Author’s response to reviews

Title: From social adversity to sympathy for violent radicalization: The role of depression, religiosity and social support

Authors:
Cécile Rousseau (cecile.rousseau@mcgill.ca)
Ghayda Hassan (hassan.ghayda@uqam.ca)
Diana Miconi (diana.miconi@mail.mcgill.ca)
Vanessa Lecompte (vanessa.lecompte@mail.mcgill.ca)
Abdelwahed Mekki-Berrada (Abdelwahed.Mekki-Berrada@ant.ulaval.ca)
Habib El Hage (helhage@crosemont.qc.ca)
Youssef Oulhote (youlhote@hsph.harvard.edu)

Version: 2 Date: 04 Sep 2019

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Manuscript ID AOPH-D-19-00084R1
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Archives of Public Health

Dear Editor,

Thank you for the opportunity to revise our manuscript. We also thank the Reviewers for their helpful feedback and suggestions. Please find below our point-by-point reply to the concerns they raised. We hope that you find that our revision satisfactorily addresses all the critical points that have been highlighted. We remain available for any additional clarifications about the methods, and any required analyses. All changes in the manuscript were made using the track-changes modality in Word.

On behalf of all authors.

Sincerely,

*STATISTICAL REVIEWER:

-From a statistical point of view, the authors have used the mediation package in R to establish whether each of three variables could be a mediator, using a mixed model to express the direct effect.
- The description of the models is not always clear, whether each potential mediator is considered in a separate model for example (or jointly, and with or without inter-relations?).
Response: Thank you for the comment. Indeed, we didn’t clarify this point. Actually, we used separate models for each potential mediator. The mediation analyses within the causal inference framework are still in their childhood and many developments are still needed, especially for multiple mediators and mediated interactions. We now specify that we have investigated each mediator separately (p. 11). It is worth mentioning that considering both mediators in a single model is required when the mediators affect one another. In the current data, the correlation between religiosity and depression was weak ($\rho = 0.05$). We now added this in the limitations part of the manuscript (p. 20). If the Reviewer requires that both mediators should be included in a single model, we could run additional analyses taking into account both mediators, but this would not be possible within the potential outcome framework that we use here, and we would have to do it using structural equations modeling or traditional difference or product term approaches.

Simply specifying the actual equations that are considered would be of great help to understand the process. Typically, in mediation analysis the relations are estimated and visualized, which would also be of help to understand what is and is not modeled.

Response: Thank you for this proposition. For the equations, we think we have provided a detailed description of the concepts and models in the methods section using potential outcomes framework notation. It is indeed different than the statistical equations usually employed, but they allow for a better understanding of the concept of mediation within this framework based on counterfactuals. We now added a graphical visualization of the Total, direct and indirect effects resulting from the models that may be useful for the reader (see Figure 1).

The use of DAG is completely unclear, does it simply visualize the relations or does it estimate them, possibly using Bayesian Network analysis? And how are the estimates then used? It appears that a simple variable selection focusing on interaction effects within a mixed model is what should be done.

Response: Directed acyclic graphs were used for the identification part of the model, and not for estimation. Therefore, DAGs are only graphical representations of the conceptual framework and the relationships between exposure variables, outcomes, and the covariates. We used DAGs simply to identify the causal paths and to identify the minimum set of covariates required for the identification of each of our models. For the estimation part, we used traditional methods including the covariates inferred by the DAG, in addition to the mediation analyses and the models with interactive effects as suggested by the Reviewer.

-While significant, differences of 2 to 3 on an SVR scale of 0 - 66 does not seem that important? Can the authors discuss why such differences matter?

Response: Indeed, the effect size of some differences is rather small, but still significant. Whether this is a meaningful shift in clinical terms is unknown. However, as now well understood in population health sciences, small effect sizes can induce large shifts at the tails of the distributions where clinical phenomenon arise. Although there is no diagnosis or any clinical cut-off for SyfoR, the same concepts apply. We now added a discussion of this point, and it reads (p. 20):

“Finally, it is worth mentioning that he observed effect sizes in this study are relatively modest, and may not be indicative of any of any positive attitude towards violent radicalization. However, in the context of populations, the impact of a factor at the population level depends not only on the magnitude of its impact, or its effect size, but also on the distribution of the exposure factor. Given the widespread and ubiquitous exposure to both exposures, i.e. 44% exposed to violence and 38% exposed to
discrimination, these small effect sizes may have a considerable impact at the population level (Bellinger 2007)

-Why Cronbach alpha's are provided, even after suggesting subscales?
Response: We have now removed Cronbach’s alphas for the total scores whenever subscales were reported and used.

-If SVR values tend to be low, does it have consequences on the normality of errors (skewness)?
Response: We verified the assumptions of error normality in our models, and both random effects and within-unit residual errors followed normal distributions, with a relatively constant variance.
If depression/anxiety is high, does that suggest these are atypical students and can you generalize from them?
Response: Unfortunately, the prevalence of depression and anxiety reported in this study are in line with recent reports in undergraduate students. For instance, a survey of more than 10,000 students from 13 of Washington’s institutions (The Healthy Mind Network) found comparable prevalence > 30% (Lipson, Lattie, and Eisenberg. 2019. Psychiatr Serv 70:60-63). Other studies also point to a similar trend in various students’ populations (Dyrbye et al. 2006. Acad Med. 2006 Apr;81(4):354-73). A recent study in a small sample of students from a college in Quebec reported 27% with mild depression symptoms and 13% with moderate and severe depressive symptoms using the Beck-II depression inventory scores (Villatte et al. 2017. Canadian Journal of Higher Education 47: 114-136).

-Conclusion: while the analysis are not shown to be wrong, the authors also do not appear convincing that the analysis are correct either. Maybe a statistical expert can be asked to help communicate and if necessary improve the analysis?
Response: We have tried to clarify all the points and remain available for any additional clarifications about the methods, and any required analyses. Thank you for the thorough review.

*EDITOR:

-Please answer the question of reviewer 1 asked in the first review: "can there be given a clarification why there still are missings for some variables in the full data sample (table 1)?"
Response: Thank you for bringing this to our attention. Full data on the outcome of interest were available for 1190 participants. However, these still had missing data on some covariates. All analyses were performed on a complete case basis. We now clarified this in the methods section (p. 7 and p. 13). It is worth mentioning that we ran these analyses using structural equations modeling as a different approach that also allows for handling missing data using full information maximum likelihood, and we found similar results.

Response: Thank you for your comment. We agree that the use of different terms for the same construct can be confusing. We have now used the term “sympathy for violent radicalization (SVR)” in a coherent way throughout the manuscript.
Response: Thank you for pointing this out. We apologize for the inconvenience and corrected the mistake. We referred to table 2 and not to table 1.

-For any participants under the age of 18 please can you confirm whether parental consent was obtained?
Response: All participants were 16 years old or older. According to the Section 21 of the Quebec Civil code, minors who are 14 years old or older can give their own informed consent (without obtaining their parents’ consent) when the ethics committee confirms that the research involves minimum risk for them and when the external circumstances justify this decision. This was the case for the present research, involving minimum risk and addressing students anonymously directly through the college intranet portals. This has now been clarified in the manuscript (p. 7).

-Please can you provide the reference number of the ethics committee(s) that approved this study?
Response: The reference number of the ethics committee that approved this study has now been added to the manuscript (p. 7).

-In the Funding section, please also describe the role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.
Response: The funding body had no role in data collection, data analysis /interpretation or in the publication process. The Ministry was interested in having national data on determinants of SVR to guide prevention programs. However, they accepted and respected the total autonomy of the research team. This information has now been added to the manuscript (p. 22).