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Alzheimer's & Dementia
Diagnosis, Assessment & Disease Monitoring

LETTER

Neuropsychiatric symptoms in community-dwelling older Brazilians with mild cognitive impairment and dementia

Dear Dr. Liana Apostolova,

Neuropsychiatric symptoms are common preceding and in the course of dementia and are the cause of significant burden to patients and caregivers alike.[1] Considering that most people with dementia live in low- to middle-income countries,[2] it is critical to understand the frequency and distribution of these symptoms across dementia stages in these countries. Therefore, we read with interest the manuscript "Neuropsychiatric symptoms in Brazilians with mild cognitive impairment and dementia" from Wilson et al. published recently in *Alzheimer's & Dementia: Diagnosis, Assessment, & Disease Monitoring*.[3] The authors analyzed the frequency of neuropsychiatric syndromes, according to the Neuropsychiatric Inventory (NPI) in 2319 older Brazilians, whose data were collected for the Study of Ancestry and Neurodegenerative Diseases (SAND), which the authors suggest has been recently renamed to Pathology, Alzheimer's and Related Dementias Study (PARDoS).[3] SAND was a collaboration project between the Biobank for Aging Studies (BAS) from the University of Sao Paulo and Rush University that started in September 2016 partially funded by the National Institutes of Health (NIH) and the University of Sao Paulo. BAS has an ongoing population-based collection that started in 2004 and hosts clinical and functional data from 5153 individuals, complete neuropathologic examination of 1464 participants, and >1000 with genetic analysis,[4] making it the largest and the only population-based brain bank in Latin America dedicated to age-related brain conditions. BAS subjects are sourced from the Sao Paulo Autopsy Service from the University of Sao Paulo, the only center that performs autopsies in individuals who died from natural non-violent causes in Sao Paulo, with an average of 14,000 autopsies per year. In fact, the NIH REPORTER description of SAND projects makes it explicit that "The proposed study brings together a unique team of neurologists, epidemiologists, neuropathologists, geneticists, statisticians, and geriatricians from the USA and Faculty of Medicine at the University of São Paulo to conduct a study that is simply not possible in the USA" (https://reporter.nih.gov/search/T0tGjsxUU0aGOSrevVqGFA/project-details/9511723).

Therefore, we were surprised that Wilson et al. made no mention either to the Sao Paulo Autopsy Service as the source of cases for the study or the BAS as the original study that developed the structured clinical interview and the infrastructure used by the SAND project.

Understanding that behavioral and psychological symptoms in dementia have a high clinical value, BAS previously interrogated the prevalence of these symptoms in 1565 participants (1062 had no cognitive impairment, 145 had mild cognitive impairment [MCI], and 358 had dementia in a study published in 2019).[5] Although Wilson et al. mentioned our paper, we were surprised by what we believe to be misrepresentation of our results, when they attest that their findings showing differences in behavioral and psychological symptoms between cognitively normal and MCI groups are novel. In the Discussion section, the authors described our study and compared their findings to ours,[3] which we quote here:

> "One previous study examined these associations in older Brazilian decedents.[12] The researchers reported that behavioral and psychological symptoms were elevated in those with dementia compared to those without cognitive impairment, but symptoms in the MCI subgroup did not differ from the no cognitive impairment subgroup. In the present study, we found a robust elevation of all four clusters of behavioral and psychological symptoms in MCI relative to no cognitive impairment, which is consistent with prior research in non-Latin Caucasians, possibly because using symptom domains as outcomes rather than individual Neuropsychiatric Inventory items reduced measurement error."

A careful reader will find a clear mention of our findings on differences in the profile of the neuropsychiatric symptoms between normal controls and MCI in the Abstract and Results sections of our 2019 paper.[5] Here, we quote our findings described in the Results section:

> "In an adjusted multivariate logistic regression model, delusions, hallucinations, agitation, depression, disinhibition, irritability, and motor behavior were more frequent in the MCI group than in the cognitively normal group."

Therefore, Wilson et al. found similar results to those reported in our 2019 paper: individuals with MCI have more symptoms of

agitation, affect, psychosis, and behavioral problems than those with normal cognitive function. These similarities are not surprising because the two studies were probably sourced from the same population at the Sao Paulo Autopsy Service in different periods using similar clinical interviews. The data for Nunes et al.'s study[5] was collected between 2004 and 2016, while we assume that the data for the Wilson et al. study were collected from 2016 to 2018 during the period SAND has partnered with BAS. However, it is important to highlight that the timeline for data collection in the Wilson et al. study is an assumption because the authors did not describe this information. Although we appreciate the additional interaction analysis that showed no effect modification of race in the association between neuropsychiatric symptoms and the cognitive groups, we are concerned by the lack of clarity in specifying the study source population and a more explicit discussion that this study is extending previous investigation published by us in 2019.[5]

CONFLICTS OF INTEREST

The authors have no conflicts of interest. Author disclosures are available in the supporting information.

Claudia Kimie Suemoto[1]
Paula Villela Nunes[2]
Renata Elaine Paraizo Leite[3]
Renata Eloah de Lucena Ferretti-Rebustini[4]
Carlos Augusto Pasqualucci[3]
Ricardo Nitrini[5]
Roberta Diehl Rodriguez[5]
Lea Tenenholz Grinberg[3,6]
Wilson Jacob-Filho[1]

[1]*Division of Geriatrics, University of Sao Paulo Medical School, Sao Paulo, Brazil*
[2]*Department of Psychiatry, University of Sao Paulo Medical School, Sao Paulo, Brazil*
[3]*Department of Pathology, University of Sao Paulo Medical School, Sao Paulo, Brazil*
[4]*Nursing School, University of Sao Paulo, Sao Paulo, Brazil*
[5]*Department of Neurology, University of Sao Paulo Medical School, Sao Paulo, Brazil*
[6]*Memory and Aging Center, University of California San Francisco, San Francisco, California, USA*

Correspondence
Claudia K. Suemoto, University of São Paulo Medical School, 455 Doutor Arnaldo Avenue, room 1355, São Paulo, SP, 01246-903, Brazil.
E-mail: cksuemoto@usp.br

REFERENCES

1. Feast A, Orrell M, Charlesworth G, Melunsky N, Poland F, Moniz-Cook E. Behavioural and psychological symptoms in dementia and the challenges for family carers: systematic review. *Br J Psychiatry*. 2016;208:429-434. doi:10.1192/bjp.bp.114.153684. Epub 20160317.
2. Prince MJ, Wimo A, Guerchet MM, Ali GC, Wu YT, Prina M. World Alzheimer Report 2015 - The Global Impact of Dementia: An analysis of prevalence, incidence, cost and trends; 2015.
3. Wilson RS, Capuano AW, Sampaio C, et al. Neuropsychiatric symptoms in Brazilians with mild cognitive impairment and dementia. *Alzheimers Dement (Amst)*. 2021;13:e12219. doi:10.1002/dad2.12219. Epub 20211014.
4. Grinberg LT, Ferretti RE, Farfel JM, et al. Brain bank of the Brazilian aging brain study group - a milestone reached and more than 1,600 collected brains. *Cell Tissue Bank*. 2007;8:151-162. doi:10.1007/s10561-006-9022-z
5. Nunes PV, Schwarzer MC, Leite REP, et al. Neuropsychiatric inventory in community-dwelling older adults with mild cognitive impairment and dementia. *J Alzheimers Dis*. 2019;68:669-678. doi:10.3233/jad-180641

SUPPORTING INFORMATION

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