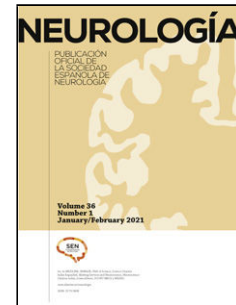


Journal Pre-proof

Comments on the article “Mortality rates for Parkinson’s disease are increasing in Spain. An age-period-cohort and joinpoint analysis of mortality rates from 1981 to 2020.”

Julián Benito-León, Carla M^a Benito-Rodríguez



PII: S2173-5808(25)00122-1

DOI: <https://doi.org/10.1016/j.nrleng.2025.101893>

Reference: NRLENG 101893

To appear in: *Neurología (English Edition)*

Received Date: 19 August 2024

Please cite this article as: Benito-León J, Benito-Rodríguez CM, Comments on the article “Mortality rates for Parkinson’s disease are increasing in Spain. An age-period-cohort and joinpoint analysis of mortality rates from 1981 to 2020.”, *Neurología (English Edition)* (2025), doi: <https://doi.org/10.1016/j.nrleng.2025.101893>

This is a PDF of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability. This version will undergo additional copyediting, typesetting and review before it is published in its final form. As such, this version is no longer the Accepted Manuscript, but it is not yet the definitive Version of Record; we are providing this early version to give early visibility of the article. Please note that Elsevier’s sharing policy for the Published Journal Article applies to this version, see: <https://www.elsevier.com/about/policies-and-standards/sharing#4-published-journal-article>. Please also note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2025 Elsevier Ltd. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Comments on the article "Mortality rates for Parkinson's disease are increasing in Spain. An age-period-cohort and joinpoint analysis of mortality rates from 1981 to 2020."

Asunto: Comentarios sobre el artículo " Las tasas de mortalidad para la Enfermedad de Parkinson están incrementando en España. Un análisis Edad-Periodo-Cohorte y Joinpoints en las tasas de mortalidad desde 1981 a 2020"

Julián Benito-León,^{1,2,3,4} Carla M^a Benito-Rodríguez⁵

1. Department of Neurology, University Hospital "12 de Octubre", Madrid, Spain
2. Instituto de Investigación Sanitaria Hospital 12 de Octubre (Imas12), Madrid, Spain
3. Centro de Investigación Biomédica en Red Sobre Enfermedades Neurodegenerativas (CIBERNED), Madrid, Spain
4. Department of Medicine, Faculty of Medicine, Complutense University, Madrid, Spain
5. Faculty of Medicine, Alfonso X El Sabio University (UAX), Villanueva de la Cañada, Spain

Corresponding author: Julián Benito-León (jbenitol67@gmail.com)

Dear Editor:

We read with great interest the recent article in *Neurología* on trends in Parkinson's disease (PD) mortality rates in Spain.¹ We congratulate the authors on their comprehensive analysis and on the use of advanced statistical methods to evaluate mortality trends in the country. Nonetheless, we would like to share some critical observations that we consider essential to enrich the discussion of the results presented, based on our past experience conducting prospective population-based studies in Spain, and particularly the Neurological Disorders in Central Spain (NEDICES) study.²

One of the aspects we considered crucial is the study's retrospective approach and the use of hospital records as the main source of data.¹ Though valuable, this approach presents considerable limitations, particularly with regard to the diagnosis and recording of PD. As we have shown in several previous studies,³ PD is significantly under-reported in death certificates. This under-reporting may be explained by several factors, including the omission of the PD diagnosis at advanced stages of the disease, the presence of comorbidities, or the lack of access to neurologists.

It is also concerning that a considerable percentage of patients with PD are not diagnosed with the disorder during their lifetime, as we have described in previous studies.^{4,5} For instance, in the prevalence study, we found that approximately 28% of patients with PD had not previously been diagnosed with the condition,⁴ which suggests that data from hospital registries may not reflect the true burden of this disease in the population. This underdiagnosis is particularly problematic when these

registries are used to analyse mortality trends, as this may result in significant underestimation of the real rate of mortality attributed to PD. Unlike studies based on hospital registries, population-based approaches enable the identification of previously undiagnosed cases, as well as continuous follow-up of patients, providing more reliable data on PD prevalence, incidence, and mortality.

We are sincerely grateful for the authors' contribution to the analysis of PD mortality in Spain, and recognise the value of their study in this crucial area of research. However, we suggest that in future studies, they consider including data from prospective population-based cohorts, like those used in the NEDICES study, to provide a more complete, more precise view of the impact of PD on mortality. This combination of research approaches may help to correct potential underestimation of mortality due to underdiagnosis and under-reporting of PD in hospital registries.

References

1. García-Muñoz C, Hernández-Rodríguez JC, Pereyra-Rodríguez JJ. Mortality rates for Parkinson's disease are increasing in Spain. An age-period-cohort and joinpoint analysis of mortality rates from 1981 to 2020. *Neurologia (Engl Ed)*. 2023 Jun 29:S2173-5808(23)00039-1. doi: 10.1016/j.nrleng.2023.06.003. Epub ahead of print. PMID: 37392959.
2. Bermejo-Pareja F, Benito-León J, Vega-Q S, Díaz-Guzmán J, Rivera-Navarro J, Molina JA, Olazarán-Rodríguez J, Morales-González JM. La cohorte de ancianos NEDICES. Metodología y principales hallazgos neurológicos [The NEDICES cohort of the elderly. Methodology and main neurological findings]. *Rev Neurol*. 2008 Apr 1-15;46(7):416-23. Spanish. PMID: 18389461.
3. Benito-León J, Louis ED, Villarejo-Galende A, Romero JP, Bermejo-Pareja F. Under-reporting of Parkinson's disease on death certificates: a population-based study (NEDICES). *J Neurol Sci*. 2014 Dec 15;347(1-2):188-92. doi: 10.1016/j.jns.2014.08.048. Epub 2014 Oct 2. PMID: 25292414.
4. Benito-León J, Bermejo-Pareja F, Rodríguez J, Molina JA, Gabriel R, Morales JM; Neurological Disorders in Central Spain (NEDICES) Study Group. Prevalence of PD and other types of parkinsonism in three elderly populations of central Spain. *Mov Disord*. 2003 Mar;18(3):267-274. doi: 10.1002/mds.10362. PMID: 12621629.
5. Benito-León J, Bermejo-Pareja F, Morales-González JM, Porta-Etessam J, Trincado R, Vega S, Louis ED; Neurological Disorders in Central Spain (NEDICES) Study Group. Incidence of Parkinson disease and parkinsonism in three elderly populations of central Spain. *Neurology*. 2004 Mar 9;62(5):734-41. doi: 10.1212/01.wnl.0000113727.73153.68. PMID: 15007123.