**Reviewer’s report**

**Title:** Sauna bathing is associated with reduced cardiovascular mortality and improves risk prediction in men and women. A prospective cohort study

**Version:** 0  **Date:** 30 Jul 2018  

**Reviewer:** John Taylor  

**Reviewer's report:**

This study provides unique information on the relationship between use of sauna and cardiovascular disease (CVD) mortality in men and women. Indeed, information on sauna habits adds to conventional risk factors and improves prediction of CVD mortality risk. This is an extension of previous work showing frequent sauna is strongly associated with reduced risk of fatal cardiovascular outcomes and all-cause mortality in middle-aged men. The authors used data on over 1600 eligible participants (roughly half women and men). Risk factors and all other characteristics were assessed at study entry between March 1998 and December 2001. Baseline demographics, socioeconomic and living condition, physical activity, diagnosis of chronic diseases and medications, alcohol consumption, dietary energy intake, resting blood pressure, cholesterol and triglycerides, and body mass index were obtained at baseline. All CVD deaths occurring by end of 2015 were documented with no losses to follow-up. Hazard ratios for CVD mortality were calculated via Cox proportional hazard models. Subjects were classified into groups on the basis of frequency of sauna use. Hazard ratios of the associations of frequency and duration of sauna bathing with CVD mortality were adjusted via several models accounting for age, gender, BMI, smoking, systolic blood pressure, low-density cholesterol, alcohol use, previous myocardial infarction, type 2 diabetes, physical activity per week, socioeconomic status, and incident CHD events. Two CVD mortality risk prediction models were fitted: one model based on traditional risk factors and one with risk factors plus frequency of sauna bathing. The authors found that those with frequency of sauna bathing 4-7 sessions per week had higher BMI, alcohol and energy intake, compared to those with one sauna session per week, however during a median follow-up of 15 years, cumulative hazard curves demonstrated the lowest risk of CVD mortality among participants in this group. Hence, it is not surprising that adjustment for established risk factors minimally attenuated the Hrs. In analysis adjusted for CVD risks, there was an approximate inverse linear association between duration of sauna and CVD mortality risk. These findings strongly suggest higher frequency and duration of sauna relates to lower risk of CVD mortality in both females and males and that frequency of sauna bathing improves the prediction of 10-year CVD mortality risk beyond established cardiovascular risk factors.
Are the methods appropriate and well described?
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Yes

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Not applicable

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