Reviewer's report

Title: The impact of self-reported exposure to whole-body-vibrations on the risk of disability pension among men: a 15 year prospective study

Version: 1 Date: 1 December 2009

Reviewer: Ryan Lennon

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Major Compulsory

1) Page 6. 2nd paragraph
"On 1st October 1995 additional simple random samples..." This implies that subjects surveyed in 1990 are also automatically included in the 1995 survey. If correct, please state so explicitly.

2) Page 6. 2nd paragraph
"The size of each sample reflects the proportion of the relevant groups of the total population." Do you mean that pre-specified groups are sampled in a stratified manner? That is, that if the population is 45% men, then 45% of the sample will also be men? If not, please explain what this means. If so, please re-write.

3) Page 6. 2nd paragraph
"The three samples constituted the 1995 panel and persons in this panel were contacted irrespectively of participation in the previous wave." I do not understand this sentence. What three samples? It sounds as if everyone had to participate in 1995, yet that does not seem to be true elsewhere. The entire "Baseline" section should be carefully re-written.

4) Page 6. 3rd para
"In 2000 supplementary samples were drawn and interviews were conducted according to the same principles just described."
The interview process was not described. Are these interviews, or surveys? Phone or face-to-face?

5) Page 7. 1st paragraph
Since only men were included in the study, it would be helpful to have
a breakdown of how many men participated in one, two, and all 3 surveys.

6) Page 7. 2nd paragraph
What is meant by "incremental adjustment"? Do you mean you used
time-dependent covariates? What statistical software was used? How
were ordinal variables handled in the model? How was missing data
handled? Did you consider interactions between any of the variables?

7) Page 7. 3rd paragraph
"Those not participating...but the age variable was updated."
Why update the age variable? This is not necessary if it is treated as
a linear term in the Cox proportional hazards model. Was a non-linear
function of age modeled?

8) Page 8. 1st paragraph
"Before 2000 the registration is complete only if the persons
concerned still receive disability pension in 2000."
What does "registration is complete" mean? Does it mean you know when
the person started receiving disability pension, or that you know at
least in 2000 they received disability pension? Either way, this seems
like a major problem. Given that the sample begins in 1990, and
includes people aged into their fifties, we can presume that a
non-trivial portion of the study sample will die or turn 60 before the
year 2000 and you are unable to assess the primary endpoint of
disability pension in those people.

9) Page 8. 2nd paragraph
I am confused about this. If registration for these only started in
2000, how would they have been registered prior to 2000? Not at all?
How is this issue different from normal disability pension (also not
available until 2000)?

10) Page 10. Results section
The first table should be a descriptive table of at least all the
variables that will be used in the models. It would also be useful to
have descriptive statistics by survey year (1990, 1995, 2000). I would
also want to know if there were any workers who were exposed to WBV in
an earlier survey and then were not exposed at a later date.
11) Page 10. Table 1
It would be good to have a table of the model for disability pension
which includes WBV, age, smoking, BMI, job demands, and work
postures. Report HR, 95% CI, and p-values.

12) Page 11. Tables 2 and 3
These tables take up a lot of space yet do not appear to contribute to
the Discussion or Conclusion. Are they really necessary?

13) Page 11. 1st paragraph
"It seems that the industries where the problem has been known have
been successful in reducing WBV at the same time as it has become a
problem in other industries."
In which industries has it become a problem?

14) Page 11. 2nd paragraph
"For the 15 year period 5.6% of the disability pension retirement
cases were attributable to WBV."
What do you mean by "attributable"? What data is the 5.6% based on?
Need more details here.

15) Page 11. 2nd paragraph
"The fraction of workers exposed is decreasing so the estimate may go
down in the future."
This type of conjecture really belongs in the Discussion section.

16) Page 12. 2nd paragraph
"...adjustment for physical job demands did not substantially reduce
the effect sizes."
The reader needs more information on the "job demands" variable(s) and
which ones, if there are multiple, were included in the adjustment.

17) Page 12. 3rd paragraph
The authors do a good job considering the implications of missing
those who received disability prior to 2000. However, I don't think
the secondary analysis is yet robust enough, since they censored
subjects at their 60th birthday. They should limit their analysis to
those 50 and under, since they could not be censored prior to
2000. I would recommend reporting this data explicitly, rather than
just stating that it was similar.

18) Page 12. 4th paragraph
"This study suggests that a substantial reduction of the incidence of
disability pensions could be obtainable through such measures."
I'm not sure the data as presented strongly support such a
statement. Even if 5.6% of pension disability is due to WBV (which is
unclear), cutting exposure to WBV in half would only be a 2.8%
decrease in disability pensions. How much effort would it take to cut
WBV in half?

Minor Essential
19) Page 10. 3rd para
"WBH" should be "WBV"

20) Page 11. Table 3
"WHB” should be "WBV"

21) Page 12. 3rd para
"Registrations for persons, who are granted..." - delete the comma

22) Page 12. 3rd para
"WHB” should be "WBV"

Discretionary
23) Page 4. 1st paragraph
Recommend rewriting or removing the second sentence, which begins "The
individual lose esteem...

24) Pages 4 and 5
The third paragraph of the "Background" section seems out of place. It
would make more sense to move the 4th paragraph to the third, and
perhaps combine the current 3rd paragraph with the 5th. Or rewrite the
3rd and 5th somehow after the 4th.

Most of this paragraph belongs in the Results section. The explanation
for why only men were included would make sense in the Methods section.

26) Page 7. 1st para. line 4
Please double check that 8583 participated in the 2000 sample. It is a remarkable coincidence that it is the exact same number as those participating in the 1995 sample.

27) Table 2.
Would appreciate an "all others" group of those with low percentage of WBV to see what their trend was over time.

28) Page 10. last paragraph
"The explanation might be..." - this belongs in the Discussion section and should be explained in more detail. It seems that the proportion of workers in the high risk category went down slightly over time (at least in the observed samples) and that alone could account for the overall trend. The proportion of exposed workers in these groups did not decrease that much over time; it was 41.3% in 1990 and 39.6% in 2000.

**Level of interest:** An article of limited interest

**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.