

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)	Pragmatic Cluster Randomised Control Trial using Vaxcards as an age-appropriate tool to incentivise and educate school students about vaccination
AUTHORS	Epstein, Daniel; Enticott, Joanne; Larson, Heidi; Barton, Christopher

VERSION 1 – REVIEW

REVIEWER	Riccò, Matteo Azienda USL - IRCCS di Reggio Emilia, Dipartimento di Sanità Pubblica - SPSAL
REVIEW RETURNED	18-Mar-2021

GENERAL COMMENTS	<p>Estimated Editors, Estimated Authors,</p> <p>I've read with interest this research paper reporting on the potential use of a new and somewhat innovative instrument (i.e. a collectible card game) to spread vaccine acceptance between adolescents and young adults.</p> <p>Authors have appropriately reported on their intervention, and quite honestly described somewhat disappointing results (i.e. a certain improvement among smaller schools, but substantially no significant effect in larger ones), as they were substantially unable to achieve an improved acceptance among the target subjects. However, I think that some improvements are in fact required before an eventual publication on BMJ open, and namely:</p> <ol style="list-style-type: none">1. A more extensive reporting on the characteristics of study participants (e.g. age groups, gender, characteristics of the schools as a proxy of the socioeconomical status of the families) will improve the understanding of the results from this research;2. At knowledge of the Study Authors', other similar "game-based" interventions have been performed, either in Australia or in other high-income countries?3. Please, shrink the introduction in order to make it comparable in terms of extent when compared to the following sections.
-------------------------	--

REVIEWER	Nilsson, Stefan University of Gothenburg, Institute of Health and Care Sciences
REVIEW RETURNED	28-Mar-2021

GENERAL COMMENTS	<p>Thanks for this manuscript.</p> <p>The manuscript contributes important knowledge.</p>
-------------------------	---

	<p>The background is well written and explains the research question. But I lost this structure in the results and the discussion. The main goal was to compare a control group with an experimental group with Vaxcard. The main result is that there is no significant difference between the control group and the experimental group. But neither in the results nor in the discussion is this first described as a main result. The authors instead try to mark results from secondary outcomes. I think the most important "take home" message is that a single method (Vaxcard) is not good enough to make a difference. The authors describe that the results must be confirmed in a larger study, and it is of course important to repeat the study before any main conclusions can be drawn. However, this study shows the complexity of vaccination safety and the challenges of changing behavior. I think that this should be better elucidated and that secondary results should be described after the description of the primary result.</p>
--	--

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Matteo Riccò, Azienda USL - IRCCS di Reggio Emilia

Comments to the Author:

Estimated Editors,

Estimated Authors,

I've read with interest this research paper reporting on the potential use of a new and somewhat innovative instrument (i.e. a collectible card game) to spread vaccine acceptance between adolescents and young adults.

Authors have appropriately reported on their intervention, and quite honestly described somewhat disappointing results (i.e. a certain improvement among smaller schools, but substantially no significant effect in larger ones), as they were substantially unable to achieve an improved acceptance among the target subjects.

However, I think that some improvements are in fact required before an eventual publication on BMJ open, and namely:

1. A more extensive reporting on the characteristics of study participants (e.g. age groups, gender, characteristics of the schools as a proxy of the socioeconomical status of the families) will improve the understanding of the results from this research;

A summary of the general characteristics of the sample school area is mentioned on the bottom of page 8. I have added the general ages of the population but were limited on the data collection here by the council and department of education ethics approval for recruitment in schools and our data for this remaining at the school level and provided by the council. I have added this information to this section.

2. At knowledge of the Study Authors', other similar "game-based" interventions have been performed, either in Australia or in other high-income countries?

We have included a statement and reference to a realist review the authors conducted into game-based behaviour change interventions. <https://doi.org/10.2196/23302>

3. Please, shrink the introduction in order to make it comparable in terms of extent when compared to the following sections.

The authors have tried to limit the introduction with still retaining the narrative flow required to provide adequate background on the two required fields in vaccine confidence and serious game interventions. We feel this introduction (still honouring word count) needs to be slightly longer to provide a good linkage between these quite separate topics for the reader to best understand the intervention.

Reviewer: 2

Dr. Stefan Nilsson, University of Gothenburg

Comments to the Author:

Thanks for this manuscript.

The manuscript contributes important knowledge.

The background is well written and explains the research question. But I lost this structure in the results and the discussion. The main goal was to compare a control group with an experimental group with Vaxcard. The main result is that there is no significant difference between the control group and the experimental group. But neither in the results nor in the discussion is this first described as a main result. The authors instead try to mark results from secondary outcomes. I think the most important "take home" message is that a single method (Vaxcard) is not good enough to make a difference. The authors describe that the results must be confirmed in a larger study, and it is of course important to repeat the study before any main conclusions can be drawn. However, this study shows the complexity of vaccination safety and the challenges of changing behavior. I think that this should be better elucidated and that secondary results should be described after the description of the primary result.

The Authors agree that this primary outcome needs more focus in the results and discussion and have included lead outcomes and discussion points to this to better frame and answer the study question. To honour word-count we have tried to make this succinct and to better frame the flow of the article.

VERSION 2 – REVIEW

REVIEWER	Riccò, Matteo Azienda USL - IRCCS di Reggio Emilia, Dipartimento di Sanità Pubblica - SPSAL
REVIEW RETURNED	20-Jul-2021

GENERAL COMMENTS	Estimated Authors, my previous concerns were addressed or at least explained in the rebuttal letter. Therefore, I'm endorsing the final acceptance of this paper.
-------------------------	--

REVIEWER	Nilsson, Stefan University of Gothenburg, Institute of Health and Care Sciences
REVIEW RETURNED	03-Jul-2021

GENERAL COMMENTS

Thanks for the revised version of the manuscript.

I think the authors have revised the manuscript in accordance with the reviewer's comments. However, I think "no significant" should be written in line 10, page 14.