

Sleep diplomacy: an approach to boosting global brain health



Sleep diplomacy highlights the urgent need to address the widespread issue of sleep deprivation and its detrimental effects on overall health, particularly brain health and healthy ageing. By providing practical advice on sleep hygiene, healthy schedules, and light exposure, sleep diplomacy aims to promote a comprehensive approach to well-being. Despite the well-established importance of sleep for optimal cognitive function, emotional regulation, and physical abilities, it is often neglected in public and medical recommendations. Our proposed concept of sleep diplomacy also offers practical recommendations to address sleep issues in various settings and populations.

Imagine there was a treatment which could improve cognitive function; boost the immune system; help with losing weight and regulating metabolism; protect the cardiovascular system; regulate waste clearance of the brain; and increase mood, emotional self-regulation, and productivity. Well, we already have it: sleep. A healthy sleep-wake cycle promotes well-being and general health and, in particular, brain health.¹ However, about 62% of the world's population fail to get the recommended minimum of 7 h of night sleep for adults.² Sleep deprivation consequences are pervasive: from metabolic, cardiovascular, and brain disruption to increased accident rates and, moreover, heavy costs on the overall economy (ie, sleep-related problems cost 1–2% of the Gross Domestic Product in high-income countries).³ Even with increasing evidence on the needs of healthy sleep for our vital cycle, we tend to neglect its importance when making medical and lifestyle recommendations for the general population, including its glaring absence in brain health guidelines.

In this Comment, we propose the concept of sleep diplomacy under the general framework of brain health diplomacy⁴ to raise awareness of the health consequences of a disrupted sleep-wake cycle on the general population, as well as in specific groups such as aged individuals or patients undergoing chronic illness. In the same direction of brain health diplomacy, sleep diplomacy aims to emphasise the need for adequate rest, to warn against the lack of adequate sleep or circadian rhythmicity, and to provide practical advice

of sleep hygiene, healthy schedules, and light exposure, among others.

Brain health has been recently introduced as a requirement for healthy nervous function, including cognitive abilities (such as memory, attention, and decision making), emotional regulation, adequate social interactions, and physical abilities (such as motor control and coordination).⁵ A healthy brain is able to perform its functions effectively and throughout the lifespan; healthy habits and the correct addressing of risk factors can prevent or ameliorate some age-related brain diseases, including dementia. Brain health is not limited to ageing factors but should certainly be considered as a major goal in young adults.⁶

The most common factors that have been related to brain health are genetics, ageing, nutrition, social relationships, and exercise. We propose to add adequate sleep to the list. Restorative sleep plays an important role in repairing and restoring our brains, including the clearance of waste products from the brain such as amyloid beta and other proteins that accumulate in the brains of people with dementia.⁷

Our constantly alert society is struggling to keep healthy sleep tracks. There is anecdotal evidence that, on average, we have been losing 1 to 2 h of nocturnal sleep in the past century, moving away from the recommended sleep duration and quality recommendations. This correlates with light pollution during the night, changes in social schedules, and an increase in anxiety levels, among other factors. Over the past 10 years, higher global temperature values related to climate change mechanisms have also been found to negatively influence sleep quality. The consequences are clear; aside from immune and metabolic compromises, too little sleep increases the risk of developing Alzheimer's disease and related dementia.⁸ Moreover, little, untimed, or irregular sleep also impacts mental health and can be associated with addiction disorders.

Other than sleep, a robust circadian system is needed for brain health maintenance. A fragmented circadian rhythm in sleep, locomotion, and temperature is usually observed in the older population (ie, those older than 65 years), which is related to cognitive and

Lancet Healthy Longev 2023

Published Online

July 4, 2023

[https://doi.org/10.1016/S2666-7568\(23\)00109-5](https://doi.org/10.1016/S2666-7568(23)00109-5)

Panel: Sleep diplomacy—specific recommendations

- Provide sleep advice campaigns for the general population, including general media, social media, and behavioural science interventions
- Promote expert panel discussions on time-policy issues such as time zones and standard time
- Establish guidelines for shiftwork operations, including those for health personnel
- Provide recommendations regarding digital technology and LED screen use with respect to effects on sleep
- Promote adequate sleep hygiene routines in health centres and hospitals
- Establish recommendations for sleep hygiene according to lifespan stages (childhood, adolescence, ageing)
- Promote discussions on educational schedules regarding start times of secondary schools
- Share results on time use national surveys, including sleep and rest habits depending on genre, age, and socioeconomic status

mental decline.⁹ Regulation of the nervous activity by the circadian system occurs through life from prenatal development to old age. An adequate amplitude and phase of circadian rhythm is a prerequisite for general (and brain) health. Circadian disruption, such as jetlag and shiftwork, impose a severe burden on health and have direct consequences on metabolism and cognition, among others. There are several therapeutic tools to modify circadian rhythms, from light treatment to behavioural and pharmacological interventions. Several of these manipulations have a direct effect on sleep and on general well-being.

There is a striking difference in sleep quality and duration among people with different socioeconomic status. People living in poverty conditions (especially in low-income countries) might face challenging living environments, which could interfere with the duration and quality of sleep. In these populations, factors such as harder working conditions, crowded and noisy housing, and the lack of access to adequate lighting and air conditioning, certainly play a role in sleep quality, which in turn affects brain health.

In conclusion, although there is a certain consensus on the need of brain health diplomacy regarding research, treatment, and advocacy of brain-related disease and hygiene,^{4,10} here we put forward the notion of sleep diplomacy, which encompasses sleep-promoting interventions and strategies to improve sleep in individuals and populations, especially those

experiencing sleep disturbances or sleep-related problems (panel). This might involve the use of behavioural or environmental modifications, such as sleep hygiene practices, exposure to light therapy, or the use of sleep-promoting medications. It might also include the use of policy and advocacy to advance better sleep. The goal of sleep diplomacy is to promote healthy sleep patterns and improve sleep quality, which can have a positive impact on physical and mental health, as well as overall well-being. Sleep diplomacy can be applied in various settings, such as homes, schools, workplaces, institutions, and across governments at national and regional levels, and can be used to address a wide range of sleep disorders, including insomnia, sleep apnea, and circadian rhythm disorders. Brain and sleep diplomacy implies a collaborative effort to address sleep issues in the general population (as well as during specific vulnerable times of life or conditions such as ageing, adolescence, or brain diseases), provide adequate recommendations, and consider sleep as a fundamental factor of health and wellbeing.

BL is Chair of Trial of Ondansetron as a Parkinson's HALLucinations Treatment, and Member of the World Dementia Council. AI has received grants from Takeda, Agencia Nacional de Investigación y Desarrollo de Chile, National Institutes of Health and the Fogarty International Center, National Institute on Aging, Tau Consortium, Alzheimer's Association, Rainwater Charitable Foundation and Global Brain Health Institute. WDD has received grants from the National Institute on Aging, Latin American Brain Health Institute, Oregon Health Authority, and Portland State University Foundation. All other authors declare no competing interests.

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