GLOBAL SLEEP DURATION HAS SIGNIFICANTLY INCREASED AMID COVID-19 PANDEMIC, POTENTIALLY STRENGTHENING IMMUNE SYSTEM'S RESPONSE TO VIRAL PATHOGENS AND VACCINES

Sleep Cycle data suggests people are sleeping longer during the pandemic, which should improve their ability to resist becoming severely infected, as well as the efficacy of COVID-19 vaccines

BOSTON, MA – Feb. 8, 2021 – A study published in the *Journal of Medical Internet Research* finds that COVID-19 mitigation strategies and changes in our daily routines may have increased global estimated sleep duration by up to 25 minutes. This significant increase in total sleep time is comparable to the impact of hypnotic medication, or common sleep aids, and may be clinically important as sleep deprivation increases susceptibility to viral infection and diminished the immune response to vaccination.

Sleep researchers from Harvard Medical School, Brigham and Women's Hospital, Keane University and Monash University conducted a prospective observational study using over 2M nights of anonymized data from Sleep Cycle, the world's most popular sleep tracking application that analyzes users sleep. Data was obtained from regular users of the smartphone application before and after the World Health Organization declared COVID-19 a pandemic in March 2020.

The study found remarkable increases in estimated sleep duration across major metropolitan areas including New York City (+24.5 minutes), London (+20.8 minutes) and Seoul (+12.2 minutes). Interestingly, while Sweden did not institute the stringent COVID-19 containment measures other countries chose to enact (e.g., shelter-in-place policies), estimated sleep duration increased in Stockholm at a rate similar to other regions that did institute stringent containment policies. This may reflect that those residing in Stockholm are following similar precautions as others around the world, despite not being restricted to their homes.

According to Rebecca Robbins, Ph.D., Instructor in Medicine at Harvard Medical School, Associate Scientist at Brigham & Women's Hospital, and the lead author of the study, most people were falling below the recommended nightly sleep duration of 7 hours before the pandemic. She says the increase in estimated sleep duration may be just enough for most of us to attain the sleep our bodies need to rest and fight infection.

"Sufficient sleep is important to ensure a robust immune response to infection," said Stuart Quan, MD, Senior Physician, Division of Sleep and Circadian Disorders, Brigham and Women's Hospital; Gerald E. McGinnis Professor of Sleep Medicine, Harvard Medical School. "Our study suggests that many people are sleeping longer during the COVID-19 pandemic which should improve their ability to resist becoming severely infected, as well as the effectiveness of COVID-19 vaccines."

In 2020, Sleep Cycle released Sleep and Mental Health Amidst the Coronavirus Pandemic, a report examining how changes in behaviors and worries due to the pandemic impacted sleep and mental health worldwide.

"Sleep Cycle is dedicated to providing the world with the information needed to improve and understand our sleep," said Carl Johan Hederoth, CEO of Sleep Cycle. "We're proud of the integrity of our data and its ability to fuel a greater comprehension of COVID-19's continued impact on our physical and mental wellbeing."

"These results reveal the power of harnessing big data derived from consumer sleep trackers to assess changes in sleep associated with global events, such as COVID-19," said Charles A. Czeisler, Ph.D., MD, FRCP, Baldino Professor of Sleep Medicine; Director of the Division of Sleep Medicine, Harvard Medical School; and Chief of the Division of Sleep and Circadian Disorders, Departments of Medicine and Neurology, Brigham and Women's Hospital.

The study,*"Smartphone application-estimated sleep duration before and during COVID-19 in five major metropolitan areas on three different continents,"* was authored by Rebecca Robbins, Ph.D.; Matthew D. Weaver, Ph.D.; Laura K. Barger, Ph.D.; Stuart F. Quan, M.D. and Charles A. Czeisler, Ph.D., M.D. of the Division of Sleep and Circadian Disorders, Departments of Medicine and Neurology, Brigham and Women's Hospital; Mahmoud Affouf, Ph.D., Department of Mathematics, Kean University and Mark É. Czeisler, School of Psychological Sciences and Turner Institute for Brain and Mental Health, Monash University, Institute for Breathing and Sleep, Austin Health and Department of Psychiatry and Brigham and Women's Hospital. Dr. Daniel Sääf of Sleep Cycle assisted in the data acquisition.

About Sleep Cycle
Sleep Cycle is the world's most popular sleep tracking application that analyzes user's sleep, records findings and wakes them during their lightest sleep phase so they feel rested and refreshed. The app generates nightly sleep reports, tracks long-term sleep trends, and logs how daily activities impact sleep quality. With millions of users worldwide, Sleep Cycle has become the world's richest repository of data on global sleep habits.

All Sleep Cycle sleep data used in this report is voluntarily shared anonymously by Sleep Cycle users. Sleep Cycle users can choose to decline or participate at any time. The data of users who decline participation is never shared or used for Sleep Cycle sleep research reports. User data remains safe and private, locally stored on the device, and in their online backup.

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