Reviewer's report

Title: Rationale, design and methods for a community-based study of clustering and interactions of chronic disease processes and their effects on ageing: The Busselton Healthy Ageing Study

Version: 2 Date: 30 March 2013

Reviewer: Gerhard Schön

Reviewer's report:

Major Compulsory Revisions

1. Section 'Data Analysis and Statistical Power', subsection 'Estimation of the prevalence of multiple chronic disease processes': "... will allow the prevalence in each group to be estimated with standard error of 3% to 4% and much more accurately ...".

A standard error has no unit, so 3% to 4% makes no sense. A sensible measure of precision would be a confidence interval. But the size of the confidence interval changes at given sample size with the size of prevalence. Some examples for expected prevalences and its confidence intervals would be helpful.

Minor Essential Revisions

1. Section 'METHODS', subsection 'Study sample and recruitment process.': "Study enrolment is randomized".

There is in fact little randomness in the sampling. The electoral roll says, that there are 6,690 adults eligible to participate. If we take into account none-response and refusal to participate, the study is more like a census survey than a randomized trial.

2. I have concerns that the study region is not representative.

The homepage (http://www.busseltonhealthstudy.com/index.html) says, that the "residents of the town of Busselton, have been involved in a series of health surveys since 1966".

It is likely, that the population of that region shows larger health-conscious behavior, than on average. Due to the fact that clinically relevant results are provided to all participants, healthcare utilization will increase.

The authors should comment on representativeness of the study.

3.
Section 'DISCUSSION'.

"Finally, the BHAS provides feed-back to each participant on clinically relevant outcomes (see Tables 1 and 2) with advice to take results to their usual medical practitioner."

This is a desirable result from an ethical point of view, but the authors should expose the possibility of biased results. Every inquiry can be considered as an intervention, which may influence the results of longitudinal analyses.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**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.