Reviewer's report

Title: Comparison of participants and non-participants to the ORISCAV-LUX population-based study on cardiovascular risk factors in Luxembourg

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Reviewer: Dag Steinar Thelle

Reviewer's report:

Alkerwi et al’s analysis of participants and non-participants of the ORISCAV-LUX population-based study is addressing a phenomenon which has become increasingly important when planning and performing epidemiological studies.

Population based studies in the 1970s managed to get high attendance around 80 percent, but the public’s enthusiasm for participation has dwindled all over the industrialized world during the last three decades. The obvious question of course is to what extent this matter for the validity of the results. This issue has been discussed in a number of papers, and the present study provides the possibility to assess some of the consequences. The paper is well written and adequately analysed, and this referee’s comments refer to the discussion which should go deeper into the issue of participation and representation.

Whether associations observed in epidemiological surveys are due to bias induced by low attendance “depend upon the (dis)- similarities of the fractions of the exposed and un-exposed as well as affected and un-affected of the source population actually included in the final study sample”. The quoted part of the above meaning is taken from: Elisabeth Strandhagen et al. Selection bias in a population survey with registry linkage: potential effect on socioeconomic gradient in cardiovascular risk EurJ Epidemiol (2010) 25:163–172, a paper which gives some insight on how to think about the consequences of biased participation.

So does also Anne Johanne Søgaard et al. The Oslo Health Study: The impact of self-selection in a large, population-based survey International Journal for Equity in Health 2004, 3:3. Both these quoted papers are based on analyses very similar to those performed by Alkerwi et al and are also supporting some of their conclusions.


This referee would therefore recommend the authors to consider including the two papers and the chapter from Rothman and Greenland in the discussion, and to lift the discussion up to a more principle level. The term used in the discussion that “literature provides paradoxical insights ..” does not help to understand why
and how bias to non-attendance may occur. It all depends upon the dis-similarity between the fractions in study and source populations, such as referred to above.

**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.