Reviewer's report

Title: Prospective association of the SHARE-operationalized frailty phenotype with adverse health outcomes: Evidence from 60+ community-dwelling Europeans living in 11 countries

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Reviewer: LEOCADIO RODRIGUEZ-MAÑAS

Reviewer's report:

The manuscript entitled “Prospective association of the SHARE-operationalized…” aims to evaluate the prospective value of frailty SHARE operationalized frailty phenotype as a way to validate it.

The manuscript meets a hot topic in the field, where the issue of finding operative definitions of frailty of utility in daily practice is highly demanded.

The study is well-designed but it lacks some components and have some sources of potential bias that must be taken into account:

Major compulsory comments

1) As it has been discussed elsewhere, SHARE criteria could overestimate the actual prevalence of frailty, thus raising the possibility of a misclassification bias. Prevalence of frailty in SHARE in countries like Italy or Spain near double the figures found in other studies done in those same countries using the Fried’s criteria. This is the case for InChianti study in Italy and the Toledo Study for Healthy Aging in Spain.

2) As the authors establish in the discussion section, attrition rate is really high and the evaluations are based in self-reporting. Although this is very usual in epidemiological studies, some data showed in this manuscript raise the possibility that a significant bias is present. For example, the percentage of robust people with incident disability is near 30%. This is a high percentage in a cohort not very old (mean age around 70 yrs.) and with a period of follow-up of only 2 years.

3) It is well known that many functional parameters (simple ones, like gait velocity, to complicated scales like the one designed by Rockwood’s group) have predictive value for different health outcomes in elderly people. Thus the actual issue is to show that new scales or modification of pre-existing scales add some new characteristic (easier to use, higher predictive value, etc) to the classical ones. This is not the case in this manuscript, where the authors did not compare the new phenotype with any other.

4) Although risk prediction is rather informative, perhaps ROC-curves for every of the prospective outcomes could be of interest for the readers.

In my view, some of these topics would be specifically addressed in the discussion section and ROC curves would be added.
**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'