

Sleep Habits and Disturbances Among Tunisian Adults: A Cross-Sectional Online Survey [Response to Letter]

Sameh Msaad¹, Nouha Ketata², Nesrine Kammoun³, Rahma Gargouri¹, Rim Khemekhem¹, Sourour Abid¹, Saeb Bader¹, Sabrina Efidha⁴, Narjes Abid⁵, Jamel EL Ghoul⁶, Imen Sahnoun⁴, Hazem Altalaa¹, Jihene Jdidi², Mohamed Jlidi⁷, Nadia Keskes Boudaouara⁸, Imen Gargouri⁹, Najla Bahloul¹, Samy Kammoun¹

¹Department of Respiratory and Sleep Medicine, Hedi Chaker University Hospital of Sfax, Faculty of Medicine of Sfax, University of Sfax, Sfax, Tunisia; ²Department of Preventive Medicine, Hedi Chaker University Hospital of Sfax, Faculty of Medicine of Sfax, University of Sfax, Sfax, Tunisia; ³Tunisian Occupational Health and Safety Institute, Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia; ⁴Department of Pneumology, Abderrahman Mami University Hospital of Ariana, Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia; ⁵Department of Pneumology, Mohamed Taher Maamouri University Hospital of Nabeul, Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia; ⁶Department of Pneumology, Habib Bourguiba University Hospital of Mednine, Faculty of Medicine of Sfax, University of Sfax, Sfax, Tunisia; ⁷Orthopedics and Traumatology Department, Mohamed Taher Maamouri University Hospital of Nabeul, Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia; ⁸Department of Pneumology, Taher Sfar University Hospital of Mahdia, Faculty of Medicine of Monastir, University of Monastir, Monastir, Tunisia; ⁹Department of Pneumology, Farhat Hached University Hospital of Sousse, Faculty of Medicine of Sousse, University of Sousse, Sousse, Tunisia

Correspondence: Sameh Msaad, Email pneumo1972@gmail.com

Dear editor

We thank Dr. Imran Rauf for his insightful comments and interest in our study “Sleep Patterns and Disruptions Among Adults in Tunisia: An Online Cross-Sectional Survey”. We would like to address the concerns expressed and offer further context for our research.

Factors Associated with Poor Sleep Quality

Dr Rauf correctly highlighted further factors that could impact sleep quality, such as mental health challenges faced by healthcare workers during the COVID-19 outbreak and Ramadan intermittent fasting. In our study, we did not find any independent association between previous COVID-19 infection and sleep-wake disorders.¹ However, we agree that subjects with a history of COVID-19 are likely at high risk for long-lasting sleep disturbances as was suggested by several previous studies.² Furthermore, CircoCOVID, a large prospective multicentric study from the United Kingdom, showed that sleep disturbances following hospital admission for COVID-19 were associated with dyspnoea, anxiety and muscle weakness.² This suggests that targeting sleep disturbance may help improve long COVID-19 conditions. As a result, we concur with Dr Rauf’s perspective on the need for further research to better understand the connection between sleep disturbances and COVID-19. Several environmental and cultural factors might also impact sleep-wake patterns in Tunisian adults. One significant cultural factor is the practice of intermittent fasting during Ramadan, which was linked to disturbed sleep and vigilance due to associated lifestyle changes. A meta-analysis by Faris reported that during Ramadan, total sleep time is reduced by an average of one hour, while the Epworth Sleepiness Scale shows no significant change.³ As Ramadan is a special context, it requires dedicated studies with an appropriate methodology.

Mood Disorders and Sleep Disturbances

Sleep disturbances and mood disorders are closely linked and improving sleep quality may positively affect mood issues even though the underlying mechanisms of this association remain unclear. As shown in our study, Tunisia currently

faces an increased prevalence of sleep disturbances. Unfortunately, most general practitioners lack the proper training for sleep disturbance screening and management. As a result, most people with sleep disturbance seek assistance from a limited number of overcrowded tertiary hospitals. From this perspective, it would be interesting to develop integrated public health intervention models that include all issues and involve primary care physicians. The implementation of the World Health Organization's Mental Health Gap Action Programme (mhGAP) in Tunisia, launched in 2016, aims to bring about a substantial and positive shift in how primary care physicians view and manage mental health.⁴ As suggested by Dr Rauf, it might be a good idea to adopt the same strategy for sleep health by adding modules on sleep disorders into mhGAP. This could improve the management of sleep-related problems by primary care doctors in Tunisia.

Objective Measures of Sleep Quality

Our study used validated Arabic versions of several self-reported questionnaires with acceptable reliability. Further validation of these questionnaires in the Tunisian context would be valuable. Our results provide a good foundation to highlight global trends and significant associations in sleep health among Tunisian adults. We acknowledge, however, that including objective measures of sleep such as actigraphy, as suggested, or at best polysomnography would enhance the accuracy of our results. Unfortunately, we could only use free instruments, because of the lack of funding.

Overall, we fully agree with Dr Rauf that further studies with a longitudinal design, objective measures of sleep quality and the inclusion of specific environmental and cultural factors are required to draw more reliable conclusions.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Msaad S, Ketata N, Kammoun N, et al. Sleep habits and disturbances among tunisian adults: a cross-sectional online survey. *Nat Sci Sleep*. 2024;16:675–698. doi:10.2147/NSS.S456879
2. Jackson C, Stewart ID, Plekhanova T, et al. Effects of sleep disturbance on dyspnoea and impaired lung function following hospital admission due to COVID-19 in the UK: a prospective multicentre cohort study. *Lancet Respir Med*. 2023;11(1):19–21. doi:10.1016/S2213-2600(22)00495-7
3. Farah NMF, Yee TS, Rasdi HFM. Self-reported sleep quality using the Malay version of the Pittsburgh sleep quality index (PSQI-M) in Malaysian adults. *Int J Environ Res Public Health*. 2019;16(23):1–10. doi:10.3390/ijerph16234750
4. Spagnolo J, Champagne F, Leduc N, et al. Tailoring a training based on the mental health gap action programme (mhGAP) intervention guide (IG) to Tunisia: process and relevant adaptations. *Global Mental Health*. 2018;1:5.

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Nature and Science of Sleep 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Nature and Science of Sleep editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Nature and Science of Sleep

Dovepress

Publish your work in this journal

Nature and Science of Sleep is an international, peer-reviewed, open access journal covering all aspects of sleep science and sleep medicine, including the neurophysiology and functions of sleep, the genetics of sleep, sleep and society, biological rhythms, dreaming, sleep disorders and therapy, and strategies to optimize healthy sleep. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/nature-and-science-of-sleep-journal>

<https://doi.org/10.2147/NSS.S489106>