Reviewer's report

Title: The impact of a healthy lifestyle on Disability-Adjusted Life Years: a prospective cohort study

Version: 1 Date: 1 January 2015

Reviewer: Miguel Martinez-Gonzalez

Reviewer's report:

A) Major compulsory Revisions

1) Is the effect of each of these behaviors the same regardless of the age of the participant?
I would expect that age may be an effect modifier for some of them, for example for BMI

2) There are 2 dimensions of active/sedentary lifestyles that can operate independently:
hours of sedentary activity and practice of physical activity or exercise. You can explore whether the addition of hours devoted to television or, in general screen use, provides additional information to your healthy behavior score.

3) Other healthy behaviors have been also found to be associated with poorer survival or poorer quality of life, such as living alone, sleeping <7 to >8 h/d, and weak social support or not seeing friends frequently. Please check BMC Med. 2013 Feb 22;11:47. If you have information on any of these behaviors you can add them to the score, at least as a sensitivity analysis in order to assess to what extent they can further account for a greater burden of DALYs lost.

4) You excluded alcohol from the Mediterranean diet score. However, you should have assessed the effect of alcohol and alcohol drinking pattern on DALYs. Please check PMID: 24480368

5) Pages 8-9: "Information on disease occurrence (Cancer, Coronary Heart Disease (CHD), Cerebrovascular Accident (CVA), Diabetes Mellitus, Chronic Obstructive Pulmonary Disease (COPD), Asthma, Parkinson’s disease, Rheumatoid Arthritis, Osteoarthritis, and Inflammatory Bowel Disease (IBD)) was obtained from the National Cancer Registry and the national hospital discharge diagnosis database from the Dutch National Medical Registry". Please provide objective assessment of the comprehensiveness of these sources. In other words, you completely relied in a single source of information for the ascertainment of your outcome, can you be sure that you captured all relevant outcomes using only this source? Can you give some quantitative estimate of the information bias derived from only using this source of information to ascertain the outcome.
6) The relative risks (95% CI) of mortality for each of the behaviors included in the score should be presented. They should be estimated with hazard ratios (HRs) using multivariable-adjusted Cox proportional hazards models. The fact is that you are assuming the same weight for each of these 4 behaviors in building your 0- to 4-point score, but this should be better supported by a similarity of their HRs.

B) Minor Essential Revisions

1-Abstract, results: "low BMI", please define the cutoff point here
2-Page 6: "a general questionnaire and a food-frequency questionnaire (FFQ) were administered and a physical" Please provide the number of items of each questionnaire.
3-Page 6: "men and women who suffered from any of the studied diseases at baseline". Please provide the list of these diseases.
4-Page 7: "missing data was imputed using single linear regression modelling" Did you use multiple imputation? How many sets of imputations did you perform? The sentence about SPSS is not consistent with your last sentence in page 10 that "All statistical analyses were conducted using SAS 9.2 (SAS Institute, Cary, US)."
5-Page 8: "lifestyle indices beside physical activity, smoking and dietary intake (kan je hier refs geven)." Please be careful. There is a sentence in Dutch, apparently as a provisional communication between co-authors that was not erased before submission.
6-Page 8: "the Mediterranean diet that has previously shown a beneficial impact on disease burden [25]." Please consider to provide stronger references such as the following ones: PMID: 25055810, PMID: 23432189 or PMID: 24370845
7-In the mMDS, did you include nuts in the group of fruit, i.e. fruit+nuts?
8-Page 9 " diabetes (disability weight 0.20)" You should provide a complete table with the weights given to each disease.

C) Discretionary Reviews

1-Perhaps you can show months instead of years in your Tables 2-3 to better show the details of the coefficients. In any case, please indicate the units of measurements and the real life interpretation of these coefficients.
2-Perhaps you should further discuss your information bias and further insist in the underestimation that you are providing here

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests