Reviewer’s report

Title: Depressive Symptoms in Long Term Care Facilities in Western Canada: A Cross Sectional Study

Version: 0 Date: 01 Jan 2019
Reviewer: Hsiu-Hsin Tsai

Reviewer's report:

General comments

The manuscript entitled "Depression symptoms in Long Term Care Facilities in Western Canada: A Cross Section Study" reported interesting research findings. However, more clarification is needed regarding the rationale of this study and the categories of some variables.

Major comments

1. The rationale for this study was not well described. In lines 49-58, the author mentioned the lack of study within Canadian context as the reason for this study. However, this may be insufficient for an international journal. Little emphasis on the macro view (facility and unit level) in past literature could be another reason for this study.

2. The rationale behind the categories for the unit and facility level remained unclear. In table 3, general long term care represents 68% of the sample facility. However, long term
care is a broad concept and may include nursing home, care home, and day care etc. The different types of facilities may have varying kinds of residents, which may influence the prevalence of depression. Thus, long term care should be carefully defined and categorized. Another issue with this section is the percentage of 9.2%, which is greater than secure mental health (0.9%). Can these be categorized together?

3. The result of "Unit Type" in Table 3 is not "NA". You should use "Fisher's Exact Test" (similar situation for "Size" and "Owner-operator model"). And, "Staffing hours/resident day" would be more appropriate to be analyzed by using Kruskal-Wallis test instead of using ANOVA.

4. Pharmacological treatment is a major issue in depression. However, the frequency of antidepressants should be carefully categorized. Some medications with long-term effects, such as antidepressants and antipsychotics, may be used twice daily, hence the categories used in this study may not be applicable clinically.

5. In Table 4, for "Antidepressants", "Antipsychotics", and "Antianxieties", you could use either, for example, "Antidepressants on at least one day in last week" or ("Antidepressants on 1-6 days in last week" or "Antidepressants on 7 days in last week") to combine "No antidepressants with a diagnosis of depression", but not both, and used chi-squared test (or Fisher's exact test) once not four times. Otherwise, you were doing multiple comparisons with incorrect type I error.

6. In Table 4, for "Non-pharmacological treatments", Fisher's exact test is more appropriate.

7. Table 5 lists many comorbidities. However, the reason behind the choice of these comorbidities are unclear. Arthritis is another common comorbidity that is not included in the list. It is suggest selecting the list of comorbidities based on past studies.
8. After checking the Appendix 1 "Models examining the association of cognitive impairment and other covariates with depressive symptoms", the results presented in Table 5 did not satisfy the principle of parsimony. For simplicity, I will suggest the authors to remove those non-significant terms from the model. Moreover, the interpretation of the results in Table 5 were incorrect, for example, "Our final model (Table 5) indicates that cognitive impairment independently increases the risk for depressive symptoms (OR= 1.910, 95% CI: 1.679; 2.172)" and "Higher age and female sex also increase the risk for depression" (page 11, line 44-49).

Minor comments

1. The citation of VIF is not appropriate (Reference 41). This paper only discusses how to prevent the thumb for VIF.

2. Please provide reference for the reason behind categorizing facility size.

3. Page 10 line 15, "included as dependent variable" should be "included as independent variable".

4. The p-values in Table 2 and Table 3 should be specified the corresponding testing methods in the footnote, e.g. ANOVA, Chi-squared, or Fisher's Exact.

Are the methods appropriate and well described?

If not, please specify what is required in your comments to the authors.

No
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.

Yes

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