Author’s response to reviews

Title: Social media as a recruitment platform for a nationwide online survey of COVID-19 knowledge, beliefs, and practices in the United States: Methodology and feasibility analysis

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Author’s response to reviews:

Dear Dr. Puljak,

We thank you and the reviewers for the thoughtful feedback on our manuscript. The feedback has been instrumental in improving its quality. Below, we address each critique in turn. Changes to the text of the manuscript for specific revisions are delineated below.

Editor Comments:

• Please write explicitly in the abstract and in the methods that the new survey was designed for the purpose of this study.

We have updated the abstract (line 36-37) and methods (line 91) to explicitly reflect this. The text in the abstract now reads as follows: An original web-based survey was developed for the purpose of this study informed by evidence from past literature and validated scales.

• As this is the new survey, for transparency, please provide the full survey as a supplementary file.

We have attached the full survey as a supplementary file.
Reviewer 1

• Authors examined the efficiency of social media to be used as a recruitment platform for nationwide surveys. Efficacy of a recruitment platform is measured using indicators such as the number of respondents, recruitment time period, representativeness of respondents, cost and easiness to use. In this regard, authors tried to see if social media can serve as an efficient platform for recruiting participants or no? The manuscript has been written well, methods described appropriately, results described based on the study objective and discussed well in discussion section. The work has some implications for researchers and worthy to be published.

Thank you for these comments – this was indeed the key aim of this paper.

Reviewer 2

No comments

Reviewer 3

This study analyzes social media as a recruitment platform for a nationwide online survey of COVID-19. Social media are presented as a very efficient cost-effective means of obtaining a valuable and informative survey but there are problems in achieving nationally representative sample. It is an interesting topic, but there are issues that need to be addressed.

• It would be valuable if you include the information about the questionnaire's estimated completion time in the Methods section and how many questions did it contain. This would serve for a better understanding of the feasibility challenges and further comparisons with other surveys.

Understanding participant response burden is an important aspect of survey research and we thank the reviewer for highlighting it. We have updated both the methods (line 98-112) and results (line 240) section to include mention of the total number of unique survey items, the estimated completion time, and the actual completion time. We have also included the full survey as a supplemental file.

• You mention that the Google advertisement was unsuccessful, but how long was it active?

We have updated the methods section (line 145) to clarify this issue. The Google advertisement was active for approximately 3 days before it was finally closed. There were no observed impressions of the Google advertisement during this time frame.

• Was the time of the main advertisement and budget predetermined?
We have updated the methods section (line 151-154) to clarify point. Although we allocated a budget of approximately $1000 and a maximum recruitment time of approximately one month was predetermined, both the budget and time of the recruitment campaign were kept flexible due to uncertainties on cost per click and how many responses per day could be achieved.

- Also, were the recruitment evaluations predetermined and what criteria did you plan/managed to evaluate (gender distribution, ethnic distribution, etc.) and in which timelines?

We have updated the methods section (line 227-229) to clarify this. An evaluation plan was indeed able to be predetermined based on knowledge of what information both Facebook and Qualtrics would provide.

- Gender distribution in the recruitment was evaluated on the fifth day. Ad2 was added on the sixth day and male-targeting on the seventh day. Are there any specific reasons for this time delay?

Thank you for this observation – we realized the phrasing of the first sentence (line 192) incorrectly implied that the evaluation occurred on the fifth day when in fact it had occurred after the completion of the fifth day (i.e. the sixth day). We have clarified this. The advertisement was, in fact, implemented near the end of the sixth day of recruitment, and was initially approved with the same gender settings as the first advertisement, although the male-only setting was updated and implemented early in the seventh day (hence there is still a proportion of women clicks and impressions on both day 6 and small proportion on day 7 for Ad2). We have also clarified this entire section (line 192-208).

- Why did you choose additional advertisements instead of a detailed targeting of the main advertisement during the recruitment adjustments?

We have also clarified this entire section (line 192-208). The creation of a supplemental advertisement (as opposed to adjusting the settings of the initial advertisement to male-only) was to ensure that women and those with non-binary sexual identities were still able to be recruited throughout the entirety of the campaign, albeit in smaller numbers.

- Where these interventions (additional advertisements, targeting) preplanned?

These interventions were not pre-planned and were a result of close monitoring of the recruitment data – we have clarified this section (line 198-199).

- On page 13 line 283-286 it says that... The success of recruitment in this survey supports evidence from a recent systematic review which identified Facebook's usefulness for reducing costs, shortening recruitment periods, and enhancing representativeness of target populations (4)." However, prior studies aimed to assess some specific targeted populations like HIV-positive or adolescents who smoke, Facebook proved to be very efficient. This study aimed to gain a nationally representative sample, which is opposed to targeted populations, which is still very hard to achieve. In the first place, considering the fact that a specific population even has the access to social media, and among them, the specific population approaches surveys. You
should revise this sentence according to this and I recommend that you emphasize the strengths of this study in achieving the nationwide representative sample through interventions you implemented in the conclusion of the manuscript.

Thank you for highlighting this important point – we have clarified this section in the results (line 309-313) and also emphasized this strength in the discussion section (line 400-402).

- Education and employment of the participants are one of the main parameters through which we assess did we obtain a nationally representative sample. On page 14 line 301-308, it says that they were difficult to assess due to U.S. Census discrepancies. How did you design education and employment categories? This should be recognized as a limitation of the study.

We have clarified this in the section (line 332-334). These limitations are in part due to the fact that the questionnaire items for the demographic characteristics were informed by past surveys rather than directly from the U.S. Census categories.

- To be more comprehensive about the final sample, I would recommend that you analyze and present demographic characteristics of participants as two categories 1) respondents who submitted complete surveys and 2) respondents who submitted incomplete surveys. So that readers can also see what are the characteristics of the respondents who under certain unknown circumstances don’t finish the survey and does this group significantly differs from the one that managed to finish the survey.

We have updated the methods (line 109-112) and added a paragraph in the results (line 249-256) to include more information on this. Due to the significant amount of demographics questions, to minimize survey fatigue, the majority these questions were placed at the end of the survey with the exception of age and sex. The estimated completion time of the survey was 10-15 minutes based on pilot testing conduct among the study team. Therefore, age and sex were the primary demographic characteristics that could be used to analyze differences between those who did and didn’t complete the survey – we describe these differences in a paragraph that has been added in the results (line 249-256).

- I think that conclusion in the abstract has to be more in line with study aims and study outcomes. It should provide information about main characteristics of the sample you obtained during the outbreak and the main impacts you achieved through interventions to provide a representative sample.

We have updated both conclusion in the abstract (line 59-51) the conclusions section (line 423-427) to include these key points.