USE OF POTENTIALLY INAPPROPRIATE MEDICATION AND POLYPHARMACY IN ELDERLY: A REPEATED CROSS-SECTIONAL STUDY

Polypharmacy and PIMs and the risk of using these in older adults is a significant healthcare problem. With this cross-sectional study I am left wondering what it adds to the existing literature (refs 18-20) or how it is different from what has already been done/shown. Also, what are the implications of your results? Please see my specific comments below.

Major comments:

An English language revision of the whole article would be beneficial. One example: Page 3, line 15-17: 'Except for drug-drug interactions that can increase the risk of the prescribing cascade, drug-diagnose interaction or contraindication can lead to an increased risk.' I am not following this sentence?

Page 4, line 1: 'side effects and ADRs' - this is confusing as these terms can be used interchangeably. The terms side effects, ADRs, and ADEs are used frequently throughout the introduction. I would suggest either using a single term throughout and/or provide a definition for how you are using these terms.

Page 4, line 6-18: 'The aim of this descriptive study was to analyse the prevalence of PIM in an elderly population and in different strata of the variables age, gender, number of chronic conditions and polypharmacy and how that prevalence changed over time.' To describe the impact of the national campaign to improve care? It appears that the stated aims aren't a true reflection of the study and it seems you are looking at the change that occurred based on the national campaign - but this isn't stated explicitly in the aim or the discussion.

Page 4, line 17-18: 'different strata of the variables age, gender, number of chronic conditions and polypharmacy and how that prevalence changed over time.' There was not really any reasons given as to why you looked at these variables or how things changed over time.

Page 5, line 6-7: why are these specific time periods chosen?

Page 5, line 19-20: 'Therefore a three month period was used to construct a medicine list on both regularly used and as-needed medicines.' This time period seems short and may miss those who are just slightly non-compliant or may hoard medications. This is mentioned in the limitations section but it says from 'index date of hospitalisation and three months back' (page 17, lines 14-15). This is the first
time hospitalization is mentioned in relation to your methods and requires clarification. Also, what are the implications of missing medication information?

Page 6, lines 7-18: The description of how PIMs were classified is a little unclear. Mainly it is not clear how you identified PIMs and how this related to their medical condition.

Page 7, lines 5-6: 'Polypharmacy is known to increase the risk of ADR and therefore we wanted to analyse polypharmacy in the different strata.' I'm not sure I understand the reason.

Page 9, table 1: I would suggest that actual p values be given, not just 'ns' or '&lt;0.05'. The same applies for the rest of the tables.

Page 9, line 3: regarding use of PIM, did the authors look at whether the change in PIM use was driven by changes in specific drug classes - this would be interesting, suggest adding.

Page 15, line 5-6: 'The positive trend of the reduced prevalence of PIM users found in this study corresponds with results from other reports in Sweden during the same time period.' If this was previously done in the same country covering similar time periods, what does this study add?

Page 15, lines 10-11: 'Therefore, quality indicators that aim to decrease the use of PIM can lead to an improvement of quality in drug treatment in elderly.' this comment needs much greater qualification/context - impact of this/national campaign, what the campaign involved, any other influences as to why this change might have occurred?

Page 15, lines 15-16: 'However, the use of medication did increase; just not polypharmacy in comparison with the rest of the population.' Could you hypothesise why there way as change in MM but not PP? Also given that PIMs decreased, how could these all be related/explained - does this truly reflect better use of medications in older adults in Sweden?

Page 15/16, lines 17-25, 1-5: this whole paragraph is background information and not linked with the findings of the study.

Page 16, lines 13-22: Again, how does this relate to the findings of your study - how do these small interventions compare to the national campaign?

Minor comments:

The term 'elderly' is generally not recommended anymore as it has been associated with stigma against older adults, I suggest using an alternative term (such as older adults).
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?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.
I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal.