Reviewer’s report

Title: Research protocol for a complex intervention to support hearing and visual function to improve the lives of people with dementia

Version: 0 Date: 25 Jun 2017

Reviewer: Jemma Hawkins

Reviewer's report:
This study protocol for intervention development and testing is ambitious and an interesting area of intervention.

I have some comments for the authors on suggested improvements to the manuscript as follows:

1. An aim of the research programme as specified in the background (p6, lines 21-25), and also in the abstract, is to develop and test the intervention so that it is 'ready to be tested' in a full scale definitive RCT. I am concerned about the assumption of the authors that the intervention 'will be ready' to be tested in a full trial after this period of work. What if the field testing phase identifies that the intervention is not feasible for implementation and thus full scale trialling? Have the authors fully considered feasibility testing of the methods to be used in a full scale trial to ensure that the trial itself would be viable? There are aims to identify the most appropriate outcome measures and recruitment and retention rates, but the feasibility and acceptability of randomisation, for example, will not be considered in this study as the field testing does not comprise randomisation (and there is no justification for why this is the case). The MRC guidance for complex public health intervention development includes two-way links between the development and feasibility phases, and feasibility and effectiveness testing phases, emphasising that sometimes work may need to take a backwards step through this process if data suggests that proceeding to the next phase is not warranted. I would recommend that the wording of this aim of the research is amended throughout the manuscript in a way that adopts a less certain tone, and allows for the possibility that a full scale trial may not be possible without further development/testing.
In addition, the authors may wish to outline in what circumstances they would not proceed to a full scale trial, for example, what outcomes at Step 4 would be considered as requiring further development of the intervention prior to trialling?

2. Table labelling inconsistencies need correcting. On Page 8 (line 52) the authors refer the reader to 'Table 1' in the text (a description of dimensions of complexity), but the instructions to the editorial team are to insert Table 2 here, and the corresponding table file at the end of the manuscript is labelled as Table 1 in the title, even though the preceding table is also labelled as Table 1 (although the file does not contain a title). There are instructions to insert Table 1 on page 7, but the table is not referred to in the text - the reader needs some guidance on when to refer to this table. This error then carries over into the labelling for Table 3 (which in the file at the end of the manuscript has 'Table 2' in the title and is referred to as Table 2 in the text on page 13, line 2), and Table 4 (which in the file at the end of the manuscript has 'Table 3' in the title and is referred to in the text as 'Table 3' on page 22, line 23).

3. Page 9, line 51, should the 'g' of 'group' in the 'research user group' be capitalised?

4. Page 11, lines 2-12, it would be useful if the authors could specify the databases that are intended to be used for the systematic literature review.

5. Page 11, line 60, after introducing the acronym for the Expert Reference Group (ERG), the full title is used again in this line.

6. Page 13, lines 48-50, the description of the qualitative analysis of the focus groups is very brief, more information would be useful, for example - why and how will the content analysis be used to interpret the data?

7. Page 14, line 50, remove the word 'for'

8. Throughout the manuscript the authors use British English spellings (e.g. randomised, individualised) for the most part, but there are some exceptions that need correcting for consistency, for example page 15, line17 (standardized).

9. Spelling mistake on page 16, line 52: Focus Group 'A needs correcting to 'A'

10. Page 18, line 45, the data will be 'subjected' not 'submitted' to content analysis? Again, there is very little detail here regarding how the analysis will be conducted.

11. Page 18, line 53, the word 'to' is missing (will be 'to' field test the draft intervention)

12. Figure 1, the acronym 'PwD' is not described
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