Reviewer’s report

Title: Psychotropic drug use among nursing home residents in Austria: a cross-sectional study

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Reviewer: Armin von Gunten

Reviewer’s report:

General comments:
This article finds that psychotropic drug prescription frequency is tremendously high in Austrian nursing homes compared to other countries with prescription use differing substantially from that recommended. This is an outstandingly important topic both in terms of public health as it relates to high numbers of patients and in terms of quality of care as it points at inadequate treatment attitudes. A strong point of this study is the extremely high coverage with 48 out of 50 NH participating in the study. Although reporting at the level of one Austrian region the importance of the data clearly spans much larger geographical areas. Although not entirely new data, it has the advantage of being collected out of the Anglo-Saxon world.

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. Is the question posed by the authors well defined?

The main question is straightforward, well defined and of great importance.

I feel, however, the secondary question on the variables associated with psychotropic medication deserves clarification. I wasn’t quite sure why the authors chose the variables they chose: are they convenience variables? It doesn’t seem they chose them according to specific hypotheses.

2. Are the methods appropriate and well described?

As the authors adjust psychotropic medication for clusters, I was a little surprised they did consider the variables chosen (à page 7) as being independent. Although some of these variables can be considered a priori as independent others seem potentially dependent one from the other. Indeed, looking at Table 1, the figures regarding the different BPSD described suggest that they often co-occur and thus are not independent. Would it not have been more appropriate to do a data reduction analysis with regard to the patients’ clinical characteristics at least: 1) falls, 2) BPSD?

This would also be appropriate due to the fact that differential predictors of BPSD are not at stake in this paper as only a few BPSD among the many possible have
been selected. For instance, why was apathy not selected as one frequent BPSD? I think the authors should say a few words about how or why they selected their variables. I think it would make things clearer if they introduced a small sub-chapter regarding the different variables in “Methods” as parts of the description regarding the variables are now scattered in “Nursing homes and residents” and in “Statistical methods”. Structuring the method section differently with a sub-chapter regarding the different variables would probably help the reader.

Giving this issue a little more attention is likely to result in changes regarding the presentations of the different tables.

3. Are the discussion and conclusions well balanced and adequately supported by the data?

I think it might be worthwhile discussing briefly the following points as they are potentially of clinical importance:

- What is the clinically relevant hypothesis prompting the authors to calculate the association between ‘legal guardian’ and antipsychotic drug prescription?
- Why was there no association between antipsychotic prescription and staff/resident ratio?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. References to tests not used in the study can be dropped: 27, 28. (page 5)

2. Has the CDR been used (page 5)? The CDR is mentioned in the method section, but I couldn’t find it in the tables.

3. Although well known by experts, please define BPSD on page 5

4. In methods (page 6) please drop: “Cluster-adjustment of these data was avoided…”

5. Although the authors go at great length explaining the statistical methods of which I am not particularly familiar, they omit explaining what the different clusters they refer to are (page 6). Similarly, this may not be altogether clear to the average reader. Please define them.

6. Despite multiple analyses the authors do not use statistical correction and use the 0.05 level. This is fine with me, but they should state why they do this despite a large sample size of almost 2000 patients.

7. Drop “… according to the Beers Criteria or other criteria (44,45,46) “ as this is neither done nor discussed.
à minor essential revision

8. Do the title and abstract accurately convey what has been found?

Abstract: In the results section the authors state that there is no association between institutional characteristics and drug prescription, but they say nothing about the associations with BPSD. This is a bit odd.
Otherwise, ok.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

1. Prothipendyl being the most frequently prescribed antipsychotic is a surprise. This drug does not even exist in my country. Maybe the authors want to comment on this.

2. In methods (page 6) I suggest the authors drop: “Cluster-adjustment of these data was avoided …”

3. I always find it a bit odd to say the “the mean number of psychotropic drugs prescribed …” Wouldn’t it be more appropriate to give the median value?

4. Are the data sound?

I felt they are. Maybe the authors could state whether or not there is some quality assurance data in the literature regarding the different levels of a resident’s functional status (monthly amount of nursing care time) they define and use in the paper.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

The last 2 paragraphs of the discussion are petering out and can be dropped leaving only the following sentence: “There clearly is an urgent need to reduce and optimise psychotropic drug prescription in Austrian nursing homes.”

6. Are limitations of the work clearly stated?

I suggest the authors add a sentence, in the “limitation section”, stating that causality of associations could not be assessed (They discuss this point when they wonder whether some BPSD are the cause or the side effect of antipsychotic drug prescription, but don’t mention it together with the other limitations).
**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.