PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Virtual reality in medical students' education: A scoping review protocol
AUTHORS	Haowen, Jiang; Vimalesvaran, Sunitha; Myint Kyaw, Bhone; Tudor Car, Lorainne

VERSION 1 – REVIEW

REVIEWER	Gunn, Therese Queensland University of Technology
REVIEW RETURNED	28-Jan-2021

GENERAL COMMENTS	Well done, this protocol seems sound and (almost) ready. I just seek some clarification of a few things and a few minor comments. In the opening Background paragraph, the authors talk about healthcare and healthcare workers and lack of effective medical education. I suggest clarification that it is specifically medical education (i.e. to be a medical doctor) that is the reference and state this as such. P.5 line 32 - digital education - definition needs to be referenced. p.6 - Objectives - "undergraduate" medical education. Be careful with the terminology and limiting your search and therefore findings. In Australia, Medicine is often a Post-graduate degree. Perhaps the term - "pre-registration", or again clarification of what you mean as undergraduate medical education. P. 9 - Step 6 - Please clarify how the stakeholder consultation will occur. Is it by focus groups? Surveys? P. 12 References - check #8 - why is this all in capital letters?

REVIEWER	Sattar, Mian Usman Beaconhouse National University, Management Sciences
REVIEW RETURNED	11-Feb-2021

GENERAL COMMENTS	Dear authors kindly address the research question or objective in your results. If possible, you may number them or give references to each numbered question. Finding or results must be added at the last of the abstract. Be more precise and concise in explaining your methodology. No implementation of the methodology was found. Review the following 2 papers as both of them are at VR regarding undergraduate medical students, how they wrote, and follow the methodology. 1. Effects of Virtual Reality training on medical students' learning motivation and competency

	2. Motivating medical students using virtual reality based education

VERSION 1 – AUTHOR RESPONSE

Response to peer-reviewers' comments on the manuscript "Virtual reality in medical students' education: A scoping review protocol"

Dear Dr Andy McLarnon,

Please find below our responses to comments we have received for our manuscript. We trust we have replied to all your queries, and will be happy to address any other questions that may arise.

We wish you enjoyable reading of our resubmission.

Yours sincerely,

Jiang Haowen

#	Reviewer's comment	Authors' response	Changes to the original manuscript
Ed-1	Along with your revised manuscript, please include a copy of the SPIRIT-PRO checklist indicating the page/line numbers of your manuscript where the information relating to a protocol can be found (https://www.equator-network.org/reporting-guidelines/prisma-scr/)	Thank you very much for your observation. The PRISMA-Scr checklist appears to be meant to be for a full scoping review, not a protocol such as our paper and as such we have not included this. The SPIRIT-PRO checklist focuses on patient-reported outcomes in protocols of clinical trials and does not seem relevant for our scoping review protocol.	No changes made to the manuscript.

Ed-2	Please revise the 'Strengths and limitations' section of your manuscript (after the abstract). This section should contain five short bullet points, no longer than one sentence each, that relate specifically to the methods. The aim or and overall description of the study should not be summarised here.	Thank you very much for your observation. We have amended the 'Strengths and limitations' section accordingly	Page 2, 'Strengths and limitations of this study' now reads: "• *A systematic and comprehensive search of electronic databases and grey literature sources will ensure that all available evidence is identified.* • *The scoping review will strictly follow the Joanna Briggs Institute methodology for scoping reviews.* • *A stakeholder consultation will allow us to further validate the findings and address potential gaps in the paper.* • *A formal assessment of the quality of evidence will not be performed and this may lead to some studies of poor quality being included.* • *Only studies written in English and published after 2010 will be included.*"
Ed-3	Please ensure that the main text contains an ethics and dissemination section as per our instructions for authors: https://bmjopen.bmj.com/pages/authors/#protocol	Thank you very much for your observation. We have added in an ethics and dissemination section.	Page 7, lines 24-27 now reads: " *Ethics and dissemination* *Ethical approval is not required for this study. Future disseminations related to this work will include the publication of the results in a peer-reviewed journal and presentations at conferences.*"

Ed-4	Please include the planned start and end dates for the study in the methods section.	Thank you very much for your observation. We have added in a planned start and end date.	Page 4, lines 12-13 now reads: "*The study is planned to begin in mid-March 2021 and is planned to end by July 2021.*"
Rev 1-1	In the opening Background paragraph, the authors talk about healthcare and healthcare workers and lack of effective medical education. I suggest clarification that it is specifically medical education (i.e. to be a medical doctor) that is the reference and state this as such.	Thank you very much for your observation. We have clarified that it is specifically related to medical education leading to becoming a doctor, and have also added a definition for medical education according to WHO.	Page 2, lines 4-7 now reads: "*One factor contributing to this shortage has been a lack of effective undergraduate or pre-registration medical education, which is defined as any type of initial study that leads to a medical degree that is recognised by relevant governments, and enables entry to the health-care workforce 2.*"
Rev 1-2	P.5 line 32 - digital education - definition needs to be referenced.	Thank you very much for your observation. We have added in the corresponding reference.	Page 2, line 13 now reads: "*…teaching and learning via digital technologies 4.*" Page 9, lines 7-9 now reads: "*4 Tudor Car L, Soong A, Kyaw BM, Chua KL, Low-Beer N, Majeed A. Health professions digital education on clinical practice guidelines: a systematic review by Digital Health Education collaboration. BMC Med. 2019;17(1):139.*"
Rev 1-3	p.6 - Objectives - "undergraduate" medical education. Be careful with the terminology and limiting your search and therefore findings. In Australia, Medicine is often a Post-graduate degree. Perhaps the term - "pre-registration", or again clarification of what you mean as undergraduate medical education.	Thank you very much for your observation. We have included pre-registration medical education as part of our inclusion criteria to clarify this.	Page 4, lines 2-3 now reads: "*The objective of this scoping review is to identify the different VR tools and applications in undergraduate or pre-registration medical education as reported in the literature.*"

Rev 1-4	P. 9 - Step 6 - Please clarify how the stakeholder consultation will occur. Is it by focus groups? Surveys?	Thank you very much for your observation. We have clarified how we will consult stakeholders.	Page 7, lines 9-11 now reads: "*The stakeholder consultation will be done via presenting our study and findings to a group of experts in the field of medical education and collating their feedback.*"
Rev 1-5	P. 12 References - check #8 - why is this all in capital letters?	Thank you very much for your observation. We have amended the references accordingly.	Page 9, lines 18-20 now reads: "*8 Herzeele Iv, Aggarwal R, Neequaye S, Darzi A, Vermassen F, Cheshire NJ. Cognitive training improves clinically relevant outcomes during simulated endovascular procedures. Journal of vascular surgery. 2008;48 5:1223-30, 30.e1.*"
Rev 2-1	Finding or results must be added at the last of the abstract.	Thank you very much for your observation. However, as this is the protocol for the scoping review, no findings or results have been generated yet.	No changes made to the manuscript.
Rev 2-2	Be more precise and concise in explaining your methodology.	Thank you very much for your observation. The methodology was created following JBI methodology for scoping reviews with six stages. Each stage is elaborated in detail to ensure transparency of the methodology.	No changes made to the manuscript.
Rev 2-3	No implementation of the methodology was found.	Thank you very much for your observation. However, as this is the protocol for the scoping review, the methodology will only be implemented in the full scoping review	No changes made to the manuscript.

| Rev 2-4 | Review the following 2 papers as both of them are at VR regarding undergraduate medical students, how they wrote, and follow the methodology.

1. Effects of Virtual Reality training on medical students' learning motivation and competency

2. Motivating medical students using virtual reality based education | Thank you very much for your observation. The papers suggested, while well written in their methodology, were experimental studies while this paper outlines the methodology for a scoping review. The aim is to conduct a broad search of the literature and map out existing research such as the papers suggested. The methodology of this paper is thus likely to be different from the methodology of the 2 papers suggested. For this methodology, we have referred to the JBI methodology for scoping reviews. | No changes made to the manuscript. |