Reviewer's report

Title: Work ability assessment in a workers' population, comparison of Work Ability Index and Work Ability score

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Reviewer: P. Paul F.M. Kuijer

Reviewer's report:

With interest I have read the paper by El Fassi and colleagues on personal and occupational determinants of work ability, either assessed with the total WAI and its first item and the convergent validity between these two outcome measures. I was impressed that the workers population targeted involved more than half of the working population in Luxembourg and I was pleased to see that the work performed was done in close cooperation between an occupational health services and a university, thereby combing research and practice. The scientific quality of the paper is good: nice and clearly written introduction, sound methodology, informative tables, a relevant discussion and a good overview of the literature. The innovative edge is the comparison between the total WAI and its first item. Most determinants found are already described in the literature.

Hopefully the following comments are of use for the authors.

Major Compulsory Revisions

1) Reading the title and the background of the abstract of the paper I expected a study on the convergent validity between the total WAI and its first item. The paper (also) describes personal and occupational determinants of both outcome measures. Therefore, my suggestion would be to add to the subtitle the word Determinants or a synonym, for instance Determinants of and comparison between Work Ability Index and Work Ability score.

2) Regarding the convergent validity of both outcome measures, I would prefer also to see a correlation coefficient between Work Ability Index and Work Ability score or another measure to describe the convergent validity based on the individual scores of these two outcome measures. Moreover, please provide cut-off point whether the correlations can be described as good, moderate or poor in terms of the convergent validity.

3) In addition, did you also have a rationale when you would decide that the convergent validity of the Work Ability Index and Work Ability score is good or moderate or at least sufficient based on your univariate and multivariate analyses? As you point out, one of the determinants in the univariate and two of the determinants in the multivariate analyses of the in total seven included variables are not included in the Work Ability score compared to the Work Ability Index.

Minor Essential Revisions
1) Abstract, results: increased in stead of increase?

2) Abstract, Please be more specific about both research questions in the abstract and also in answering these two questions in the conclusion in the abstract. I would prefer a similar conclusion as is given in the paper (page 15).

3) Be consequent in the use of terms like STM vs S.T.M., occupational or professional factors (page 11), 17,900 versus 12839 (without ,) (page 9);

4) Page 5, Kuijer et al. (Scand J Work Environ Health. 2012 Apr 27. pii: 3302. doi: 10.5271/sjweh.3302 2012 PMID: 22538928) also reported on the predictive validity for work ability of the single item WAI score in a population of construction workers with MSDs. This paper might be therefore also be relevant in addition to your papers 9 and 13 in the introduction section.

5) As a reader I would find it helpful if you could provide subheadings for the methods and results sections for instance as mentioned in the STROBE checklist for cross sectional studies and/or based on your two research questions, http://www.strobe-statement.org/fileadmin/Strobe/uploads/checklists/STROBE_checklist_v4_combined.doc

6) Did the workers sign an informed consent form in which they agreed to use their personal data for scientific evaluations?

7) Page 6: what data in your paper are cross-sectional and what data are retrospectively collected. Both is not possible at the same time.

8) Page 7; please could you provide more information in the methods (and the results sections) about the (scoring / outcomes) of the major diseases? This is not clear to me.

9) Page 7 and/or 8, Please provide the categories for all variables for instance for tobacco use and BMI.

10) Page 9, delete ‘only’ before 12839 full questionairres …

11) Page 10: please describe the other and two factors in the sentence ‘After adjustment for the other factors, these two variables …’

12) For the discussion section, have you any thoughts about what SMT is planning to do based on the determinants found in order to increase the work ability in the workforce in Luxembourg? Are there any effective interventions aiming at the relevant personal and occupational factors? This might be of interest for practitioners in the field and policy makers.

13) Table 1: the sum of the WAI score adds up to 100,10%

14) Table 1: Please provide also the BMI scores of the categories

Again, hopefully my comments are of use.

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

**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.