questionnaires still with low accuracy. Machine learning (ML) algorithms might help to recognize moderate-severe OSA using clinical features, as well as tonsil size.

Objective: To evaluate sensitivity, specificity, and accuracy of ML data analysis of clinical features and tonsil size for the identification of moderate sever OSA.

Methods: In this retrospective study, patient charts of children aged 2 to 12 years, submitted to a full night PSG were analysed, obtaining data as age, sex, OSA severity, snoring, apneas, mouth breathing, frequent awakenings, OSA18 questionnaire, and size of adenoids and tonsils (Brodsky scale). Children were divided in: Group 1, with no or mild OSA; and Group 2, with moderate or severe OSA. Features were selected by Support Vector Machine (SVM) and a linear kernel, and Recursive Feature Elimination (REF). Data were divided into 12 models, 11 for trainning, 1 for test, the confusional matrix calculated sensitivity, specificity, accuracy, VPP and VPN for the correct identification. Fisrt round analysed clinical features, the second round included size of adenois and tonsils.

Results: 111 children, mean age 5 years, were included, 55 composing Group 1 and 56 Group 2, both groups similar for age, gender. and tonsil size. The selected features were nasal secretion, choking, difficult deglutition, anger, unattention, difficulty to wake, snoring, restless sleep, hyperactivity, enuresis, apneas. Clinical features showed sensitivity (0.667), specificity (0,833), accuracy (0.743). Including adenoid and tonsil size to clinical features reduced sensitivity (0.542), specificity (0.625) accuracy (0.583).

Conclusion: ML improves prediction of moderate to severe OSA in children based on clinical features when compared to common screening questionnaires. Adenoid and Tonsil size are not good features to identify moderate severe OSA.

ID: 1720

Case Report: Non-REM Parasomnia Secondary to the Use of Non-Benzodiazepine Benzodiazepine Receptor Agonists

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Keywords

► Zolpidem Non-REM Parasomnia Misuse

Introduction: Disorders of arousal from non-rapid eye movement (NREM) sleep are parasomnias that include confusional arousals, sleepwalking, sleep terrors, and their variants. They are classified as distinct entities, but in reality, they represent a spectrum of sleep-related behaviors that occur as a result of incomplete transition out of deep NREM sleep. While disorders of arousal typically present in childhood, they may continue into adulthood, remit and recur in adulthood, or present de novo in adults. Disorders of arousal are an important cause of sleep-related injury in adults.

Objective: Discuss the Impact of Hypnotic Medications When Misused.

Methods: Male, 78. The companion (son) reports that the patient experienced a sudden behavioral change during the night/sleep. He began packing his bags, believing he was relocating to his in-laws' city. The patient himself could not report the occurrence. The patient has experienced other episodes (approximately eight times in one year) of mental confusion, not retaining memory of the episodes, all occurring at night and related to awakening. Prior to these changes, the patient had difficulties with the correct use of his medications, and his son discovered that there had been an unintentional time switch, with levothyroxine being taken at night before bedtime. The patient began experiencing insomnia and was prescribed Zolpidem, which coincided with these episodes of confusional alteration. The discontinuation of the medication led to the resolution of the condition.

Results: A variety of medications and substances can precipitate events, including psychotropic medications (eg, anticholinergics, antipsychotics) and sedative-hypnotic agents, most notably the nonbenzodiazepine benzodiazepine receptor agonists (eg, zolpidem, eszopiclone). In the setting of nonbenzodiazepines such as zolpidem, behaviors are often prolonged and can include eating, sexual activity, and driving while not fully awake. Rare serious injuries including death have been reported via mechanisms such as accidental overdose, motor vehicle crash, and drowning. Higher dose or drug-drug interactions have been implicated in some, but not all, reports.

Conclusion: Misuse of hypnotic medications can lead to serious complications for both patients and their families. We must consider the real necessity of using these medications, specially as a bridge to therapies with fewer deleterious effects.

ID: 1721

Cognitive Assessment in Pinealectomized Patients: The Impact of Melatonin Deficiency on Cognitive Function

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Keywords

► melatonin
► pineal
► cognitive

Introduction: Melatonin, a hormone produced by the pineal gland, plays a crucial role in regulating the sleep-wake cycle. However, its mechanisms of action and a possible role in cognitive performance remain not fully understood. Pinealectomized patients, who lack circulating melatonin, provide a valuable model for studying the effe.

Objective: To define the cognitive profile of pinealectomized hypomelatoninemic patients.

Methods: This was a bi-centric study project approved by the Ethics Committee of both institutions. Six patients with pineal gland tumor, not age restricted, were evaluated, regardless of histological type. All had previous tumor resection, or radioablation, and total pinealectomy, without anterior hypothalamic involvement. All patients had prior measurements of urinary 6-sulfatoxymelatonin confirming the absence of excretion of this metabolite. For cognitive screening, were applied: Brief Cognitive Screening Battery (BB), Montreal Cognitive Assessment (MoCA), and Digit Span (DS).

Results: The sample (n=6) consisted of individuals aged between 15 and 29 years median 17 [16-20], 83% were male. Half of the patients were attending secondary education, and the other half had incomplete higher education. In the BB, the median score of the patients was 64[53.5-71.5]. In incidental memory, the median score was 5.5 [5-6], in immediate memory 8 [8-8], learning 8.5 [8.25-9.75], delayed memory 7 [6.25-8.5], and in recognition, all individuals correctly identified the 10 images. In the verbal fluency test, the median was 17 [15-20.5]and in the clock drawing test, the median was 7 [4.5-9.5]

In the MoCa test, the median was 19 [16.5-24.5], values above or equal to 26 are considered normal for this test (1). Only 2 patients (33%) in our sample achieved this score. In the DS test, the median was 7.5 [6.25-12.5].

Conclusion: Age comparison showed that individuals closer to the third quartile (20 years old) and those with higher education levels performed better across evaluated domains. Although normative values for the instruments used in this specific population are lacking, these findings indicate a decrease in cognitive performance for pinealectomized patients in MoCa test. However, the overall cognitive performance was mainly influenced by age and educational level. Characterizing the cognitive profile of pinealectomized patients is a first step in understanding the impact of the absence of melatonin, which will be better evaluated by comparing results after melatonin replacement.

ID: 1722

Narcolepsy Type 1 and 2 in Brazil: a Precision Medicine Approach

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Keywords

- narcolepsy
- precision medicine
- hypocretin
- Brazil

Introduction: Narcolepsy and idiopathic hypersomnia (IH) are the most significant central disorders of hypersomnolence. While HLA-DQB1*06:02 is the primary genetic risk factor for narcolepsy, other alleles have also been identified. However, data on these conditions in Brazil is limited, with previous studies not exploring HLA hirh resolution sequencing and hypocretin measurement, now considered a biomarker for NT1. Additionally, there is ongoing research to find a biomarker for diagnosing narcolepsy type 2 (NT2) and IH. Therefore, genetic studies in a diverse population like Brazil can provide valuable information on primary hypersomnias.

Objective: This study aimed to investigate genetic characteristics associated with susceptibility or protection for narcolepsy and IH in the Brazilian population using Precision Medicine for diagnose of NT1 and NT2

Methods: Diagnosis of narcolepsy and IH was based on the third version of the International Classification of Sleep Disorders, with sub-classification into NT1 and NT2 determined by the concentration of CSF hypocretin 1 using radioimmunoassay. High-resolution HLA sequencing for class I (A, B, and C) and class II (DPB1, DRB1, and DQB1) alleles was conducted using massive parallel sequencing. The study compared obtained data with the National Registry of Bone Marrow Donors (REDOME) database, matching by sex, self-declared ethnicity, and geographic location in a ratio of 1 case to 5 controls.

Results: The study included 43 narcolepsy patients and 215 controls, 15 NT1, 16 NT2 and 12 narcolepsy without hypocretin measurement. NT1 patients exhibited a higher frequency of the HLA-DQB1*06:02 allele compared to controls and NT2 patients (100% vs. 20% vs. 18.75%, respectively; $p<0.001$). Following DQB1*06:02, DRB1*15:03 was identified as the most common allele associated with NT1, forming a haplotype with an odds ratio of 14.47 compared to controls (95% CI: 4-53.1, $p<0.005$). DRB1*15:01 was not associated with a significant risk after Bonferroni correction. All 43 patients presented at least one risk alelle already described in literature. Variables beyond cataplexy were useful in differentiating NT1 from NT2.

Conclusion: This first Brazilian study on narcolepsy using precision medicine revealed that HLA-DQB1*06:02 is the main genetic risk factor for NT1 but not for NT2 with a higher frequency than previous reports. The DRB1*15:03 was more prevalent among NT1 Brazilian patients in this sample, suggesting the influence of African heritage.

ID: 1724

Epworth Sleepiness Scale and Polysomnography in Patients with Parkinson's Disease - a Correlation Study in The Brazilian Amazon

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Keywords

- sleep apnea
- obstructive
- Parkinson disease
- sleep
- Pharynx
- inflammation

Introduction: Parkinson's Disease (PD) is a neurodegenerative disorder, the second most common among the elderly, and the leading cause of parkinsonism. It affects approximately 1% of the population over 60 years of age and 4 to 5% of those over 85 years old. The presence of Obstructive Sleep Apnea (OSA) in PD can impact quality of life by increasing daytime sleepiness and negatively influencing both the motor and non-motor symptoms of the disease. Sleep disorders are observed in more than 90% of patients with PD, including Excessive Daytime Sleepiness (EDS) and REM Sleep Behaviour Disorder (RBD). The assessment of excessive sleepiness is conducted using the Epworth Sleepiness Scale (ESS). This scale comprises 8 items that measure the propensity for sleep in various everyday situations.

Objective: To correlate the data from the Epworth Sleepiness Scale with the results of the type 1 polysomnography exam.

Methods: The study is an observational cross-sectional study that lasted 12 months. The sample comprises patients from the Movement Disorders outpatient clinic at a reference hospital. Individuals with a diagnosis of dementia were excluded from the study. The study was approved by the

Research Ethics Committee under Certificate of Ethical Appreciation Presentation No. 58684622.2.0000.0007.

Results: Of the 18 individuals studied, 8 (44.4%) did not exhibit sleepiness according to the ESS, with 5 (62.5%) diagnosed with Primary Snoring, 2 (25.0%) with mild OSA, and 1 (12.5%) with moderate OSA. Among the 10 (66.6%) who did exhibit sleepiness, 3 (30.0%) had Primary Snoring, 1 (10.0%) had Primary Snoring with RBD, 4 (40.0%) had mild OSA, 1 (10.0%) had moderate OSA, and 1 (10.0%) had severe OSA. Upon analysing the ESS findings, 56.0% were positive for sleepiness, which is consistent with some findings in the literature. Previous studies have already reported the impact of daytime napping and the increased risk of developing PD, suggesting that daytime sleepiness may represent one of the earliest non-motor symptoms of PD.

Conclusion: Among the individuals who underwent PSG, there was a high incidence of EDS as indicated by the ESS, with only a minority being diagnosed with some degree of OSA. This highlights the importance of PSG in defining the diagnosis and treatment, ultimately improving the quality of life for patients with Parkinson's Disease.

ID: 1727

Individuals who Exercise Regularly have a Shorter Sleep Latency and Perceive a Higher Quality of Sleep

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Keywords
- physical exercise
- physical activity
- sleep

Introduction: Sleep is a restorative biological process essential for the proper functioning of the human body. Simultaneously, physical activity has been widely recognized as an effective non-pharmacological intervention in the primary treatment of various sleep disorders, contributing to improved sleep quality.

Objective: This study aimed to investigate the practice of physical activity and its relationship with sleep quality in a population from the city of Araguatins, located in the Bico do Papagaio region, in the northern part of the state of Tocantins, Brazil.

Methods: A total of 162 individuals aged between 18 and 60 years participated in the study, including 93 men and 69 women (mean age $= 30.0 \pm 9.28$ years; BMI $= 24.7 \pm 4.35$). Volunteers responded online to the Pittsburgh Sleep Quality Index (PSQI) and the International Physical Activity Questionnaire (IPAQ).

Results: The representativeness of the sample was evaluated with a 95% confidence level and an 8% margin of error. Individuals with high physical activity scores showed better sleep quality, as measured by the PSQI, compared to less physically active individuals, even after subcategorization between poor sleep quality (7.76 ± 1.78 vs. 9.30 ± 2.98) and good sleep quality (3.25 ± 1.66 vs. 4.60 ± 0.632) ($p < 0.001$). Significant differences were also observed in subjective sleep quality, assessed by the PSQI, among those with higher and lower levels of physical activity, assessed by the IPAQ; both in participants with poor sleep quality (1.11 ± 0.567 vs. 1.39 ± 0.656) and good sleep quality (0.500 ± 0.561 vs. 0.867 ± 0.640) ($p < 0.05$). Furthermore, more physically active individuals had shorter sleep latency compared to participants with both poor sleep quality (1.41 ± 1.02 vs. 2.04 ± 1.64) and good sleep quality (0.417 ± 0.604 vs. 0.933 ± 0.594) ($p < 0.001$).

Conclusion: In the studied group, individuals with higher levels of physical activity demonstrated better overall sleep quality compared to less physically active individuals. These results remain consistent when evaluating subjective sleep quality and sleep latency.

ID: 1728

Social Jetlag and Obesity: a Comparative Analysis Between Adult Men and Women

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Keywords
- sleep
- jet lag
- obesity
- NHANES

Introduction: Recent studies have shown that the presence of social jetlag (SJL), a term that refers to the misalignment between biological and social rhythms, can contribute to an increased risk of obesity, as well as complications inherent to it. SJL seems to compromise the maintenance of a healthy lifestyle, especially behaviors related to eating habits, physical activity and meal times, favoring the development of different metabolic diseases.

Objective: To evaluate the relationship between SJL and obesity in adult men and women.

Methods: Cross-sectional study carried out between March 2017 and 2020, using data from the National Health and Nutrition Examination Survey (NHANES). SJL was calculated by the midpoint of sleep on free days, adjusted for excess sleep time, and the midpoint of sleep on work days. Participants were categorized into two groups: those with SJL of up to one hour and those with SJL of more than one hour. Obesity was assessed by calculating the body mass index (BMI), using weight and height information self-reported by the participants and then categorized as presence (BMI$\geq$30 kg/m^2) or absence of obesity ($<$30 kg/m^2). Multivariate binary logistic regression was carried out, stratified by gender and adjusted for age, schooling and poverty income index, to verify the relationship between the SJL and obesity. The ethics review board (ERB) approval protocol number is 2018-01.

Results: Among the 4,390 individuals evaluated, the majority had completed or were in the process of completing higher education (62.3%), 47.5% had a medium-poverty income index, 51.4% were female and the average age was 47.2 years (95%CI: 45.9-48.6). In addition, 39.4% were obese and 14.0% were on SJL. In the multivariate analysis, individuals with SJL were 47.0% more likely to be obese (OR:1.47; 95% CI:1.04-2.06). When the analysis was stratified by sex, it was found that women with SJL were 86.0% more likely (OR:1.86;95%CI:1.33-2.62) to be obese, while there was no significant difference in men (OR:1.13;95%CI:0.67-1.89).

Conclusion: Individuals with SJL are more likely to be obese, especially women after stratification by sex. This study highlights the importance of considering biological and social rhythms when formulating health strategies to combat obesity.

ID: 1729

Müller Manoeuvre in Patients with Parkinson's Disease Under Investigation for Obstructive Sleep Apnea - an Analysis in The Brazilian Amazon

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Keywords
- sleep apnea
- obstructive
- Parkinson disease
- sleep
- Pharynx
- inflammation

Introduction: Parkinson's Disease (PD) is a neurodegenerative disorder, the second most common among the elderly, and the leading cause of parkinsonism. Obstructive Sleep Apnoea (OSA) is a sleep-related breathing disorder characterised by the total or partial cessation of airflow during sleep, accompanied by hypoxia and recurrent awakenings. Flexible nasopharyngolaryngoscopy provides a direct view of the anatomical structures of the upper airways (UAW), allowing for the identification of obstructions, septal deviations, and hypertrophy of the tonsils and tongue base. The inclusion of the Müller manoeuvre in the evaluation offers a dynamic perspective of the UAW during maximal inspiration. This procedure is performed with the patient awake, seated, under induced coughing and respiratory manoeuvres. To define the degree of retropalatal closure (RC), Grade I was classified as 0-24%, Grade II as $\geq$25-49%, Grade III as $\geq$50-74%, and Grade IV as $\geq$75%.

Objective: To analyse retropalatal closure (RC) during the MM in patients with PD under investigation for OSA and to correlate these findings with polysomnographic (PSG) data.

Methods: The study is a cross-sectional observational study that lasted 12 months. The sample comprises patients treated at a reference hospital in Manaus, Amazonas. The study was approved by the Research Ethics Committee under Certificate of Ethical Appreciation Presentation No. 58684622.2.0000.0007.

Results: A total of 18 individuals were selected for the data contingency analysis between retropalatal closure (RC) during the MM and the diagnosis from PSG. Of these, 3 (16.6%) had Grade I RC, with 1 (33.3%) diagnosed with Primary Snoring and 2 (66.7%) with mild OSA. Among the 3 (16.6%) with Grade II RC, 2 (66.7%) had Primary Snoring and 1 (33.3%) had moderate OSA. Of the 8 (44.4%) with Grade III RC, 4 (50.0%) had Primary Snoring, 1 (12.5%) had Primary Snoring and RBD, 2 (25.0%) had mild OSA, and 1 (12.5%) had severe OSA. Of the 4 (22.3%) with Grade IV RC, 1 (25.0%) had Primary Snoring, 2 (50.0%) had mild OSA, and 1 (25.0%) had moderate OSA. The p-value was 0.7962.

Conclusion: Different degrees of OSA and sleep disorders were diagnosed across all levels of retropalatal closure (RC) during the Müller Manoeuvre, indicating nonspecific results when the manoeuvre is performed on awake patients. Further data, with a larger sample size, are needed to establish a more accurate correlation between these variables.

ID: 1730

Epidemiological Profile of Brazilians Diagnosed with Insomnia in Primary Care in the Period 2019-2023

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Keywords
- insomnia
- sleep
- epidemiology
- sleep disorders

Introduction: Insomnia is one of the sleep disorders that can be characterized by difficulty initiating or maintaining sleep, and can be short-lived or chronic. According to the Oswaldo Cruz Foundation, 72% of Brazilians suffer from this condition. This clinical condition can be triggered by environmental, psychosocial and physiological factors and can affect physical and mental health.

Objective: To analyze the epidemiological profile of individuals diagnosed with insomnia in Brazilian Primary Care, in the period 2019-2023.

Methods: A cross-sectional, descriptive study with a quantitative approach, carried out by collecting data from the Sistema de Informação em Saúde para a Atenção Básica (SISAB), including year, region, gender and age group, by ICD (F510) non-organic insomnia and ICD (G470) sleep onset and maintenance disorders.

Results: From 2019 to 2023, 7,983 individuals were diagnosed with insomnia. The data shows an oscillating trend with 1,774 (22.22%) diagnosed in 2019, when it reached its highest percentage, 1,465 (18.35%) in 2020, 1,702 (21.32%) in 2021, 1,388 (17.38%) in 2022 and 1,654 (20.71%) in 2023. The national incidence in these 5 years was 3.93 cases per 100,000 inhabitants. In the regional overview, the Southeast had the highest absolute number with 2,344 diagnoses, followed by the Northeast, South, North and Midwest, numbers that follow the pattern of population distribution. As for gender, 5,280 cases (66.14%) occurred in females and 2,703 (33.85%) in males. As for stage of life, the most affected were adults aged between 20 and 59, with 4,380 diagnosed, followed by the elderly.

Conclusion: Therefore, as sleep is essential for disease prevention, it is necessary to know which factors predispose to insomnia, who the most affected groups are and how to treat them.

ID: 1731

Socioeconomic Inequalities and their Effects on Sleep Patterns: A Cross-Sectional Study

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Keywords
- sleep
- family income
- stress psychological
- NHANES

Introduction: Sleep is a fundamental physiological process in which various physiological systems repair themselves, regulate neurotransmitter homeostasis, modulate feelings of fatigue and eliminate metabolites accumulated during wakefulness, and is essential for regulating physical and mental health. However, today's society imposes increasing pressure for results, leading to exhausting work routines and inadequate sleep habits, especially in low-income individuals. Unfavorable socioeconomic conditions often impose barriers to the adoption of good sleep habits, such as inadequate environments for rest and the need for multiple jobs, intensifying the negative impacts on physical and psychological well-being.

Objective: To evaluate the relationship between family income and irregular sleep duration in adults.

Methods: Cross-sectional study carried out between March 2017 and 2020, using data from the National Health and Nutrition Examination Survey (NHANES). Hours of sleep were assessed based on the question: "How many hours do you usually sleep at night?". Sleep duration was categorized as regular (7-9 hours per night) or irregular (<7 hours and >9 hours per night). Family income was measured by the poverty-income ratio (PIR) and categorized into three levels: low income (PIR <1), middle income (PIR 1-4) and high income (PIR >4). To check the relationship between these variables, a binary logistic regression analysis was carried out, adjusted for age, education and gender. The ethics review board (ERB) approval protocol number is 2018-01.

Results: Among the 4,401 individuals evaluated, the majority had completed or were currently studying at university (62.3%), 47.5% had a medium poverty income index, 51.4% were female, and the average age was 47.2 years (95% CI: 45.9 - 48.6). In addition, 43.5% of the participants had irregular sleep duration. In the multivariate analysis, middle-income individuals were 71% more likely to have irregular sleep (OR 1.71; 95% CI: 1.43 - 2.05), while those with low income were 2.33 times more likely (OR 2.33; 95% CI: 1.80 - 3.02) to have irregular sleep duration, compared to high-income participants.

Conclusion: Individuals with low income are more likely to have inadequate hours of sleep. This sleep irregularity can contribute to the cycle of harmful behaviors and the development of different chronic non-communicable diseases, widening health inequalities.

ID: 1733

Sleep Prediction Using Data from Oximeter, Accelerometer and Snoring from Biologix Sleep Study and Artificial Neural Network

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Keywords
- sleep apnea
- obstructive
- oximetry
- actigraphy
- snoring
- model
- neural network

Introduction: Portable monitoring (PM) is a simplified and validated method for obstructive sleep apnea (OSA) diagnosis. However, PM does not usually detect sleep; the number of events is reported by hours of monitoring rather than hours of sleep. Therefore, the absence of sleep monitoring is a potential source of variability between polysomnography (PSG) and PM.

Objective: To develop and validate an artificial neural network (ANN) algorithm to predict sleep using data from the Biologix system, a new PM device.

Methods: Patients with suspected OSA referred for PSG were studied with Biologix using the Oxistar™, Biologix Sistemas S.A., Brazil. The PSG and Biologix data were time-synchronized. To develop and validate the ANN algorithm for predicting sleep, we used data derived from the Biologix system, including oximeter (arterial oxygen saturation, heart rate), with built-in accelerometer (movement), and smartphone application (snoring). A k-fold cross-validation method (k=10) was applied, ensuring that all sleep studies were included in both training and testing across all iterations. Sensitivity, specificity, and accuracy were calculated to evaluate the performance of the ANN algorithm. To assess the agreement on OSA diagnosis between PSG-apnea-hypopnea index (AHI) and Biologix-oxygen desaturation index (ODI), without and with sleep prediction, Bland-Altman plots were performed.

Results: A total of 268 patients were studied (age: 56 ± 11 years; body mass index: 30.9 ± 4.6 kg/m^2, AHI: 35 ± 30 events/h). The sleep studies underwent 10-fold cross-validation. Each fold consisted of a training set of 90% of the patients (approximately 241 patients, corresponding to 221,639 epochs) and a test set of 10% of the patients (approximately 27 patients, corresponding to 24,627 epochs). The final ANN algorithm exhibited a sensitivity of 91.5%, specificity of 71.0%, and accuracy of 86.1% to detect sleep. Compared to the Biologix-ODI without sleep prediction, the bias (mean difference) between PSG-AHI and Biologix-ODI with sleep prediction decreased significantly (3.40 vs. 1.02 events/h, $p<0.001$).

Conclusion: The ANN model using data from the Biologix system, including oximeter, accelerometer, and snoring, is able to detect sleep with good accuracy.

ID: 1735

Impact of Borderline Personality Disorder on Sleep Quality - Systematic Review

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Keywords
- ► sleep quality
- ► borderline personality disorder
- ► adults

Introduction: Borderline Personality Disorder (BPD) impacts sleep quality. People with BPD often report sleep-related problems, which can aggravate the symptoms of the disorder and negatively affect their quality of life.

Objective: Therefore, the objective of this systematic review was to assess the impact of borderline personality disorder on sleep quality.

Methods: The PRISMA protocol was used as a guide for the review. The descriptors indexed in DeCS/MeSH, "Borderline Personality Disorder" and "Sleep Quality", were used to search the main databases. The inclusion criteria were: studies evaluating sleep quality in patients with BPD.

Results: A total of 226 articles were selected, of which 19 met the eligibility criteria, totaling two thousand ninety-one participants (N=2091). The main results found are: [1] Schredl et al., 2012, compared the polysomnographic results of 27 patients with BPD and 20 healthy individuals, obtaining sleep efficiency (BPD: 87.9% $\pm$ 5.2; Control: 91.1 $\pm$ 3.8), sleep latency (BPD: 18.3min $\pm$ 9.7; Control: 21.8 min $\pm$ 14. 6), time spent in stage N3 (BPWT: 14.0% $\pm$ 9.5; Control: 17.6% $\pm$ 5.1) and subjective results of sleep quality problems before PSG, following the Schlaffragebogen A and B questionnaires score (BPD: 25.3 $\pm$ 7.5; Control: 15.7 $\pm$ 4.5). [2] In 2021, Jenkins et al. studied 96 young people aged 15-25. The group with BPD (n=40) had poorer quality sleep according to the PSQI and Insomnia Severity Index (ISI) questionnaires ($p<0.001$). Using actigraphy showed that people presenting BPD woke up later and had more significant variability in waking and sleeping times, longer total sleep time, greater sleep efficiency, and shorter time awake after sleep onset. [3] Weibel et al., 2017, found that adults with BPD had worse sleep quality than the control group according to the Pittsburgh Sleepiness Questionnaire Index (BPD: 9.41 $\pm$ 4.04; Control: 4.57 $\pm$ 2.69); Insomnia Severity Index (BPD: 15.86 $\pm$ 6.19; Control: 7.52 $\pm$ 5.64); and Epworth Sleepiness Scale (BPD: 11.24 $\pm$ 7.02; Control: 8.09 $\pm$ 4.69).

Conclusion: The results obtained indicate that, when compared to the control group, individuals with borderline personality disorder have greater difficulty in initiating and maintaining sleep, less time in deep sleep, and more significant variability in sleep patterns. In addition, the subjective data shows a generalized perception of poorer sleep quality among patients with borderline personality disorder.

ID: 1736

The Role of the Pro-Inflammatory Cytokine IL-17A in Insomnia in a Sample of Individuals with Vitiligo

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Keywords
- ► sleep
- ► vitiligo
- ► immunology
- ► cytokines
- ► IL-17A

Introduction: The role of IL-17A in insomnia has been minimally explored, especially in individuals with the autoimmune skin disorder vitiligo. This skin disease has a great impact on the quality of life and sleep of the patient, in which insomnia should be investigated. The IL-17A is a pro-inflammatory cytokine, and it has a somnogenic role, which becomes a subject of interest in respect of sleep disorders. Vitiligo and sleep disturbance can have a bidirectional immune pathway, with relevant participation of the immune cytokines with circadian influence, such as IL-17A; and the expression of T helper (Th) responses, particularly Th17 in autoimmune diseases.

Objective: The aim of this study was to investigate the role of IL-17A in a sample of vitiligo compared with controls and associate its levels with the occurrence of insomnia in these individuals.

Methods: The serum levels of IL-17A were analyzed using a plex kit in 30 patients diagnosed with vitiligo and compared with those in 26 healthy controls. All these individuals accessed the Insomnia Severity Index (ISI) to estimate the occurrence of clinical insomnia. Statistical analysis was performed by the Generalized Linear Model.

Results: The serum levels of IL-17A did not differ between groups (vitiligo mean: 3.24; control mean: 3.33; p=0.96). The ISI total score was 9.55 in the vitiligo group (suggesting subthreshold insomnia), and 6.87 in the control group (indicating the absence of clinically relevant insomnia). When the cytokine levels between groups were analyzed with ISI scores, each unitary elevation of IL-17A was related to the increase of ISI score and worse insomnia symptoms.

Conclusion: Although the IL-17A levels were not different between groups, when related to the ISI scores, the increase of this cytokine was associated with worse insomnia in this sample. There is a lack in literature regarding the relationship of this cytokine with insomnia. As a pro-inflammatory cytokine, there is evidence that the higher IL-17A levels can be related tovitiligo activity and worsening of this skin disease. Regarding sleep, some studies have found that higher levels of IL-17A can be linked to sleep disturbances, and sleep disorders, including the severity of obstructive sleep apnea (OSA). The Th17 immune response and IL-17A levels have an important role in the immunological and inflammatory regulation and should be increasingly explored regarding vitiligo and sleep.

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ID: 1737

Managing Sleep-Disorders Breathing in Chiari Malformation Type I: A Case Report

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Keywords
- ► case reports
- ► Chiari malformation type I
- ► sleep disordered breathing

Introduction: Chiari malformation is a congenital condition involving the downward displacement of the cerebellar structures through the foramen magnum, leading to various neurological symptoms. Type I is the most common and is often associated with sleep-disordered breathing (SDB), including both obstructive and central apneas.

Objective: To report a case of an adolescent with Chiari Type I, focusing on his clinical course marked by SDB, treatment, and outcomes.

Methods: We conducted a descriptive, observational case report study by accessing and reviewing medical records with informed consent, ensuring confidentiality. Data were collected on clinical presentation, diagnostic tests, therapeutic interventions, and patient outcomes, supplemented by a literature review for context.

Results: A 17-year-old male with Chiari Type I, diagnosed at age 13, was admitted on January 2, 2024, with worsening neurological symptoms, including imbalance, vertigo, and severe somnolence. His medical history included chronic bronchitis and epilepsy. Initial evaluation revealed severe respiratory acidosis and significant cerebellar tonsillar herniation on imaging. He required intubation and mechanical ventilation due to prolonged apneas. On January 12, 2024, he underwent decompressive craniectomy and tonsillar coagulation. Postoperatively, he experienced persistent apneas, necessitating a tracheostomy and nightly bilevel positive airway pressure (BiPAP) use. A February 19, 2024, polysomnography (PSG) confirmed severe central sleep apnea (apnea-hypopnea index, AHI 40.5 events/h). Further evaluations showed ongoing severe obstructive sleep apnea (AHI 61.2 events/h) with reduced sleep efficiency, necessitating continued specialized respiratory care. Chiari Type I malformation can significantly impact respiratory function, with up to 70% of patients experiencing SDB. Neurosurgical intervention, while often necessary, may not fully resolve SDB, as seen in this case. Persistent post-surgery symptoms may result from incomplete decompression or irreversible brainstem dysfunction. BiPAP therapy can be crucial in managing residual SDB.

Conclusion: Our case report highlights that managing Chiari Type I with severe SDB requires a multidisciplinary approach involving neurosurgeons, pulmonologists, and sleep specialists. Persistent respiratory symptoms following surgery underscore the need for ongoing, individualized care.

ID: 1738

Detection of Oxyhemoglobin Desaturation Events is Overestimated by Traditional Low-Resolution Oximeter in Patients with Obstructive Sleep Apnea

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Keywords

- Sleep apnea
- obstructive
- hypoxia
- pulse oximetry

Introduction: Oxyhemoglobin desaturation events (ODE) are major contributors to the detection and classification of obstructive sleep apnea (OSA). However, variations in pulse oximeter properties, such as resolution, may affect ODE detection and, consequently, the oxygen desaturation index (ODI). We hypothesized that traditional low-resolution pulse oximetry (1%), which rounds decimal points in the readout, overestimates ODE detected by high-resolution pulse oximetry (0.1%).

Objective: To compare the ODI determined by high-resolution pulse oximetry data with the ODI obtained from the same data, mathematically rounded to simulated traditional pulse oximetry.

Methods: Consecutive deidentified diagnostic sleep studies of patients with suspected OSA, recorded between February and June 2023, were extracted from the Biologix database and analyzed. High-resolution pulse oximetry data from the Biologix oximeter (0.1%) was compared with mathematically generated traditional low-resolution pulse oximetry data (1%). ODI differences between high- and traditional low-resolution oximetry were compared using both 3% and 4% oxyhemoglobin desaturation criteria. A confusion matrix and Bland-Altman plot were used to assess the agreement on ODI classifications between high- and traditional low- resolution oximetry.

Results: A total of 9,551 diagnostic sleep studies were analyzed. Compared to the high-resolution oximeter, the traditional low-resolution oximeter overestimated the mean ODI for both 3% (14.3 (6.9–25.3) vs. 21.1 (12.0–34.0)) and 4% (9.1 (3.7–18.0) vs. 13.0 (6.0–23.3)) oxyhemoglobin desaturation criteria ($p<0.0001$ for both comparisons). Traditional low-resolution oximeter misclassified detection or OSA severity in 40% and 31% of the patients using 3% and 4% oxygen desaturation criteria, respectively ($p<0.0001$). This overestimation of ODI was not homogeneous across OSA severities and was amplified among patients with no or with mild forms of OSA. Median accuracy was observed between high- and traditional low-resolution oximetry, considering both 3% and 4% oxygen desaturation criteria (60% and 69%, respectively).

Conclusion: Traditional low-resolution pulse oximetry overestimates the number of ODE detected by the high-resolution pulse oximetry due to the embedded rounding algorithm. Since assignment of respiratory events is influenced by the magnitude of oxyhemoglobin desaturation, traditional low-resolution pulse oximetry may overestimate detection and severity of OSA.

ID: 1739

Association Between Obstructive Sleep Apnea and Cancer Risk: a Systematic Review and Meta-Analysis

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Keywords

- obstructive sleep apnea
- cancer risk
- thyroid cancer
- lung cancer
- colorectal cancer

Introduction: Obstructive sleep apnea (OSA) is characterized by a disorder that leads to obstruction of the airways during sleep, in addition to being related to other health problems including cancer. Studies suggest that recurrence of obstructive sleep apnea has been linked to oxidative stress and changes in hormone levels, which may increase the risk of developing cancer.

Objective: This study aims to test the association between obstructive sleep apnea and the risk of cancer.

Methods: Embase, Cochrane, and PubMed databases were searched for studies that addressed the correlation of obstructive sleep apnea (OSA) with the risk of cancer. A Random-effects model was employed to compute the Hazard Ratios (HR) with 95% Confidence Intervals (CI). Statistical Analyses were performed utilizing ReviewManager (RevMan) 5.4.1.

Results: A total of 11 studies were included, of which 1 was case-control and 10 were cohorts, comprising 11,145,255 patients. The meta-analysis results indicated a higher risk of thyroid cancer (HR 2.27; 95% CI 1.26-4.09; $p = 0.007$; $I^2 = 97\%$), lung cancer (HR 1.28; 95% CI 1.04-1.57: $p = 0.02$; $I^2 = 98\%$) and colorectal cancer (HR 1.68; 95% CI 1.38-2.04; $p < 0.00001$; $I^2 = 44\%$) for patients who do not suffer from OSA. However, there were no significant results related to the risk of prostate cancer (HR 1.43; 95% CI 0.72-2.86; $p = 0.31$; $I^2 = 100\%$), non-Hodgkin's lymphoma (HR 1.15; 95% CI 0.68-1.92; $p = 0.60$; $I^2 = 67\%$), breast cancer (HR 1.36; 95% CI 0.98-1.87; $p = 0.06$; $I^2 = 96\%$) and the overall risk of cancer (HR 1.53; 95% CI 0.78- 3.02; $p = 0.22$; $I^2 = 99\%$) when analyzing individuals who are affected or not with OSA.

Conclusion: In this meta-analysis of 11 studies, obstructive sleep apnea is not associated with overall cancer risk, however, some types did not have significant results to apply. Therefore, there is a need for more studies to investigate the occurrence of some types of cancer in patients with OSA.

ID: 1740

Objective Analysis of Sleep Quality and Efficiency in Individuals with Long Covid: A Cross-Sectional Study

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Keywords

- acute post-COVID-19 syndrome
- actigraphy
- sleep quality

Introduction: Long COVID, described by the persistence of symptoms after 3 months of the acute phase of COVID-19 infection, is related to persistent symptoms such as anxiety, depression, and fatigue. Furthermore, some studies show that there is a growing need to assess the population's sleep health and circadian rhythms, which may be compromised and influence other physiological and cognitive processes.

Objective: To objectively describe the sleep quality and efficiency parameters of individuals with long COVID.

Methods: This is a cross-sectional study, carried out between January 2023 and August 2024. It was approved by the Research Ethics Committee. Individuals aged $\geq$ 18 years and diagnosed with SARS-CoV-2 infection confirmed by RT-PCR were included. Individuals with previous respiratory comorbidities and those who received oxygen supplementation or noninvasive mechanical ventilation after hospitalization for COVID-19 were excluded.

Results: A total of 41 individuals with long COVID were included in the study. Of these, 32 were women (78%) with a mean age of 59.5 ± 2.45 years, while 9 were men (22%) with a mean age of 53.89 ± 5.42 years. The objective measure of sleep measured by seven-day actigraphy showed an overall sleep efficiency of 83% for the individuals, with an average of 7.9 awakenings per night. Regarding the total time in bed, we identified a time >8 h for women, while for men it was 7.6 h (p=0.55). Regarding the total sleep time, 6.65 h for women and 6.75 h for the male group (p=0.89). The measure of sleep efficiency was statistically lower for women (83%) compared to men (83%) with a value of 0.02.

Conclusion: Individuals with long-term COVID-19 have suboptimal sleep efficiency, with an average of 7.9 awakenings per night, highlighting significant changes in sleep quality. Furthermore, although total bed and sleep time did not show significant differences between genders, sleep efficiency was significantly lower for women, indicating a more pronounced impact on sleep quality for this group.

ID: 1741

Effectiveness of Intravenous Infusion of 1000 mg of Ferric Carboxymaltose in Adults with Restless Legs Syndrome

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Keywords

- restless legs syndrome
- ferric carboxymaltose
- iron deficiency

Introduction: Iron deficiency has been linked to the pathophysiology of Restless Legs Syndrome (RLS), and iron supplementation, both oral and intravenous, is a common therapeutic approach. However, the effectiveness of intravenous ferric carboxymaltose in Restless Legs Syndrome remains questionable.

Objective: The objective of this systematic review is to evaluate the effectiveness of 1000 mg of intravenous ferric carboxymaltose in patients presenting Restless Legs Syndrome.

Methods: This systematic review followed the guidelines of the PRISMA 2020 Protocol. The bibliographic search was based on the following databases: PubMed, Embase, and Web of Science. Articles evaluating the effectiveness of intravenous infusion of 1000 mg of ferric carboxymaltose in adults with RLS were included. The study's main outcome is to evaluate the effectiveness of the treatment on RLS symptoms.

Results: Of the 536 studies found in the electronic databases, 227 were duplicates, resulting in 309 articles. Of these, 14 were included in the systematic review. The main results are: (1) In the study by Trenkwalder et al. which included 110 patients, it was observed that treatment with ferric carboxymaltose (FCM) showed a non-significant improvement over placebo regarding the International Restless

Legs Syndrome Severity (IRLSS) scale score at week 4; however, it reached significance at week 12, with a treatment difference of -4.66 [95% CI, -8.59 to -0.73]; $p = 0.021$. (2) Another study by Mancher et al. with 176 participants showed that iron supplementation significantly improved the severity of symptoms related to RLS, fatigue, and sleep quality ($p < 0.001$) in iron-deficient blood donors.(3) Meanwhile, Cho et al., in a study involving 64 participants, investigated the effect of ferric carboxymaltose and observed significantly greater improvements compared to baseline in IRLSS and visual analog scale (VAS) scores at week 6 compared to the placebo group (IRLSS: -11.9 ± 8.04 vs. -7.88 ± 5.89, $p = 0.03$; VAS: -40.6 ± 22.7 vs. -21.3 ± 20.0, $p = 0.001$).

Conclusion: This study indicates that intravenous infusion of 1000 mg of ferric carboxymaltose in individuals with restless legs syndrome improves clinical outcomes. However, further large-scale studies are required to determine subgroups of patients who may benefit most from ferric carboxymaltose treatment for restless legs syndrome.

ID: 1742

Aneurysm Prognosis in Patients with Obstructive Sleep Apnea – Systematic Review

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Keywords
- obstructive sleep apnea
- aneurysm
- prognosis

Introduction: Obstructive Sleep Apnea (OSA) consists of recurrent episodes involving partial or total obstruction of the upper airways during sleep. This respiratory disorder has been associated with the development of several chronic diseases, such as systemic and pulmonary arterial hypertension, coronary artery disease, stroke, and type 2 diabetes mellitus. Furthermore, due to the systemic repercussions of OSA, especially on cardiovascular health, studies suggest that OSA may contribute to the occurrence and/or worse prognosis of aneurysms. However, the association between OSA and aneurysms is still controversial.

Objective: To evaluate aneurysm prognosis in patients with obstructive sleep apnea.

Methods: This systematic review meets the PRISMA 2020 protocol. The inclusion criteria were studies evaluating OSA in patients with aneurysms. The exclusion criteria were congress abstracts; patients with genetic diseases predisposing to aneurysm formation; or patients with acute aortic syndrome.

Results: A total of 510 articles were selected, of which 9 were selected to form the systematic review. The main results were: [1] Jung et al., 2023, evaluated 564 patients who underwent polysomnography and cerebral magnetic resonance angiography. The prevalence of intracranial aneurysms was observed in 59 patients (10.46%) and OSA ($AHI \geq 5$) in 412 participants (73%). Intracranial aneurysms were more frequent (12.1% vs. 5.9%; p=0.031) in individuals with OSA compared to the others. [2] In the study by Bir et al., 2017, 283 patients with intracerebral aneurysms underwent polysomnography. Of these, 45 (16%) had a positive diagnosis for OSA and 238 (84%) were negative. The prevalence of ruptured aneurysms in patients with OSA was higher than in those without (60.0% vs. 46.6%, p=0.03) and the risk of vasospasm in aneurysms was higher in OSA compared to controls (30% vs. 18%, p=0.03). [3] Saruhara et al.,2012, conducted a sleep study involving 97 patients using a portable respiratory monitor. Participants with abdominal and thoracic aortic aneurysms had an AHI of 17.8 ± 12.1 ($P<0.05$) and 16.3 ± 12.1, respectively, while the control group had an AHI of 8.8 ± 5.5.

Conclusion: A higher prevalence of OSA was found in patients with aneurysms when compared to controls. In addition, OSA is associated with a worse prognosis in patients presenting with aneurysms. However, further studies are essential for more robust conclusions.

ID: 1743

Effects of Meditation on Sleep Quality of Medical Students

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Keywords
- meditation
- mindfulness
- sleep
- medical students

Introduction: Sleep plays a fundamental biological role in memory consolidation, normalization of endocrine functions, thermoregulation, conservation and restoration of energy, and restoration of brain energy metabolism. Medical students are a group susceptible to sleep disorders, due to their full-time curricular load, extracurricular activities and the high pressure and stress, with high performance requirements and time spent studying. Meditation has an impact on the mental health of university students, being related to the reduction of symptoms of depression and anxiety, prevention and reduction of stress and fatigue, good cognitive performance, improvement in sleep, attention, state of consciousness, mood and empathy.

Objective: The aim of this study was to evaluate the effects of an online mindfulness-based meditation program on sleep quality in medical students from the cities of Passo Fundo/RS and Chapecó/SC.

Methods: An interventional study was developed, involving 22 participants who underwent an 8-week online mindfulness-based meditation program (1 weekly online meeting of approximately 1 hour in duration). The effects of the intervention were evaluated at the beginning, during (week 5), and after the program (weeks 9 and 17), through the online application of the PSQI (Pittsburgh Quality Sleep Index)

Results: Of the students who underwent the mindfulness-based meditation program, the median of age was 22 years, and most were female (51,5%) and attending the basic cycle. The PSQI score was high at the beginning of the study (8,14), indicating a poor quality of sleep, but showed a reduction in values during and after the intervention, with final indices indicating good sleep quality (week 9), represented by a score <5 points (4.76, p=0.03), with a slight worsening of the scores at the 2-month follow-up (week 17), but maintaining statistical significance (5.06, p=0.03) compared to baseline.

Conclusion: An online mindfulness-based meditation program in medical students improved sleep quality in this population, with maintenance of the results 2 months later compared to the beginning of the study. Meditation can improve the sleep quality of future doctors, becoming a device for the insertion of new forms of self-care for medical students and perhaps in the health area in general.

ID: 1744

Post-Stroke Sleep Disorders

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Keywords
- sleep assessment
- apnea
- stroke
- actigraphy

Introduction: Stroke is rare in young patients, making it essential to investigate factors that may justify its occurrence, including those related to apparently normal sleep patterns, since young people tend to pay less attention to sleep care.

Objective: Assessment of sleep patterns with the aim of identifying possible pre-stroke clinical changes, such as arrhythmias, obstructive apneas, and changes in the coagulation cascade, which may directly influence the patient's nighttime rest.

Methods: A 24-year-old male patient presented with rhyme deviation, cognitive and speech changes on 12/02/2023, after an exhausting day of work and a family argument. His family members referred him to the emergency room, where he remained under observation for approximately nine days. His medical history included heart surgery in 2016 to correct an anomalous communication between the heart chambers. During rehabilitation, their Basic Human Needs were assessed, including sleep assessment using the Epworth Daytime Sleepiness Scale (EDS), the Pittsburgh Sleep Quality Scale, and monitoring with an actigraphy watch (ActTrust2™, Condor Instruments, Brazil) to analyze sleep rhythm and quantitative data. Then, guidance on "Sleep Hygiene" was provided, with daily monitoring by the nursing team, aiming to improve sleep patterns and contribute to their motor and physical rehabilitation.

Results: The Epworth Daytime Sleepiness (EDS) (10/24) and Pittsburgh Sleep Quality (5/21) scales did not indicate significant sleep disorders in the initial assessment, but suggested the presence of moderate daytime sleepiness. The actigraphy analysis, performed after the implementation of the "Sleep Hygiene" practices, revealed a regular sleep pattern, characterized by the absence of naps during the day and an average total sleep time (TTS) of 8 hours. The guidance for sleep hygiene included fundamental strategies, such as maintaining a consistent sleep routine, going to bed and waking up at the same time every day, which contributes to the regulation of the circadian cycle.

Conclusion: Although actigraphy data demonstrated high sleep efficiency, with an average of 90%, the patient still reported the sensation of not having effective rest. This discrepancy may be related to perceptual changes common in post-stroke patients. In addition, actigraphy revealed significant movements during sleep, suggesting the need for further investigations, such as polysomnography, to assess the presence of possible apnea episodes.

ID: 1745

Joint Associations of Excessive Daytime Sleepiness and Smartphone Screen Time with Cellular Health in Adolescents

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Keywords
- sleepiness
- sedentary behavior
- body composition
- phase angle
- adolescence

Introduction: The use of smartphones has dramatically increased among adolescents, leading to significantly longer screen time, particularly at night. Previous studies suggest that excessive use of electronic devices is associated with sleep disturbances, such as daytime sleepiness, which can adversely affect various aspects of health, including immune function, hormonal balance, and cognitive capacity. However, the combined interaction between smartphone screen time and daytime sleepiness, and its potential impact on cellular health, remains underexplored.

Objective: To analyze the joint associations of excessive daytime sleepiness and smartphone screen time (ST) with cellular health in adolescents.

Methods: This cross-sectional study included 178 school adolescents (aged 16.5 ± 1.2 years; 72.5% girls) from a federal public school in Paraíba, Brazil. Daytime sleepiness was assessed using the Pediatric Daytime Sleepiness Scale and categorized as "low risk for daytime sleepiness" (<15 points) or "excessive daytime sleepiness" ($\geq$ 15 points). Weekly ST was measured using the "digital well-being" function of smartphones and categorized by the median as low (<7 h/day) or high (≥ 7 h/day). Participants were divided into four groups: "low risk for daytime sleepiness + low ST", "low risk for daytime sleepiness + high ST", "excessive daytime sleepiness + low ST", and "excessive daytime sleepiness + high ST". Cellular health was assessed by phase angle (PhA) using electrical bioimpedance (IPGDx brand, Analyzer model). A generalized multiple gamma model was used to estimate the coefficients (β) and 95% confidence intervals (CI) of PhA between groups, using the "excessive daytime sleepiness + high ST" group as a reference, with adjustments for age, sex, economic classification, body mass index, pubertal stage, and moderate to vigorous physical activity.

Results: The "low risk for daytime sleepiness + low ST" group showed higher PhA values compared to the reference group ($\beta = 0.324$ degrees; 95% CI 0.617, 4.733; $p = 0.030$). No significant differences were observed in the other groups compared to the reference group ($p > 0.05$).

Conclusion: The results suggest that the combination of low risk for daytime sleepiness with low smartphone screen time is associated with better cellular health in adolescents.

ID: 1746

Effects of an 8-Hour Restricted Eating Intervention on Sleep and Body Composition in Obese Adults: a Pilot Study

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Keywords
- obesity
- time restricted eating
- sleep
- body composition

Introduction: Time Restricted Eating (TRE) is a type of intermittent fasting considered a viable alternative for obesity treatment. Its effects on body composition and sleep quality remain controversial.

Objective: The aim of this study was to assess the effects of an 8-hour TRA intervention on weight loss, body composition and sleep in obese adults.

Methods: A randomized clinical trial was carried out, approved by the Human Research Ethics Committee at the Federal University of Lavras (6.207.765). Participants between 30 and 65 years, with a Body Mass Index (BMI) equal or greater than 30kg/m^2, of both sexes and an eating window between 11 and 14 hours were included. 30 participants were randomized into a 12-week, 8-hour TRE intervention group (TRE- meals between 11am and 7pm) or control group (CON; eating window $>$ 10 hours and nutritional guidance). Body weight, height, waist and neck circumference and body composition (electrical bioimpedance) were assessed. Sleep quality was assessed using the Biologix® digital finger oximeter and the Pittsburgh Sleep Quality Index (PSQI) and the somnolence was assessed by the Epworth sleepiness scale (ESS). Adherence to the intervention was measured using an adherence diary. Analysis of variance was applied to assess the differences between the groups.

Results: 20 participants completed the study (9 TRE and 11 CON). The mean age of the sample was 43.75 ± 8.74 years, being 50% males. A difference was observed for weight ($105{,}2 \pm 13{,}97$ to $101{,}65 \pm 12{,}85$kg, p= 0.022), BMI ($35{,}73 \pm 3{,}25$ to $34{,}53 \pm 2{,}74$ kg/m2; p= 0.023), waist circumference ($117{,}42 \pm 11{,}97$ to $112{,}26 \pm 11{,}68$cm, p=0,006) only in the TRE group. There was no difference between the groups for the sleep variables. Adherence to the intervention in the 8-hour TRA group was 65.81 ± 25.85%, equivalent to adherence 4.6 days a week.

Conclusion: A four days a week of 8 hours restricting eating for three months resulted in reduction in body weight and improvements in anthropometric parameters in obese adults, without differences in sleep parameters and not in relation to the control group.

ID: 1747

Restless Legs Syndrome in Iron Deficiency Anemia - The Role of Intravenous Iron - Systematic Review

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Keywords
- restless legs syndrome
- intravenous iron
- anemia

Introduction: Restless legs syndrome (RLS), otherwise known as Willis-Ekbom disease, is a sleep disorder marked by an irresistible need to move the legs, especially at night, associated with low serum and brain iron levels. In this sense, the prevalence of RLS is 6 times higher in individuals with iron deficiency anemia, in addition to presenting a more severe disorder, which affects 31.5% of anemic individuals compared to 5% of the general population.

Objective: To evaluate the efficacy of intravenous iron in the treatment of Restless Legs Syndrome in patients with Iron Deficiency Anemia (IDA).

Methods: A systematic review was carried out in accordance with the PRISMA 2020 protocol. Inclusion criteria: studies that evaluated the efficacy of using intravenous ferric carboxymaltose in patients with RLS and anemia. Exclusion criteria: studies involving pregnant patients; end-stage renal disease; periodic limb movement

Results: Three hundred and nine articles were selected using the search strategy, six of which were included in this study, totaling a population of 217 patients. The main results found were: 1. Bae et al. randomized 29 patients with IDA to compare the therapeutic response when using Iron Carboxymaltose or Placebo in patients with RLS using the International Restless Legs Scale (IRLS). Patients in the intervention group had reduced symptoms of RLS compared to the placebo group (-13.47 ± 7.38 versus $+1.36 \pm 3.59$; $p<0.0001$). 2. Short et al. compared intravenous and oral iron administration among 94 people. The authors found that both groups reduced the IRLS score by -7.9 ± 8.7 and -10.1 ± 10.4, respectively. 3. Mehmood et al. evaluated 42 patients with iron deficiency using the Cambridge-Hopkins Restless Legs Syndrome diagnostic questionnaire (CH-RLSq). Of these, 32 (76%) responded to intravenous (IV) iron treatment and 10 (24%) did not respond. The reduction in RLS symptoms in the group that responded to IV iron therapy was more significant than in the group that did not respond.

Conclusion: This systematic review showed the efficacy of intravenous iron in the treatment of Restless Legs Syndrome in patients with IDA. The results of the studies analyzed indicate a reduction in RLS symptoms after intravenous iron administration, compared to placebo or oral treatment. These findings reinforce the hypothesis that iron deficiency is an important causal factor in RLS and reinforce the relevance of iron supplementation as a first-line treatment for this condition.

ID: 1748

Sleep Quality of Healthcare Professionals During the COVID-19 Pandemic in the Americas: a Qualitative Systematic Review and Meta-Aggregation

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Keywords
- COVID-19
- sleep quality
- healthcare workers
- qualitative research

► systematic review

Introduction: The COVID-19 pandemic increased physical and mental stress and altered the work processes of healthcare professionals, impacting their sleep quality.

Objective: To identify and synthesize the perceptions and experiences of healthcare professionals, including nurses, doctors, and residents in the Americas, regarding sleep quality during the COVID-19 pandemic.

Methods: The JBI methodology was used for qualitative systematic review and meta-aggregation of qualitative data. Studies published between 2020 and 2023 were included. Data were extracted from databases: BIREME, PubMed, CINAHL, Embase, Scopus, Cochrane Library, Web of Science, Google Scholar, Cybertesis, and Canadian Dissertation and Theses.

Results: Four studies analyzed 72 healthcare professionals, all from nursing. No qualitative studies were identified for other professional categories. Two main themes emerged: 1) the pandemic caused significant physical and mental health problems, which were either triggered by or expressed in sleep disorders; 2) professionals identified strategies to mitigate difficulties and challenges in the work environment.

Conclusion: The pandemic had direct repercussions on the health of professionals, highlighting the need for support programs and interventions to improve sleep quality. It is recommended to include crisis programs for healthcare professionals in institutions and as public policies.

ID: 1749

Evaluation of Sleep Quality in Users of a Primary Health Care Unit in São Carlos-SP

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Keywords

- primary care
- sleep quality
- physical exercise

Introduction: Sleep is essential for maintaining human physical and psychological health, and its deprivation can lead to a loss of quality of life. This study was carried out as part of Sleep Week 2024, an annual event promoted by a consortium of organizations - the Brazilian Sleep Association (ABSONO), the Brazilian Association of Sleep Medicine (ABMS) and the Brazilian Association of Sleep Dentistry (ABROS) - which aims to raise awareness and access sleep data from the campaign's target populations. In our case, the campaign targeted attendees of a primary healthcare unit in the city of São Carlos-SP.

Objective: To assess the quality of sleep, as well as to address the issue of sleep health with people attending a Family Health Unit located on the outskirts of the city of São Carlos-SP.

Methods: This was a cross-sectional, descriptive and correlational study with a quantitative and qualitative approach. All participants signed an informed consent form and answered questionnaires designed by the researchers. The sample size was 40, defined as representative throughout the application, and made up a probabilistic sample. The questionnaire included basic questions to identify and assess comorbidities, as well as questions from validated questionnaires such as the STOP-BANG scale, the Insomnia Severity Index (IGI) and the Epworth Sleepiness Questionnaire. Descriptive statistics were analyzed using IBM SPSS 25.0.0.

Results: Of the 40 people who answered the survey, 31 were women and only 9 were men. The ages of the participants ranged from 21 to 71 years old. Of these, 45% rated their sleep with a score equal to or greater than 7, 20% between 5 and 6 and 35% between 1 and 4. The population average was 6.05, 6.23 among women and 5.44 among men, a difference of 0.79 points. We found that 19 people (47.5%) had insomnia and 3 had excessive daytime sleepiness.

Conclusion: This research contributes to building a sleep health profile of the target population and also encourages these users to read and critically reflect on their reality. This is a fundamental step towards promoting sleep health and building a health education process centered on comprehensive care. Given the 35% prevalence of complaints of poor sleep quality, with scores ranging from 1 to 4, it is important to emphasize the importance of preparing primary care doctors to deal with such complaints, as well as providing guidance on sleep hygiene and measures to improve the quality of sleep of these patients.

ID: 1751

Prevalence of "Sleep Divorce" and Potential Causes in Adults: Preliminary Data from the ELSA-Brazil Study

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Keywords

- sleep quality
- sleep
- obstructive sleep apnea
- partner

Introduction: Recent data suggest that approximately one third of adult Americans do not (frequently or routinely) sleep in the same bed of their partners (a condition named Sleep Divorce). However, the potential causes of this common behavior are poorly explored.

Objective: To assess the frequency of "Sleep Divorce" and potential causes in the ELSA-Brazil study.

Methods: In this preliminary analysis, we recruited consecutive participants from the ELSA-Brazil study to complete a questionnaire addressing some of their sleep habits as well as their partner: 1) Are you living in a union/married or have a partner?; 2) Do you feel that your partner impairs the quality of your sleep?; 3) Do you usually sleep in the same bed as your partner?; 4) if not, what are the reasons for not sleeping in the same bed?; 5) Do you know if your partner has sleep apnea?; 6) If so, is your partner undergoing treatment for sleep apnea?; 7) Conversely, do you impair the quality of your partner's sleep?; 8) If so, what is the cause?

Results: So far, we evaluated 232 participants (age 62±7 years; 48.1% men). The prevalence of Sleep Divorce was 21.5% (partial sleep divorce: 15.1%, every night sleep divorce: 6.6%). Sleep divorce was more common in women than men

(27 versus 17%). 70.3% of them attributed that the sleep Divorce is due to the presence or sleep apnea suspicious (loud snoring) in their partners. The other reasons that contributed to sleep divorce were use of electronic devices such as cellphones, tablets and television (21.9%); body movements in the bed (10.9%); and other reasons (10.9%). 17% reported more than one reason for not sleeping in the same bed. Conversely, 51.8% of the participants reported that they impaired the quality of their partners' sleep.

Conclusion: Sleep divorce is a common condition in adults. Although suspicious or confirmed diagnosis of sleep apnea represents the majority of reasons for not sleeping in the same bed, it is not uncommon to find multiple causes.

ID: 1752

Drugs and Exercise as Treatment of Restless Legs Syndrome in an Animal Model with Iron Deficiency

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Keywords

- restless legs syndrome
- exercise
- treatment

Introduction: Restless legs syndrome (RLS) is a common sleep-related movement disorder. An uncomfortable and overwhelming need characterizes RLS or the urge to move the legs with an unpleasant and sometimes painful sensation. The cause of RLS is not fully understood, but evidence suggests that it is related to low brain iron levels and dopamine regulation. In patients with RLS, positive physiological effects linked to performing exercise were identified as the improvement in the sleep pattern.

Objective: The aim was to verify the effect of different drugs (dopamine (DOPA); opioid (OPI); α2δ gabapentin ligand (GABA)) and exercise (EXE) in the treatment of RLS in an animal model with iron deficiency.

Methods: The study was approved by the Ethics Committee on Animal (5561-1/2020). Wistar rats were randomly distributed into five groups: Control (CTRL); Iron Deficiency (ID); and treatments with DOPA; OPI; GABA and EXE. The experimental design induced the animals to RLS through an iron-restricted diet from the 30th day of life. With 80 days of life, the interventions were started for 4 weeks, and the open field behavioral test was performed before and after the beginning of the interventions (one each week). After euthanasia and tissue collection (striatum and spinal cord), qPCR and expression of proteins referring to PTPRD, DAT, TH, and D2. Molecular data analysis occurred by one-way or two-way ANOVA. Post hoc by Duncan or Bonferroni was used. $P<0.05$.

Results: The gene expression of the striatum in the DOPA group was different in the targets D2, DAT, and TH, compared to the treated and ID. In Western Blotting, the marrow showed a difference in D2 protein for GABA and DOPA treatments compared to ID. The ambulation behavior differed between CTRL, ID, and OPI. The DOPA treatment presented lower total ambulation compared to the OPI. EXE treatment reduces ambulation and improves symptoms after 28 days ($p<0,05$). The locomotor parameter improvement was observed in the DOPA. Grooming behavior was reduced in the before and after comparison in the EXE. The DOPA group showed increased striatal gene expression in DAT, TH, and D2 targets. All groups except the ID control showed high TH expression. The EXE group showed DAT expression close to the healthy control group and DOPA.

Conclusion: The results indicated that the drugs DOPA and GABA had a better effect on the treatment. Exercise can be a significant treatment or adjunct in controlling and improving SPI symptoms.

ID: 1753

Efficacy of Intravenous Iron in the Treatment of Restless Legs Syndrome in Children - a Systematic Review

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Keywords

- restless legs syndrome
- child
- iron

Introduction: Restless Legs Syndrome (RLS) is characterized by the need to move the legs and uncomfortable sensations. Iron deficiency seems to play a central role in the pathophysiology of RLS. Oral iron supplementation is a common approach, but many pediatric patients face challenges. Intravenous iron offers a more effective replenishment of iron stores, potentially relieving symptoms more efficiently.

Objective: To evaluate the efficacy of intravenous iron in the treatment of RLS in children

Methods: This systematic review used the following descriptors: ("Ferric carboxymaltose" OR "Iron carboxymaltose" OR "Intravenous iron") AND "Restless Legs Syndrome". Inclusion criteria: studies involving children with RLS and the use of intravenous iron.

Results: 4 articles were selected out of 309. The total sample comprised 104 children (0-19 years). Grim et al. (2013) evaluated 16 children with RLS or periodic limb movement disorder (PLMD) who received iron sucrose. Of these, 87.5% had previously received oral iron, with insufficient benefits. After iron infusion, serum ferritin rose from 16.4+6.6 ng/ml to 45.7+22.4 ng/ml (n=14; [95%CI, 17.2-41.3]; $P< .0001$). Sleep improved in 62.5% of participants. Ingram et al. (2022) analyzed 30 children with RLS and intravenous iron use. Of these, 10% had at least one side effect (p-value =0.963). At follow-up (n= 26), 84.6% of the children reported an improvement in at least one symptom of RLS (p-value =0.180). In DelRosso et al. (2021), 39 children received ferric carboxymaltose. The mean score on the Clinical Global Impression-Improvement (CGI-I) scale was 1.3, where 1 indicates "very much improved" and 2, "much improved". There were reports of improvements in nocturnal sleep, a reduction in headaches and daytime sleepiness, and a cessation of nocturnal awakenings. There was also an increase in ferritin levels (from 14.6 μg/L to 112.4 μg/L). DelRosso et al. (2022) analyzed 19 children and their responses after using ferric carboxymaltose. The mean CGI-I score was 1, and 84.2% of the children reported improvement, such as going to sleep earlier, cessation of nocturnal awakenings, and improvement in restlessness. The evolution of the iron indices before and after showed an increase in ferritin (10mg/L vs. 68 mg/L), iron, and transferrin saturation.

Conclusion: Intravenous iron has been shown to be a superior alternative to oral iron in controlling the symptoms of RLS, with fewer side effects and an improvement in symptoms.

ID: 1754

Effects of Transcranial Electrical Stimulation in Patients with Insomnia: A Systematic Review and Meta-Analysis

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Keywords
- insomnia
- transcranial direct current stimulation
- transcranial alternating current stimulation
- transcranial electrical stimulation
- randomized controlled trials

Introduction: Insomnia is a common sleep disorder with significant impact on overall health and well-being. Given the limitations of current treatment options (i.e, behavioral interventions), transcranial electrical stimulation (TES) has emerged as a potential alternative approach, which includes transcranial direct (tDCS) and alternating current stimulation (tACS).

Objective: Our systematic review and meta-analysis evaluates the effectiveness of TES in patients with insomnia, given the lack of consensus on its efficacy.

Methods: We systematically searched Pubmed, Embase and Cochrane databases from inception to July 2024, identifying randomized controlled trials (RCTs) that compared TES with sham stimulation, with a follow-up duration of at least 4 weeks. We performed statistical analyses using R Studio (version 2023.12.1 Build 402). Mean differences for continuous outcomes were calculated, with 95% confidence intervals (CIs).

Results: We included 3 RCTs involving a total of 272 patients with insomnia, among whom 138 (50.7%) received TES. All studies comprised a 4-week intervention period, two of them extending the evaluation to 8 weeks. While two studies used tACS, one RCT evaluated the effects of tDCs. TES significantly improved the overall Pittsburgh Sleep Quality Index (PSQI) score (MD -1.79; 95% CI -3.11, -0.47; $p < 0.01$) and sleep efficiency component (MD -0.78; 95% CI -1.29, -0.27; $p < 0{,}01$). There was a trend to improve sleep quality component score with a non-significant difference in the intervention (MD -0.41; 95% CI -0.85, 0.03; $p = 0{,}07$). In polysomnographic parameters, there was an improvement of total sleep time (TST) (MD 0.44 hour; 95% CI 0.19, 0.69; $p < 0.01$), while there was no significant improvement in sleep onset latency (MD -11.96 minutes; 95% CI -31.90, 7.98; $p = 0.24$).

Conclusion: Our findings provide preliminary evidence suggesting that TES could be an effective alternative for mitigating sleep disturbances in patients with insomnia. Nonetheless, the limited number of studies and small sample sizes underscore the necessity for future RCTs to explore this hypothesis with greater statistical power, enabling a more definitive assessment of TES efficacy.

ID: 1755

Eating Window Period of Obstructive Sleep Patients

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Keywords
- food window
- obstructive sleep apnoea
- sleep
- obesity
- body composition

Introduction: A prolonged eating window has been associated with a higher risk of obesity and worse metabolic outcomes.

Objective: The aim of this study was to identify the relationship between the eating window, anthropometry, body composition and sleep quality of obstructive sleep apnoea patients.

Methods: This is a cross-sectional study with data obtained from previous studies. It included 72 individuals diagnosed with obstructive sleep apnoea, overweight and aged between 30 and 65. All studies were approved by the Research Ethics Committee of the Federal University of Lavras (protocol 4.383.855) and Federal University of São Paulo (protocol 1637/11). The participants' dietary window was obtained through 3 non-consecutive dietary recalls, including one weekend day. The anthropometric measurements obtained were weight, height and waist circumference, and body composition (by bioelectrical bioimpedance). Sleep measurements were obtained using the Pittsburgh Sleep Quality Index (PSQI) and the midpoint of sleep was obtained by averaging the time of going to sleep and the time of waking up. Analysis of variance was applied to assess the differences between the groups based on eating duration (long: >13 hours, short: <11 hours or standard: 11-13 hours), $p<0.05$ was used for significance differences.

Results: The average age was 42.2± 9.77 years, with 79.17% of males and a BMI of 34.8 ± 4.38 Kg/m^2. Of the 72 individuals, 25 (34.72%) had a long eating window, 38 (52.78%) had a standard eating window and only 9 (12.5%) had a short eating window. No differences were found in anthropometric and body composition parameters between the groups. The standard eating window group had the higher sleep duration (7.5 ± 1.34hs) higher than long (6.12±1hs; p=0.01) and short eating window groups (5.2h±1.39; p=0.001). A difference was also found in the midpoint of sleep between the standard (2.53±1.14hs) and short food window group (3.67±1.44; p=0.024). There were not any significant differences between eating window groups and body weight, anthropometric and body composition measurements.

Conclusion: In individuals diagnosed with obstructive sleep apnoea and obesity, the eating window was related to total sleep time and the midpoint of sleep, but not with anthropometric and body composition variables.

ID: 1757

Sleep Disorders and Use of Sleep-Inducing Medications in the Elderly: An Analysis of the Brazilian Population
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Keywords
- sleep-inducing medications
- elderly
- insomnia

Introduction: The elderly population is continuously growing, with projections indicating that it will reach around 2 billion individuals by 2050. Among the health issues affecting this age group, insomnia is a prevalent condition. Studies show that approximately 50% of adults experience sleep-related disorders, with the prevalence of insomnia among the elderly ranging from 30% to 48%, compared to the general average of 12% to 20%. Insomnia is commonly characterized by dissatisfaction with sleep.

Objective: This study aims to analyze the prevalence of sleep problems and the use of sleep-inducing medications among Brazilian elderly, considering variables such as race, gender, and age group.

Methods: The descriptive research was conducted using data from the National Health Survey – 2019 (PNS), carried out by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health.

Results: The prevalence of sleep disorders in the Brazilian population was estimated at 35.1%. Regarding the use of sleep-inducing medications, the prevalence was 8.5%. According to the analysis of 94,114 respondents, a higher incidence of sleep problems was observed among women (41.84%), individuals self-identified as Indigenous (39.95%), and those aged 60 years or older (42.05%). Regarding the use of sleep-inducing medications, the prevalence among men was 5.21%, while among women it was 11.51%. By race, about 10.37% of whites, 8.68% of Indigenous individuals, and 7.18% of Black individuals reported using these medications. Considering age groups, the use of sleep-inducing medications was reported by 3.03% of individuals aged 15 to 29 years, 8.7% of those aged 30 to 59 years, and 15.27% of those aged 60 years or older. Thus, the prevalence of sleep-inducing medication use was higher among women (11.51%), whites (10.37%), and the elderly (15.27%).

Conclusion: The high prevalence of sleep-inducing medication use among the elderly, particularly among women, may indicate both the burden of responsibilities they face and a tendency to seek treatment to improve sleep quality. However, prolonged use of these medications may exacerbate sleep disorders. In this context, it is imperative to adopt a more careful approach to managing insomnia in the elderly, prioritizing non-pharmacological interventions. These measures are essential for promoting healthier sleep and improving the quality of life for the elderly.

ID: 1758

Trauma-Associated Sleep Disorder: a New Parasomnia Characterized by REM Without Atonia
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Keywords
- RBD
- PTSD
- trauma-associated sleep disorder

Introduction: A 51-year-old male patient, with no prior history of illnesses, presented with significant executive dysfunction following a series of traumatic events in his professional environment, including witnessing fatal assaults. Subsequently, he began exhibiting symptoms indicative of a severe depressive episode and abnormal sleep-related behaviors. These behaviors were characterized by combative actions during sleep (frequently attacking his wife), vivid dreams, vocalizations during sleep, and diffuse sweating. Medical and laboratory investigations revealed no findings that could explain his condition. After evaluation by the Sleep Medicine Unit, the patient underwent video-polysomnography, which revealed REM sleep without atonia and violent behaviors during sleep (punching, kicking, shouting). He began pharmacological treatment, and his symptoms have since remitted under the use of 10 mg melatonin and 2 mg clonazepam.

Objective: To discuss different phenotypes of clinical presentations of REM sleep behavior disorder.

Methods: A literature review was conducted by searching the PubMed and Lilacs databases for articles published in the last 20 years.

Results: The literature review indicates that Trauma-Associated Sleep Disorder (TASD) has been recognized as a nosological entity in publications since the early 2000s, with diagnostic criteria proposed in 2024. For a diagnosis to be established, a clear temporal relationship between the stressful episode (trauma) and the onset of sleep-related symptoms, such as atypical vocalizations, motor alterations during sleep (combative behaviors), and associated autonomic symptoms like tachycardia, tachypnea or diaphoresis, is essential. It is known that repeated traumas cause an increase in norepinephrine turnover, leading to its depletion in the locus coeruleus (LC), which exerts an inhibitory effect on the lateral dorsal tegmentum (LDT). It is hypothesized that LC dysfunction may underlie both disorders.

Conclusion: This case report highlights the importance of expanding the diagnostic reasoning when faced with behavioral alterations during sleep that occur at an early age, without association with other symptoms, and that have an intrinsic temporal relationship with stressors such as trauma. The description of Trauma-Associated Sleep Disorder is relatively recent, and knowledge of this entity may lead to a more targeted therapeutic approach.

ID: 1759

Kabuki Syndrome: Clinical Evaluation, Polysomnographic and Positive Pressure Titration with CPAP
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Keywords
- ► Kabuki syndrome
- ► obstructive sleep apnea
- ► polysomnography

Introduction: Kabuki syndrome (KS) is a rare congenital craniofacial disorder caused by mutations in the KMT2D and KDM6A genes, affecting approximately 1 in 86,000 individuals. It is characterized by craniofacial abnormalities, such as cleft lip/palate, retrognathia, and, in some cases, heart defects. Although literature is limited, it is recognized that KS individuals often experience obstructive sleep apnea (OSA) due to reduced airway dimensions.

Objective: To evaluate, diagnose, and treat OSA in an adult patient with KS.

Methods: A 39-year-old adult with KS was assessed. The patient reported frequent nocturnal awakenings, loud snoring and observed apneas. Additional clinical features included bilateral complete cleft lip and palate, visual impairment, compensated diabetes, schizophrenia, micrognathia, retrognathia, and mild intellectual disability. Diagnostic evaluations included: Berlin Questionnaire (BQ) for OSA risk assessment; Anthropometric measurements: body mass index (BMI), neck (NC) and waist circumference (WC); Type III (APNEA LINK®); Type IV (BIOLOGIX®).

Results: The BQ indicated a high risk for OSA. Anthropometric measurements showed grade II obesity (NC = 48 cm (ref: <40 cm), WC = 118 cm (ref: <94 cm), and BMI = 37.3 kg/m^2 (ref: <25). Type III PSG results (APNEA LINK) revealed: Apnea-Hypopnea Index (AHI) = 37.5 ev/h, minSatO_2 = 85%, and oxygen desaturation index (ODI) = 30 ev/h. Type IV polygraphy results (BIOLOGIX®) showed ODI = 45 ev/h and minSatO_2 = 79%. CPAP therapy was recommended for OSA treatment. A 30-day adherence report showed 100% compliance and 97% of nights having usage $\geq$4 hours. The CPAP device settings were min pressure = 6 cmH2O, max pressure = 14 cmH2O, ERP (Expiratory Reserve Pressure) level = 3. Therapy results included a median pressure of 11.3 cmH2O, 95th percentile pressure = 13.6 cmH2O, and max pressure = 13.9 cmH2O. Titration Type I PSG revealed AHI = 10.1 and minSatO_2 = 85%. The patient reported good adherence to CPAP and satisfaction with positive airway pressure therapy, along with a significant improvement in sleep quality.

Conclusion: Understanding the relationship between OSA and KS is crucial for providing comprehensive care, as both conditions significantly impact the health of affected individuals. In this case, CPAP therapy proved effective in treating OSA, as evidenced by significant improvements in AHI, along with reported satisfaction and enhanced sleep quality.

ID: 1760

When Ophthalmology Meets Sleep Medicine: Exploring the Relationship Between Floppy Eyelid Syndrome and Obstructive Sleep Apnea

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Keywords
- ► eyelid ptosis
- ► obstructive sleep apnea

Introduction: A 63-year-old female patient with hypertension, diabetes, and class III obesity was referred to the sleep disorders department with a history of non-restorative sleep. Her Epworth Sleepiness Scale was 8. She is also under ophthalmologic care for right ptosis. Family members noted loud snoring. Physical examination revealed laxity of the right upper eyelid upon upward traction, easy exposure of the tarsal plate and papillary conjunctivitis. She also presented a modified Mallampati score of IV, and a BMI of 42.1 kg/m^2. She had a past medical history of surgical intervention in her right eyelid in 2021, with reoperation in 2022 due to ptosis recurrence. Obstructive sleep apnea (OSA) associated with Floppy Eyelid Syndrome (FES) was suspected. A type I polysomnography revealed an apnea-hypopnea index (AHI) of 38 events/hour. She spent 98% of the night in the right lateral decubitus position.

Objective: To report a case of FES associated with OSA.

Methods: A literature review was conducted by searching the PubMed database.

Results: FES, characterized by upper eyelid laxity and easy eversion, leads to eye exposure during sleep, potentially causing chronic papillary conjunctivitis. Symptoms include ocular irritation, hyperemia, foreign body sensation and xerophthalmia, typically more pronounced upon awakening and on the side most often slept on. Though FES is a common eyelid syndrome with an estimated prevalence of 3.5% to 15.8%, it may be underdiagnosed. There is a strong association between FES and OSA, with studies indicating a prevalence of up to 100% of OSA in FES patients. The pathophysiology of FES is not fully understood. One hypothesis is that OSA patients when sleeping on the lateral or prone position may push their face against the bed surface, pulling the superior eyelid and exposing the conjunctiva. The pressure of the eyelid against the bed surface may result in local ischemia which may be aggravated by intermittent hypoxia during obstructive respiratory events. The resulting oxidative stress may increase matrix metalloproteinases locally, leading to lateral canthal tendon laxity. Initial FES treatment is conservative, including eye drops, artificial tears, and mechanical eyelid occlusion. Treating associated OSA is crucial, as it may reverse the condition. In refractory cases, surgical intervention may be necessary.

Conclusion: In patients with FES, OSA should always be considered due to its high prevalence and the potential for therapeutic benefit.

ID: 1761

Risk of Obstructive Sleep Apnea in Stroke Patients in Tertiary-Level Hospitals in Luanda, Angola 2021

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Keywords
- ► obstructive sleep apnea
- ► stroke
- ► functional dependence
- ► brainstem stroke

Introduction: Obstructive sleep apnea (OSA) is a disease characterized by pauses in breathing during sleep due to repetitive upper airway obstruction. Its prevalence in stroke patients varies between 50% and 70%. OSA is an independent risk factor for stroke. Diagnosing OSA in African countries, especially in Angola, has been challenging. The burden of stroke remains very high in developing countries and OSA can interfere with the recovery, prognosis, and recurrence of stroke in these patients.

Objective: Our main goal was to evaluate the risk of obstructive sleep apnea in stroke patients in tertiary-level hospitals in the province of Luanda, 2021.

Methods: We conducted an observational, cross-sectional analytical study. We included 151 patients in the sample, selected using a probabilistic method by clusters of multiple stages. We used the STOP-Bang questionnaire and the modified Rankin scale for data collection. We analyzed the data using descriptive and analytical statistics, including Cramer's V and Spearman's rho tests, to evaluate the association between the degree of functional dependence and the risk of obstructive sleep apnea, as well as the association between the risk of obstructive sleep apnea and brainstem injury.

Results: The study included mostly male participants (53.0%) with the most common age group being 48-57 years (30.5%). The mean age was 53.1±13.3 years. Among the patients interviewed, 8.6% had a stroke in the brainstem region. Nearly half of the interviewed patients (49.0%) had mild to moderate deficiency on the modified Rankin scale, and 38% were at high risk for obstructive sleep apnea. The study revealed a positive association between the level of functional dependence and the risk of obstructive sleep apnea ($rs = 0.377$; $p = 0.000$), and found no association between the risk of obstructive sleep apnea and brainstem injury ($X2 = 3.703$ / $V = 0.157$; $p = 0.157$).

Conclusion: We observed that stroke patients with a high degree of functional dependence are at a higher risk for obstructive sleep apnea. There was no association between stroke located in the brainstem region and high risk for obstructive sleep apnea.

ID: 1762

Circadian Rhythm Consolidation is Associated with Early Childhood Development Status in the First Years of Life

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Keywords

- circadian rhythm consolidation
- early childhood
- child development
- rest-activity

Introduction: Early childhood is a period of complex neural development processes, resulting from the maturation of the nervous system and the formation of neural circuits. Exposure to adverse factors during early childhood can have long-term consequences, as the foundations of cognitive development are established during this critical period. Therefore, the consolidation of circadian rhythmicity emerges as a significant factor in the trajectory of early childhood development.

Objective: The objective of this study was to evaluate child development and the consolidation of circadian rhythmicity during early childhood.

Methods: Rest-activity data measured by means actigraphy and child development status was assessed by means a questionnaire, Caregiver Reported Early Development Instruments (CREDI) short form. Data were collected from 32 infants, aged 3 to 35 months, and in order to evaluate possible correlations between overall CREDI score and non-parametric rest-activity variables, the Spearman correlation test was performed, and to evaluate the individual effect of RA on the variability of the overall CREDI score, controlling for the effect of age, an alternative regression model was constructed based on the residualized components of RA and the overall CREDI score.

Results: It was found a correlation between overall CREDI score and both RA ($r = 0{,}74$, $p < 0.001$) and M10 ($r = 0{,}73$, $p < 0{,}001$), and the individual effect of RA was able to predict 24% ($R^2 = 0{,}24$; R^2 adjusted $= 0{,}21$) of the variability in the overall CREDI score.

Conclusion: Our results showed that increased circadian amplitude, reflecting circadian rhythm consolidation, was associated with better developmental status in early childhood.

ID: 1763

Does the Working Day of Military Firefighters Contribute to Short Sleep on Rest Days?

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Keywords

- military firefighters
- sleep disorders
- chrononutrition

Introduction: Military firefighters face a stressful routine and are constantly exposed to various health risk factors, including sleep deprivation. These professionals have to deal with the physical and mental demands of their job, which can significantly impact sleep quality and, consequently, overall health.

Objective: To describe and categorize hours of sleep and assess the presence of insomnia.

Methods: This was a cross-sectional study of military firefighters from the municipalities of Ouro Preto and Mariana - MG. Sleep restriction was measured by asking about bedtimes and wake-up times on duty and off-duty days. The weighted average sleep time per day was calculated based on the equation: [(nights on duty x 2) + (nights off x 5)/ 7], classified as very short sleep (≤ 4 hours), short sleep (5-6 hours), adequate sleep (7-8 hours) and long sleep (≥ 9 hours). Insomnia symptoms were analyzed using the Insomnia Severity Index (ISI).

Results: 44 military firefighters took part in the study, representing 89.8% of the local population. Regarding sleep time, 4.7% of the participants were classified as having very short sleep (< 4 hours), 55.8% as having short sleep (5-6 hours) and 39.5% as having adequate sleep (7-8 hours). Regarding insomnia, 39.5% had a lower limit of insomnia and 9.3% had moderate insomnia, i.e. 48.8% were classified as having some degree of this important sleep disorder.

Conclusion: Most of the military firefighters assessed have insufficient sleep time, which may be contributing to the high rate of insomnia. These findings highlight the need for interventions aimed at improving the quality of sleep of these professionals, in order to minimize the negative impacts on health and work performance.

ID: 1764

The Hypothalamic-Pituitary-Adrenal Axis and the Upper Airway: The Role of Cushing's Syndrome in Obstructive Sleep Apnea - A Systematic Review

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Keywords
- cushing's
- syndrome
- obstructive sleep apnea
- systematic review

Introduction: Cushing's Syndrome (CS) is a metabolic disorder characterized by excessive cortisol production and impairment of the hypothalamic-pituitary-adrenal axis. Prolonged use of corticoids or the presence of an adrenal tumor are possible causes. Obstructive sleep apnea (OSA), in turn, is a condition involving multiple episodes of partial or complete occlusion of the upper airway during sleep, characterized by a period of apnea or hypopnea $>$ 10 seconds. Individuals who have developed CS are more likely to develop comorbidities such as obesity, which is one of the predisposing causes of OSA.

Objective: To evaluate the role of Cushing's Syndrome in Obstructive Sleep Apnea.

Methods: A search was carried out in the PubMed, EMBASE, and Cochrane Library databases using the terms listed in DeCS/MeSH: "Cushing's syndrome" and "Obstructive sleep apnea". The inclusion criteria were studies evaluating the association between Cushing's Syndrome and the development of obstructive sleep apnea in clinical trials or cross-sectional studies. The PRISMA protocol was used as a guide for the systematic review.

Results: A total of 44 articles were found, of which 3 were included. Among the 57 individuals studied by Sevda et al., 17 had ACTH-secreting pituitary adenoma, 17 had adrenal CS, and 23 were control group participants aged similarly. The authors found that 47.1% of patients with CS had OSA (AHI $\geq$ 5) versus 17.4% of the control group. In a study comprising 3,224 participants, half of whom had CS, Wang et al. showed that when both groups were evaluated prospectively, individuals with CS had a 2.82 times greater risk of developing OSA than the control group (HR = 2.82; 95% CI: 1.67-4.77). Feyzi G. et al., in a study involving 60 participants (30 with CS and 30 in the control group), concluded that the prevalence of OSA is higher in CS patients than in the control group.

Conclusion: Individuals diagnosed with Cushing's Syndrome are at least 2 times more likely also to be diagnosed with obstructive sleep apnea. These findings highlight the importance of early investigation of obstructive sleep apnea in patients presenting Cushing's Syndrome, demonstrating the significant role of the Hypothalamic-Pituitary-Adrenal Axis in Obstructive Sleep Apnea.

ID: 1765

Fatigue and Daytime Sleepiness Among Military Firefighters

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Keywords
- circadian cycle
- sleep disorders
- fatigue
- military firefighters

Introduction: Shift work is common among firefighters due to the on-call system, which can lead to circadian rhythm dysregulation, affecting the production of essential hormones such as melatonin and cortisol. This desynchronization is associated with health problems such as daytime sleepiness and chronic fatigue, which compromise firefighters' safety and performance, increasing the risk of accidents. It is therefore essential to investigate the presence of these symptoms in order to develop strategies that promote health and safety at work.

Objective: To investigate the presence of daytime sleepiness and fatigue in military firefighters.

Methods: A cross-sectional study was carried out with military firefighters from the municipalities of Ouro Preto and Mariana, Minas Gerais. Excessive daytime sleepiness was assessed using the Epworth Sleepiness Scale (ESS), while the presence of fatigue was measured using the Chalder Scale, validated for Brazil, which covers questions related to physical and mental fatigue symptoms.

Results: 44 military firefighters took part in the study, representing 89.8% of the local population. Of the participants, 24% had excessive daytime sleepiness, while 81.1% reported symptoms of physical and mental fatigue.

Conclusion: The presence of daytime sleepiness and the high prevalence of physical and mental fatigue among military firefighters is worrying, considering that the nature of their activities requires great physical and mental capacity. These findings highlight the need for interventions aimed at sleep management and the health of these professionals, in order to mitigate the adverse effects of shift work and improve quality of life and safety at work.

ID: 1766

Transition of Care from Pediatrics to Adult Care in a Patient with Congenital Central Hypoventilation Syndrome

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Keywords
- congenital central hypoventilation syndrome
- genetics

Introduction: A 22-year-old female with a history of congenital central hypoventilation syndrome (CCHS) diagnosed when she was 4 years-old, the same age she was tracheostomized. The patient was successfully decannulated at age 12 and is currently under nocturnal non-invasive ventilation (NIV) via a nasal mask. She transitioned to adult care at age 14. She reported to have gained 16 kg since then. The patient's adherence to NIV is suboptimal. A split-night PSG was ordered and revealed a pattern suggestive of hypoventilation and a apnea-hypopnea index (AHI) of 26 events/hour. The patient was advised on the need for weight loss to control comorbidities, as well as the importance of continuing daily use of NIV.

Objective: Report a CCHS case transitioned from pediatrics to adulthood care.

Methods: A literature review was conducted by searching the PubMed databases

Results: CCHS is a rare autosomal dominant disorder with an estimated incidence of 1 in 200,000 live births. It is characterized by sleep-related hypoventilation, typically associated with the PHOX2B gene mutation. In general, the diagnosis is established in childhood, primarily within the first month of life. Currently, with a better understanding of the disease and improved therapeutic support, patient survival has increased, with a higher percentage of patients reaching adulthood. Patients require lifelong ventilatory support to achieve normocapnia and SpO2 $\geq$ 95%. Generally, adult patients adapt well to the exclusive use of NIV during nighttime. Additionally, patients should be monitored for symptoms suggestive of dysautonomia. An annual 72-hour holter monitoring is recommended due to the increased risk of electrophysiological abnormalities, as well as an echocardiogram to monitor pulmonary hypertension. An annual ophthalmologic evaluation is recommended due to the higher prevalence of pupillary abnormalities, convergence insufficiency, strabismus and ptosis. Active investigation into the presence of gastrointestinal symptoms, such as constipation or reflux, should be conducted. Patients should be counseled on the risks associated with the use of sedative drugs and alcohol, particularly in adolescents. Women of childbearing age should receive genetic counseling and maternity support with specialized care.

Conclusion: Although rare, CCHS is associated with increasing survival rates, highlighting the importance of ensuring a seamless transition from pediatric to adolescent and adult care.

ID: 1767

Impact of Obstructive Sleep Apnea Treatment on Sleep Health in Same-Bed Partners: The SLEEP PARTNERS Randomized Trial

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Keywords

- continuous positive airway pressure
- sleep apnea
- obstructive
- spouses
- sleep quality
- sleep duration

Introduction: Previous evidence suggests that obstructive sleep apnea (OSA) is associated with impaired sleep quality in same-bed sleep partners (SBSP). However, it is unknown whether OSA and its treatment may have an impact on overall sleep health in SBSP.

Objective: To evaluate the impact of 3 months of OSA treatment on sleep health in SBSP.

Methods: In this placebo-controlled trial (Clinicaltrials.gov: NCT03011294), we randomly assigned patients with moderate to severe OSA (apnea-hypopnea index $\geq$15 events/h) who had SBSP to receive continuous positive airway pressure (CPAP) or placebo (nasal strips). We excluded SBSP under OSA treatment or previous history of cardiovascular disease. At baseline and after 3-months of follow-up, SBSP underwent a clinical evaluation, sleep questionnaires (Pittsburgh Sleep Quality Index and Epworth Sleepiness Scale), and objective sleep duration and fragmentation using a 1-week wrist actigraphy (Actiwatch 2™, Philips Respironics).

Results: Sixty-three patients with OSA and an equal number of SBSP were included in the final analysis (age: 48$\pm$10 years; 79% women). At baseline, we observed sleep health impairments in SBSP, including long sleep latency (38.2$\pm$26.5 minutes), sleep fragmentation (34.1$\pm$11.0 awakenings), short sleep duration (6.4$\pm$1.0 hours), and poor sleep quality (63%). Furthermore, 24% of SBSP presented moderate to severe OSA. Mean adherence to CPAP and nasal strips were 5.66$\pm$1.77 h/night and 93.1$\pm$12.6%, respectively. CPAP treatment promoted significant improvements in sleep quality (P=0.02), and excessive daytime sleepiness (P=0.01) in SBSP. Compared to placebo, 3-months of CPAP therapy revealed significant delta differences in wake after sleep onset (Δ: +7.36 minutes vs. Δ: -4.71 minutes, respectively, P=0.002) and the number of awakenings (Δ: +2.83 vs. Δ: -0.97, respectively, P=0.02). These results, along with the improvement in sleep quality, remained consistent after excluding SBSP with moderate to severe OSA ($P<0.05$ for all).

Conclusion: In SBSP of patients with moderate to severe OSA, 3-months of CPAP therapy promotes significant improvements on subjective and objective sleep health parameters. These findings highlight the broader benefits of CPAP therapy within shared sleeping environments.

ID: 1768

Comparison of Actigraphy Algorithms for Evaluating Pediatric Sleep

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Keywords

- actigraphy
- algorithm
- pediatric sleep

► sleep
► sleep diary

Introduction: Actigraphy provides objective circadian rhythm assessment through a wrist-attached accelerometer, which acquires raw motor data. It consists of a great alternative to polysomnography due to its ability to collect data from a subject's household, in a longitudinal manner. Thus, its use can be especially appealing in the study of pediatric sleep patterns. The rendering of the motor data into sleep and wake parameters is possible through the use of specific algorithms. However, actigraphy still presents several limitations, particularly concerning the validation of algorithms. Therefore, defining standards of comparability and methods to be used in pediatric sleep research is an ongoing challenge.

Objective: The aim of this study was to analyze the agreement between two different algorithms commonly used in Condor Instruments' actigraphs, in order to allow future comparisons between studies with distinct methodologies.

Methods: To assess the pediatric sleep, 17 children aged 23 to 37 months were invited to wear a Condor Instruments LTDA actigraph on their left ankle for one week. Their mothers were instructed to record the children's sleep routine in a sleep diary. In total, 14 records were completed and analyzed using two different algorithms: Cole-Kripke and Condor Instruments LTDA. The sleep parameters evaluated for comparison included total sleep time, wake after sleep onset (WASO) and number of awakenings. Additionally, 13 records were used to compare the Condor Instruments LTDA algorithm with the sleep diary information.

Results: Both algorithms were comparable on the total sleep time parameter and the total time in bed was similar between algorithm and sleep diary, with a median of 605,5 and 627,9 minutes ($p>0,05$). However, the parameters WASO and number of awakenings presented a significant difference between algorithms ($p<0,05$). Sleep diary analysis also demonstrated that the parents' perception of the babies' sleep is closer to total time in bed than total sleep time. Therefore, the parental analysis overestimated the total sleep time (586,6 vs 549,7 minutes) and underestimated the number of awakenings (zero vs 13,5) in relation to actigraph analysis ($p<0,05$).

Conclusion: These results demonstrate the need to formulate new algorithms in view of the lack of standardization of methodologies in pediatric sleep assessment with actigraphy, which makes it difficult to compare studies in literature.

ID: 1769

Psychological Consequences of Sleep Deprivation in Postpartum Women: a Systematic Review

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Keywords
► sleep deprivation
► postpartum
► psychological effects

Introduction: For women, sleep well is really significant issue during the postpartum period, which is important for both maternal and newborn health. This time is marked by new challenges, which requires strength to combat possible hormonal changes and the difficulties that caring for a newborn entails combined with lack of rest. This systematic review explores the psychological sequelae of sleep deprivation specifically in postpartum women related to emotional disturbances, mood disorders and general mental health.

Objective: The objective of this review is to determine psychological effects, mood disorders, anxiety and depression in the post-natal period after sleep deprivation.

Methods: This is a systematic review of studies from PubMed, Scopus, and Web of Science published in the past five years. Keywords included "sleep deprivation," "postpartum women," "psychological effects," and "mood disorders." Peer-reviewed articles and relevant books were included, adhering to PRISMA guidelines for methodological rigor.

Results: 10 studies met the inclusion criteria. The findings are summarized as follows: 1. Mood Disorders: Sleep deprivation is strongly associated with mood disorders. Leach et al. (2019) and McCauley et al. (2021) found that lack of sleep exacerbates symptoms such as sadness, irritability, and worry, leading to decreased emotional well-being. 2. Increased Risk of Postpartum Depression: Chronic sleep deprivation is linked to a higher risk of postpartum depression. Okun et al. (2019) and Zhang et al. (2019) observed that insufficient sleep worsens depressive symptoms and increases susceptibility to severe depressive disorders. 3. Anxiety and Stress: Sleep deprivation can induce or worsen anxiety and stress. Research by Nystrom et al. (2020) and Yeo et al. (2021) suggests that inadequate sleep disrupts stress responses and emotional regulation, resulting in elevated levels of anxiety and stress. The review has confirmed that sleep deprivation influences the psychological wellbeing of postpartum women, mainly in mood disorders, anxiety and stress. Enhanced quality of sleep is an indispensable factor for the mental well-being of new mothers.

Conclusion: The psychological effect of sleep deprivation on postpartum women generally are well established; This review results emphasize the need for unique interventions that will target both continued accumulation of sleep debt and improved mental health and quality-of-life during in those early months after delivery.

ID: 1773

Prevalence and Correlates of Excessive Daytime Sleepiness in a Primary Care Population in São Carlos-SP: Insights from Sleep Week 2024

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Keywords
► insomnia
► physical and mental health
► primary care

Introduction: Excessive Daytime Sleepiness (EDS) can have profound medical, social, and economic impacts. This study was conducted as part of Sleep Week 2024, an annual event designed to raise awareness about sleep health and gather data on sleep patterns among target populations. Our focus was on adults attending a Family Health Unit (USF) in São Carlos-SP, Brazil.

Objective: To evaluate significant correlations and associations related to EDS among participants using a structured questionnaire.

Methods: We conducted a non-experimental, cross-sectional study from late March to mid-April 2024. Participants, who provided signed informed consent, were users of the USF. We administered an ethical-approved structured questionnaire, which included investigator-proposed questions and established sleep scales such as STOP-BANG, the Insomnia Severity Index (ISI), and the Epworth Sleepiness Scale (ESS). We also measured basic physical parameters, including Body Mass Index (BMI) and cervical circumference. Statistical analysis was performed using SPSS software.

Results: A total of 40 adults (31 women and 9 men; mean age: 42.3 years) were interviewed. Among them, 24 (6 men and 18 women) had EDS. No significant association was found between EDS and variables such as sex, comorbidities (e.g., hypertension, diabetes), or habits like smoking and drinking after 6:00 PM. However, there was a significant association between higher ESS scores and afternoon napping ($t(29) = -2.36$; $p < 0.05$; Cohen's $d = 0.76$), with those who had EDS (ESS $\geq$ 10) being more likely to nap ($\chi^2 = 8.09$; $p < 0.05$). No significant correlations were observed between ESS scores and continuous variables like age, self-rated sleep quality, minutes of exercise per week, BMI, or cervical circumference. Waking up during the night, whether once or more times, did not correlate with increased daytime sleepiness.

Conclusion: Our findings indicate a high prevalence of EDS (60%) in this population, with afternoon napping related to higher ESS scores, including the likelihood of clinical EDS. Despite the fact that half of the participants engaged in physical activity, this did not appear to alleviate sleep-related issues. The results underscore the value of awareness initiatives like Sleep Week in educating the public about the importance of adequate sleep, promoting sleep hygiene, and offering psychological support.

ID: 1774

Post-Covid-19 in Children and Adolescents: Silent Impact on Sleep, Diet and Nutritional Status

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Keywords

- post-covid
- sleep changes
- children and adolescents

Introduction: COVID-19 is a multi-organ disease with diverse clinical manifestations, and many individuals report persistent symptoms even after recovery from the acute phase. Post-COVID-19 Syndrome is a condition characterized by physical, clinical and cognitive sequelae that remain after acute infection. Growing evidence suggests that, among these persistent symptoms, there may be changes in sleep patterns, eating habits and nutritional status. Investigating these changes in children and adolescents is key to understanding the impact of COVID-19 on this population and proposing appropriate interventions.

Objective: To describe the changes in sleep, eating habits and nutritional status of children and adolescents with persistent post-COVID-19 symptoms.

Methods: This is a cross-sectional study of Brazilian children and adolescents aged 0 to 18 diagnosed with COVID-19. Data collection took place from November 2023 to May 2024, using an electronic questionnaire addressed to parents or guardians, which addressed changes in sleep, eating habits and nutritional status during and after infection. The sample was obtained by snowball sampling.

Results: 40 children from different cities in the states of Minas Gerais and Pernambuco took part in the study. Most of the responses were from male children (65%), aged between 0 and 10 years (70%). Sleep changes were reported in 22.5% of the children, with sleep quality worsening in 78% of these cases and improving in 22%. As for eating habits, there was a reduction in the consumption of vegetables (56.7%) and fruit (66.7%), and an increase in the consumption of ultra-processed foods (55%) and sweets (100%). The majority of children (60%) and adolescents (75%) had eutrophic nutritional status, with 85% maintaining their nutritional status after infection. Weight loss was reported by 15% of guardians, ranging from 500 g to 4 kg.

Conclusion: COVID-19 infection can have a significant impact on several aspects of children's and adolescents' lives, including sleep, eating habits and nutritional status. These findings highlight the need for ongoing monitoring and targeted interventions to mitigate these effects.

ID: 1775

Interday Stability and its Implications on the Variation of Activity Rhythm in Day and Night Workers

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Keywords

- interday stability
- shift work
- circadian rhythms
- occupational health

Introduction: Interday Stability is a metric that evaluates the regularity of activity across days, reflecting the coupling of the circadian rhythm with environmental cues such as sunlight and social interactions. Higher IS values indicate a more stable rhythm, while lower values may be associated with pathological conditions or difficulty in synchronizing with environmental cues. Nighttime work poses unique challenges to the maintenance of circadian stability due to the misalignment between the internal biological clock and external environmental signals, such as light exposure. Night workers often experience disrupted sleep patterns, decreased exposure to natural light, and increased social isolation, all of which can negatively impact their Interday Stability. This disruption may lead to various health issues, including cardiovascular problems, metabolic disorders, and impaired cognitive function.

Objective: To investigate the differences in Interday Stability between day and night workers, and to assess how this metric behaves in relation to coupling with environmental cues in a large hospital.

Methods: A cross-sectional study with a quantitative approach was conducted with a sample of nursing staff from a large hospital in Alagoas. The Interday Stability variable was calculated for each participant, and differences between day workers (n=17) and night workers (n=63) were analyzed using the Mann-Whitney U test, with $p<0.05$ considered as the significance level.

Results: The results indicated a statistically significant difference in Interday Stability between day and night workers ($U = 731.0$; $p = 0.022$). Night workers showed lower IS values, suggesting less stability in their activity rhythm and a possible mismatch with environmental cues.

Conclusion: The reduction in Interday Stability observed in night workers may reflect a decreased ability to synchronize with environmental cues such as sunlight and social interactions. These findings highlight the importance of interventions that may enhance circadian synchronization and, consequently, the health and well-being of these professionals.

ID: 1776

Automated Insulin Delivery Systems and Sleep Quality in Type 1 Diabetes: a Systematic Review and Meta-Analysis

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Keywords
► automated insulin delivery systems
► type 1 diabetes
► meta-analysis

Introduction: Recent progress in automated insulin delivery (AID) systems for type 1 diabetes (T1D) has significantly enhanced glycemic control and minimized the risk of hypoglycemia. Despite these improvements, research on the effects of AID systems on sleep quality in T1D patients remains limited. This meta-analysis aims to address this gap by investigating how AID systems affect sleep outcomes and overall well-being in these patients, providing a comprehensive assessment of their influence on sleep quality.

Objective: To evaluate the impact of automated insulin delivery systems on sleep quality in individuals with type 1 diabetes.

Methods: This research was performed according to the PRISMA guideline. PubMed, Scopus, and Cochrane Central databases were searched to identify randomized trials comparing AID systems to other therapeutic approaches in patients with type 1 diabetes. For continuous outcomes, we calculated mean differences (MD) with 95% confidence intervals (CI). These were analyzed using a random-effects model. Statistical analyses were performed using R statistical software version 4.4.0 and $p < 0{,}05$ were considered statistically significant.

Results: A total of 3 studies and 280 patients were included. Among them, 199 were allocated to the AID group and 141 were allocated to the control group. The number of female and male patients was similar, with 149 (53.02%) women and 132 (46.97%) men. Regarding sleep quality, no difference was found between the automated insulin delivery system and the control group, as assessed by the Pittsburgh Sleep Quality Index PSQI (MD -0.6814; 95% CI -1.9405, 0.5776; $P = 0.289$). Similarly, there was no notable improvement in the Diabetes Treatment Satisfaction Questionnaire status (MD 0.9; 95% CI -1.0712, 2.8712; $P = 0.371$). Additionally, no statistically significant differences were observed in Hypoglycemia Fear Survey (HFS-II) Behavior (MD -3.8259; 95% CI -12.3968, 4.7450; $P = 0.382$) and HFS-II Worry (MD -3.1272; 95% CI -10.6672, 4.4129; $P = 0.416$).

Conclusion: This meta-analysis indicates that, although the automated insulin delivery system may provide benefits in other areas, it does not show a significant advantage over the control group in terms of sleep quality, diabetes treatment satisfaction or hypoglycemia-related fear in T1D patients. Further studies with proper designs are needed to clarify and confirm these associations.

ID: 1777

Sleep Quality and Loneliness in Economically Disadvantaged Older Women: a Systematic Review

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Keywords
► poverty
► low-income population
► sleep quality

Introduction: Older women, especially those living in poverty, face multiple vulnerabilities.

Objective: To evaluate the association between sleep quality and social isolation in women aged ≥ 65 years living in poverty.

Methods: A search was conducted in major databases using the descriptors: "poverty," "low-income population," and "sleep quality." Inclusion criteria adopted: studies involving women aged ≥ 65 years living in poverty, assessing sleep quality and loneliness. This study is part of a larger study entitled "Sleep Quality in Women Aged ≥ 65 Years Living in Poverty - a Systematic Review."

Results: This study comprised 3,231 older women, covering low-income populations. The results indicated a significant association between loneliness and poor sleep quality. Wu et al. (2019) conducted a study in a rural area of China and observed that loneliness in low-income older women was strongly associated with poor sleep quality, showing an odds ratio of 1.91 (95% CI 1.29-2.82). The study also revealed that loneliness was associated with a 30% increase in the prevalence of insomnia and frequent nocturnal awakenings. Kwok et al. (2020) found similar results in a sample involving older women from urban areas. They reported that loneliness was associated with a marked increase in the prevalence of poor sleep quality, with an odds ratio of 2.15 (95% CI 1.45-3.17). Additionally, the study showed that women who reported feelings of loneliness presented 40% more likely to suffer from chronic insomnia compared to those who did not feel lonely. Watanabe et al. (2020), in a study of 1,065 older women, also corroborated these findings, noting that loneliness was associated with poorer sleep quality and a 25% increase of insomnia compared to women who reported having adequate social support.

Conclusion: The association between loneliness and sleep disorders suggests the existence of a vicious cycle: loneliness can lead to psychological changes that impair sleep, and, in turn, compromised sleep quality predisposes individuals to feelings of isolation and loneliness, especially in contexts of economic vulnerability.

ID: 1779

Restless Legs Syndrome in A Tertiary Outpatient Sleep Medicine Service: Case Report

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Keywords

- restless legs syndrome
- case report
- iron deficiency

Introduction: Restless legs syndrome (RLS), also known as Willis-Ekbon disease, is a movement disorder associated with sleep, characterized by an urgency to move the legs and unpleasant sensations when resting. In Brazil, the prevalence is 6.4%, increasing with age and predominating in females. It may be associated with iron deficiency, pregnancy, inflammatory processes and chronic kidney disease.

Objective: The objective of this case report is to provide descriptive information about the presentation, management and evolution of three cases of RLS in a Brazilian Sleep Medicine service.

Methods: Descriptive report of three clinical cases of patients diagnosed with RLS treated at a Sleep Medicine service in the state of São Paulo.

Results: CASE 1: Patient I.C.S., female, 60 years old, with fibromyalgia and spondyloarthritis. She complains of snoring and sleep apnea, as well as leg pain that worsens at rest and with contact between her legs, making it difficult to sleep. Her BMI is 32 kg/m^2 and her waist circumference is 104 cm. Her ferritin is 81 ng/dL. She received guidance on sleep hygiene and parenteral iron replacement (1000 mg) for 3 weeks. She is awaiting polysomnography and medical reevaluation. CASE 2: Patient M.I.I.S.C., female, 55 years old, with diabetes, hypertension, obesity and moderate OSA, who has been using CPAP for 5 years. She reports an uncontrollable urge to move her legs for 10 years. Her BMI is 47 kg/m^2, and she doesn't have iron deficiency. She received behavioral measures and gabapentin 600 mg/day. She reports partial improvement of symptoms and restful sleep. CASE 3: Patient A.M.A., a 57-year-old female, with an ischemic stroke in 2006 and severe OSA. She reported an uncontrollable urge to move her legs since the stroke. She was initially treated with pramipexole, which proved ineffective. She presented iron deficiency (ferritin 42.7 ng/dL) and a corrected gastric ulcer. Gabapentin 800 mg/day was introduced with significant improvement, but she still had non-restorative sleep because of inadequate treatment of OSA.

Conclusion: Despite the lack of definitive therapy for RLS, first-line treatment includes alpha-2-delta ligands, such as gabapentin and pregabalin. Iron supplementation has shown improvement in the severity of RLS when compared to placebo. However, the management of the disease must be individualized, and it is a great challenge, requiring the expansion of the bibliographic substrate on the subject.

ID: 1781

"Kleine-Levin Syndrome: Favorable Response to Treatment with Escitalopram and Trazodone in Reducing Hypersomnia – Case Report"

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Keywords

- hypersomnia
- derealization
- Kleine-Levin syndrome

Introduction: Kleine-Levin syndrome (KLS) is a rare disorder characterized by abrupt and recurrent episodes of hypersomnia, associated with cognitive and psychiatric dysfunction. In addition to hypersomnia, disinhibited sexual behavior and eating disorders may occur. Studies show that although the classic triad of hypersomnia, hyperphagia, and hypersexuality is rare, the tetralogy of hypersomnia, confusion, apathy, and derealization is prevalent. Infections and sleep deprivation have been identified as triggers.

Objective: To illustrate the importance of an accurate diagnostic approach and individualized treatment to optimize clinical outcomes in the management of KLS.

Methods: A 15-year-old male patient presented with excessive sleepiness for 30 days after a bacterial infection treated with antibiotics. The clinical picture was marked by episodes of derealization, neglect of personal hygiene and hypersexuality. Upon awakening, he showed irritability, apathy and sluggishness. The episodes of sleepiness were interspersed with asymptomatic periods. Neurological examinations, cranial magnetic resonance imaging and cerebrospinal fluid analysis revealed no abnormalities. However, subsequent hematological alterations led to the diagnosis of Chronic Myeloid Leukemia. Initial treatment with Interferon and, later, with Imatinib, did not result in improvement of hypersomnia. Given the persistence of symptoms, a neurological reassessment with polysomnography was performed, which revealed low sleep efficiency, an increase in stages 1 and 2 of NREM sleep and a reduction in REM sleep. Given these findings, treatment with Escitalopram and Trazodone was initiated, resulting in a significant reduction in episodes of hypersomnia and an improvement in quality of life.

Results: Diagnosing KLS can be challenging because of its similarity to psychiatric disorders and other hypersomnias. KLS is distinguished by acute, intense episodes of hypersomnia with rapid resolution of affective symptoms, distinguishing it from atypical depression and narcolepsy. Treatment for KLS may include modafinil, methylphenidate, lithium, and antidepressants to prevent recurrence and moderate mood changes.

Conclusion: KLS is a complex disorder with episodes of severe hypersomnia and behavioral dysfunctions. Treatment with Escitalopram and Trazodone was effective in reducing episodes and improving quality of life, highlighting the importance of continuous and personalized assessment in the management of KLS.

ID: 1782

Boah Score: A Practical Tool for Identifying Cardiovascular Risk in Sleep Disorders

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Keywords
- angina
- obstructive sleep apnea
- BOAH score

Introduction: The BOAH score (Body Mass Index, Observed Apnea, Age, and Hypertension) is a simplified screening tool that uses objective measures (BMI, age and hypertension) and subjective measures (observation of apnea) to estimate the risk of obstructive sleep apnea (OSA). The association between OSA and cardiovascular diseases, such as angina, is well established in the literature. However, there is a gap regarding the applicability of the BOAH score for predicting the risk of angina in large populations, especially in low-resource settings.

Objective: To assess the association between the BOAH score and the presence of angina in NHANES (National Health and Nutrition Examination Survey) participants between 2017 and March 2020.

Methods: Cross-sectional study with 4,361 participants. The BOAH score was used to categorize the risk of OSA, classifying participants into low or high risk of OSA (score ≥ 2). The score is calculated using the following scoring criteria: BMI ($\geq$ 30 kg/m^2-1 point; or $\geq$ 35 kg/m^2-2 points), apneas witnessed during sleep by self-report (1 point), age ($\geq$50 years-1 point) and hypertension (1 point). The presence of angina was identified through a questionnaire, considering chest pain after physical exertion as a diagnostic criterion. Univariate logistic regression analyses, assuming a statistical significance level of 0.05, were carried out using STATA software version 15.1.

Results: Logistic regression showed a significant association between high risk of OSA and presence of angina. Participants at high risk of OSA were more than three times as likely to report angina compared to those at low risk ($p<0.001$; OR: 3.50; 95%CI: 2.26-5.40).

Conclusion: The BOAH score proved to be a relevant indicator for identifying the risk of angina in individuals with suspected OSA, offering a practical and accessible tool for health professionals. In contexts where complex diagnostic methods are not available, the use of the BOAH score can support interventions aimed at improving sleep quality and reducing cardiovascular risk in high-risk populations.

ID: 1784

CPAP Treatment for Obstructive Sleep Apnea Decreases Mortality: A Systematic Review

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Keywords
- continuous positive airway pressure
- sleep apnea
- obstructive
- mortality

Introduction: Obstructive Sleep Apnea (OSA) is a highly prevalent syndrome with several cardiovascular ramifications. Among the forms of treatment, the indication of continuous positive pressure (CPAP) devices in the upper airways has been strongly recommended and is considered the gold standard of therapy. Scientific evidence has shown that obstructive sleep apnea is a risk factor for cardiovascular diseases. Considering that obstructive sleep apnea can be a factor that aggravates and is directly associated with events and comorbidities that can have a mortality outcome, it is necessary to verify, through a systematic review, whether the scientific evidence from clinical studies shows that the Treating obstructive sleep apnea with CPAP reduces mortality.

Objective: The study aims to verify, through a systematic review of a clinical trial, whether the use of CPAP has an influence on the reduction of mortality in adult individuals with obstructive sleep apnea.

Methods: Its methodology consists of a systematic review of a clinical trial that includes scientific articles indexed in the PubMed, Scielo and PEDro databases, published between 2013 and 2023, in English and Portuguese, available in full and which is designed experimental studies of clinical trials with the use of CPAP for the treatment of obstructive sleep apnea in adults where the impact of treatment on mortality outcomes is evaluated.

Results: We selected 5 studies totaling 6205 participants, including mortality at the primary endpoint in patients with OSA. CPAP treatment may be insufficient to improve cardiovascular outcomes in patients with very severe OSA, but when looking at patients who received intensive CPAP support there were significant improvements in quality of life scores and a 45% lower hospitalization and mortality rate in the group of intensive support than in the standard support group. In addition to beneficial effects such as improved quality of life, drowsiness and other symptoms of OSA.

Conclusion: Considering that CPAP is the mainstay of therapy for moderate to severe OSA, analysis of outcomes between groups with CPAP, usual care, intensive support, and with varying degrees of OSA severity from the reviewed studies confirms that CPAP treatment plays an important role in improving quality of life, reducing daytime sleepiness, and decreasing cardiovascular morbidity and mortality in patients with comorbid OSA and cardiovascular/cerebrovascular disease.

ID: 1786

Epidemiological and Clinical Profile of Patients with Obstructive Sleep Apnea and Obesity in a Home Ventilatory Support Program

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Keywords
- obstructive sleep apnea
- obesity
- obesity hypoventilation syndrome

Introduction: Obstructive Sleep Apnea (OSA) affects approximately 38% of the adult Brazilian population and shares pathophysiological characteristics and risk factors with cardiovascular, metabolic, and cerebrovascular diseases. Obesity stands out as a significant common risk factor among these conditions.

Objective: To outline the epidemiological and clinical profile of patients with OSA and obesity treated in a public sleep physiotherapy outpatient clinic under the Unified Health System (SUS).

Methods: This observational, cross-sectional, and retrospective study analyzed medical records of patients enrolled in a home ventilatory support program under SUS. The selected records included patients of both sexes, aged ≥ 18 years, diagnosed with OSA through polysomnography, and with a BMI > 30 kg/m^2. Data collected included sociodemographic, anthropometric, and clinical parameters from the initial CPAP adaptation evaluation. The data were analyzed using Microsoft Excel and are presented as means, standard deviations, and percentages.

Results: A total of 80 medical records were analyzed. The sample consisted of 51.2% women, with a mean age of 55.90 ± 11.21 years, BMI of 36.38 ± 5.22 kg/m^2, abdominal circumference of 117.6 cm, and neck circumference of 42.15 cm. The apnea-hypopnea index (AHI) was 42.96 ± 22.63 events/h, and the oxygen desaturation index (ODI) was 38.92 ± 18.93 events/h. The mean time with SpO2 $< 90\%$ was 87.85 ± 102.91 minutes. Severe OSA was diagnosed in 68.8% of patients. The most prevalent comorbidities were hypertension (78.8%), diabetes mellitus (38.8%), COPD (11.3%), asthma (7.5%), myocardial infarction (6.3%), heart failure (5%), and arrhythmias (8.8%). The most common complaints were snoring (55%), choking (33.8%), and excessive daytime sleepiness (31.3%). Morning headaches was reported by only 10% of the patients. The most commonly used medications were antihypertensives (78.8%) and diuretics (38.8%). All patients used CPAP with a nasal mask (96.3%), with a therapeutic pressure of 8.59 ± 1.177 cmH2O. The mean treatment duration was 1.64 ± 0.94 years, and the adherence rate during the first 30 days of use was 89.4%.

Conclusion: There was a high prevalence of hypertension and diabetes mellitus associated with OSA in this population. Despite being a frequent symptom, most patients did not report morning headaches. Most patients showed good initial adherence to treatment, with a consistent use of the CPAP device for more than one year.

ID: 1787

Hypoxic Burden OF Smokers with and without Ventilatory Disorders and its Relationship with Cardiovascular Risk: Partial Results

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Keywords
- sleep apnea obstructive
- tobacco smoking
- hypoxia

Introduction: Obstructive sleep apnea (OSA) is a common respiratory disorder determining cardiovascular risk (CVR). With the arrival of portable devices for polysomnography, diagnostic screening for OSA has become more accessible, with the availability of parameters such as the Oxygen Desaturation Index (ODI), similar to the Apnea and Hypopnea Index (AHI), which detects the frequency of events during sleep, in addition to the hypoxic burden (HB) that evaluates the depth and duration of these respiratory events, that is, the influence on the CVR. Based on the knowledge of tobacco as a determining factor for systemic comorbidities, it is necessary to investigate HB and CVR in this population.

Objective: To verify the HB of smokers with and without ventilatory disorders and their association with CVR.

Methods: A cross-sectional study was conducted with 41 smokers of both sexes and different levels of smoking history, classified according to pulmonary function with the presence (PFP) or absence (PFA) of ventilatory disorder (spirometry), and with or without comorbidities. They were evaluated for anthropometric measurements and sleep quality (actigraphy and type IV polysomnography). The data were presented as median and interquartile range (25-75%) according to their non-normality. For comparison between the groups, the Mann-Whitney and Kruskall-Wallis tests was use and for the correlations the Spearman test. The statistical significance was considered as $p<0.05$. Opinion number: 6.800.983.

Results: The sample was aged 40 [30-49] years; BMI of 27 [24-32]kg/m2; female sex (59%); mild (32%), moderate (49%) and heavy (20%) smoking history; 46% were classified as normal pulmonary function and 61% presented previous comorbidities (as cardiovascular, pulmonary, neuropsychic, osteoarticular, and others). The HB of the AVD group without comorbidities was 12[9-21]%min/h, AVD with comorbidity was 33[17-137]%min/h, PVD without comorbidity was 15 [17-23]%min/h, and PVD was 36[14-48]%min/h. Smokers with disorders and comorbidities had higher HB than those without comorbidities (p=0.013) and those with normal lung function and no comorbidities (p=0.018). There was a correlation between HB and sleep latency (r=0.015), ODI (r=0.001), oxygen saturation time lower than 90% (r=0.020), and minimum (r=0.018) regardless of the smoking group.

Conclusion: Smokers with comorbidity already have a relevant HB for the presence of CVR regardless of the presence of pulmonary disorder.

ID: 1788

Sleep Deprivation in the Homeless Population and Its Relation to SUS Hospital Overcrowding: A Systematic Review

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Keywords
- sleep deprivation
- homeless health
- hospital overcrowding

Introduction: Suffer from sleep deprivation, leading to several health risks in terms of physical and mental welfare, and this is a is a prevalent issue among the homeless individuals; Lack of sleep makes other health conditions worse, puts you at risk for new diseases, and leads to more trips to the doctor. This problem has important implications for overcrowding of hospital systems, affecting healthcare services.

Objective: The objective of this review is to study sleep deprivation among the homeless and its relationship with SUS overcrowding, in order to constitute key reasons for such association.

Methods: A systematic review that followed PRISMA guidelines. Searches in Scopus and Web of Science databases were made, studiess published in the last 5 years that discuss sleep deprivation, homeless health and hospital overcrowding were included.

Results: Eight studies were included in the review. The results showed a significant association of homelessness and sleep disorders with cold load SUS hospitals: Health: Sleep deprivation causes heart diseases, diabetes and mental illness. Lima et al. (2020) and Ferreira et al. Poor sleep, along with the continual presence of comorbidities as reported by Cell et al. Overburdened Law-Enforcement System: Sleep-deprived homeless people add to the burden of law enforcement and SUS hospitals. Oliveira et al. (2021) and Silva et al. (2022) also mention that higher incidence of sleep-related health problems leads to further burden on the healthcare system as hospital visits increase. Sleep deprivation is one of the main factors causing overcrowding in SUS hospitals. This burden cascades throughout the healthcare continuum to create an impact on health which further increases red probably more reflective and healthcare utilization, placing additional burdens upon the system. The findings show the importance of sleep deprivation as a target for intervention to alleviate hospital burdens and improve health care.

Conclusion: The review shows the relation of sleep deprivation in homeless to overcrowding departments of SUS hospitals. Research indicates that insufficient sleep increases both the demand for healthcare services and pressure on supply. Strategies to remedy sleep, and homelessness are important resources for reducing hospital overcrowding that affect the performance of SUS.

ID: 1789

Impact of Obesity Degree on Sleep Quality, Physical Activity Level and Excessive Daytime Sleepiness of Patients with Obstructive Sleep Apnea

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Keywords
- obstructive sleep apnea
- obesity
- excessive daytime sleepiness

Introduction: Obesity is one of the main causes of Obstructive Sleep Apnea (OSA). A 10% increase in weight predicts an increase of approximately 32% in AHI and a 6-fold greater probability of developing the most severe forms of OSA.

Objective: To analyze the influence of the degree of obesity on sleep quality, level of physical activity, excessive daytime sleepiness and severity of OSA.

Methods: Retrospective cohort study conducted at the sleep physiotherapy outpatient clinic. Data were collected from medical records of patients of both sexes, with OSA, aged $\geq$18 years and BMI $>$30 kg/m^2.Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) and analysis of polysomnographic variables (AHI and T90%), physical activity level was assessed using the International Physical Activity Questionnaire (IPAQ), and daytime sleepiness was assessed using the Epworth Sleepiness Scale. Patients were divided into groups according to the degree of obesity (grade I, II, or III). Data was obtained from the initial assessment of adaptation to positive pressure therapy. SPSS v.29.0 was used for descriptive analyses, comparative Chi-square analysis, ANOVA analysis of variance, and Pearson correlation, with a significance level of 5%.

Results: Data from 80 individuals (51.2% female; age: 55.90±11.2 years, BMI: 36.38±5.2 kg/m2) were analyzed. Severe OSA was present in 68.8% of the individuals. Obesity grades I, II and III followed the proportions of 51.2%, 31.3% and 17.5%. According to the degree of obesity, the following individuals presented poor sleep quality: 90.2% (grade I), 100% (grade II and III). They were classified as sedentary or irregularly active: 78.5% (grade I), 96% (grade II) and 100% (grade III). Excessive daytime sleepiness was presented by 65.9%, 52% and 57.1%, respectively. The AHI and T90% were higher in patients with grade III obesity (AHI: 53.60 ± 25.77; T90%: 153.64 ± 160.86 min) than in patients with grade I obesity (AHI: 34.4 ± 21.6; T90% 73.86 ± 84.37 min) and II obesity (AHI: 34.04 ± 21.26; T90%: 73.37 ± 75.56 min).

Conclusion: According to the degree of obesity, patients presented differences in the perception of sleep quality, daytime sleepiness and level of physical activity. Grade III obesity was associated with a greater perception of poor sleep and higher AHI and T90% values, however, excessive daytime sleepiness was not more prevalent in this group.

ID: 1790

Multidisciplinary Approach to Residual Daytime Sleepiness in Obstructive Sleep Apnea: A Case Report

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Keywords
- sleep disorders
- hypersomnolence
- sleep quality
- multidisciplinarity
- sleep pattern

Introduction: Excessive Daytime Sleepiness (EDS) represents relevant impairment in the patient's daily life. Frequently associated with a variety of sleep disorders and dysfunctional habits, such as poor sleep hygiene, sleep deprivation, and obstructive sleep apnea (OSA), leading to disrupted sleep and reduced oxygen saturation. In this report, we present the case of a 53-year-old female patient with a history of EDS and OSA, who despite adherence to Positive Airway Pressure (PAP) therapy, continues to experience debilitating daytime somnolence. This case highlights the challenges in managing EDS in patients with OSA, particularly when the standard therapy fails to reduce sleepiness.

Objective: To demonstrate the importance of a multidisciplinary approach to residual daytime sleepiness in obstructive sleep apnea.

Methods: Anamnesis, physical examination, psychological assessment, and polysomnography were performed.

Results: Despite the effective reduction of snoring through regular PAP therapy, the patient continued to experience significant daytime somnolence, affecting her quality of life (Epworth Sleepiness Scale score: 14). A thorough examination by otorhinolaryngology revealed no major abnormalities except for a minor deviated nasal septum. Physiotherapy evaluations led to adjustments in PAP settings, although compliance was suboptimal. A further sleep study indicated an apnea-hypopnea index of 16.6/h with a minimum saturation of 75%. The multiple sleep latency test showed no sleep-onset REM periods. Psychological assessment uncovered irregular sleep patterns, including voluntary early morning awakenings for behavioral reasons, leading to worsening sleepiness and non-adherence to PAP therapy.

Conclusion: To effectively manage persistent EDS despite optimal PAP therapy, a personalized treatment plan developed by a multidisciplinary team is crucial. Addressing specific lifestyle factors and understanding the patient's sleep patterns and poor sleep habits are essential for successful therapeutic outcomes.

ID: 1791

Neurological Consequences of Sleep Deprivation Among Healthcare Professionals: A Systematic Review

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Keywords
- sleep deprivation
- healthcare professionals
- neurological effects
- cognitive function

Introduction: Healthcare professionals have long suffered from sleep deprivation due to working over hours and stressful work environments. This systematic review assesses the neurological consequences of sleep deprivation observed in cognitive impairment, mood changes and overall mental health for this population.

Objective: Evaluate neurological impacts of sleep deprivation on healthcare professionals, in term of cognitive dysfunction and mental health disruption and to figure out strategies that combat these effects.

Methods: This study was searched on PubMed, Scopus and Web of Science database. The key terms used was: "sleep deprivation", "healthcare professionals", "neurological effects" and "cognitive function". Inclusion criteria were peer-reviewed studies and books published in the last 5 years and contain neurology-related evidences regarding sleep deprivation. The review was conducted according to PRISMA guidelines.

Results: A total of 10 studies met the inclusion criteria. Those studies reveal significant effects of sleep deprivation has on healthcare professionals causing neurological impacts. Cognitive: insufficient sleep over an extended period impairs attention, memory and decision making. Research by Lockley et al. demonstrated that, in addition to affecting job performance and patient care. Mood disorders — Sleep deprivation leads to mood swings characterized by anxiety and depression. Findings by Rogers et al. elucidate that these mood disorders, in turn, increase emotional vulnerability and stress among medical.

Neuroendocrin e Disruption: Sleep deprivation also affects hormone levels, especially cortisol and circadian rhythm. Bowers et al. (2021) reported that these disruptions can lead to further mental health deterioration and increase burnout risk. This review underscores the neurological effects of sleep deprivation on healthcare professionals, impacting cognitive function, emotional well-being, and overall mental health. It is important to have efficient interventions for somethings as crucial as healthcare work. Better scheduling strategies, education on sleep and assistance with mental health are urgently needed to boost job performance and well-being of healthcare workers.

Conclusion: The results indicate that inadequate sleep affects cognitive and emotional health with implications for job performance, as well as patient safety. To support healthcare professionals, interventions need to be targeted.

ID: 1792

Sleep Disorders in Tempororomandiular Disorders: Unraveling the Impact of Obstructive Sleep Apnea, Insomnia, and Their Comorbidity on Pain and Psychosocial Well-Being

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Keywords
- sleep apnea
- insomnia
- anxiety
- catastrophizing
- pain
- temporomandibular disorder

Introduction: Sleep disorders are prevalent in Temporomandibular Disorders (TMD), and they may precede its onset or worsen symptoms and treatment responses

Objective: The aim is to assess the correlation and impact of Obstructive Sleep Apnea (OSA), Insomnia (I), and Comorbidity Insomnia and Obstructive Sleep Apnea (COMISA) in TMD patients, focusing on pain characteristics, anxiety, catastrophizing, and quality of sleep.

Methods: A cross-sectional study was conducted from October 2023 to July 2024, involving sixty-six painful Temporomandibular Disorder patients (diagnosed using the Diagnostic Criteria for TMD). OSA was diagnosed through the Biologix Sleep Test (two nights), Insomnia through the Insomnia Severity Index (ISI), and the other variables were verified by validated questionnaires and scales. Pain duration was recorded in months. TMD patients were categorized into four groups: those without sleep disorders (TMD only - control group - C) and those with TMD and Obstructive Sleep Apnea and/or Insomnia (TMD + OSA, TMD + I, and TMD + COMISA). Distribution among variables was checked using the Shapiro-Wilk test. Pearson or Spearman tests were used for correlations, significant differences were identified using ANOVA or the Kruskal-Wallis rank sum test (Jamovi software).

Results: Most of the study population were women (86.4%) with a mean age of 43.1 ± 14.7 years. Overall, 84.6%

suffered from pain for more than 3 months. In terms of sleep disorders, 69.7% had Insomnia, 4.5% had OSA, 16.7% had COMISA, and 9.1% had none of these conditions. Regarding correlation analysis, Insomnia was correlated with pain duration (rho = 0.415, p = < 0.001), Anxiety symptoms (rho = -0.305, p = < 0.013), Body Mass Index (BMI) (rho = -0.289, p = 0.018), and IDO (rho = 0.274, p = < 0.026). OSA was correlated with BMI (rho = 0.482, p = < 0.001) and Sat O2 < 90% (rho = 0.429, p= < 0.001). Statistical differences were only found in anxiety symptoms (p = 0.020; C-I p = 0.023).

Conclusion: Although the study identified significant links between sleep disorders and anxiety, no direct correlation could be found between them and aspects such as pain characteristics, catastrophizing, and sleep quality. This indicates that although these sleep disturbances are common in TMD patients, their direct effect on pain perception and psychological conditions is complex and requires further investigation.

ID: 1793

Effect of Acute Aerobic Exercise at Diferrent Times of Day on Clinic and Central Blood Pressure in Patients with Obstructive Sleep Apnea

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Keywords
- time of day
- aerobic exercise
- blood pressure
- obstructive sleep apnea

Introduction: Post-aerobic exercise hypotension (PEH) is an important phenomenon with significant clinical implications. Aerobic exercise performed in the morning promotes greater PEH than in the afternoon in pre-hypertensives. However, whether this occurs in patients with obstructive sleep apnea (OSA), who have a high cardiovascular risk, remains unclear.

Objective: To verify the effects of aerobic exercise at different times of the day on blood pressure in patients with sleep apnea.

Methods: Twenty-two participants with a prior diagnosis of OSA were recruited. All participants underwent a cardiopulmonary exercise test using the Bruce protocol to identify the garget heart rate for the exercise session. Participants randomly completed four experimental sessions in the morning (8:00-11:00 AM) and afternoon (3:30-6:30 PM). The sessions were: morning exercise and morning control as well as afternoon exercise and afternoon control. The exercise sessions consisted of 40 minutes of walking or running on a treadmill at 54%-59% of the heart rate reserve, while the control sessions involved sitting for 40 minutes. Clinical blood pressure was measured using a validated automatic monitor, while central blood pressure was assessed via radial artery applanation tonometry. Both measurements were taken before and 30 minutes after the experimental sessions. Linear Mixed Models were used to determine the effects of the sessions on clinical and central blood pressure. The Bonferroni post-hoc test was employed when significance was detected. A p-value<0.05 was considered statistically significant.

Results: A decrease in clinical systolic blood pressure was observed after the exercise sessions in both Morning (-16.1 mmHg; 95%CI = -22.5 to -9.7 mmHg; p<0.001) and Afternoon (-11.4 mmHg; 95%CI = -16.8 to -5.9 mmHg; p=0.03). However, central systolic blood pressure decreased only after the afternoon exercise session (-13.9 mmHg; 95% CI = -20.1 to -7.7 mmHg; p<0.001). A statistically significant difference in central systolic blood pressure between morning and afternoon sessions was observed (Morning = -2.1 mmHg; 95%CI = -7.2 to 11.4 mmHg vs. Afternoon = -13.9 mmHg; 95%CI = -20.1 to -7.7 mmHg; p<0.05).

Conclusion: An aerobic exercise session promotes PEH regardless of the time of day, but only exercise in the afternoon reduces central blood pressure.

ID: 1794

Impact of Homelessness on Mental Health and Sleep Quality: A Systematic Review

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Keywords
- homeless
- mental health
- sleep

Introduction: Homelessness is a significant factor contributing to the deterioration of mental health and sleep quality. Existing literature suggests that lack of stable housing exacerbates psychological distress and sleep disorders, both of which adversely affect quality of life. This study aims to review and synthesize recent evidence on the relationship between homelessness, mental health, and sleep, focusing on research published from 2019 to 2024.

Objective: 1. To assess how homelessness affects individuals' mental health. 2. To examine the impact of lacking shelter on sleep quality. 3. To identify interventions and best practices to mitigate adverse effects.

Methods: A systematic review was conducted using academic databases such as PubMed, Scopus, and Google Scholar. The search was performed with the descriptors "homeless AND sleep AND mental health." Selected studies were in English, Spanish, and Portuguese, published between 2019 and 2024. Inclusion criteria involved articles exploring the relationship between homelessness, mental health issues, and sleep, including reviews, observational studies, and clinical trials. The analysis followed the PRISMA guidelines to ensure quality and transparency in article selection.

Results: The review included 25 relevant studies. Key findings indicated that homelessness is strongly associated with worsened mental health, with increased rates of depression, anxiety, and post-traumatic stress disorder. Additionally, sleep-related problems, such as insomnia and fragmented sleep, were prevalent among the homeless. Interventions like temporary shelters and mental health programs showed partial effectiveness in improving these conditions, though long-term solutions are still needed.

Conclusion: Homelessness has a significant and adverse impact on both mental health and sleep quality. The combination of environmental stressors and lack of access to adequate care contributes to the decline in affected individuals' health. To mitigate these effects, it is crucial to develop strategies that integrate psychological support and sustainable housing solutions. Public policies and targeted interventions are necessary to address these issues in a holistic and effective manner.

ID: 1796

Prevalence and Factors Associated with Oxygen Desaturation in Patients of a Tertiary Hospital: A Cross-Sectional Study

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Keywords

- ► obstructive sleep apnea
- ► polysomnography
- ► sleep quality

Introduction: Obstructive Sleep Apnea (OSA) is marked by repeated breathing interruptions during sleep, leading to oxygen desaturation and fragmented sleep. Untreated OSA significantly increases the risk of cardiovascular diseases, cerebrovascular accidents and neurocognitive issues. Despite its importance, OSA often goes underdiagnosed.

Objective: The objective is to descriptively analyze a population sample of patients hospitalized in a tertiary hospital regarding qualitative and quantitative variables.

Methods: This cross-sectional study involved patients with no prior OSA diagnosis, conducted at a tertiary hospital. Data were collected between October 2022 and July 2024. Participants answered questionnaires (Epworth Sleepiness Scale [ESS], STOP-BANG, self-reported sleep quality) and were monitored with overnight oximetry to assess the Oxygen Desaturation Index (ODI). Statistical analysis was performed using Jamovi 2.3.28 software. Data were expressed as mean $\pm$ standard deviation or median (interquartile range). The Shapiro-Wilk test assessed the normal distribution of the data, with a significance level of $p < 0.05$. An ODI higher than 5 was considered elevated.

Results: The study included a total of 78 patients, age 54 ($\pm$ 22.5), weight 66.5 ($\pm$ 26.3), BMI 25.5 ($\pm$ 7.67), STOP-BANG 3.5 ($\pm$ 3), self-reported sleep quality 8 ($\pm$ 3), minimum saturation 87 ($\pm$ 6.75), average saturation 95 ($\pm$ 2), maximum saturation 100 ($\pm$ 1), time with saturation < 90% (min) 0.950 ($\pm$ 7.2), percentage with saturation < 90% (%) 0 ($\pm$ 1), number of desaturations 31 ($\pm$ 64.5), ODI (events/h) 4.6 ($\pm$ 9.48), time with snoring (min) 2 ($\pm$ 20.8), and % of time with snoring 0 ($\pm$ 5.75); the ESS had a mean of 8.59 ($\pm$ 4.11). The prevalence of Elevated ODI was 35%, and it was significantly associated with hypertension (p= 0.009), coronary artery disease (p<0.001), diabetes (p=0.004). Interestingly, there was no association with the subjective quality of sleep or ESS with ODI, minimum saturation, time with saturation below 90% or time with snoring. On the other hand, STOP-BANG score was positively correlated with ODI.

Conclusion: The underdiagnosis of OSA is a critical global health challenge, especially given its link to adverse cardiovascular outcomes. This issue persists even in tertiary care hospital patients with suggestive clinical profiles. There is an urgent need to improve diagnostic screening and expand the availability of methods to ensure early detection and proper treatment of OSA.

ID: 1797

Occurrence and Relevance of the Evaluation of Non-Classical Symptoms in Patients with Obstructive Sleep Apnea

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Keywords

- ► obstructive sleep apnea
- ► non classical symptoms
- ► sleepiness

Introduction: Obstructive sleep apnea (OSA) is characterized by the recurrent collapse of the oropharyngeal airway during sleep, leading to drops in oxyhemoglobin saturation and awakenings. Classical symptoms are common and guide clinical suspicion and diagnosis. However, there is a high prevalence of non-classical symptoms not well investigated, but can be crucial in raising clinical suspicion.

Objective: To describe the occurrence of classical and non-classical symptoms in consecutive OSA patients referred to CPAP therapy. To compare the frequency of these symptoms among patients with varying OSA severitiy. To determine the predominance of classical or non-classical symptoms in the same OSA severity patients.

Methods: Results from Type I or III sleep tests were analyzed, and patients were categorized according to the apnea-hypopnea index (AHI) into mild (AHI 5 to 14.9 events/h), moderate (AHI 15 to 29.9 events/h), and severe (AHI $\geq$ 30 events/h) OSA. The investigators inquired the patients about the presence of classical and non-classical symptoms related to OSA. Statistical analysis was performed using the Shapiro-Wilk test, Paired Student's t-test or Wilcoxon (for intragroup comparisons), ANOVA for intergroup comparisons. The significance level was set at 5%.

Results: We evaluated 109 patients (56% men, mean age 60$\pm$16 years, BMI 29$\pm$6 kg/m^2, and neck circumference 39$\pm$5 cm) and found 10% of mild OSA, 35% moderate, and 55% severe. In patients with mild OSA, complaints of low memory and concentration (91%) were the most frequent classical symptoms, while reflux (82%) and maintenance insomnia (73%) were the most common non-classical symptoms. Snoring and nocturia were the most frequent classical symptoms in moderate OSA (89% and 87%, respectively) and severe OSA (89% and 83%, respectively) and the most common non-classical symptoms were bruxism (63% and 73%, respectively) and oral dryness (68% and 67%, respectively). Surprisingly, patients with mild OSA reported similar numbers of classical and non-classical symptoms (p=0.208), while those with moderate and severe OSA reported more classical symptoms (p=0.000 and p=0.036, respectively). Moreover, the quantity of reported classical (p=0.830) and non-classical symptoms (p=0.314) was similar across all groups, including those with mild OSA.

Conclusion: Non-classical symptoms of OSA are highly prevalent, independent of OSA severity. Mild OSA patents are as symptomatic as those with moderate and severe OSA.

ID: 1798

Relationship Between Sleep Quality and Food Consumption According to the Degree of Processing in Women with Severe Obesity

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Keywords
- severe obesity
- sleep quality
- ultra-processed foods
- diet

Introduction: Several studies have demonstrated a link between obesity and sleep disorders, where inadequate sleep can contribute to the development of obesity, and obesity can impair sleep quality. It is known that the current dietary pattern, characterized by high consumption of processed and ultra-processed foods, may contribute to weight gain and also favor poor sleep quality.

Objective: To evaluate the association between sleep quality and diet quality, according to the degree of food processing, in women with severe obesity.

Methods: Socioeconomic and anthropometric data were collected from 73 women with severe obesity. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Dietary intake was evaluated using the Food Frequency Questionnaire (FFQ) version ELSA-Brazil (2013), with foods categorized according to their processing level. Statistical analysis was conducted using Jamovi software; ANOVA was employed to detect differences between groups, and ordinal and multivariate regression analyses were used to examine the association between sleep quality, dietary intake, and other factors.

Results: The sample had a mean age of 38.0 years and a BMI of 49.0 kg/m^2. Patients with good sleep quality had a higher intake of unprocessed/minimally processed foods (p=0.04). For each unit increase in the score of unprocessed food consumption, the likelihood of belonging to the group classified with good sleep quality increased by 9.17 (p=0.050; β=9.17, 95% CI= 0.10 – 18.77). The same applies to income; individuals with an income higher than one minimum wage are up to 2.85 times more likely to have good sleep quality (p=0.006; β=2.85, 95% CI= 0.89 – 5.00). Regarding the consumption of ultra-processed foods, each 1 unit increase in the consumption score increased the probability of having sleep disorders by 14.86 times.

Conclusion: Data suggests that although obesity is a risk factor for worse sleep quality, this risk might be mitigated by a diet rich in unprocessed/minimally processed foods, whereas a frequent ultra-processed diet increases the risk of developing sleep disorders in women with severe obesity.
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ID: 1800

Overlap of Obstructive Sleep Apnea (OSA) and Hypoventilation Syndrome in the context of advanced kyphoscoliosis

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Keywords
- hypoventilation syndrome
- kyphoscoliosis
- non-invasive ventilation

Introduction: In patients with neuromuscular diseases and thoracic wall deformities, sleep-disordered breathing can manifest in various forms. Hypoventilation Syndrome occurs when alveolar ventilation is insufficient to adequately eliminate the CO2 produced, and this imbalance may result from dysfunction of the respiratory muscles, changes in the mechanics of the thoracic wall, or depression of central ventilatory control.

Objective: Discuss the efficacy of BiPAP (Bilevel Positive Airway Pressure) in the treatment of sleep-disordered breathing in patients with OSA and Hypoventilation Syndrome.

Methods: Male, 54 years old, under Neurology follow-up due to the diagnosis of OSA, undergoing home non-invasive ventilation (NIV) with CPAP (Continuous Positive Airway Pressure) for over 10 years, reporting persistent daytime fatigue. Given the presence of congenital kyphoscoliosis and grade III obesity, additional investigations were performed. Type 1 polysomnography with arterial blood gas analysis during sleep revealed an increase in PaCO2 > 10 mmHg compared to the awake examination. Additionally, spirometry showed signs of restrictive lung disorder. Due to findings consistent with the diagnosis of Hypoventilation Syndrome overlapping with OSA, a switch to BiPAP was recommended, resulting in symptom improvement.

Results: Kyphoscoliosis, a common thoracic wall deformity, is associated with a marked restrictive respiratory pattern. The stiffness of the thoracic wall caused by this condition reduces functional residual capacity (FRC) and impairs lung compliance. Two large cohort studies over 10 years revealed that the survival of patients with thoracic wall deformities treated with oxygen was nearly three times lower compared to those treated with NIV. Piesiak et al. (2015) evaluated, over one year, 12 patients with chronic respiratory failure due to advanced kyphoscoliosis treated with BiPAP with AVAPS (Average Volume Assured Pressure Support). A significant improvement in PaO2 and PaCO2, as well as in average oxygen saturation during sleep, was observed.

Conclusion: The coexistence of OSA with other comorbidities, such as advanced kyphoscoliosis, demonstrates the complexity involved in the treatment of sleep-disordered breathing. In this condition, ventilation with BiPAP stands out as the therapy of choice.

ID: 1801

A Physical Simulator for bench Tests of Therapeutic Devices for Respiratory Sleep Disorders

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Keywords
- bench testing
- respiratory system mechanics
- obstructive sleep apnea

Introduction: The most used respiratory therapies for obstructive sleep apnea syndrome (OSAS) are the Continuous Positive Airway Pressure (CPAP) and BiPAP (Bilevel). Some of these devices perform automatic titration of the pressure, devised to lessen typical respiratory events of OSAS. The literature presents evidence that devices of different brands disagree as to the titrated pressures. Thus, standardized and reproducible bench tests of new devices seem to be recommended.

Objective: To evaluate MecLung, a commercial simulator of respiratory system (RS) mechanics, as a single component of a bench test for automatic CPAP devices.

Methods: MecLung simulates the compliance (C) and resistance (R) of the RS, as well as the respiratory muscular effort. All parameters can be varied in real time with a web app either manually or from a user-defined table. By combining different R and respiratory efforts it would be possible to generate patterns resembling apneas, hypopneas, and Cheyne-Stokes with obstructive or central events characterized without the need of the commonly used Starling resistor. For the evaluation, we used a CPAP of 10 cmH2O (BMC GII) and set up MecLung to simulate, in sequence, a moderate obstruction (R=20 cmH2O/L/s) and average compliance (C=50 ml/cmH2O) at peak inspiratory muscular pressures (Pmusc, peak) of -8, -10, -12 and -14 cmH2O. Also, at Pmusc,peak=-8 cmH2O and the combinations of C=20, 50, 80 ml/cmH2O with R=5, 20, 80 cmH2O/L/s. Pressure and flow were continuously recorded, and breath cycles were detected from flow. Volume was calculated by integration of flow within each cycle. The simulated respiratory effort was then estimated as Pmusc = Pressure - R•Flow - Volume/C, and compared with the set curve.

Results: The median (range) of Pmusc,peak for three repetitions of the single RS test was -8.0 (0.04), -10.1 (0.1), -12.0 (0.2), -14.1 (0.5) cmH2O. For the multiple RS test Pmusc, peak for a total of 27 cycles was -8.1 (1.6) cmH2O.

Conclusion: By reproducing RS mechanics and respiratory efforts compatible with OSAS, a bench test using MecLung may allow for comparing different devices under various specific patient needs. Acknowledgments: this work was partially funded by the Instituto de Ciência, Tecnologia e Inovação de Maricá (ICTIM), the Fundação de Amparo à Pesquisa do Rio de Janeiro (FAPERJ) and the Universidade Federal do Rio de Janeiro.

ID: 1802

Effects of Eight Weeks of Inspiratory Muscle Training on Respiratory and Clinical Variations in Individuals with Obstructive Sleep Apnea: Preliminary Data

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Keywords
- IMT
- OSA

Introduction: Treatments for obstructive sleep apnea (OSA) aim to control apnea, hypoxemia, and associated symptoms. Continuous positive airway pressure (CPAP) remains the gold standard therapy. However, new therapeutic approaches, such as inspiratory muscle training (IMT), have been explored.

Objective: To evaluate the effects of 8 weeks of IMT on respiratory and clinical outcomes, as well as on inspiratory muscle strength and endurance in individuals with OSA.

Methods: We included OSA volunteers who had low compliance to CPAP or did not adapt to this therapy, as well as those referred for non-CPAP treatments. Maximum inspiratory pressure (MIP) and maximum expiratory pressure (MEP) measurements were performed using a digital vacuum manometer, and the endurance test was conducted with Power Breath®. The 8-week inspiratory muscle training (IMT) protocol involved daily training (two sessions per day, three sets of 30 repetitions, six days per week) at 70% of MIP. Type 3 home sleep test was performed by Apnea LinkAir (ResMed®) at the beginning and at the end of the protocol. The Shapiro-Wilk test was used to assess data normality, and paired t-tests and Wilcoxon signed-rank tests were applied to analyze changes after IMT. The significance level was set at 5%.

Results: Thirteen participants (85% men, mean age of 51.2 ± 12.2 years, BMI of 27.7 ± 3.0 kg/m^2), with a respiratory disturbance index (RDI) of 20.0 ± 17.5 events/hour completed the study. Inspiratory muscle training (IMT) significantly increased maximum inspiratory pressure (MIP) from 129 ± 23 to 167 ± 32 cmH_2O ($p < 0.001$) and endurance time from 395.5 ± 139.9 to 814.5 ± 243.0 seconds ($p < 0.001$). Regarding symptoms, participants showed improvement in complaints of respiratory arrest (p=0.031) and drowsiness ($p < 0.001$), but no significant changes were observed for other symptoms, such as gastroesophageal reflux (69% vs 31%, p=0.063), maintenance insomnia (38% vs 0%, p=0.063), oral dryness (38% vs 7%, p=0.125), and memory deficit (54% vs 23%, p=0.125) before and after the intervention. Additionally, no significant changes were observed in RDI (p=0.32), oxyhemoglobin desaturation index (p=0.34), mean saturation (p=0.50), and time with saturation <90% (p=0.31). Minimum saturation decreased from 82 ± 6% before to 76 ± 9% after IMT (p=0.02).

Conclusion: Inspiratory muscle strength and endurance were improved after 8 weeks of IMT but promoted minimal impact on symptom improvement and did not significantly affect polygraphic variables in this population.

ID: 1803

Association Between Obstructive Sleep Apnea Severity and Muscle Strength

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Keywords
- muscle strength
- obstructive sleep apnea
- physical exercise

Introduction: Patients with obstructive sleep apnea (OSA) are known to have lower level of physical fitness, and studies have shown that these patients present reduced muscle strength in upper and lower body, which is an important indicator of physical health. However, the impact of the disease severity on these outcomes is not yet clear

Objective: To analyze the association between OSA severity and upper and lower body muscle strength.

Methods: Ninety-three patients with OSA (age: 53.5 ± 12.3 years; body mass index: 53.3 ± 8.4 kg/m^2; apnea–hypopnea index: 21.1 ±17.1 events/hours; and 53.8% men) participated in the study. To assess the maximum voluntary contraction (MVC) of upper body, the participant conducted 3 contractions using maximum force in the isometric handgrip test, each separated by 30 seconds in the dominant arm. The highest value achieved during the test was considered as the MVC. The lower body strength was assessed through the sit-to-stand test, whereas the OSA severity regarding the respiratory events such as the apnea–hypopnea index (AHI) and oxygen desaturation index (ODI) were assessed by full polysomnography in a sleep laboratory. Body mass index and comorbid conditions were assessed. Multiple linear regression was used to assess the relationship between muscle strength and OSA severity

Results: AHI and ODI were negatively associated with MVC [β=-0.120 (0.060) kg; b=-0.216, p=0.046 and β=-0.123 (0.053); b=-0.252, p=0.023, respectively], independent of age and body mass index. In addition, no associations were observed between AHI and lower body strength.

Conclusion: Patients with greater OSA severity exhibit lower upper body muscle strength.

ID: 1807

Knowledge of Cardiovascular Rehabilitation Service Professionals Regarding the Occurrence and Risks Associated with Sleep-Disordered Breathing in Individuals with Cardiovascular Diseases

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Keywords
- CVD
- SDB

Introduction: The occurrence of sleep-disordered breathing (SDB) is still underdiagnosed, both in the general population and in those with cardiovascular disease (CVD). In addition, little is known about the knowledge of health professionals about the risks of these disorders, the consequences of negligence in treatment and whether this is a topic addressed during care.

Objective: To assess the knowledge of physiotherapists and doctors at a cardiovascular rehabilitation (CVR) service about the occurrence and risks associated with the presence of SDB and CVD in patients undergoing CVR.

Methods: Physiotherapists and doctors who perform outpatient management of individuals with CVD in a public outpatient clinic were invited to take part in the study and were assessed using an online questionnaire with seven multiple-choice and essay questions. The database was generated by REDcape software and exported to a spreadsheet for analysis to calculate absolute and relative frequencies, descriptive analysis of the answers and the creation of graphs.

Results: The sample consisted of 17 physiotherapists and two doctors. In an open question, four (21.1%) professionals mentioned sleep among the clinical manifestations and predictive factors relevant to investigation in individuals with CVD. However, when asked a multiple-choice question, 18 (94.7%) marked “quality of sleep” as an important factor for investigation. Fifteen professionals (78.9%) reported that the quality of sleep is a topic addressed in their care through subjective evaluation of whether sleep is good or bad. Ten professionals (52.6%) believed that SDB co-occurs with coronary heart disease and heart failure (HF) between 40 and 60%; 8 (42.1%) believed that the co-occurrence with resistant hypertension was greater than 60%; and with atrial fibrillation (AF), it was indicated by 12 (63.2%) as being between 40 and 60%. Most professionals indicated habitual snoring, body mass index, systemic arterial hypertension and memory deficit as important factors to be assessed in individuals with CVD in order to identify possible SDB. Hyperactivity of the sympathetic nervous system, ventricular arrhythmias, cognitive decline, AF, hypertension, sudden death and ischemic coronary disease were pointed out by more than 50% of the sample as risks that the presence of SDB could bring to individuals with CVD.

Conclusion: Professionals are aware of SDB occurrence and risks, however sleep does not seem to be a topic that is naturally included in their assessments.

ID: 1808

Differential Diagnosis of Excessive Daytime Sleepiness in an Adolescent Case Report

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Keywords
- excessive daytime sleepiness
- hypersomnia
- adolescent

Introduction: Excessive daytime sleepiness (EDS) in adolescents is a debilitating and multifactorial condition, frequently associated with comorbidities such as ADHD, sleep disorders, and mood disorders. This case describes a 16-year-old adolescent with persistent EDS since childhood, with various outcomes and medical evaluations, and without a conclusive diagnosis.

Objective: To evaluate the causes of EDS and contribute to the differential diagnosis.

Methods: The study included interdisciplinary team assessment, medical record review, anamnesis, interviews, polysomnography (PSG), Multiple Sleep Latency Test (MSLT), and diagnostic scales.

Results: Evaluations were conducted by a neuropediatrician, otolaryngologist, psychiatrist, and sleep psychologists. The patient had experienced EDS since childhood, without a conclusive diagnosis and with various psychosocial outcomes due to sleepiness. Subjective and objective diagnostic scales showed: Epworth Sleepiness Scale: 20/24 (excessive sleepiness); Ullanlinna Narcolepsy Scale: 26/30 (suggestive of narcolepsy); Pittsburgh Sleep Quality Index: 7/21 (poor sleep quality); Chalder Fatigue Scale: 7/11 (significant fatigue); PHQ-9: 10/27 (moderate depressive symptoms); GAD-7: 2/21 (minimal anxiety symptoms). PSG revealed a slightly elevated Apnea-Hypopnea Index (AHI = 12.8 events/hour), with 18 central apneas and 89 hypopneas. Sleep latency was 4.8 minutes, with prolonged REM sleep latency (114.5 minutes). MSLT ruled out narcolepsy. In conjunction with the team's clinical evaluations, the diagnosis indicated congenital adrenal hyperplasia and adrenal insufficiency (contributing to EDS due to inadequate cortisol level regulation, exacerbated by prolonged corticosteroid use); Chiari malformation type 1 (interfering with sleep-wake cycle regulation); and central apneas (indicating disruption in central respiratory control, fragmenting sleep and exacerbating EDS). The patient exhibited chronic sleep deprivation, which exacerbated ADHD symptoms and cognitive deficits, also diagnosed. Additionally, depressive symptoms were observed, further aggravating the impact of EDS on the patient's daily life, generating low self-esteem.

Conclusion: Hypersomnia can be multifactorial, requiring an integrated and personalized approach. Early and collaborative interventions among specialists are essential. Strategies including therapeutic adjustments, psychosocial support, and continuous monitoring are crucial for improving quality of life.

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Differential Diagnosis Between Insomnia with Short Sleep Time and Sleep Misperception: the Role of Actigraphy

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Keywords

- actigraphy
- insomnia
- short sleep duration
- sleep misperception

Introduction: Actigraphy is a useful tool in the objective assessment of insomnia variables such as total sleep time (TST), wake after sleep onset (WASO), daytime napping, and sleep and wake times. This evaluation is of interest for the characterization of insomnia with objectively short sleep time (<6h) phenotype, associated with metabolic, cardiovascular and psychiatric comorbidities.

Objective: Primarily, describe characteristics of the sample of short sleep and sleep misperception, and secondarily describe comorbidities prevalence.

Methods: Retrospective survey of 29 actigraphy exams and patient records (2021-2024).

Results: Our sample was classified according to the following Groups: 1 - insomnia with short total sleep time (TST<6h; 31%), 2 - insomnia (TST 6h>7h; 21%), 3 - sleep misperception (TST7h>9h; 41%), and 4 - paradoxical insomnia (TST>9h; 7%), groups 1 and 2 composing the sleep restriction (SR) sample. Average age was of 54 years, 65,5% consisting of women and higher, statistically significant, risk for SR among men (OR=9,61 p=0,028). Group 1 had average WASO of 83,89 minutes, Group 2 of 40,17 minutes and Group 3 of 56,33, while Group 4 had only 2 individuals with an average WASO of 35.5 minutes. All Groups had a predominance of the intermediate chronotype, although among groups we observed a higher prevalence of eveningness in Group 1 (33%), chronotype non-significantly associated with higher risk of SR. Depression rates were higher in group 1 (44%), while occurred in 25% of individuals in group 3, with risk being non-significantly higher if there was SR. Hypertension occurred in 33% of individual in group 1 and in group 2, being present in 42% of individuals in group 3; while obstructive sleep apnea (OSA) had prevalence of 22%, 16,6% and 8% respectively, with higher non-significant risk with SR.

Conclusion: Approximately 50% of the sample presents insomnia with TST>7h. Group 1 represents the most severe insomnia phenotype, with greater association with metabolic and psychiatric disorders, especially depression (44%). Group 2 represents traditional insomnia patients, a heterogeneous group, with different associated comorbidities and WASO times. In conclusion, the objective determination of TST through actigraphy made it possible to classify patients into 4 groups that present different characteristics and must be managed in different ways.

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Effectiveness of Telemonitoring in a Public Ventilatory Support Program

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Keywords

- treatment adherence
- obstructive sleep apnea
- continuous positive airway pressure

Introduction: Sleep disorders (SDB) are all events related to the respiratory system that occur during sleep, including obstructive sleep apnea (OSA), and hypoventilation syndromes. Positive pressure therapy (PAP) is the preferred treatment for SDB and can be performed using continuous positive airway pressure (CPAP) or two pressure levels (bilevel). Adherence to treatment is crucial for therapeutic effectiveness, however many patients may have difficulties adapting to PAP. Telemonitoring is an important tool for improving adherence by providing real-time data on device usage, facilitating personalized settings and ongoing support.

Objective: To analyze data regarding adherence to short- and long-term positive pressure treatment in patients treated at a SUS sleep clinic.

Methods: This is a retrospective study of data referring to four years of telemonitoring in a sleep physiotherapy outpatient clinic from 2020 to 2023. The telemonitoring model uses 2G technology through a cellular signal (GSM) in a database in cloud, following a protocol of teleconsultations carried out 7, 15, 30, 60 and 90 days after the start of therapy. After initial adherence, teleconsultations are carried out every three to six months, depending on the level of adherence and adaptation to therapeutic pressure. Telemonitoring of data is followed by a phone call to analyze residual symptoms and possible therapeutic adjustments. The target for defining adherence to treatment was the use of more than four hours per night on at least 70% of nights. Initial adherence represents the first three months of use of the equipment and late adherence, the last three months of use.

Results: A total of 29,069 telemonitorings were carried out over the 4 years, reaching an average of 7,267 telemonitorings/year and 605 telemonitorings/month. The therapeutic modality used was 84.3% CPAP, 4% bilevel (S mode) and 11.7% bilevel (ST, T or PC modes). The average age was 54.41$\pm$ 19.33 years and the average initial adherence over the 4 years was 79.4%, varying annually from 79.6% (2020), 82.3% (2021), 80 .4% (2022) and 78% (2023). Late adherence in 4 years was 69.7%, varying annually 70.92% (2020), 70% (2021), 69.5% (2022) and 66.9% (2023). A total of 1136 patients achieved the early adherence goal, and 1015 patients maintained the late adherence goal.

Conclusion: interventions based on telemonitoring are associated with an increase in adherence to therapy.

