PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Mental burden and perception of the study situation among undergraduate students during the COVID-19 pandemic: a cross-sectional study and comparison of dental and medical students
AUTHORS	Guse, Jennifer; Weegen, Annabel; Heinen, Ines; Bergelt, Corinna

VERSION 1 – REVIEW

REVIEWER	Nicholas Grubic Queen's University
REVIEW RETURNED	30-Jun-2021

GENERAL COMMENTS	The authors present a single-institution, cross-sectional study of dental and medical students who were surveyed at two time points during the COVID-19 pandemic. This study contributes to the growing body of evidence investigating the psychological effects of the pandemic on student mental health. The qualitative component of this study is a major strength. In general, the manuscript is well-written, and the findings have important practical implications. To improve the clarity and impact of the manuscript, I have provided some comments and suggestions below for the authors to consider: Abstract 1. Quantitative results should accompany the sentence, "In July 2020, dental students reported significantly higher distress scores than medical students". 2. The authors report that "Logistic regression showed that being a dental student and experiencing higher distress were significantly associated with a higher likelihood for serious worries". However, this conclusion does not seem to be supported by the data in Table 4 – should it not be that being a medical student was significantly associated with serious worries, given that dental students were the reference category (OR: 1.149, 95% CI: 1.013-1.304)? I would also recommend that the authors report these quantitative measures of association in the abstract. Methods/Results 1. In general, the study is methodologically. The results are also well written and presented clearly. The integration of qualitative findings into this study is a major strength and an important contribution to the literature. 2. Minor comment - were the participants provided with any incentives to participate in the survey? If so, this should be clarified in the manuscript. 3. Are the logistic regression findings presented in Table 4 univariate or multivariate? Based on the methods, it appears that the authors created a multivariate logistic regression model, dropping variables via backwards elimination using a threshold p-value of <0.05.

Discussion/Conclusion

1. The authors mention "high response rates" in the first and second surveys, ranging from 65% to 87%. There is still a considerable proportion of students that did not participate in the surveys. The authors should elaborate on the potential for volunteer bias in their study. For example, I would hypothesize that students with high baseline levels of anxiety/stress/depression may be less likely to participate in the survey, and thus some of the parameters reported in the study may be underestimating the true burden.

2. In general, other important limitations are not mentioned in the discussion, such as the small sample size (although I am glad the authors also reported effect sizes and did not solely rely on statistical significance to make their conclusions) and potential for misclassification (given the online survey format).

3. The discussion is missing a section discussing the policy implications of the findings and directions for future research. There have been many studies published in the literature to date describing the psychological impact of students as a direct result of COVID-19, although few suggest practical recommendations for how educational institutions can mitigate the downstream consequences of the pandemic on their student population. The authors perspectives would be welcomed here, and, in my opinion, this would greatly strengthen this work. Previous literature has suggested some potential recommendations and tailored strategies designed for specific student sub-populations (1 - https://bjsm.bmj.com/content/early/2021/05/27/bjsports-2021-104218.long, 2 - https://journals.sagepub.com/doi/10.1177/0020764020925108?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed)

REVIEWER	Gonçalo Marques
	University of Valladolid
REVIEW RETURNED	04-Jul-2021

| GENERAL COMMENTS | This paper address a critical topic for today's society. However, several studies on this topic have been published in the current pandemic scenario. These studies are not compressively cited in this paper. Therefore, the reference list has several limitations. The results do not provide any novel findings. Moreover, they are not discussed in detail to support future research activities in this field. More important than conclude that the participants are affected by high mental distress and burden (which is usually the same situation for everyone due to the current scenario) is to establish novel methods to help these people. |

REVIEWER	Chuanzhu Lv
	Chinese Academy of Medical Sciences
REVIEW RETURNED	12-Jul-2021

| GENERAL COMMENTS | To investigate levels of distress, depression, anxiety, stress and perception of their current study situation during the COVID-19 pandemic among undergraduate dental and medical students. The authors performed this observational, cross-sectional study. There are several concerns related to this manuscript. 1. My biggest concern about this study is that the sample size is too |

	small. The sample size of this study is only 282, 132 participating first year students (44 dental, 88 medical) from the first survey and 150 students (50 dental, 100 medical) from the second were included in the analyses. I think such a small sample size is not representative 2. In my opinion, the results of monofactor analysis are not very meaningful, because the influence of other factors has not been considered. 3. The P value in the article needs to be italicized. 4. The table in the article should be a three-line table. 5. The proportions of many variables in Table 1, Table 2 and Table 3 do not add up to 100%, the author should pay attention to this point. Similarly, the percentages value in Table 1, while the value in Table 4 retains 3 decimal places. The author should maintain consistent.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Nicholas Grubic, Queen's University

Comments to the Author:

The authors present a single-institution, cross-sectional study of dental and medical students who were surveyed at two time points during the COVID-19 pandemic. This study contributes to the growing body of evidence investigating the psychological effects of the pandemic on student mental health. The qualitative component of this study is a major strength. In general, the manuscript is well-written, and the findings have important practical implications. To improve the clarity and impact of the manuscript, I have provided some comments and suggestions below for the authors to consider:

We value Dr. Grubic's comments greatly, as they have pointed out a number of issues to be addressed, and would like to thank him for his time and expertise.

Abstract

1. Quantitative results should accompany the sentence, "In July 2020, dental students reported significantly higher distress scores than medical students".

Quantitative results were integrated in the abstract.

2. The authors report that "Logistic regression showed that being a dental student and experiencing higher distress were significantly associated with a higher likelihood for serious worries". However, this conclusion does not seem to be supported by the data in Table 4 – should it not be that being a medical student was significantly associated with serious worries, given that dental students were the reference category (OR: 1.149, 95% CI: 1.013-1.304)? I would also recommend that the authors report these quantitative measures of association in the abstract.

Thank you for pointing this out. We made a mistake and reported the results for the wrong reference group (medical students). The results in table 4 were corrected for the correct reference group (dental students). The quantitative measures of association were integrated in the abstract accordingly.

Methods/Results

1. In general, the study is methodologically. The results are also well written and presented clearly.

The integration of qualitative findings into this study is a major strength and an important contribution to the literature.

2. Minor comment - were the participants provided with any incentives to participate in the survey? If so, this should be clarified in the manuscript.

Participants did not receive any incentives. This information was integrated in the methods section (page 4).

3. Are the logistic regression findings presented in Table 4 univariate or multivariate? Based on the methods, it appears that the authors created a multivariate logistic regression model, dropping variables via backwards elimination using a threshold p-value of <0.05.

We conducted a binary logistic regression with backward elimination of the variables.

Discussion/Conclusion

1. The authors mention "high response rates" in the first and second surveys, ranging from 65% to 87%. There is still a considerable proportion of students that did not participate in the surveys. The authors should elaborate on the potential for volunteer bias in their study. For example, I would hypothesize that students with high baseline levels of anxiety/stress/depression may be less likely to participate in the survey, and thus some of the parameters reported in the study may be underestimating the true burden.

Thank you for this recommendation, it was very helpful. The discussion section has been expanded to include the limitation mentioned above and literature accordingly (Salkind NJ. (2010). Encyclopedia of research design: CA: SAGE Publications; 2010) (page 19).

2. In general, other important limitations are not mentioned in the discussion, such as the small sample size (although I am glad the authors also reported effect sizes and did not solely rely on statistical significance to make their conclusions) and potential for misclassification (given the online survey format).

The discussion section was extended to include the limitation mentioned above (page 19).

3. The discussion is missing a section discussing the policy implications of the findings and directions for future research. There have been many studies published in the literature to date describing the psychological impact of students as a direct result of COVID-19, although few suggest practical recommendations for how educational institutions can mitigate the downstream consequences of the pandemic on their student population. The authors perspectives would be welcomed here, and, in my opinion, this would greatly strengthen this work. Previous literature has suggested some potential recommendations and tailored strategies designed for specific student sub-populations (1 - https://bjsm.bmj.com/content/early/2021/05/27/bjsports-2021-104218.long, 2 - https://journals.sagepub.com/doi/10.1177/0020764020925108?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed)

Thank you for this recommendation, it was very helpful. The discussion section has been expanded to include implications of the findings and directions for future research as well as practical recommendations and further literature (Page 19; Page 24-25).

Reviewer: 2

Dr. Gonçalo Marques, University of Valladolid
Comments to the Author:
This paper address a critical topic for today's society.
However, several studies on this topic have been published in the current pandemic scenario. These studies are not compressively cited in this paper. Therefore, the reference list has several limitations. The results do not provide any novel findings.

We greatly appreciate Dr. Marques' time and efforts in reviewing our manuscript. The reference list has been expanded (page 24-25).

Moreover, they are not discussed in detail to support future research activities in this field.
More important than conclude that the participants are affected by high mental distress and burden (which is usually the same situation for everyone due to the current scenario) is to establish novel methods to help these people.
The studies added in the reference list have been discussed and directions for future research as well as practical recommendations to establish methods or re-design existing methods to help these people have been made in the discussion section (page 19).

Reviewer: 3
Dr. Chuanzhu Lv, Chinese Academy of Medical Sciences
Comments to the Author:
To investigate levels of distress, depression, anxiety, stress and perception of their current
study situation during the COVID-19 pandemic among undergraduate dental and medical students.
The authors performed this observational, cross-sectional study.
There are several concerns related to this manuscript.

We sincerely appreciate the constructive suggestions of Dr. Chuanzhu Lv . They were very useful to improve the manuscript.

1. My biggest concern about this study is that the sample size is too small. The sample size of this study is only 282, 132 participating first year students (44 dental, 88 medical) from the first survey and 150 students (50 dental, 100 medical) from the second were included in the analyses. I think such a small sample size is not representative.

Thank you for this comment. This obvious limitation has been added in the limitation section (page 19).
2. In my opinion, the results of monofactor analysis are not very meaningful, because the influence of other factors has not been considered.
Thank you for this important recommendation. In future studies, we will consider this evidence and

employ multivariate analyses.

3. The P value in the article needs to be italicized. *The P value was italicized.*

4. The table in the article should be a three-line table.

5. The proportions of many variables in Table 1, Table 2 and Table 3 do not add up to 100%, the author should pay attention to this point. Similarly, the percentages value in Table 1, while the value in Table 4 retains 3 decimal places. The author should maintain consistent. *Thank you for this comment. The tables were corrected accordingly to maintain consistency.*

VERSION 2 – REVIEW

REVIEWER	Nicholas Grubic Queen's University
REVIEW RETURNED	08-Oct-2021

GENERAL COMMENTS	The authors have sufficiently addressed my comments and the comments from the other reviewers. This paper is now suitable for publication. There is one minor comment that I have from my prior review (does not a require an additional review). When the authors state, "Logistic regression showed that being a dental student and experiencing higher distress were significantly associated with a higher likelihood for serious worries (OR: 4.0; CI (95%): 1.1 - 14.2)", the authors should also report the OR and 95% CI for distress and serious worries (OR: 1.8, 95% CI: 1.3 - 2.5), as shown in Table 4. They only seem to present the OR and 95% CI for being a dental student and serious worries in the abstract.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr. Nicholas Grubic, Queen's University

Comments to the Author:

The authors have sufficiently addressed my comments and the comments from the other reviewers. This paper is now suitable for publication. There is one minor comment that I have from my prior review (does not a require an additional review).

When the authors state, "Logistic regression showed that being a dental student and experiencing higher distress were significantly associated with a higher likelihood for serious worries (OR: 4.0; CI (95%): 1.1 - 14.2)", the authors should also report the OR and 95% CI for distress and serious worries (OR: 1.8, 95% CI: 1.3 - 2.5), as shown in Table 4. They only seem to present the OR and 95% CI for being a dental student and serious worries in the abstract.

Thank you for this recommendation. We added the OR and 95% CI for distress in the results section (p. 14) and in the abstract.