Title: The potential for prevention of dementia across two decades: the prospective, population-based Rotterdam Study

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Reviewer: Cleusa P. Ferri

Reviewer's report:

The authors should be commended for their originality in attempting to estimate the potential for prevention of dementia over time, estimating the “population attributable risk- (PAR)” of a set of risk factors for dementia using two cohorts conducted in the same geographical area using the same (?) protocol. The authors discuss some of the limitations of this exercise; there are however a few other points/information I believe could be included/discussed.

One of the main objectives of the paper is “to investigate how this PAR has changed overtime”. It would be ideal to have an equally representative sample of the target population living in that same geographical area in both cohorts (1990 and 2000), and also to have the same methodology/protocol used in both cohorts. The reader might find the difference in sample size (from 7983 who agreed to participate in the 1990 baseline study to 3011 subjects who agreed to participate in 2000 baseline study) intriguing, especially as the study was conducted in the same district with the same age group. These are well known cohorts, but the authors could give more information on both cohorts to reassure the reader that differences in the prevalence of risk factors and the effect size of their association with incident dementia are unlikely to be due to other potential differences between the two cohorts.

The Discussion could be enhanced with more information on the intrinsic limitations that PAR has on the estimation of the potential for prevention, especially regarding assumptions of causality and the effect that eliminating or reducing one set of risk factors might have on other factors, which make a “proper control of risk factors” difficult to define/achieve.

Although there is as yet no cure for dementia, and it is important to strengthen the evidence on the effectiveness of dementia prevention programmes as they might be the cheapest way to decrease the burden of dementia, primary prevention is not “currently the only option to diminish the burden of dementia”, public awareness and service provision are also important in changing the burden.

Minor

In table 2 the authors could try to merge the second and third columns because the combined “categories” of PAR could be mistaken for the full combined PAR Why were 5 year age groups used rather than a continuous variable for
adjustments?

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: I declare that I have no competing interests