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)	Development of a Cultural and Linguistically Sensitive Virtual Reality Educational Platform to Improve Vaccine Acceptance within a Refugee Population: The SHIFA Community Engagement-Public Health Innovation Program
AUTHORS	Streuli, Samantha; Ibrahim, Najla; Mohamed, Alia; Sharma, Manupriya; Esmailian, Markie; Sezan, Ibrahim; Farrell, Carrie; Sawyer, Mark; Meyer, Dan; El-Maleh, Khaled; Thamman, Ritu; Marchetti, Alex; Lincoln, Alan; Courchesne, Eric; Sahid, Ahmed; Bhavnani, Sanjeev

VERSION 1 – REVIEW

REVIEWER	Gotsis, Marientina University of Southern California, Interactive Media & Games
REVIEW RETURNED	10-Apr-2021

GENERAL COMMENTS	This is a well-executed and well-described formative research study for the development of a culturally tailored intervention for improving vaccine acceptance in a refugee population. The project is timely and its method can transfer to other populations and topics. I have mostly minor observations: 1. Is the increased prevalence of autism in the Somali refugees been addressed in any way with the participants? 2. Line 99: the word 'absorption' implies very passive participation (people as sponges metaphor) and perhaps should be changed to something else, such as "processing", understanding, etc. The ending word of "compliance" in that sentence reads overall a bit paternalistic and competes with your participatory co-design agenda. 3. Line 117: "develop a virtual reality technology" should be changed to "virtual reality environment" since you are not making new technologies but new and original content, and even though it is software-driven, your final deliverable is a piece of storytelling. The low-tech approach in your intervention is a strength, as a multiplatform delivery strategy, but the intervention itself is not the technology. 4. Line 205-206: you have forgotten an inline reference. 5. Line 294: Was the N for these focus groups the same as what is previously mentioned or a subsample? Might as well repeat the sample size here one more time. 6. The third page of the SPQR checklist is not filled out although you have all that information in your paper.

REVIEWER	Padhi, Bijaya
	Post Graduate Institute of Medical Education and Research, Community Medicine and School of Public Health
REVIEW RETURNED	20-May-2021

GENERAL COMMENTS	The study is timely, and the authors aimed to address complex vaccine hesitancy issues among Somali refugees through community-engagement methods, which are found to be novel and effective in health promotion especially in addressing the complex vaccine perceptions and behavior. I have following minor comments which needs to be addressed .
	1) Methods: The authors said that qualitative feedback was derived through focus group discussions (FGD). However, did not explain how the FGD was conducted? How many participants were recruited in a FGD? How many FGDs were conducted?
	2) The study says "it is a pilot study with a small sample size", however did not mention about the sample size, and how did they arrive such sample?
	2) The authors did not mention the impact of COVID-19 pandemic restrictions on data quality.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1 Comments:

Comment 1: Is the increased prevalence of autism in the Somali refugees been addressed in any way with the participants?
Response: While we discussed the fact that MMR vaccine does not cause autism, we still do not know what is causing the high prevalence of autism in the Somali community. This is something we would like to look into for future research and something we would like to specifically address with the community.

Comment 2: Line 99: the word 'absorption' implies very passive participation (people as sponges metaphor) and perhaps should be changed to something else, such as "processing", understanding, etc. The ending word of "compliance" in that sentence reads overall a bit paternalistic and competes with your participatory co-design agenda.
Response: This is an excellent point. Thank you. We have changed the language here to be more precise and less paternalistic.

Comment 3: Line 117: "develop a virtual reality technology" should be changed to "virtual reality environment" since you are not making new technologies but new and original content, and even though it is software-driven, your final deliverable is a piece of storytelling. The low-tech approach in your intervention is a strength, as a multiplatform delivery strategy, but the intervention itself is not the technology.
Response: We have changed the language here to reflect that we are creating an environment and an experience rather than developing the actual VR technology ourselves.

Comment 4: Line 205-206: you have forgotten an inline reference.
Response: Thank you for pointing this out. We have fixed the reference here.

Comment 5: Line 294: Was the N for these focus groups the same as what is previously mentioned or a subsample? Might as well repeat the sample size here one more time.
Response: We have updated the N for the focus groups here.

Comment 6: The third page of the SPQR checklist is not filled out although you have all that information in your paper.
Response: Thank you for noting this. We have filled out the SRQR completely.

Reviewer 2 Comments:
Comment 1: Methods: The authors said that qualitative feedback was derived through focus group discussions (FGD). However, did not explain how the FGD was conducted? How many participants were recruited in a FGD? How many FGDs were conducted?
Response: We have added more detail about FGDs in the data collection and analysis section. Specifically, we note, "Focus group discussions took place at the offices of SFS. In total, we conducted 5 focus groups with 57 participants. Some participants attended more than one focus group. Four of the focus groups were structured (see supplementary materials for discussion guides), while one was an unstructured discussion of the prototype. Interviews also took place at the offices of SFS and were conducted with 3 Somali parents. While the majority of participants were female, we also had a small number of male participants."

Comment 2: The study says "it is a pilot study with a small sample size", however did not mention about the sample size, and how did they arrive such sample?
Response: We explain the sample size now starting at line 168. We have stated as follows: "As a non-interventional and non-comparative program, we did not determine an a priori sample size and identified consecutive participants interested in participating within the community engagement design. As such, we included any individuals without a predefined minimum or maximum sample size. In total, we included 60 community participants and 7 expert advisors."

Comment 3: The authors did not mention the impact of COVID-19 pandemic restrictions on data quality.
Response: We added a brief statement on COVID-19 restrictions in the limitations section. We state, "COVID-19 impacted our abilities to recruit more participants and to test our final VR experience within the community in the way that we had initially planned to. We are attempting to mitigate this limitation by administering online surveys in the Somali community after they view the VR at home; however, this may limit the quality of our data as most individuals do not have VR headsets at home and may not get the full immersive effect without them."

We look forward to hearing from you regarding our submission and we are happy to respond to any other questions or concerns which may arise. Once again, we thank you for consideration of our manuscript.