OPINION

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THE PLAGUE OF INSOMNIA AND MEMORY LOSS: COMBINING MAGICAL REALISM WITH SLEEP MEDICINE

The term plague derives from Latin "*pestis*" and refers to a disease that is contagious, serious and generates increased mortality. It has as synonyms such as epidemic and pestilence. However, pestis is also used in everyday language to indicate that something is harmful, unpleasant, of poor quality, causes problems or presents itself in large quantities. Moreover, the word plague is generally used when one refers to any type of disease [1].

Gabriel García-Márquez in his novel "One Hundred Years of Solitude" describes Visitación an indigenous Amerindian woman, who arrived in Macondo "fleeing from the plague of insomnia that had plagued her tribe for several years," and frames insomnia within the patterns of an infectious-contagious disease; The eyes lit up like those of a cat in the dark were described in fiction as the initial symptom of the disease [2]. Anxiety and fear, as well as other sociocultural expressions that emerge in epidemics and pandemics, were literarily portrayed in the description of the insomnia plague [3]. Even those affected by the plague sought to take advantage of the situation: "If we don't ever sleep again, so much the better," José Arcadio Buendía said in good humor. "That way we can get more out of life." The author did not forget to mention the consequences of insomnia: "the body did not feel any fatigue, but its inexorable evolution towards a more critical manifestation: forgetfulness" [2]. Thus, one plague gave rise to another plague, as the contagious pathology (insomnia) caused a neurocognitive alteration (memory loss): "(…) when the patient became accustomed to his waking state, childhood memories began to be erased from his memory, then the name and notion of things, and finally the identity of people and even the awareness of one's own being". In this literary piece the quarantine puts limits on the spread of insomnia, with ingenious measures the plague of memory loss was faced and the two were resolved with "a substance of peaceful color [2].

Sleep disorders and insomnia are currently global public health problems, usually underdiagnosed and poorly treated, although 40% of the entire population reports suffering from the latter. The symptoms of insomnia are: difficulty initiating sleep, staying asleep enough, waking up earlier than desired, or waking up without having had enough sleep [4-7], whereas sleep disorders include sleep apnea, narcolepsy and restless legs syndrome. Although insomnia is not an infectious or contagious disease, in the collective and popular imagination it could be considered a plague, taking into consideration other meanings of the word [1].

Information from the global data and business intelligence platform, Statista Consumer Insights (https://www.statista.com), obtained through online surveys indicate, that in 2023 in the adult population the rate of sleep disorders were: Italy (43%), Spain (42%), the United States (40%), South Africa (39%), Mexico (38%), Brazil (36%), China (29%) and India (26%). In a study by Monterrosa-Castro et al. [8], they reported that 57.2% of mid-aged Colombian women have poor sleep quality. Another study of the same group, with the use of the Athens Insomnia Scale have found that 27.5% of Colombian mid-aged women (of three ethnic groups) have suffered from insomnia [9].

The causes of insomnia and sleep disorders are multifactorial and involve biopsychosocial and environmental aspects, such as: pregnancy, female sex, postmenopause, obesity, stress, and aging [4,5,8,9]. One should bear in mind that currently the population is daily exposed to new external factors generated by today's lifestyle (i.e. bright screens, blue light, nocturnal eating, sedentary lifestyle), which negatively alter the sleep/wake balance, affect the circadian rhythm and promote poor sleep hygiene [4,7].

Insomnia and other sleep disorders are an important reason for medical consultation with general practitioners, family doctors or specialists, among all age groups [4,6,7]. Subjective tests such as scales or questionnaires are available and allow for the screening of sleep complaints and sleep quality [8,9].
The availability and rational use of specialized medical equipment can make it possible to classify the severity of insomnia and other sleep problems, hence facilitating the administration of specific therapy and preventing various negative outcomes, including mortality at an early age [5].

Just like in the fiction "One Hundred Years of Solitude", where the plague of insomnia caused gradual memory loss, in the reality the relationship between sleep disorders and a reduction in the capacity for memory consolidation and a greater possibility of cognitive deterioration has been discussed by several authors [6,10]. Sleep disorders are a multidimensional phenomenon and are linked

to cognitive impairment and neurodegenerative process, which are clinical expressions of morphological compromises of the cerebral white matter, the accumulation of proteins such as β-amyloid, synaptic dysfunction and neuronal involvement [5,10,11]. There has been growing evidence indicating that alterations in the sleep/wake rhythm may be the risk factors for dementia and cognitive impairment [12]. Sleep disorders, by affecting synaptic plasticity and memory consolidation, can lead to deterioration of cognitive capacity and performance, therefore, affecting brain health [13].

From a clinical and epidemiological point of view, sleep disorders are of interest, as they are related to numerous adverse consequences such as memory impairment, irritability, depression, excessive daytime sleepiness, lack of concentration, feeling of fatigue, lack of energy, tiredness and exhaustion, deterioration in work performance and productivity, hindrance in interpersonal relationships, increased cardiovascular disease risk, high blood pressure, metabolic disorders, and physical, immunological, psychological and neurocognitive deterioration. More than eighty types of diseases and even a higher mortality rate have been related to insufficient sleep [4,5,7].

The following non-pharmacological treatments are available for sleep disorders: cognitive behavioral therapy for insomnia, relaxation techniques, light therapy, transcranial magnetic stimulation, transcranial alternating or direct current stimulation, and sleep hygiene education, among others [14]. Pharmacological treatments are also suggested: hypnotics (belonging or not to benzodiazepines), melatonin derivatives, antipsychotics, antidepressants, and antihistamines [15]. Recently, Wu et al [13] have published a meta-analysis of 24 randomized controlled clinical trials which explore the impact of non-pharmacological versus pharmacological insomnia treatment on cognitive impairment and memory. Non-pharmacological interventions are more effective for the improvement of cognitive function, memory, attention, and routine activities when compared to pharmacological preparations (p<0.01). In addition, the longer the treatment is the greater cognitive benefits are.
Another study conducted by Alquahtani et al [16], has demonstrated an inverse and significant correlation between the evaluation of sleep quality and memory capacity as well as mental and physical well-being. It underlines the need to give priority to political and public health efforts to address sleep problems, which have substantial effects on the health of individuals and the population in general. However, more research is needed to better specify the relationship between impaired memory capacity and sleep disorders.

It is widely known that sleep is an organic need; it is one of the fundamental pillars of life, which, with its restorative role in the molecular and electrical dynamics of the brain, favors global cognitive performance, including the consolidation of memory [4,7]. Carlson et al. [12] have noted that adequate sleep is essential for healthy physical, emotional, and cognitive functioning, including memory. Therefore, therapeutic, personalized interventions are necessary, to improve health and cognitive function [13]. Sleep disorders should not be underestimated, and it is crucial to invest in good sleep quality, which is equivalent to investing in health. Although in "One Hundred Years of Solitude", Melquiades delivers a bottle with a syrup that cures the two plagues (insomnia and memory loss), there is no magic drug that cures both clinical circumstances. A combination of personal, community, social and medical assistance is what allows the successful management of patients who have sleep disorders and/or memory, concentration, attention and learning difficulties [4,11]. Therefore, the information provided on the institutional pages, such as: https://www.mayoclinic.org/diseases-conditions/insomnia/symptoms-causes/syc-20355167?p=1 and https://my.clevelandclinic.org/health/diseases/12119-insomnia, contributes to individual and collective education about sleep problems and their impact on physical and cognitive health.

The World Sleep Day is commemorated every year on March 17, a day devoted to raising awareness regarding the importance of good sleep habits. Early medical consultation is essential to maintain adequate biological and mental integrity, which are crucial in the sleep/wake balance.

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