Reviewer's report

Title: Neuropsychiatric symptoms in patients with dementia in primary care: a study protocol

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Reviewer: Dallas Seitz

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This is an interesting and for the most part well-written study protocol addressing a common problem. As the authors have highlighted, neuropsychiatric symptoms are common in dementia and most individuals with dementia receive their care primarily in primary care settings. A better understanding of the course of symptoms in primary care would help inform predictors of outcome and burden of disease. There are some parts of the protocol that could be elaborated on:

Major Revisions:

Aims/Hypotheses:
Some of the aims and hypotheses are not actually going to be accomplished in the study, for instance the comparison of the prevalence NPS in this population compared to other populations will only be indirectly compared as there is no memory clinic group in the present study.

More detail on how the general practitioners were approached to participate would be useful to understand potential selection biases.

Identification of Patients/Caregivers:
Could the authors provide some information on the accuracy of these codes for identifying people with dementia (P70, P20). One of the most challenging problems with dementia in primary care is that it is underdetected and this method of identifying patients may bias the sample towards a more severe spectrum of illness.

Additional information on how patients and caregivers will be approached to participate would be helpful.

Assessments:
With only 3 assessments over 18 months I am concerned that the utility of the NPS measures will be limited given that important changes in NPS are likely to occur over shorter time periods which would be helpful to know. I would suggest increasing the frequency of measurement to every 3 months.

Patient Characteristics:
The Charlson index may not be the best measure of medical comorbidity in a geriatric population, perhaps that authors could consider using the cumulative
illness rating for geriatrics in its place.

There are no measures of the severity of dementia, the MMSE only measures cognition and has significant limitations. Perhaps an instrument such as the Global Deterioration Scale would be useful to include.

Although the authors state that the impact of service utilization will be assessed it is not described in any detail in the methods section.

There is no sample size calculation presented or anticipated drop out rate for this study, it is difficult to tell if the study is feasible without this information.

The statistical analysis is presented in a very superficial manner and would benefit from further detail. How are the authors going to account for the clustering of participants within primary care practices as observations from within a practice are not going to be independent of each other.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.