Reviewer’s report

Title: Associations between VO2max and vitality in older workers: a cross-sectional study

Version: 1 Date: 20 August 2010

Reviewer: Maria Mc Namara

Reviewer’s report:

I deem this paper as publishable with minor revisions.

Minor essential revisions

1. Abstract
   A short sentence indicating that vitality contributes to healthy aging would be good here. This is in the background section but it would be good in the abstract also (between the first and second sentences).

2. Background
   Paragraph 4
   – line 9: insert ‘with’ instead of ‘to’ so that it reads ‘associated with vitality’
   – lines 10-11: Do the authors mean to say that the association between VO2max and vitality has not been studied in an older sample? or not at all? From reading lines 10 and 11 it sounds like the association between VO2max and Vitality has not been studied at all. However, the authors mention other studies in the discussion that examine the association between VO2max and various measures of vitality in different samples. I am a bit confused here. I think this should be clarified.

3. Methods
   Study population
   – at the end of this paragraph the authors should state the final number of eligible participants. I know this is stated in the Results section but I think the actual ‘n’ should be noted here.

4. Measurements
   Vitality
   – lines 3 and 4: The authors talk of the ‘specific occupational setting of the study, namely older workers’. Is this a scale developed specifically for use with older workers? Or is it for use in an occupational setting? And if so, any specific occupational setting? Could this be clarified please? I am not familiar with this scale.
Paragraph 2
– line 7: it would be helpful to note here what constitutes a high or low score.

5. Covariates
– line 1: replace ‘by’ with ‘using’
– line 2: could the authors please explain what is meant by ‘low/middle/high’ educational attainment?

6. Statistical analysis
Paragraph 1
– it would be good if the authors referred to the tables here.
– lines 9-11 should be reworded. A suggestion may be…..“To be classified as a confounder, a variable needed to result in at least a 10% change in $r^{##}$ when included in the regression model”.
– Was this the authors own criteria? Or has it been used elsewhere? It would be good to state the origin of this benchmark.
– Lines 12 – 13: which interaction variables were tested? And why? Did the authors use Analyses of Covariance? It would be good to state this.
– Lines 13 and 15: use $p<0.10$ and $p<0.05$ and re-word.

7. Results
Paragraph 1 - Study population
It would be useful if the authors could elaborate on what the mean scores for UWES and RAND-36 indicate, at the end of this paragraph.

Paragraph 2 – Correlations VO2max and vitality
– line 2 – capital ‘T’ for table
– lines 3, 4 and 5: could the level of probability be inserted here? And $r$ values rounded to 2 decimal places.

Paragraph 4
– line 5: I presume that age, gender and chronic diseases explained more than 10% of the variance and were therefore categorised as confounding variables. It would be good to restate this so as to remind the reader.

8. Methodological considerations;
Measuring two constructs of vitality
Paragraph 1
– line 2: please give the probability level.

Minor Discretionary Revisions
These are mainly typographical errors and stylistic suggestions.

1. Background
   Paragraph 1
   - Line 1: insert ‘an’ instead of ‘the’
   - Line 4: insert ‘services’ instead of ‘care’
   - line 5: remove the ‘s’ at the end of ‘cardiovascular diseases’
   - line 6: substitute ‘density’ for ‘mass’
   - line 8: delete ‘a’ in front of ‘good health’

   Paragraph 2
   - line 2: remove “As to” and replace with “Regarding”
   - line 3: replace ‘less feelings of fatigue’ with ‘lower levels of fatigue’

   Paragraph 3
   - line 2: add ‘s’ to ‘component’ to make it plural
   - line 5: replace first word ‘for’ with ‘of’ so it reads ‘reduced risk of suffering symptoms…’

   Paragraph 4
   - line 9: insert ‘with’ instead of ‘to’ so that it reads ‘associated with vitality’

2. Methods
   Study population
   - line 4: add ‘s’ to ‘hospital’ to make it plural
   - line 7: add ‘ly’ to ‘physical’ so that it reads ‘physically active’
   - line 11: replace ‘have a risk for’ with ‘be at risk of’
   - line 12: replace 1st word of line 12 (‘of’) with ‘or’

3. Measurements
   Paragraph 2
   - line 7: remove one bracket at the beginning of the sentence.

4. Discussion
   Paragraph 2
   - line 2: capital ‘F’ for ‘Finish’
   - line 5: replace ‘among’ with ‘of’ so it reads ‘another study of middle-aged …’
   - line 5: replace ‘men’ with ‘male’
   - line 6: replace ‘difference in gender..' with ‘gender focus’
   - line 11: replace ‘feeling of low energy….’ with ‘low energy levels..’
– line 15: replace ‘among’ with ‘of’
– line 15: add ‘ly’ to ‘relative’
– line 18: replace ‘there have not been published any studies…’ with ‘there have been no published studies….’

5. Methodological considerations;
Paragraph 3
– line 4: replace ‘oppositely’ with ‘opposite to the’

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

**Quality of written English:** Needs some language corrections before being published

**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