



Letter to the Editor

Reevaluating the sleep-dementia link: Methodological gaps and future directions



To the Editor,

We read with great interest the article "*The Effect of Sleep Disturbances on the Incidence of Dementia for Varying Lag Times*" by Alders et al. (2024) in *The Journal of Prevention of Alzheimer's Disease* [1]. The study offers valuable insights into the intricate relationship between sleep disturbances and dementia risk. However, several methodological and interpretative aspects warrant further examination to strengthen the robustness and generalizability of its findings.

Alders et al. [1] propose that longer lag times reinforce the association between sleep disturbances and dementia. However, their operationalization of lag time overlooks key considerations. Dementia progresses through a prolonged preclinical phase, during which subtle cognitive and functional changes emerge. By simplifying the relationship between lag time and risk, the authors may obscure critical temporal nuances. Prior research, including studies from the *Neurological Disorders in Central Spain* (NEDICES) cohort [2–4], has demonstrated that such subtleties substantially influence the interpretation of longitudinal data.

A major limitation of the study is its reliance on self-reported sleep data [1]. While this approach was standard in population-based studies of the 1990s, including our own [2–4], subjective sleep measures are inherently susceptible to bias. This is particularly relevant in older populations, where cognitive changes may compromise reporting accuracy. Although both Alders et al. [1] and our studies [2–4] utilized self-reported sleep assessments, contemporary advancements in objective sleep measurement techniques, such as actigraphy, now offer improved accuracy. Integrating these tools in future research would enhance the reliability of findings and provide a clearer understanding of the association between sleep and dementia.

Moreover, the study does not fully account for important confounding factors [1]. Specifically, it omits key variables such as medications that affect the central nervous system and medical conditions that impact both sleep patterns and cognitive function. The omission of these factors introduces the risk of residual confounding, limiting the ability to draw definitive conclusions. Our previous work has consistently underscored the importance of incorporating such variables in models examining sleep and cognitive outcomes [2–4].

The relationship between prolonged sleep duration and dementia requires careful interpretation. While the association between long sleep and dementia is well established, causality remains uncertain, and the potential influence of chronic illnesses must be thoroughly evaluated. Additionally, long sleep may represent an early symptom of dementia rather than a direct causal factor, reflecting underlying neurodegenerative processes [2–4].

To refine our understanding of this relationship, researchers should prioritize future longitudinal studies incorporating biomarkers, such as beta-amyloid and tau, to determine whether prolonged sleep reflects

early neurodegeneration or other systemic alterations [5]. Such studies would be essential for disentangling causation from correlation and improving our knowledge of how sleep disturbances modulate dementia risk.

In conclusion, while Alders et al. [1] contribute meaningfully to the field, addressing these limitations in future studies would enhance the interpretive strength and clinical applicability of their findings. We encourage the authors to consider these factors in subsequent research further to elucidate the complex interplay between sleep and dementia.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Julián Benito-León: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft. **Carla María Benito-Rodríguez:** Conceptualization, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – review & editing.

References

- [1] Alders P, Kok A, van Zutphen EM, Claassen JAHR, Deeg DJH. The effect of sleep disturbances on the incidence of dementia for varying lag times. *J Prev Alzheimers Dis* 2025;12(2):100024. doi:10.1016/j.tjpad.2024.100024.
- [2] Benito-León J, Bermejo-Pareja F, Vega S, Louis ED. Total daily sleep duration and the risk of dementia: a prospective population-based study. *Eur J Neurol* 2009;16(9):990–7. doi:10.1111/j.1468-1331.2009.02618.x.
- [3] Benito-León J, Louis ED, Bermejo-Pareja F. Cognitive decline in short and long sleepers: a prospective population-based study (NEDICES). *J Psychiatr Res* 2013;47(12):1998–2003. doi:10.1016/j.jpsychires.2013.09.007.
- [4] Benito-León J, Louis ED, Villarejo-Galende A, Romero J, Bermejo-Pareja F. Long sleep duration in elders without dementia increases risk of dementia mortality (NEDICES). *Neurology* 2014;83(17):1530–7. doi:10.1212/WNL.0000000000000915.
- [5] Dhauria M, Mondal R, Deb S, Shome G, Chowdhury D, Sarkar S, Benito-León J. Blood-based biomarkers in Alzheimer's disease: advancing non-invasive diagnostics and prognostics. *Int J Mol Sci* 2024;25(20):10911. doi:10.3390/ijms252010911.

Julián Benito-León*

Department of Neurology, University Hospital "12 de Octubre", Madrid,
Spain
Centro de Investigación Biomédica en Red sobre Enfermedades
Neurodegenerativas (CIBERNED), Spain
Department of Medicine, Complutense University, Madrid, Spain
Instituto de Investigación Sanitaria Hospital 12 de Octubre (imas12),
Madrid, Spain

<https://doi.org/10.1016/j.tjpad.2025.100085>

Received 15 January 2025; Accepted 29 January 2025

Available online 11 February 2025

2274-5807/© 2025 The Author(s). Published by Elsevier Masson SAS on behalf of SERDI Publisher. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Carla María Benito-Rodríguez
*Faculty of Medicine, Alfonso X el Sabio University, Villanueva de la
Cañada (Madrid), Spain*

*Corresponding author at: Department of Neurology, University
Hospital “12 de Octubre”, Av. de Córdoba s/n, 28041 Madrid, Spain.
E-mail address: jbenitol67@gmail.com (J. Benito-León)