Author’s response to reviews

Title: Psychotropic medications in older people in residential care facilities and associations with quality of life: a cross-sectional study

Authors:
Stephanie Harrison (stephanie.harrison@sa.gov.au)
Clare Bradley (clare.bradley@sahmri.com)
Rachel Milte (rachel.milte@unisa.edu.au)
Enwu Liu (enwu.liu@flinders.edu.au)
Lisa Kouladjian O’Donnell (lisa.kouladjian@sydney.edu.au)
Sarah Hilmer (sarah.hilmer@sydney.edu.au)
Maria Crotty (maria.crotty@sa.gov.au)

Version: 2 Date: 18 May 2017

Author’s response to reviews:

3rd May 2017

Vivian W. Q. Lou

BMC Geriatrics

Dear Dr Lou,

Thank you for the opportunity to revise our manuscript entitled “Psychotropic medications in older people in residential care facilities and associations with quality of life: a cross-sectional study” (Manuscript number: BGTC-D-17-00081).

We thank the reviewers for their useful comments and we have addressed these in the new version of the manuscript. A detailed point-by-point description of how we have changed the
Response to comments from the reviewers

Reviewer 1

1. Line 84-85 the authors wrote about anticholinergic drugs but then never use them in the whole survey. This is disruptive and should removed, as it does not add any value to the article. (even if I totally agree with the information).

The sentence described above has been removed as suggested.

2. Try to explain the important number of rebuttal for participation (only 60% of participants). This could lead to a selection bias and should be explained.

40% of eligible participants declined to participate in the study and this has been added to the limitations section as a potential source of selection bias:

“Furthermore, 40% of eligible participants declined to participate in the study and therefore the sample may not fully represent the eligible population.” (Discussion, lines 332-334)
3. Line 113-114 not sure this is for methods section. Should be sent to results section where the description of the included population should be highlighted.

This sentence “Of the participants involved, 83% (n=449) had some reported level of cognitive impairment, ranging from mild to severe.” has been moved to the results section (lines 207-208).

4. Line 127-141 the choice of the different scales should be more justified especially in terms of validity data (internal and external validity if possible). This will help the reader to appropriate if these scales were the best possible to use for the survey. Even if I appreciate (as a European) the EQ5D this scale is mostly used when researchers want to assess efficiency in quality of care and this does not seem that important in this survey.

The following has been added in relation to the validity and appropriateness of the DEMQOL:

“Psychometric testing of the DEMQOL has shown to have high levels of reliability (internal consistency) and unlike many quality of life instruments, was found to have moderate levels of validity in people with mild and moderate dementia (an important consideration given the high numbers of people with dementia in residential aged care). Importantly the DEMQOL is the only dementia specific quality of life instrument currently to have a set of utility weights developed, allowing it to be applied in cost-utility studies for evaluating the economic effectiveness of health and care interventions. In addition, there is evidence that the DEMQOL utility score is more sensitive in cases of mild health related quality of life impairment in people with cognitive impairment than other measures of quality of life (such as the EQ-5D) which has known ceiling effects.” (Methods section, lines 141-150).
Furthermore, the following has been added to help the reader to determine the appropriateness of the EQ-5D:

“The EQ-5D is the most commonly used quality of life scale in health research and as a generic preference based measure of quality of life it can be validly applied across participant groups and intervention types. The EQ-5D has been extensively studied and has been shown to have excellent reliability and validity, while the new 5 level version (as used in the current study) has been shown to reduce ceiling effects seen in people with minor health related quality of life impairments.” (Methods section, lines 159-165).

5. Line 145 has the German questionnaire be validated in the Australian setting and in English? if not this could lead to an information bias and should be mentioned. A 33 items questionnaire is quite long for such setting and could also lead to an information bias. Should be mentioned in the limits.

As the questionnaire has not been validated in an Australian setting we have put this in the limitations. Furthermore, this questionnaire was for the characteristics of the facility and it was completed by research assistants hired by the study, not the residents or family members, so we were less concerned about the length of the questionnaire than we would have been for these participants. However, we acknowledge that longer questionnaires can introduce bias as the respondent’s fatigue, and have listed this in the limitations section.

“The facility-level questionnaire has not been previously validated in an Australian setting and therefore there is further potential for information bias and this is a longer questionnaire and although this was completed by the research assistants hired by the study, not the participants, bias may be introduced as the respondent’s fatigue.” (Discussion, lines 341-345).
6. In results table 1 should show the characteristics of patient in traditional model and in cottage model of care and assess if there is (or not) a statistical difference between the two groups as this is of importance to follow and discuss all the results that compares the two models of care. If populations are comparable it gives a higher impact for the survey. I think this is not the case according to the following elements in the article but the efficient way to assess this is in table 1.

Of note to reviewers we have changed the term ‘home-like cottage model’ to ‘home-like model’ throughout the manuscript as we have had responses from reviewers of other papers of this study to say this will be more appropriate and easier for an international audience to understand and compare to similar models of care in different countries.

We have changed Table 1 to show the characteristics of the participants by model of care and we have described this in the results “Participants residing in a home-like model of care were younger, had higher NPI scores, had higher (worse) PAS-Cog scores and had fewer co-morbid conditions than those living in a traditional model of residential care (p<0.05) (Table 1).” (Results section, lines 225-228).

We have also added this to the discussion regarding these results and we have now adjusted models for NPI scores to account for the difference between NPI scores in participants living in the different models:

“Facilities which had adopted a home-like model of residential care were shown to have a lower prevalence of psychotropic medications even though the residents of these facilities were more likely to have dementia, cognitive impairment and higher NPI scores. However, individuals residing in a home-like model were also more likely to be younger and have fewer co-morbid conditions. Nevertheless, these characteristics were adjusted for and therefore these are unlikely to have influenced the results of this study.” (Discussion, lines 284-289).
7. Line 241 to 242 this is only writeable if populations in both models of care are comparable. if not authors should push this like a reasonable hypothesis for further research but not as a suggested truth.

We have rephrased the sentence: “This suggests these facilities are managing to limit the use of benzodiazepines, despite the high proportion of people residing in these facilities with dementia.” This now reads:

“Further research should investigate whether these facilities are managing to limit the use of benzodiazepines, despite the high proportion of people residing in these facilities with dementia.” (Discussion, lines 266-268).

8. For the limitations section it could be better to cut it in three paragraphs (selection, information and confusion bias) to make it more easy to read and eventually discuss.

We have rearranged the limitations section into three paragraphs describing the different types of potential bias as the reviewer suggested (Discussion, lines 328-352).

Reviewer 2

1. Throughout the term 'poorer' should be replaced with 'lower'.

This has been changed throughout the manuscript.
2. On page four, line 91, it would help the reader to define the two care models or to signpost to the later descriptions.

We have expanded the introduction to explain further the two models of care

“Models of residential care for older adults that aim to provide small self-contained home-like environments and encourage independence for the residents have been of increasing interest [9, 10]. These home-like models aim to provide a familiar environment for the resident to ease the transition from their family home to residential care by using different methods such as providing smaller living units with only 10 or 15 residents grouped together, increasing access to outdoor areas, encouragement and support for residents participating in domestic tasks (such as meal preparation), allocation of staff to the living unit routinely, home-like furnishings and institutional ‘presences’ such as medication carts, laundry trolleys removed or minimised. The World Health Organization stated that these models ‘hold promise’ for the residents, family members and staff compared to more traditional models which are generally more similar to medical settings than home environments [10]. However, further research is needed in order to determine the effectiveness of these models in relation to different outcomes for both residents and staff [11]. Living in home-like residential care models may improve quality of life for residents [9]. In this study we examined if there is a difference in the prevalence of psychotropic medications in residential facilities with a home-like model of care as we hypothesized that these person-centred environments may reduce the need for these medications.” (Introduction, lines 76-92).

3. On Page 5, line 110, please explain 'participate on behalf of the resident'. Does this mean relatives completed the assessments for the participants?
Yes, this has been rephrased to “a family member had to be available and able to complete the assessments for the participants.” (Methods, lines 120-121).

4. On page 7, lines 148-165- please specify number of subjects in the cottage model homes and the number in the traditional homes.

This has been added to the results section as we felt it was more appropriate for the results than for the methods:

“Of the 17 facilities which participated, 4 facilities (23.5%) were classified as a home-like of residential care (22.2% (n=120) residents living in a home-like model and 77.8% (n=421) residents living in a traditional model).” (Results, lines 222-224).

5. On page 10, line 243- is there any evidence of the residents in the cottage model being at an earlier stage in their dementia or more independent? Possibly these are aspects that require further research? The authors might then be a little more specific about the further research needed?

We have compared the PAS-Cog scores of the participants (Table 1) which showed those in the home-like model had worse cognitive function compared to those in the traditional model and the individuals in the cottage model also had higher NPI scores. This suggested these individuals actually have more severe levels of dementia. We have described this in the discussion:

“Facilities which had adopted a home-like model of residential care were shown to have a lower prevalence of psychotropic medications even though the residents of these facilities were more
likely to have dementia, cognitive impairment and higher NPI scores. However, individuals residing in a home-like model were also more likely to be younger and have fewer co-morbid conditions.” (Discussion, lines 284-288).

6. similarly pages 11-12, the authors might suggest why the cottage model works better eg more staff, smaller groups of residents, more homogeneous groups of residents, more to do? Again this would help to establish what further research is needed to advance the evidence base for residential dementia care.

This has been added to the discussion:

“Specific aspects of the home-like model which may be reducing the need for psychotropic medications could be the home-like environment is more familiar, being similar to their family home, that staff assigned to the living unit may be better equipped to respond to the challenges seen with people with BPSD without the need for psychotropic medications, or the home-like model is a more stimulating environment and is better for the resident (e.g., increased outdoor access and option to help with meal preparation). The exact reasons for why the home-like model may be associated with a lower prevalence of psychotropic medications would be a useful basis for further research in order to improve evidence-based research for residential care.” (Discussion, lines 298-306).