Reviewer’s report

Title: Measuring frailty in clinical practice: a comparison of physical frailty assessment methods in a geriatric out-patient clinic.

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Reviewer: Elsa Dent

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Measuring frailty in clinical practice: a comparison of physical frailty assessment methods in a geriatric out-patient clinic

This manuscript presents a comparison of Fried's Frailty Phenotype and the Short Performance Physical Battery (SPPB) on their feasibility of frailty measurement in a geriatric outpatient clinic. The paper's topic is both timely and important. However, there are a number of shortfalls that detract from the quality of the paper.

MAJOR COMMENTS

1. A major issue in this paper is that, according to the methods section. ALL frailty assessments in the study were performed by a research assistant, and not the 11 hospital staff completing the feasibility survey. Therefore, why are staff commenting on the feasibility of using SPPF and Fried's Frailty Phenotype when they have not used these measurement tools (implied in your Results and Discussion sections), or even had training in how to apply them? This issue seriously undermines your paper's integrity.

2. Your paper tests the feasibility of the SPPB and Fried's frailty measurements using published guidelines for feasibility testing from almost a decade ago. In addition, the advice from these papers pertains mostly to feasibility testing for community-based studies. In the last decade, there have been several good papers on feasibility testing in the clinical setting, particularly using online assessment tools. It is advised that you seek out some more relevant and recent references in your paper.

3. Your paper repeats many sentences, sometimes word-for-word throughout your paper. This makes your paper difficult to read. Please see "Minor Comments" below for a list of these.

4. Your study measures frailty in 120 patients and defines feasibility of frailty measurement as having a 90% completion rate. However, 36 patients declined to be in your study, and another 28 were excluded from the study. So that actually makes your feasibility 60% (110/184). This limitation needs to be discussed in detail in your paper.
5. What was done with the results from your study? Did patient treatment change because you identified frailty in several patients? There needs to be an ethical statement about this in your paper.

6. Many references are cited incorrectly, which detracts from the quality of your paper. Details are in the minor comments section below.

MINOR COMMENTS

1. In your methods section, you state that 1 research assistant collected all the frailty assessment data. Yet, in your acknowledgement section, you state that 7 authors completed data collection. This is inconsistent information and needs to be rectified.

2. You have a very long reference list, and many of the articles you have referenced are irrelevant and outdated. Please shorten your reference list, and ensure that the majority of the articles you have referenced have been published in the last 5 years.

3. The primary outcome for feasibility in your paper is 90% of patients agreeing to participate in the frailty measurement. Where did this value of 90% come from? Where is the citation for this statement?

2. Page 4, line 9. A more relevant definition of frailty is needed in your paper. The definition of frailty you have used promotes the Frailty Index of accumulated health deficits of frailty, which considers frailty to be multidimensional. However, your paper compares two measures of frailty that are based on physical measurements of frailty, which are not multidimensional. Moreover, you have cited a definition of frailty that has been superseded in the literature. Please see these two references for a more appropriate definition of frailty:

   Morley et al. 2013. Frailty consensus: a call to action. JAMDA

3. Your study is based in the clinical setting. Yet, your Introduction section focuses on papers in the community setting. Please therefore focus on clinical references to "set the stage" for the reason as to why you are doing your research study.

In your Introduction section, you need to highlight why it is important to measure frailty in the clinical setting, and cite references to back this up. Ie Frailty is a "geriatric giant" and identifying it through using the SPPB or Fried's Frailty Phenotype is valuable information that can be
included in a CGA. Adding this information will give purpose to your study, and help connect your Introduction to the rest of your paper. Please see the references quoted in the previous section to give you some arguments of why your study is important. Your study is important to do. Please draw the importance of your study to the reader's attention.

4. Please read the journal guidelines on how to report results in Tables and Figures. For instance, the title of your Figures 1 and 2 should go below the figure, and not above. Table 2 should have SPPB and Fried's frailty criteria as rows, not as columns.

5. Author contribution: on page 16, you state a list of co-authors who completed data collection. However, in your paper, you mention that only 1 research assistant collected data. Therefore, why are all the authors listed here as completing data collection when they only completed a survey. That is, they were study participants.

6. Page 4, lines 31-39. This sentence (ending in "…social aspects of health") needs a reference.

7. Your reference 2 and 11 are the same.

8. Page 5 - lines 36-41: please use standard English formatting required by BMC Geriatrics for numbers: eg the number "2" should be written as "two" in the text in this sentence. Same goes throughout your paper (eg last paragraph of page 6; page 7 line 53; page 8, line 34.

9. Methods: please write in past tense when describing methods you have done. Eg Replace "are" with "were" - page 8 last word and line 53, page 5.

10. Why was there a six month gap in your study recruitment (January to June 2014)? Please state the reason.

Were the patients in your study consecutively recruited during your two periods of patient recruitment? If so, please state this in your methods section (last paragraph of page 5). If not, please state how participants were selected for the study - eg were they recruited randomly, or non-randomly; were they recruited only on certain days of the week? This information is important to include in your paper so that readers can determine whether you had a selection bias in your study, which may have impacted on your results.

11. Who recruited the patients in your study? Was it the researchers, nursing staff or treating clinicians? Please state this information in your paper.

12. Please state which ethical procedures you followed in your study (page 6, line 24). For instance, if you adhered to the Declaration of Helsinki ethical guidelines throughout your study, please state this information (eg add to page 16).

Was signed written consent obtained from patients prior to their participation in the study? You looked at patient medical records, so this written consent is needed.
Additionally, did your ethics clearance cover both the staff survey, and the recruitment of patients? This needs to be mentioned in your paper as it is really unclear in your paper (eg in your ethics statement at the end of your paper).

13. Could you please attached a data collection proforma to the appendix of the paper, so that readers can follow what you did. Same goes with the staff survey - please add to your appendix section.

14. Lines 20-28 on page 5 are repeated on page 6 (lines 31-37). Choose where this description of feasibility goes best in your paper, rather than write it twice in your paper.

15. Page 8, first paragraph: these sentences are very repetitive. Can you reword these to be more concise, and less confusing. Also, try not to use the word "deemed" in every single sentence. There are other words you can use: eg "classified", "classed" or "identified".

16. Page 8, line 14. You state that the reliability of the Fried phenotype method has not been assessed. *ouch*. You have missed about 100s of papers in the literature, and about 80 review papers on the topic in the last decade. Fried's is very well tested for reliability in both community and clinical settings.

If you mean that the reliability of Fried's frailty phenotype has not been assessed in the outpatient clinic, then this statement is also incorrect.

17. Page 8, line 43. You have stated that the SPPB is one of the best physical performance tests to identify frailty in older adults. This is a major statement. You need to back this statement up with high impact references. Eg see the SPRINTT trial in the EU, or the LIFE study in the USA: they are both using the SPPB to measure frailty, and they give good reasons as to why the SPPB is a preferred measurement of frailty in their studies.

18. Most of the last paragraph on page 8 belongs in your Discussion section. Eg" in another study of patients…": this sentence should not be in your Methods section. Rephrase this sentence so it is relevant in your Methods section.

19. Page 9, second paragraph, line 16: please use consistent terminology throughout your paper (eg CGA), rather than interchanging these terms.

20. Page 9, line 22: "Body Mass Index (BMI) (weight/height^2)" - add this information to your paper. Eg you need to abbreviate BMI here.

21. What is the brand of weight scale you used, and was it calibrated? Did you measure weight to the nearest kg, 0.1kg, or 0.01 kg? Please state this information in your paper.

22. What grip strength dyanometer did you use? There is much variation in grip strength, depending on the type and brand name of dyanometer.
23. Lines 41-48 (page 9) is repeated information from earlier in the paper. There is no need to repeat this information.

24. Lines 38-42 (page 9) is repeated information from earlier in the paper. There is no need to repeat this information.

25. Lines 29-25 (page 10): no need to put denominator values here - just report n and prevalence: eg "110 patients (92%)…" Same goes throughout your methods section.

26. Lines 25-29 (page 10): who declined the assessment attempts for frailty? Was it the patients? Please clarify this information. Also, please remove the word "fear" on line 36 (page 10), as it makes your patients appear fearful during the study - use a term such as "belief". Also, how many participants declined for this reason? What were the other reasons patients declined assessments? How much longer did Fried's criteria take to measure than the SPPB (lines 40-43, page 10)? If time was not measured, then please rephrase this sentence.

27. Page 11 (first paragraph) is very long-winded, and exhausting to read. It would be much simpler if you just graphed this information.

28. Page 11: n values always go before % values. Also, your significant figures after decimal points are one too many in your paper. Please consult a statistical textbook for basic reporting of results. Eg "How to Report Statistics in Medicine: Annotated Guidelines for Authors, Editors, and Reviewers 2nd Edition" - Lang.

29. Lines 29-34 (page 11) is repeated information from earlier in your results section. There is no need to repeat this information.

30. In your Abstract, you have mentioned that the Fried's Frailty Phenotype took longer to measure than the SPPB. However, you did not measure the actual time taken to perform these measures in your paper. Therefore, please remove this unsubstantiated statement from your abstract (lines 47-50, page 2).

31. Table 1- you did not actually measure time taken to complete frailty measurements, so this information needs to be excluded from your paper - eg you have done a guess of the time taken, and added this information to your table. This is very unscientific reporting, and detracts from the quality of your paper.

32. SPPB is also a phenotypic measure of frailty. So when you mention "phenotype measure" in your Abstract and throughout the rest of your study, it is not clear whether you are referring to Fried's frailty criteria, or to SPPB.

33. Please also use a consistent name for Fried's Frailty Criteria in your study. Eg sometimes you use "Fried phenotype method", other times you use "Fried phenotype assessment", etc. Note
also, that it is "Fried's" with an apostrophe before the "s", as Fried had colleagues in her defining paper.

34. Limitations section - only 1 study site was used, which limits the generalisability of your study. Please add this limitation to your paper.

35. Your Results section and your Figure of patient recruitment both make no mention of how many patients were excluded from your study and for what reason. Eg how many patients with dementia/delirium were excluded from your study?

36. Figure 1: what were the reasons for "patient decline"?, and what were the n values for each of these reasons for decline. Also, please use an alternate phrase for "patient decline", as "patient decline" sounds like the patients are getting worse in condition in hospital.

37. Figure 2: This Figure makes no sense. Why have you not combined the three columns of each frailty measurement in one column? Eg so that there are two columns in total, rather than 6 columns. Please consult a statistical textbook for reporting of these basic results. Also, where is the n value for the Figure (eg you can add it to the Title).

38. Reference 42 does not actually back up the statement of this sentence (page 15, line 29). Reference 42 discusses how cognitive status impacts on frailty outcomes. It does not say that cognitive status is related to frailty.

39. Line 26, page 15: "frailest" - please replace with "most frail" here, and throughout your paper.

40. Page 14, line 24: reference 44 - this reference is incorrect. You need to reference a longitudinal study to back up the statement of this sentence.

41. Page 14, lines 29-33: based on your high rate of patients saying no to participating in the study, as well as the relatively high number of excluded patients, this statement is incorrect (eg the statement starting with "Our findings…"

42. Why did you choose the 2 specific frailty measurements in your study (SPPB and Fried's frailty phenotype_? Why not other measures? This needs to be justified in your Intro/Discussion sections- there are dozens of phenotypic frailty measurements, so why did your choose these two?

43. Page 13, lines 43-46. This is an ethical conundrum. Did you intervene when patients were found to be frail (see comment previously on this). You will need to address this statement.

44. Remove references 39 and 40 on page 13 (line 41): these are only narrative, opinion piece reviews and do not support your statement in this sentence.
45. Line 41, page 13: are you referring to cognition and mood here? Or that of the RA? Ie please state the word "patient" in this sentence.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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