Author's response to reviews

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

Authors:

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Author's response to reviews: see over
Dear Prof Mangiameli,

Please find attached our manuscript for resubmission:

‘Psychosocial Factors Associated with Frailty and Outcomes of Frailty: an Observational Study of Hospitalised People’ (MS: 4304189971227734)

We have now made the requested revisions to the manuscript and feel our manuscript has noticeably improved as a result. Responses to the reviewers’ comments and suggestions are outlined below.

Reviewer: Richard Lindley (Reviewer 1)

We thank the reviewer for his valuable comments. We feel that his suggestions will substantially improve the interpretation of our complex table 2. Moreover, we used comments from this reviewer to address comments made by Reviewers 2 and 3.

Major Compulsory Revisions:
1. We have now separated our complex table 2 into two tables: Table 2 now only shows the main effects of frailty and psychosocial factors on study outcomes. Our new Table 3 displays the interaction effects. We feel that separating our results into two tables makes our results much easier to follow. Moreover, we have now added a detailed interpretation of our results so that readers will be easily able to understand our tables, particularly Table 3. (see Lines 247-280)

2. Yes, we do have frailty*married (frailty*unmarried) interaction results and we have now added these results into Table 3. Of note, as we have presented our other results in terms of ‘poor’ rankings (eg high anxiety, high depression, poor wellbeing) we have now presented these marital status results as frailty*unmarried, rather than frailty*married.

Minor Essential Revisions:
1. We have now added this statement into our manuscript (line 138).
2. We have now spelt out GEMU (line 136).
Reviewer: Colleen J. Maxwell (Reviewer 2)

We thank the reviewer for her comprehensive review of our manuscript. We are appreciative of the time and effort it would have taken to complete such a comprehensive review. Our paper has been improved substantially as a result of addressing the reviewer’s comments, suggestions and questions. Importantly, our paper has a much more robust clinical relevance as a result of addressing Reviewer 2’s comments.

Major Compulsory Revisions

1. (i) We have now added in the study period (line 135)
   
   (ii) We have now added details as to The Queen Elizabeth Hospital (line 137-138).

   (iii) We have now detailed as to which variables were obtained via interview, patient charts and by physical measurement (lines 149-151). We have also added detail as to the relative timing of data collection (line 148-149).

   (iv) We agree, and have now added Fried’s criteria in detail (lines 159-164).

   (v) Line 147: we have already outlined that data was collected within the first 72 hours of a patient’s admission to GEMU. We have also now made a note (line 136) that the GEMU is a sub-acute care ward. Thus, by design of our study, we are not assessing acute patients in which frailty incidence would be affected by a patient’s acute illness/injury as highlighted by the reviewer.

   (vi) Noted. We have decided, based on this and other comments by the reviewer, that we take QOL total score out of our paper. We would like the focus of our paper to be on those five categories of the OPQOL that form the psychosocial variables in our study. We have now added much more detail as to the scoring of the psychosocial variables in our study (lines 170-175).

   Of note, the QOL contains 8 sections, 5 of which are psychosocial in nature (and included in our study) and 3 of which are not psychosocial in nature (financial circumstances, health and functioning, and QOL overall).

   Accordingly, we have taken all reference to our QOL variables out of our paper.

   (vii) We agree, and have now added this to lines 178-180.

   (viii) We have now omitted “caregiver use” out of our study, given that it is not by definition, a psychosocial factor as outlined by the reviewer in their comment in point #10.

2. Our Table 1 does provide descriptive measures for our several baseline study measures. We have now relabelled the title of Table 1 to highlight this: Demographic and Psychosocial Characteristics of Patients on Admission, and their Association with Frailty (n=172)†

   Additional characteristics of our study sample are also detailed in our results section (age, gender, prevalence of frailty) (lines 232 – 238).

   Unfortunately, we do not have data available for a comparison of the study population to those not recruited in the study. However, we do have information as
to numbers excluded/included, and we have now included this in our manuscript (lines 227-229).

3. Noted. To address the reviewer’s concerns, we have now gone into much more detail in interpreting our results (*Lines 247-280*). We have also split our complex Table 2 into two separate tables (Table 2 and 3) in order to better present our results so that they are easier to follow (see Reviewer 1, comment #1). Importantly, we have also now provided the output of the models the reviewer is asking for (Table 2, model 2).

4. Noted. We have now added in this missing variable, also noted to be missing by Reviewer 1 (comment #2)

5. The only possible overlap could be in Fried’s exhaustion criteria and depression. However, we used the Geriatric Depression Scale-Short Form (GDS-SF) to identify depression and not CES-D so the questions are much different. The GDS-SF contains 15 questions:

1. Are you basically satisfied with your life? YES / NO
2. Have you dropped many of your activities and interests? YES / NO
3. Do you feel that your life is empty? YES / NO
4. Do you often get bored? YES / NO
5. Are you in good spirits most of the time? YES / NO
6. Are you afraid that something bad is going to happen to you? YES / NO
7. Do you feel happy most of the time? YES / NO
8. Do you often feel helpless? YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES / NO
10. Do you feel you have more problems with memory than most? YES / NO
11. Do you think it is wonderful to be alive now? YES / NO
12. Do you feel pretty worthless the way you are now? YES / NO
13. Do you feel full of energy? YES / NO
14. Do you feel that your situation is hopeless? YES / NO
15. Do you think that most people are better off than you are? YES / NO

It is possible that a patient’s GDS-SF score could be affected by their exhaustion levels. However, we did not find collinearity between GDS-SF and frailty.

6. Noted. We used comments from both Reviewers 1 and 2 to add much more detail to assist the reader in interpreting our results (*Lines 247-280*) and as outlined in point 3 (above), we split our complex Table 2 into two separate tables making it much easier to follow.

Minor Essential Revisions

7. We agree and have changed the word “associate” in our title as requested.

8. We agree and thank the reviewer for noticing this error. We have now amended our abstract accordingly.

9. As per point 8.

10. We agree. As we would like our paper to focus on psychosocial factors, we have now taken the variable “use of carer” completely out of our manuscript.
11. We thank the reviewer for this insight. We have now expanded updated our discussion section accordingly (see lines 364-372).

12. Agree. We have now added this additional information to Table 2: eg n=40 of 172 (for mortality).

13. Noted. We have now deleted this sentence.

14. Noted. We have now used the word “prevalence” only, as per guidelines from Reviewer 3 (point 1), and in accordance with correct terminology.

Reviewer: Melissa K. Andrew (Reviewer 3)

We would like to thank the reviewer for her helpful feedback of our manuscript. We feel that her suggestions and insights have improved our manuscript considerably. Importantly, we would like to make note that the detailed suggestions for interpretation of Table 2 were most valuable.

Minor/Discretionary Revisions:

1. We agree and have now changed the word “incidence” to “prevalence” as requested.

2. Yes, we definitely agree that different measurements of frailty would bring different results. Importantly, we did consider using other frailty criteria in our study including Morley’s FRAIL index (Fatigue, Resistance, Ambulation, Illness, Loss of Weight) [1] and the Study of Osteoporotic Fractures (SOF) [2] index, but their gradient of frailty was even less than that of Fried’s criteria – eg the percent of robust patients was 2% and 4% respectively for the FRAIL and SOF instruments [3].

   We have now added a discussion as to the use of Fried’s frailty criteria in our manuscript. See lines 352-356.

3. We agree with the reviewer that co-morbidity would have an impact on function and mobility. With have therefore expanded our discussion section to highlight this effect. See lines 354-356.

4. We agree and have now added a discussion regarding the limitations of collecting Fried’s criteria in the hospital setting. See lines 352-356.

   There are a few papers that have looked at frailty using Fried’s criteria in the hospital setting. See lines 365-366 where we have discussed this point.

5. We thank the reviewer for their comments. In our manuscript, we have now discussed specifics of the aged care system in Australia. Lines 178-183.

6. Noted. We did initially consider using LOS as a continuous variable for our paper, but for the ease of interpretation of results, particularly for describing the interactive effects between frailty and psychosocial factors, we chose to dichotomise LOS.

7. Noted. We have now amended this typographical error.
8. We agree. We thank the reviewer for their invaluable advice on how to make the interpretation of our complex Table 2 clearer. We have expanded our results section considerably, with lines 266 to 280 now explaining our results in detail. We have also separated our Table 2 into two separate tables for ease of understanding: frailty and psychosocial variables and their association with study outcomes are now shown in Table 2, and their interactive effects are shown in our new Table 3.

9. Noted. We have now amended this typographical error.

Editorial Comments

1) More detail of the prospective sample design is needed in the Methods section.

More details of our study design have now been added to our paper (see lines 135-138 and lines 149-151) using suggestions from Reviewer 2.

2) An overall study descriptive table is warranted (i.e., Table 1).

Our Table 1 does provide descriptive measures for several baseline study measures. We have now relabelled the title of our Table 1 to reflect this: “Demographic and Psychosocial Characteristics of Patients on Admission, and their Association with Frailty”. Additionally, details of age, gender and prevalence of frailty appears in the text of our results section (see lines 232-236).

2) The authors should provide greater justification for using Fried’s frailty score in an in-hospital setting ? especially considering that the scale was developed for community-residing adults.

We refer the reviewer to lines 364-366 where we have discussed the use of Fried’s criteria in the hospital setting, and lines 354-356 where we have discussed limitations to using Fried’s frailty criteria. We followed guidelines from Reviewer 3 to address these points.

3) Likewise, details of the items in Fried’s frailty criteria should be presented in a table or appendix for those unfamiliar with this scale (or alternative scales).

In our methodology section, we have gone into specific detail describing Fried’s criteria and how each component of Fried’s criteria was scored. This detail was recommended by Reviewer 2 (See lines 156-163). Accordingly, we feel that it is now superfluous to add in Fried’s criteria into an appendix, given how detailed we have now explained Fried’s criteria in our methods section.

5) Potential confounding between the psychosocial variables and those included in Fried’s score need to be addressed.

We used GDS-SF rather than CES-D to score depression, thus we do not have confounding regarding the exhaustion criteria of Fried’s criteria (which was a concern posed by Reviewer 2). It is highly unlikely that the other physical components of Fried’s criteria (walking speed, weight loss, mobility and low grip strength) were confounded by the psychosocial variables used in our study.

6) Considering the relative small sample size and subgroup comparisons, it would be useful for the authors to demonstrate whether the analyses are suitably
powered to draw their conclusions. Many large point estimates are not statistically significant.

We have provided the 95% confidence intervals (CIs) for all our analyses. Although the CIs are high for some point estimates, our opinion is that they are not too large. We have mentioned our study’s small sample size as a possible limitation in our discussion section (line 376). Additionally, the lowest number of events in the subgroup was n = 38 (for 1 month emergency hospitalisation).

7) Table 2 requires more clarification and elaboration to help readers understand the central findings. In particular, the interpretation of interaction effects is somewhat misleading when discussing main effects and interaction terms.

To clarify our complex Table 2, we have now split our table 2 into two separate tables: Table 2 now only describes the associations of frailty and psychosocial resources on study outcomes. Our new Table 3 presents the interactive effects of frailty and psychosocial resources on study outcomes.

Splitting our complex Table 2 into two separate tables allowed a much more detailed interpretation of our findings. We used comments from all three reviewers to go into considerably more detail describing our results, expanding and clarifying our results section considerably (see lines 247-180).

8) The interaction term for frailty*married appears to be omitted

This interaction term has now been added, as frailty*unmarried (see comment from Reviewer 1, major revision point 1).

We thank you for consideration of our manuscript for resubmission.

Kind regards,

Elsa Dent & Emiel O. Hoogendijk

References: