Reviewer’s report

Title: IN-HOME PHYSICAL FRAILTY MONITORING: RELEVANCE WITH RESPECT TO CLINICAL TESTS

Version: 0 Date: 03 Jun 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: The study is clear and succinct, and addresses a known problem. The written expression in the manuscript could be improved in places. The analysis chosen to evaluate the tools is simplistic and needs improvement.

The authors have done well in developing a user-friendly method of assessing frailty using the Fried phenotype that could be used in an older person's home for non-invasive monitoring of frailty.

The analysis is overly simplistic, based on correlations between each of the devices and the chosen gold standard test. It would have been worthwhile classifying the participants as frail/non-frail, based on the Fried test, and comparing the results of the pack's classification with those of a standard assessment. The comparison of the last two criteria (physical activity and exhaustion) were not with appropriate standards. It would have been worthwhile using another physical activity measurement tool rather than the chosen questions from the Duke Health Profile.

REQUESTED REVISIONS:
The authors need to add an additional analysis to assess the ability of the tool to classify participants as frail/pre-frail/robust using the Fried frailty phenotype. The three objective measures (gait velocity, grip strength, and weight loss) work well, while the two subjective tests need additional work. The CES-D depression scale items for exhaustion are the same as Fried, so it would be expected that the same result would be obtained. In this way, the accuracy of classification as frail/pre-frail/robust could be evaluated.

In future work, the authors should consider the use of a single walking trial for both systems, ideally with the use of timing gates to automatically assess gait velocity.

ADDITIONAL REQUESTS/SUGGESTIONS:
The manuscript has some errors in English throughout. It would benefit from being proofread by a native English speaker.
It would also be worth expanding the discussion to include the large variability between different frailty tools with respect to the prevalence of frailty identified in a given population.

**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.

No

**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.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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