PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (http://bmjopen.bmj.com/site/about/resources/checklist.pdf) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Facilitators, barriers, and impacts to implementing dementia care for staff in long-term care settings by using fully immersive virtua	
	reality: a scoping review protocol	
AUTHORS Hung, Lillian; Zhao, Yong; Lam, Michelle; Ren, Haopu; Wong, Karen Lok Yi		

VERSION 1 – REVIEW

REVIEWER	Fox , Siobhan	
	University College Cork School of Medicine	
REVIEW RETURNED	01-Feb-2024	

GENERAL COMMENTS	General comments: This is a protocol which is timely and will be of interest to researchers in VR and care of the older person. While there were a number of minor issues (see comments below) the two key issues which I feel need to be addressed are 1: More clarity on the population is it relating to care of all residents in LTC, or only those with dementia? This currently isn't clear in the protocol. 2: The introduction needs to be proof-read as there were a number of errors in syntax and clarity. I hope that this feedback will be helpful to the authors in revising this protocol.
	PAGE 2 Line 16: There is a word missing - "the" ageing population? It is also unclear as to what population the authors are referring, the worldwide population? Line 20: "impacts" is mentioned as an outcome of interest here, but elsewhere in the title and abstract only facilitators and barriers are mentioned. It appears later that impact is indeed a key focus, thus it should be included in the title. Line 28: Dementia and study designs should be mentioned specifically within the inclusion criteria here. Line 51: The authors will include any language publications - how will it be dealt with if a publication is found in a language not spoken by any member of the team?
	PAGE 3 Line 7: I don't think it's correct to say this challenges are "particularly" caused by limited training resources - would suggest this sentence to be re-worded. Line 9: Repetition of the word "demand" affects syntax in this sentence - re-word Line 10: The next sentence doesn't make sense, how does the "growing need of a well-trained workforce" contribute to carer

burnout? I think the authors mean that the need for such a workforce is not met with current resources... re-word Line 28: VR acronym has already been introduced so the term doesn't need to be spelled out a second time here.

PAGE 4

Line 21: The results of reference 26 are not clearly reported - e.g. the benefits included reducing stigmas towards people with dementia.

Line 44-48: While in other areas of the protocol the authors had put an emphasis on dementia (e.g. the title), dementia isn't mentioned at all the the review questions, thus the focus of this reviews remains very unclear.

Line 52: The first paragraph of the Methods section should have a sub- heading - I would suggest "Design"

Lines 52-58: The use of JBI is well justified, however I would like to see a little more detail on the use of a scoping review and it's specific advantages over e.g. a systematic review, in light of the current review questions.

PAGE 5:

Lines 11-12: Here the authors say they will include residents with or without dementia - consistency needs to be addressed. Line20: Suggest slight wording change - "competencies and/or residents..."

Lines 32-34: See previous comments re clarity around LTC population or only those with dementia in LTC Line 59: It is said "... will be employed to formulate a comprehensive search strategy - at the stage of writing the protocol the authors should have already formed this search strategy, that is what you are presenting, so ensure that you are writing in the correct tense.

PAGE 6:

Line 14: Avoid saying "such as google scholar". For the protocol the authors need to identify clearly every grey literature sources that you will include.

Line 22: Need more detail - following a pilot test - of what? Line 36: "two or more" reviewers is vague - again the authors need to be very specific in their methods

Lines 42-43: If the aim of the scoping review is to map the existing literature this should have been mentioned earlier (in the review questions and/or in justifying a scoping review vs systematic or other review)

Line 44: I appreciate that the authors won't be incorporating the quality of individual articles when synthesising the results, but I still believe that it would be useful to conduct a quality appraisal just to be able to speak to the quality of existing evidence (which fits with their goal of mapping the literature). The authors don't need to exclude literature based on quality, etc, but I still think that this would be a useful exercise.

Line 51: The first sentence of "data synthesis" belongs instead under "data extraction"

PAGE 7

Lines 3-17: In the PPI section it's not entirely clear whether the PPI representatives have already been involved with the conception and planning of the scoping review? It is said they "will be" involved in planning - but the planning phase would be complete at the stage of having a protocol?

	PAGE 11 In the search strategy the authors focus the population on "Dementia" rather than "LTC". The issues of the focus being on LTC residents with dementia vs all LTC residents needs to be resolved for an assessment of the suitability of the search strategy. Also, if any limits were used for this database, please add them here.
	PAGE 12 If you are including all LTC residents then including information on reporting of any sub-groups with dementia in the participants column of the data extraction table would be important.

REVIEWER	Marshall, Jessica	
	University of East Anglia, Health Sciences	
REVIEW RETURNED	05-Mar-2024	

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GENERAL COMMENTS	Thank you for giving me the opportunity to review this manuscript. It is a comprehensive scoping review protocol that clearly outlines its aims and objectives in an under-researched area. I look forward to the results.
	Please see below a few very minor changes I have suggested.
	Introduction – Page 4, Line 8 Minor spelling error 'VR training for care providers need to be facilitated' should be 'VR training for care providers needs to be facilitated'?
	Methods – Page 4, Line 52 Missing full stop after the reference 'The planned scoping review will utilize the JBI methodology [29]'. Page 5, Line 32 – 35
	Consider whether LTC could be formally defined to aid with inclusion criteria clarification, the National Institute of Ageing or WHO definition?
	Page 6, Line 12 – 16 I could see in the methods section that you are including articles of any language. Could you be more explicit if this means there is no limitation on geography/location where the studies took place?

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:	
Dr. Siobhan Fox, University College Cork	
School of Medicine	
Comments to the Author:	
The two key issues:	
1. More clarity on the population is it relating to	The population will be formal care providers
care of all residents in LTC, or only those with	caring for residents with dementia rather than
dementia? This currently isn't clear in the	residents. We have now revised for clarity in the
protocol.	manuscript.

2: The introduction needs to be proof-read as there were a number of errors in syntax and clarity.

Minor issues:

PAGE 2

- 1. Line 16: There is a word missing "the" ageing population? It is also unclear as to what population the authors are referring, the worldwide population?
- 2. Line 20: "impacts" is mentioned as an outcome of interest here, but elsewhere in the title and abstract only facilitators and barriers are mentioned. It appears later that impact is indeed a key focus, thus it should be included in the title.
- 3. Line 28: Dementia and study designs should be mentioned specifically within the inclusion criteria here.
- 4. Line 51: The authors will include any language publications how will it be dealt with if a publication is found in a language not spoken by any member of the team?

PAGE 3

- 5. Line 7: I don't think it's correct to say this challenges are "particularly" caused by limited training resources would suggest this sentence to be re-worded.
- 6. Line 9: Repetition of the word "demand" affects syntax in this sentence re-word 7. Line 10: The next sentence doesn't make sense, how does the "growing need of a well-trained workforce..." contribute to carer burnout? I think the authors mean that the need for such a workforce is not met with current resources... re-word
- 8. Line 28: VR acronym has already been introduced so the term doesn't need to be spelled out a second time here.

PAGE 4

- 9. Line 21: The results of reference 26 are not clearly reported e.g. the benefits included reducing stigmas towards people with dementia.
- 10. Line 44-48: While in other areas of the protocol the authors had put an emphasis on dementia (e.g. the title), dementia isn't mentioned at all the the review questions, thus the focus of this reviews remains very unclear.

- 2. Apologies. We have now made the corrections.
- 1. We have now revised. The population will be formal care providers caring for residents with dementia
- 2. Thanks. We have now added "impacts" into title and abstract.
- 3. We have now included "dementia" and study designs in the inclusion criteria.
- 4. We will include articles in English and Chinese because authors in our team are fluent in these two languages. We have done a preliminary search and we do not see any publications met inclusion criteria are written in other languages.
- 5. We have now re-worded it as "partially".
- 6. We have now revised it as "urgent".
- 7. We have now revised.
- 8. We have revised accordingly.
- 9. We have now added more description on reduction in stigma.
- 10. We have now added "dementia" to research questions.

- 11. Line 52: The first paragraph of the Methods section should have a sub- heading - I would suggest "Design"
- 12. Lines 52-58: The use of JBI is well justified, however I would like to see a little more detail on the use of a scoping review and it's specific advantages over e.g. a systematic review, in light of the current review questions.

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- 13. Lines 11-12: Here the authors say they will include residents with or without dementia consistency needs to be addressed.
- 14. Line20: Suggest slight wording change "competencies and/or residents..."15. Lines 32-34: See previous comments re clarity around LTC population or only those with dementia in LTC
- 16. Line 59: It is said "... will be employed to formulate a comprehensive search strategy at the stage of writing the protocol the authors should have already formed this search strategy, that is what you are presenting, so ensure that you are writing in the correct tense.

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- 17. Line 14: Avoid saying "such as google scholar". For the protocol the authors need to identify clearly every grey literature sources that you will include.
- 18. Line 22: Need more detail following a pilot test of what?
- 19. Line 36: "two or more" reviewers is vague again the authors need to be very specific in their methods
- 20. Lines 42-43: If the aim of the scoping review is to map the existing literature this should have been mentioned earlier (in the review questions and/or in justifying a scoping review vs systematic or other review)
- 21. Line 44: I appreciate that the authors won't be incorporating the quality of individual articles when synthesising the results, but I still believe that it would be useful to conduct a quality appraisal just to be able to speak to the quality of existing evidence (which fits with their goal of mapping the literature). The authors don't need to exclude literature based on quality, etc, but I still think that this would be a useful exercise.

- 11. We have now added "Design" as subheading.
- 12. We have now added the rationale of scoping review at the last paragraph of introduction section.
- 13. We have now removed the sentence to avoid confusion.
- 14. We have now revised.
- 15. We have now revised the population section.
- 16. We have now revised the into correct tense.

- 17. We have now removed "such as".
- 18. We have now added details on pilot test.
- 19. We have now removed "or more".
- 20. We have now included the rationale for conducting a scoping in the final paragraph of the introduction section, just preceding the review question.
- 21. Thanks for the kind suggestion. This scoping review aims to provide an overview rather than evaluate the quality of evidence. VR training for LTC staff is a very new topic where research is in infancy so the priority is to establish a foundational understanding of the field rather than to assess the rigor of the

22. Line 51: The first sentence of "data synthesis" belongs instead under "data extraction"

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23. Lines 3-17: In the PPI section it's not entirely clear whether the PPI representatives have already been involved with the conception and planning of the scoping review? It is said they "will be" involved in planning - but the planning phase would be complete at the stage of having a protocol?

studies. Additionally, the heterogeneity of methodologies in early-stage research makes it challenging to apply a standardized quality assessment. We will make comments and recommendations, rather than a formal quality appraisal. Our study results will inform future research directions, including systematic reviews with empirical studies where quality appraisal would be essential.

22. We have now deleted the first sentence.

PAGE 11

24. In the search strategy the authors focus the population on "Dementia" rather than "LTC". The issues of the focus being on LTC residents with dementia vs all LTC residents needs to be resolved for an assessment of the suitability of the search strategy. Also, if any limits were used for this database, please add them here.

23. We have now revised the sentence with correct tense. We say that they "was involved in conception and planning of the scoping review."

PAGE 12

25. If you are including all LTC residents then including information on reporting of any subgroups with dementia in the participants column of the data extraction table would be important.

24. We apologize for the confusion regarding the population. The population targeted in this scoping reviews is formal care providers - nurses, physicians, therapists, and other healthcare workers, rather than residents with dementia. We have revised the participants section for clarity.

We will focus on LTC staff members who care for people with dementia.

25. We apologize for the confusion regarding the population again here. Please see above #24.

Reviewer: 2

Miss Jessica Marshall, University of East Anglia Comments to the Author:

Minor issues:

Introduction -

1. Page 4, Line 8

Minor spelling error 'VR training for care providers need to be facilitated' should be 'VR training for care providers needs to be facilitated'?

1. We have now revised.

Methods -

2. Page 4, Line 52

Missing full stop after the reference 'The

planned scoping review will utilize the JBI methodology [29]'.

3. Page 5, Line 32 - 35

Consider whether LTC could be formally defined to aid with inclusion criteria clarification, the National Institute of Ageing or WHO definition?

4. Page 6, Line 12 – 16

I could see in the methods section that you are including articles of any language. Could you be more explicit if this means there is no limitation on geography/location where the studies took place?

- 2. We have now revised.
- 3. We appreciate this comment. LTC has now been formally defined by the Canadian Institute for Health Information (CIHI) as facilities that provide continuous professional care and services. Our study targets LTC facilities, rather than the broader spectrum of LTC services.
- 4. Thanks for this comment. We have now revised accordingly. During the initial search phase, studies in all languages will be included if they have an English abstract regardless of any countries where studies took place. For full-text screening, we will only evaluate articles written in English or Chinese. Authors in the team can read and write English and Chinese.