tetrapolar ((Inbody 570 – Inbody Co. Ltd., Seoul - Korea) in two distinct moments: at the beginning and at the end of the sleep deprivation protocol, totaling 36 hours of deprivation. During deprivation, the volunteers did not perform vigorous physical exercises and had all their food intake controlled and observed so that their eating habits did not change. It was observed that, acutely, the individuals increased their body mass after the experiment (T-test for paired samples, statistics -8.61, p<0.001, mean difference -1.477, Cohen's d -1.455) and this increase can be explained by, basically, fluid retention (T-test for paired samples, statistics -3.75, gl 34.0, p < 0.001, mean difference -0.671, Cohen's d -0.634) in the extracellular medium and increase the percentage of body fat in relation to muscle mass (T-test for paired samples: statistics -3 .65, p<0.001, mean difference -0.671, Cohen's d -0.503).

The foods offered to the participants were not rich in sugars or sodium and other salts, and the *ad libitum* feeding model was utilized. Possibly, this fact has contributed to the increase in fat mass in the studied population. Populations that are subject to night and/or rotating work need special attention to food, as the body naturally prepares itself for the adversity caused by sleep deprivation using the energy-saving strategy.

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INDOOR AIR QUALITY IN THE SLEEPING ENVIRONMENTS OF LISBON DWELLINGS, PORTUGAL – PRELIMINARY RESULTS OF HYPNOSAIR PROJECT

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Introduction: Given that people spend a third of their lives sleeping and that sleep is essential for the wellbeing, performance and health of individuals, the sleeping environments have attracted the attention of the scientific community in recent years to assess exposure levels and how they may affect sleep quality - a question that remains unanswered. In addition, this micro-environment is poorly characterised (Canha et al., 2021), leading to an inaccurate assessment of the integrated daily exposure of individuals. Most studies focus on comfort parameters (temperature and humidity) or single pollutants, such as carbon dioxide (CO_2). The characterization of indoor air quality (IAQ) during sleep faces several challenges that make it difficult to achieve (such as the noise interference of monitoring equipment in the sleep of individuals) and it is therefore essential to implement monitoring strategies that overcome them. The HypnosAIR research project (www.hypnosair.com) aims to address this challenge by providing an overview of IAQ (focusing on several parameters) in the sleeping environments of 30 dwellings in Lisbon area, Portugal. This work presents the results obtained so far.

Materials and Methods: A monitoring campaign is being done in bedrooms (occupied by two adults) of 30 selected dwellings in the metropolitan area of Lisbon (Portugal), during the sleeping hours (weeknights only). Real-time monitoring in real time is being done for: temperature, relative humidity, carbon dioxide, carbon monoxide, formaldehyde, total volatile organic compounds, particulate matter (including ultrafine particles) and black carbon. $PM_{2.5}$ sampling is also being done, using silent $PM_{2.5}$ samplers (SILENT Sequential Air Sampler - FAI Instruments S.r.l., Italy) for indoors, while for parallel outdoor sampling, medium volume samplers (MVS6, Leckel, Sven Leckel, Germany) are being used.

Results: The present work provides an overview of the IAQ assessment in the dwellings already assessed. For example, for the first 7 dwellings, mean $PM_{2.5}$ levels during sleep were found to be 8.9 ± 2.8 $\mu g.m^{-3}$ (ranging from 5.1 to 14.1 $\mu g.m^{-3}$), with all bedrooms having $PM_{2.5}$ levels above than the international guideline value of 5 $\mu g.m^{-3}$recommended by the World Health Organisation.

Conclusions: HypnosAIR aims to improve the knowledge of IAQ in sleep environments, by conducting a comprehensive assessment of the different parameters that characterise the complexity of indoor air. This work will contribute to the ultimate goal of HypnosAIR, which is to understand the impact of air quality on sleep quality, considering an integrated human exposure approach.

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INSOMNIA AS A RISK FACTOR FOR FALLS IN THE ROBUST OLDER ADULTS

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Introduction: Aging may present changes in the macro and microstructure of sleep, contributing to the high prevalence and severity of sleep complaints in older adults. With aging, sleep becomes more fragmented and shorter in overall duration. The definition of insomnia varies according to the diagnostic criteria adopted in studies; however, it is estimated that about 30 to 48% of older adults have insomnia symptoms, and the prevalence of insomnia disorder is about 12 to 20%. This disorder may be associated with impaired cognitive function, slower motor responses, and daytime sleepiness, contributing to an elevated risk of falls in older adults with insomnia.

The objective of this study is to evaluate the association between insomnia and falls among the older adult community-dwelling population.

Materials and Methods: This study is part of a more extensive study entitled "Sleep disorders and metabolomic profile related to the occurrence of falls in older adults community-dwelling: a prospective longitudinal study". The participants were selected through a non-probability sampling approach using the snowball method. Inclusion criteria comprised robust elderly aged 65 years or over, residing in Salvador-BA, who obtained approved scores in the Clinical FunctionalVulnerability Index and in the Montreal Cognitive Assessment. Exclusion criteria were older adults living in institutions, those with neurological or osteoarticular disorders affecting balance, and those unable to understand instructions. For data collection, sociodemographic questionnaires, history of falls in the previous year, clinical questionnaires, and the Insomnia Severity Index were used.

Results: Data from a sample consisting of 77 participants were examined. Mean sample characteristics revealed a mean Body Mass Index of 26.3 ± 4.1; mean neck circumference of 38.8 ± 3.6 cm; mean abdominal circumference of 92.9 ± 11 cm; and mean age = 71.0 ± 5.0 years. Of the participants analyzed, 68.8% (n=53) were female, and 76.6% (n=59) self-declared as black or brown. In addition, 93.5% (n=72) were not taking sleep-inducing medications, and 85.7% (n=66) were not receiving psychological counseling. Within the analyzed sample, 26.3% of the participants reported having suffered at least one fall in the previous 12 months, while 21.3% of the individuals had insomnia symptoms at the time of applying the Insomnia Severity Index. When comparing individuals with and without insomnia, it was observed that insomniacs had a higher frequency of falls in the previous 12 months (62.5% vs 18.6%; p < 0.001), respectively.

Conclusions: The existence of insomnia was associated with a higher frequency of falls among older adults over 65 years. It is of utmost importance to focus on preventing and treating insomnia, as this can play a fundamental role in the reduction of the risk of falls and the promotion of these individuals' health and general well-being.

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