Reviewer’s report

Title: Rest-activity Rhythms in Small Scale Homelike Care and Traditional Care for Residents with Dementia.

Version: 2 Date: 05 May 2017

Reviewer: Nele Spruytte

Reviewer’s report:

Dear authors,

I thank you for revising the manuscript. Taking into account the suggestions of both reviewers has ameliorated the manuscript.

Adding the figures has made the paper more informative for the readers as well.

I have one essential remark, building on my former question of what the hypotheses are to state that small-scaled SCU would offer better rest-activity rhythms than traditional SCU.

Both in the introduction and in the discussion, this can be elaborated in a more precise way, in order to advance the scientific evidence.

P.4 sentence 21-22

Your main reasons to expect differences are the increased activity level and increased level of personal contact.

I suggest you add or state more explicitly why this is important (namely as timemarkers to increase the difference between day and night).

In the discussion section I would like to see further explanations of the absence of differences.

- You did not find a greater activity level in small-scale SCU (and this may explain why you did not find any difference)

- I would like to see an additional reflection on the aspect of 'physical and social activity'. Is it only about the amount (an increase of activities, more social contacts)? I think in small-scale SCU (in Belgium, but also in the Netherlands), it is also about the quality of the social interactions: more personalized, attuned to the needs of the person, no standard offers but interactions and activities that strengthen the identity of the person with dementia (instead of confrontation with loss or failure).

You could even hypothesize the opposite: that in traditional SCU the care and daily activities are more standardized organized, uniform for all residents and perhaps there the maintenance of
regular bedtimes and rising times may support an adequate sleep-wake-cycle more than in small scale SCU where residents are more flexible in what time they may get up or not. See for instance Verbeek ea 2012 (process evaluations on small scale living).

My point is that I want to know if you only see the quantity of the activities (physical and social) as a reason or not? I think that the quality of the interactions will also have influenced and the question is how this can be used in future interventions for supporting rest-activity disturbances.

So, next to this remark, I would like to see that your suggestion for future research offers more specific recommendations.

p11, 29-31: it seems you would recommend to solely focus on environmental interventions. Please specify what you mean concrete? In line with the remarks above I would suggest to incorporate psychosocial intervention as well but define more clearly what exactly is different (after following the training, did the nurses change their social interactions with residents: in what way exactly? If you elaborate this more precisely, it makes more contributions for further studies)

I can understand the discussion between the authors on the terminology 'patients' versus 'residents'. As a SCU is a living environment (not a curing environment like a hospital) I would prefer the term residents, implying that persons are more than just the disease they have...

In the limitation sections it is clear that actigraph research in dementia is not easy because of feasibility reasons, you may see this still as a strength of your study, to have performed a first step in the good direction.

A final remark is to clarify the explanation of the dashed and full line of figure 2 (this is not so clear on my prints here)

**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.

Yes

**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:

Acceptable

**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/](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