Reviewer's report

Title: Psychosocial Factors Associate with Frailty and Outcomes of Frailty: an Observational Study of Hospitalised People

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Reviewer: Melissa K. Andrew

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Psychosocial factors associated with frailty and outcomes of frailty: an observational study of hospitalized people

Overall this is nicely conceived and well written paper. It addresses an important gap in the literature, as the authors themselves have highlighted. It is also nice to see the discussion about ideas how these potentially modifiable psychosocial factors could be addressed to improve outcomes in vulnerable inpatient populations. Here are some specific comments for minor/discretionary revisions.

1. In line 112, the authors mention the high incidence of frailty in hospital populations. Perhaps prevalence might be the more appropriate concept?

2. Frailty can be defined in different ways. Would using a different definition or measure of frailty be expected to yield different results? In particular, although the authors have justified why it was done, collapsing the 3-level Fried frailty measure into a dichotomous measure reduces our ability to distinguish the impact of grades of frailty, whereas use of a different frailty measure with more of a gradient could provide richer information. The measure used here also does not apparently take the patient’s baseline health into account (vs. their frailty status while acutely ill). Perhaps as this is something that could be discussed in the limitations section.

3. The authors have adjusted for comorbidity yet do not discuss the potential impact of function and mobility. Might these be something to consider the discussion?

4. The Fried frailty measure may be difficult to apply in inpatient settings where most patients feel weak and can’t walk. The authors mentioned that it is not commonly used in the settings. Are any references available?

5. The outcome measures used are strong. In particular, linkage to objectives outcomes including a death registry is a strength. The authors mention that their higher level of care includes sub-acute care and transition care programs (line 177). These terms may be applied differently in different settings. Perhaps these could be defined briefly for those not familiar with the specifics of the Australian context.

6. The authors have treated length of stay is a binary outcome (shorter versus
longer than the median length of stay in their unit). Would there be some external referent for a long length of stay in existing literature? Also, the others might consider using a continuous variable for length of stay. This would allow discussion of results such as “frailty increased length of stay by XX days, which was further increased to YY days when frail patients also had poor mastery or low supports”.

7. In line 185 the abbreviation OASIS is used whereas previously it was OACIS.

8. Overall the statistical methods are strong. One suggestion for the presentation of results would be to expand a bit more in the text on the results presented in Table 2. In particular, highlighting the direction of interaction in the text (high vs. low social activities, sense of wellbeing etc…) would be helpful. This could be accomplished by adding a further clause to enrich each (or at least many) of the explanations. For example, in line 304, this could look something like “…(mastery) was associated with all four outcomes as an effect modifier of frailty, in that frail patients with low mastery had higher rates of death, longer length of stay, emergency re-hospitalization and discharge to a higher level of care”. This could be done in both the results and discussion sections to improve clarity for the reader.

9. There appears to be an extra "both" in the sentence in lines 252 - 3

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

**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.