Reviewer’s report

Title: Prevalence and persistent use of psychotropic drugs in older adults receiving domiciliary care at baseline

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Reviewer: Marjaana Koponen

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Manuscript Title: Prevalence and persistent use of psychotropic drugs in older adults receiving domiciliary care at baseline

In general, the manuscript is well written and provides new information on the use of psychotropic drugs among older adults receiving domiciliary care in Norway. However, quite many minor clarifications and corrections are needed before publication.

Detailed comments:

Comment 1:

Page 5, Methods section, Participants, lines 47-49:

It is mentioned that to be included in the study older individual receiving domiciliary care had to have a next of kin who saw them at least once every week. I think this requirement should be also mentioned in the limitations section as it can affect the generalizability of the results.

Comment 2:

Page 6, Methods section, Measures, lines 1-2:

Authors report that "The use of drugs was registered from the participants' medical records". Does this mean that participants' medical records were the only data source for drug use and actual drug use was not ascertained from the study participants or next of kin? As the aim of this study was to describe the prevalence and persistency of psychotropic drug use, the limitations of using medical records as a data source for drug use should be discussed in the limitation section.

Comment 3:

Page 7, Methods section, lines 22-23:
"The formal level of care at the follow-up assessments was registered as location, i.e. community-dwelling receiving domiciliary care or living in a nursing home at."

Is the last word "at" necessary at the end of the sentence or is it a spelling mistake?

Comment 4:

Page 10, Discussion section, first chapter, lines 36-42:

I would delete the following two sentences: "Generally, there was a high prevalence of use of antipsychotics, with a higher prevalence in those with dementia than in those without dementia at all time-points. A great proportion of the antipsychotics used in those with dementia was traditional antipsychotics." I do not think the repetition of this result is necessary in the first chapter of the discussion section because there is a whole sub-chapter "Use of antipsychotics" which covers discussion related to these results. Furthermore, the most frequently used psychotropic drug group were sedatives followed by antidepressants so highlighting antipsychotic use in the first chapter is not essential.

Comment 5:

Page 11, Discussion section, Use of antipsychotics, lines 49-55

"This is interesting as antipsychotics, because of the mentioned side-effects, should only be used for a short period of time in people with dementia [18]. Also, it is well known that antipsychotics may have a limited effect on NPS in dementia [17, 18]."

Reference number 18, a study conducted by Gustafsson et al. is not appropriate reference for these sentences. The first sentence should preferably cite to some guidelines of care on use of antipsychotics for NPS and for example the Updated Beers Criteria (reference number 19). In the second sentence, authors could also cite a systematic review/meta-analysis of effectiveness of antipsychotics on NPS.

Comment 6:

Page 12, Discussion section, Use of antipsychotics, lines: 6-7 and

Page 20, Reference list, lines: 25-29, reference number 55

There is an updated Cochrane review by Van Leeuwen et al. "Withdrawal versus continuation of long-term antipsychotic drug use for behavioural and psychological symptoms in older people with dementia" available that was published on 30 March 2018. I noticed that the authors have submitted their manuscript on 02.03.2018 and therefore did not initially have the chance to cite the updated review but can now do so while revising their manuscript.
Comment 7:

Page 12, Discussion section, Use of antidepressants, lines 16-19:

"Antidepressants are commonly used in older adults, both in community dwelling and nursing home residents, and more often in females [57]."

As the authors only cite reference number 57 "National prescription registry" maintained by Norwegian Institute of Public Health, they should add "In Norway" at the beginning of this sentence or alternatively add references to international studies.

Comment 8:

Page 13, Discussion section, Use of sedatives, anxiolytics and anti-dementia drugs, lines 36-40:

"The explanation may be that the general practitioner usually describing the drugs, may prescribe the drugs because of suspicion of dementia [66]."

Is the word "describing" correct in this sentence or a spelling mistake?

Comment 9:

Table 1:

For the total sample, some percentages are missing and should be added because of consistency (females, married and GMHR categories).

Comment 10:

Table 2:

It would be useful to have numbers of users in Table 2 (in addition to percentages). However, I understand that the Table 2 is wide and full of numbers already in its current form. One option could be to divide this table to describe the prevalence (with both numbers and percentages) and persistence in different time points first for the total sample. A separate table could then describe these figures for the comparison of individuals with and without dementia.

Comment 11:

Table 4:
I am not sure why the adjustment variables vary between lag 1 and lag 2 for the same psychotropic drug group and whether this is appropriate. Did the statistical model make the decision about which adjustment variables to include instead of the researcher?

In table 4, the authors could add the number of users of each psychotropic drug group in Lag 1 and in Lag 2. By adding the number of users, readers could better evaluate the power of the analyses.

Comment 12:

Table 5:

The number N=954 is repeated after all psychotropic drug groups in Table 5: "Antipsychotics (N=954)", "Antidepressants (N=954)", "Anxiolytics (N=954)", "Sedatives (N=954)". Why is the number of participants included in the analyses N=954? Based on the results section (page 9-10), this Table 5 describes the factors associated with persistent use of psychotropic drugs at two consecutive time points. If that is accurate, should it analyze e.g. among the users of sedatives what factors are associated with using sedatives in two consecutive time points compared with using sedatives in only one time point and not in the following time point? Therefore, those individuals who do not use e.g. sedatives in any of the time points (A1, A2 and A3) or those who start using sedatives at A3 should be excluded from the analyses as one cannot analyze factors associated with persistent use of sedatives among nonusers. That is why I expected that the number of participants included in these psychotropic drug group specific analyses would vary.

Comment 13:

Based on prevalences presented in Table 2 the number of users might limit the power of persistency analyses for some psychotropic drugs and affect the results. This should be mentioned in the discussion section.

Comment 14:

Appendix Table 1:

The number N=1942 is repeated after all psychotropic drug groups in Appendix Table 1: "Antipsychotics (N=1942)", "Antidepressants (N=1942)", "Anxiolytics (N=1942)", "Sedatives (N=1942)".

How can the number of participants included in these analyses be over the total study sample N=1,001? Is there a typing error?

Comment 15:
All Appendix Tables (1, 2_1, 2_2, 2_3, 2_4):

Authors should add below every appendix table what covariates were adjusted for in each analysis.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
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