

Current Updates in Gerontology

Review Report

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Article Title: Diabetes, Hypertension, & Cognition: Effects of Medications and Education Level

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Review Report

This manuscript investigates the possible role of educational attainment in mitigating the adverse effects of hypertension and diabetes on cognition. The author finds this moderating effect only in a subgroup of patients i.e. those diabetics who take both oral medications and insulin. However, major concerns remain regarding the methodology of this study that discourage me to suggest it for publication in its current format:

1. Several studies indicate little congruence between self-report and biometric and lab data concerning hypertension and diabetes [1,2]. Thus, use of self-report data could be a major source of bias in classification of the individuals. Moreover, no data were obtained regarding the disease control status, medication adherence, severity or duration of these conditions. As stated by Wu et al. [3], the effect of diabetes on cognition may be related to the chronicity of diabetes, as incident diabetes or diabetes duration up to 8 years of follow-up was not predictive of cognitive decline. Same may hold true for hypertension. Consequently, crude and oversimplified assessment of diabetes and hypertension in this study may result in inaccurate results.
2. The author needs to provide evidence for validity and reliability of cognitive tests used in health and retirement survey, as Crimmins et al. [4] has disputed the accuracy of this test alone compared with more sophisticated neuropsychological assessments.
3. The author has excluded proxy respondents and all missing cases, this means exclusion of 5819 cases or approximately one third of the initial sample. This exclusion may lead to important selection bias, unless author provides evidence that there were not any systematic differences among excluded and included cases.
4. The author states that "The bivariate regression model with both hypertension and diabetes explains 0.01% of the variance in total cognition scores.", thus diabetes and hypertension are very weak predictors of cognition in her model. How this could be interpreted?
5. To eliminate redundancy, the manuscript should be re-written to the point, in a concise and efficient way. For example, in the statistical analysis section, details about data entry and variables coding are redundant.

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References

- [1] Tenkorang, Eric Y., et al. "Validity of Self-Report Data in Hypertension Research: Findings From The Study on Global Ageing and Adult Health." *The Journal of Clinical Hypertension* 17.12 (2015): 977-984.
- [2] Molenaar EA, Van Ameijden EJC, Grobbee DE, Numans ME. Comparison of routine self-reported and biometrical data on hypertension and diabetes: results of the Utrecht Health Project. *Eur J Pub Health*. 2007;17:199–205.
- [3] Wu, Qiong, et al. "Estimating the cognitive effects of prevalent diabetes, recent onset diabetes, and the duration of diabetes among older adults." *Dementia and geriatric cognitive disorders* 39.3-4 (2015): 239-249.
- [4] Crimmins, Eileen M., et al. "Assessment of cognition using surveys and neuropsychological assessment: the Health and Retirement Study and the Aging, Demographics, and Memory Study." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 66.suppl 1 (2011): i162-i171.