

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)	Social, Financial and Psychological Stress during an Emerging Pandemic: Observations from a Population Survey in the acute phase of COVID-19
AUTHORS	Robillard, Rebecca; Saad, Maysa; Edwards, Jodi; Solomonova, Elizaveta; Pennestri, Marie-Helene; Daros, Alexander; Veissière, Samuel; Quilty, Lena; Dion, Karianne; Nixon, Ashley; Phillips, Jennifer; Bhatla, Raj; Spilg, Edward; Godbout, Roger; Yazji, Bashour; Rushton, Cynda; Gifford, Wendy A.; Gautam, Mamta; Bofo, Addo; Swartz, Rick; Kendzerska, Tetyana

VERSION 1 – REVIEW

REVIEWER	Maria Grau IMIM
REVIEW RETURNED	25-Aug-2020

GENERAL COMMENTS	<p>I have several major concerns:</p> <ol style="list-style-type: none">1. The sample selection did not guarantee the representativeness (via websites, social media, and multiple organizations and hospitals . So, this should be presented as a study limitation2. Data was collected between April 3rd and May 15th. Can you identify this period of time with the COVID-19 timeline in your country (e.g. first wave?, number of cases / deaths)? This point will help to interpret the participants' answers3. Results. This is too general to explain the characteristics of the sample: ". Most respondents were middle-aged, female, Canadian (mostly from Ontario or Quebec), Caucasian, highly educated, lived in an urban residential area, had children, and were employed with a total yearly family income above \$40,000." In addition, was this sample representative? Please, remember that you're analyzing the psychological stress, a variable closely related with the socio-demographic characteristics.4. The inclusion of the numerators and denominators together with percentage in the main text (e.g. 4,790/6,040) difficults the readability. Please leave percentage in the main text and delete numertors and denominators that only should appear in Tables.5. The Results are too long. Please focus on the most relevant considering the methodology and design of the study (cross-sectional) which are the main limitations of the study.6. Please consider the role of socio-economic inequalities and COVID-19 incidence to explain your results. Indeed, a recent manuscript has pointed out the effect of income in the incidence of such diseases (Baena-Diez JM. J Public Health (Oxf). 2020)
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REVIEWER	Roger Ho Department of Psychological Medicine
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	National University of Singapore
REVIEW RETURNED	20-Sep-2020

GENERAL COMMENTS	<p>I have the following comments for the authors to consider. I am happy to review this paper again.</p> <p>1) Under the paragraph, "Early COVID-19 studies from China, India, Brazil, Paraguay, and the United States indicated high levels of stress with associated sleep problems, poor life satisfaction, and mental illness (4–8). "</p> <p>The authors should mention the findings of a landmark study that compare the west and east:</p> <p>Wang C, Chudzicka-Czupala A, Grabowski D, et al. The Association Between Physical and Mental Health and Face Mask Use During the COVID-19 Pandemic: A Comparison of Two Countries With Different Views and Practices. <i>Frontiers in psychiatry</i> 2020; 11: 901.</p> <p>Then the authors can discuss why it is important to study in Canada, that is a western country.</p> <p>2) Under discussion, the authors stated "Similarly, reports in the US showed that 40% of people earning \$40K or less lost their jobs due to the COVID-19 outbreak and that most of those who kept their job had a university degree (20). " Please also compare with developing country. Please refer to the following study:</p> <p>Dang AK, Le XTT, Le HT, et al. Evidence of COVID-19 Impacts on Occupations During the First Vietnamese National Lockdown. <i>Ann Glob Health.</i> 2020;86(1):112. Published 2020 Sep 3. doi:10.5334/aogh.2976</p> <p>3) The authors stated "We found a significant increase in stress co-occurring with the outbreak, with 30% of individuals undergoing clinically meaningful stress worsening. This is consistent with rates of moderate to severe stress reaching 20 to 27% in Asia, Europe, and Australia (7,10,27–30)." They should also refer to the findings from the following systematic review:</p> <p>Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review [published online ahead of print, 2020 Aug 8]. <i>J Affect Disord.</i> 2020;277:55-64. doi:10.1016/j.jad.2020.08.001</p> <p>4) The authors stated "). Importantly, the current study also identified some modifiable factors that were associated with lower stress responses. For instance, protecting a sufficient period for sleep, minimizing alcohol and drug consumption, promoting better family relationships, exercising, and doing artistic activities may be helpful" How about preventive measures or personal protective equipment? How discuss other factors associated with lower stress in other studies and state this as limitation if not explored in this study. The following findings must be mentioned:</p> <p>Wang C, Pan R, Wan X, et al. (2020) A Longitudinal Study on the</p>
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	<p>Mental Health of General Population during the COVID-19 Epidemic in China [published online ahead of print, 2020 Apr 13]. Brain Behav Immun. 2020; S0889-1591(20)30511-0. doi:10.1016/j.bbi.2020.04.028</p> <p>Tan W, Hao F, McIntyre RS, et al. Is Returning to Work during the COVID-19 Pandemic Stressful? A Study on Immediate Mental Health Status and Psychoneuroimmunity Prevention Measures of Chinese Workforce [published online ahead of print, 2020 Apr 23]. Brain Behav Immun. 2020;S0889-1591(20)30603-6. doi:10.1016/j.bbi.2020.04.055</p> <p>5) Is there a role for psychological intervention? Please discuss the application of cognitive behavior therapy or mindfulness therapy based on the following paper.</p> <p>Ho CS, Chee CY, Ho RC. Mental Health Strategies to Combat the Psychological Impact of COVID-19 Beyond Paranoia and Panic. Ann Acad Med Singapore. 2020;49(3):155-160.</p>
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REVIEWER	Ran Barzilay University of Pennsylvania and Children's Hospital of Philadelphia, Philadelphia, US
REVIEW RETURNED	22-Sep-2020

GENERAL COMMENTS	<p>This paper describes a massive effort that was undertaken early in the course of COVID-19 pandemic in Canada. The authors present a lot of data on multiple factors that contribute to mental health during the pandemic and highlight many potential modifiable factors that contribute to the psychological response to the pandemic. Major strengths include the large sample size and the myriad of data types collected by the authors including financial, social and psychological factors.</p> <p>the reliance on self report of pre-COVID condition is a limitation but it is adequately discussed by the authors. This paper sets the stage to future studies that will build on the cross-sectional data described here.</p> <p>The only comment I have pertains the references that should be updated due to the multiple papers that are coming out currently on mental health and the factors that contribute to mental health during the pandemic. For this reason, I think that a focus should be made in the discussion to discuss the findings in context of the literature. I understand that papers probably have come out after the authors submitted their original manuscript, but I think that they should update their references and discussion accordingly prior to acceptance of the final version of the manuscript.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Maria Grau

Institution and Country: Institut Hospital del Mar d'Investigacions Mediques

Please state any competing interests or state 'None declared': None declared

We thank the reviewer for her time and effort in reviewing the manuscript.

1. The sample selection did not guarantee the representativeness (via websites, social media, and multiple organizations and hospitals . So, this should be presented as a study limitation
We agree with the reviewer that the sample selection did not guarantee the representativeness. We now mention this in the limitations section (p17 of the revised manuscript).

2. Data was collected between April 3rd and May 15th. Can you identify this period of time with the COVID-19 timeline in your country (e.g. first wave?, number of cases / deaths)? This point will help to interpret the participants' answers

We now specify in the last paragraph of page 6 that this corresponds to a period starting around the peak of the first wave in Canada where 900 to 2,000 new reported cases were deemed to emerge each week.

3. Results. This is too general to explain the characteristics of the sample: ". Most respondents were middle-aged, female, Canadian (mostly from Ontario or Quebec), Caucasian, highly educated, lived in an urban residential area, had children, and were employed with a total yearly family income above \$40,000." In addition, was this sample representative? Please, remember that you're analyzing the psychological stress, a variable closely related with the socio-demographic characteristics.

We agree with the reviewer about the importance of socio-demographic characteristics in relationship to psychological stress. This is why we provided detailed information about the sample characteristics in Table 1 of the original manuscript. Considering the short word limit required by BMJ Open, it is not feasible to go in much more details about the sample characteristics in the main text We now provide more details about this in the limitations section of the discussion (p 18 of the revised manuscript).

4. The inclusion of the numerators and denominators together with percentage in the main text (e.g. 4,790/6,040) difficults the readability. Please leave percentage in the main text and delete numertors and denominators that only should appear in Tables.

Numerators and denominators have been removed from the main text as suggested.

5. The Results are too long. Please focus on the most relevant considering the methodology and design of the study (cross-sectional) which are the main limitations of the study.

As the aim of this report is to provide an overview of the widespread and multifaceted social psychological and financial impacts of the pandemic, we do feel it is necessary to have a substantial results section. Nevertheless, we moved some results to the supplemental section in order to shorten the results section.

6. Please consider the role of socio-economic inequalities and COVID-19 incidence to explain your results. Indeed, a recent manuscript has pointed out the effect of income in the incidence of such diseases (Baena-Diez JM. J Public Health (Oxf). 2020)

This report does not address the incidences of COVID-19, but rather the collateral impacts of the pandemic situation. We do discuss the potential influence of low income on these factors in the last paragraph of p. 15 of the original manuscript. We have now integrated the proposed reference to this paragraph.

Reviewer: 2

Reviewer Name: Roger Ho

Institution and Country: Department of Psychological Medicine, National University of Singapore

Please state any competing interests or state 'None declared': None

We thank the reviewer for his time and effort in reviewing the manuscript.

1) Under the paragraph, "Early COVID-19 studies from China, India, Brazil, Paraguay, and the United States indicated high levels of stress with associated sleep problems, poor life satisfaction, and mental illness (4–8). " The authors should mention the findings of a landmark study that compare the west and east:

Wang C, Chudzicka-Czupala A, Grabowski D, et al. The Association Between Physical and Mental Health and Face Mask Use During the COVID-19 Pandemic: A Comparison of Two Countries With Different Views and Practices. Frontiers in psychiatry 2020; 11: 901.

Then the authors can discuss why it is important to study in Canada, that is a western country.

We thank the reviewer for this suggestion. We integrated this citation on p3 of the revised manuscript.

2) Under discussion, the authors stated "Similarly, reports in the US showed that 40% of people earning \$40K or less lost their jobs due to the COVID-19 outbreak and that most of those who kept their job had a university degree (20). " Please also compare with developing country. Please refer to the following study:

Dang AK, Le XTT, Le HT, et al. Evidence of COVID-19 Impacts on Occupations During the First Vietnamese National Lockdown. Ann Glob Health. 2020;86(1):112. Published 2020 Sep 3. doi:10.5334/aogh.2976

This is also a great suggestion to relativize these findings in the context of this global world crisis. This reference has been integrated on p15 of the revised manuscript.

3) The authors stated "We found a significant increase in stress co-occurring with the outbreak, with 30% of individuals undergoing clinically meaningful stress worsening. This is consistent with rates of moderate to severe stress reaching 20 to 27% in Asia, Europe, and Australia (7,10,27–30)." They should also refer to the findings from the following systematic review:

Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review [published online ahead of print, 2020 Aug 8]. J Affect Disord. 2020;277:55-64. doi:10.1016/j.jad.2020.08.001

This citation has been added.

4) The authors stated "). Importantly, the current study also identified some modifiable factors that were associated with lower stress responses. For instance, protecting a sufficient period for sleep, minimizing alcohol and drug consumption, promoting better family relationships, exercising, and doing artistic activities may be helpful"

How about preventive measures or personal protective equipment? How discuss other factors associated with lower stress in other studies and state this as limitation if not explored in this study. The following findings must be mentioned:

Wang C, Pan R, Wan X, et al. (2020) A Longitudinal Study on the Mental Health of General Population during the COVID-19 Epidemic in China [published online ahead of print, 2020 Apr 13]. Brain Behav Immun. 2020; S0889-1591(20)30511-0. doi:10.1016/j.bbi.2020.04.028
Tan W, Hao F, McIntyre RS, et al. Is Returning to Work during the COVID-19 Pandemic Stressful? A Study on Immediate Mental Health Status and Psychoneuroimmunity Prevention Measures of Chinese Workforce [published online ahead of print, 2020 Apr 23]. Brain Behav Immun. 2020;S0889-1591(20)30603-6. doi:10.1016/j.bbi.2020.04.055

We now mention in the discussion that although this was not directly addressed in this project, other studies indicate that preventative measures and personal protective equipment may facilitate lower stress in relation to the pandemic (citing the proposed references) (p17 of the revised manuscript).

5) Is there a role for psychological intervention? Please discuss the application of cognitive behavior therapy or mindfulness therapy based on the following paper.

Ho CS, Chee CY, Ho RC. Mental Health Strategies to Combat the Psychological Impact of COVID-19 Beyond Paranoia and Panic. Ann Acad Med Singapore. 2020;49(3):155-160.

This is now mentioned on p18 of the revised manuscript: "The potential of several lines of psychological interventions to mitigate the mental health impacts of the pandemic is also rapidly being highlighted" (citing the proposed reference).

Reviewer: 3

Reviewer Name: Ran Barzilay

Institution and Country: University of Pennsylvania and Children's Hospital of Philadelphia, Philadelphia, US

Please state any competing interests or state 'None declared': None declared

This paper describes a massive effort that was undertaken early in the course of COVID-19 pandemic in Canada. The authors present a lot of data on multiple factors that contribute to mental health during the pandemic and highlight many potential modifiable factors that contribute to the psychological response to the pandemic. Major strengths include the large sample size and the myriad of data types collected by the authors including financial, social and psychological factors.

the reliance on self report of pre-COVID condition is a limitation but it is adequately discussed by the authors. This paper sets the stage to future studies that will build on the cross-sectional data described here.

The only comment I have pertains the references that should be updated due to the multiple papers that are coming out currently on mental health and the factors that contribute to mental health during the pandemic. For this reason, I think that a focus should be made in the discussion to discuss the findings in context of the literature.

I understand that papers probably have come out after the authors submitted their original manuscript, but I think that they should update their references and discussion accordingly prior to acceptance of the final version of the manuscript.

We thank the reviewer for this positive feedback and time and effort in revising the manuscript. We acknowledge that the literature on this topic is moving extremely fast and that several relevant studies have been published since we submitted this manuscript. We have now updated references to include some of these studies pertaining specifically to stress as this was the focus of the current study. However, please note that this is restricted by the word limits of BMJ Open and that an exhaustive review is beyond the scope of our report.

VERSION 2 – REVIEW

REVIEWER	Maria Grau IMIM - Spain
REVIEW RETURNED	15-Oct-2020
GENERAL COMMENTS	The authors have correctly answered my queries. I have no further comments.