Reviewer's report

Title: Assessing frailty in community-dwelling older people: a systematic review of the psychometric properties of the frailty index

Version: 1 Date: 12 September 2013

Reviewer: Kim Bouillon

Reviewer's report:

This systematic review aimed at collecting information on the psychometric properties of the frailty index developed by Mitnitski et al (2002) among community-dwelling older people.

This is a well written paper and methodologically well conducted review.

Minor essential revisions

Can reference 6 be replaced by that published in BMC Geriatrics (2002) as the article published in scientificworldjournal is not easily accessible?


P4, 2nd paragraph: “An FI comprises a predefined list of health deficits (e.g. symptoms, signs, impairments, and diseases)…” I do not agree with the term “predefined” as the list depends on the data. As the authors highlighted, there is heterogeneity in the construction of FI in terms of number of items, type of symptoms, diseases, and deficits. Therefore, reporting that “Different numbers and types of deficits may be used to construct an FI, which enables application in and comparison between different datasets” is a quite strong statement. In my opinion, this can only be tested using a same list of items in different databases.

P7, end of section 2.3: “The FI should comprise at least 30 deficits and deficit prevalence should be at least 1%”. Where do these thresholds come from? Please give a reference.

P9, section 3.3: “Four studies showed a low risk of bias for each of the five domains considered…” Please list here the five domains.

P9, section 3.3: “and nine did not report the percentage of missing FI data or how missing FI data were managed [19, 20, 22, 24, 27, 30-32, 34, 36]”. I count 10 references. Please harmonise.

P9, section 3.3: “In total, 98 separate domains were assessed…” What do the authors mean by “domains”?

P12: “The FI score is almost inherently linked to comorbidity and disability because most FIs incorporated diseases and functional impairments as deficits.”
This seems to be obvious; does this sentence deserve to be said?

P12, section 3.4.3: I do not think this section is necessary. What do the authors intend to show reporting skewness of FI score distribution? In my opinion, 2 last paragraphs can be moved into section 3.4.2. Construct validity.

P13: “that its discriminative capability is poor to adequate”. How do the authors can conclude that? What thresholds did they use?

P13: “The FI score increases steadily with age towards a maximum of 0.60-0.70, indicating that no ceiling effect exists”. Is it “indicating that no ceiling effect exists with age”?

P14: “the reported loss to follow-up was typically well below 20…». Do the authors mean below 20%?

P14: “However, the studies included in our review have been performed by various different research groups from all over the world indicating that publication bias is less likely.” I do not agree with this statement, the publication bias still exists even one takes into account all existing articles.

P15: “One may hypothesize whether this performance-based measure…” I think the verb “hypothesize” is not adequate. Maybe it can be replaced by “wonder” or “question”.

P15: “Our results are consistent with previous FI reviews that also reported on criterion validity, construct validity and interpretability of the FI [7, 13, 43].” There are no results on interpretability in the manuscript; therefore, this small inconsistency needs to be amended.

P17: “there may be suboptimal data registration in the EMR [60, 61]”. Please indicate what EMR stands for.

Table 2: Is it possible to provide some information on how “low”, “moderate”, and “high” risk has been defined?

Table 3: “Per increment FI” Can this be replaced by “Per one-unit increment in FI score”?

Both “FI” or “FI score” are used in the column “Interpretation effect measure”, this needs to be harmonised.

The footnote needs to be moved.

Discretionary revisions

P8: “a Likert-scale [33].Two” Please add a space between “.T”

P10: “(FI score < 0.07)) » Please remove the extra « ) ».

P11: “(CHESS)Scale » Please add a space between “)S”.

P13: Please remove the space between “inter RAI-AL”.
P15: “and interpretability of the FI [7, 13, 43]” In references, “)” should be replaced by “]”.

P17: “Body Mass Index”. Capital letters here are not needed.

**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.