Reviewer’s report

Title: Life style and longevity among initially healthy middle-aged men: prospective cohort study

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Reviewer: Aage Tverdal

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Life style and longevity among initially healthy middle-aged men: a prospective cohort study

I am not convinced that the method that required the exclusion of 41% of the study population gives valid estimates. I think the journal should ask an impartial statistician about the design of the paper. The authors refer to an article in JAMA which did not exclude any participants due fact of not reaching 85 years within the follow-up time of the study. In that study all participants 45-68 years, except for baseline exclusions, were followed for 40 years.

The authors claim in their response that the findings in their study are valid for healthy men between 51 and 59 years. People who were 51 years when they were examined in 1975 or 1974 must have been excluded as they could not have reached 85 years by the end of follow-up.

The author’s statement about the lack of significant impact of cholesterol and systolic blood pressure as possibly being due to low number of participants saps my confidence to the study. If the study has insufficient power to detect an influence of cholesterol and systolic blood pressure, what has it sufficient power to detect? Perhaps a paragraph on study size should be included.

Regarding table 4, I understand that I have misinterpreted the coefficients. Sorry!

The inclusion of calendar year in the model: OK.

I am not sure the two added paragraphs on the check of the model assumptions make it more readable. The first part concerning spotting of multicollinearity is OK. The second part referring to Pearson and Deviance residuals as well as DIFBeta and the Hat matrix diagonal do not tell the reader much. I am not sure what is meant by Deviance residual and Pearson residual. Pearson deviance is well known. It is referred to the book by Hosmer and Lemeshow (2. edition). I cannot find VIF (variance inflation factor) and DIFBeta in the book (at least in the index).

The part on interaction between overweight and physical activity among non-smokers had been tested and found not statistically significant. This is no surprise. As the study lacks power to detect main effects of cholesterol and systolic blood pressure, it is even harder (requires larger study size) to detect
interactions. What was the power to detect an interaction between overweight and physical fitness?

The authors refrained from a study on never smokers as only 208 persons were never smokers. I refer to the abovementioned points on the power of the study.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests