Reviewer's report

Title: The descriptive epidemiology of delirium in a large population-based cohort study: results from the Medical Research Council Cognitive Function and Ageing Study (MRC CFAS)

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Reviewer: Karin Neufeld

Reviewer's report:

Review of Article: The descriptive epidemiology of delirium in a large population-based cohort study: results from the Medical Research Council Cognitive Function and Ageing Study (MRC CFAS)

This manuscript describes the findings of a secondary analysis of a population based cohort study in the UK in which an algorithmic definition of delirium is developed and employed at time one, based upon direct assessment of the respondents and interview of informants. The validity of the diagnosis for the full and subsyndromal delirium definitions was tested by assessing its association with mortality and development of delirium in the same cohort of respondents two years later. This well defined question is appropriately tested by the methods described in this paper with the resultant data appearing to be sound; this well written manuscript constitutes a major contribution to the expansion of knowledge about delirium in the population. My comments constitute only minor essential revisions to this paper.

Abstract: no comments

Introduction:

- In the 3rd line from the end of the section, the word “predicative” is found. Did you mean “predictive”?

Methods:

- Throughout the paper, the abbreviations SO, AO and C2 are mildly distracting and caused a good deal of page flipping to find out what they stand for. Please consider either getting rid of these shorthand abbreviations and using labels consistently to refer to the different stages of the survey.
- In the 4th line from the bottom of the 5th page, the word “organiity” should be changed to “organicity”.

Results:

- My main complaint with the results is confusion over the changing denominators throughout the section. I realize that in this kind of study, the denominator changes are quite complicated but it would help to know why, for example, n’s in the “no delirium” group in table one at the top of the column indicated 2075, but the denominator for the dementia at baseline was 2065, and
similarly the n for the delirium group was 122 but the denominator for the dementia at baseline was 119.

• In the same vein, why in Table 3 is the n for inattention 2637?
• And finally why in Table 4 are the n’s for symptom clusters so different?
• Two possible suggestions for making this more clear to the reader might be to
  o Consider adding the loss to follow-up, mortality, refusal etc to figure 1 with the resultant denominators in the flow diagram
  o And to include numbers of missing data, etc in the footnote of each of the tables.

Discussion: no comment. It’s well written and doesn’t over-reach.

Table 1:
• In the footnote of the table, consider changing the wording (as noted in my first comment of the methods section above) to make the direct respondent examination and the informant interviews more evident to the reader. Also putting “(informant)” following the interview question for acute change in the body of the table is confusing, since you haven’t done this for all of the informant interview-derived questions.

Table 2: Comments as above in the methods section

Table 1 and 4:
• Footnotes for both of these tables include the phrase “The middle part”. Consider quoting the section that you are making reference to, such as “Delirium: final model”. Also note that in both tables you have made reference twice to “the middle part”.

Table 5:
• Age grouping for 75-80 should be 75-79.

Figure 2:
• Redundant with table 5. I would present either Table 5 or Figure 2 but not both.

Thank you for allowing me to review this paper. I look forward to its publication.

**Level of interest:** An article of outstanding merit and interest 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 in relation to reviewing this manuscript.