Response to Reviewer 2 Comments

1. Summary

Thank you for your feedback on our manuscript. We appreciate your comments.
Following your valuable suggestions, we have added literature to the Introduction. We have also attempted to make the title and terminology more appropriate. Regarding the citation style, corrections have been made where the changes in style were not reflected. Regarding the tables, we would like to upload them as separate files since pasting them directly into the main text might disrupt the structure. Similarly, we will attach figures as separate files to maintain their resolution, as embedding them directly into the main text may reduce the quality.

Here are our responses to each comment:

2. Point-by-point response to Comments and Suggestions for Authors
Comments 1: It`s a study on depressive symptoms, not mental health, amid COVID pandemic with pre-pandemic comparison not a longitudinal survey during COVID pandemic. In addtion, it`s a survey among all students not only international ones. All should be corrected in the title.
Response 1: We have revised the title to "Comparison of Depressive Symptoms Between International and Domestic Students in a Japanese University: Pre- and During the COVID-19 Pandemic." This study utilizes data collected annually as part of routine clinical activities, and it involves the use of data from the same participants over time. Therefore, although retrospective, we consider it to be a longitudinal study.

We have made the following revisions as per your suggestions in section 2.3.
This study targeted students enrolled at the University of Tsukuba who underwent PHQ-9 assessment as part of their health check-up for two consecutive years in 2019 and 2020. Specifically, participants comprised all students enrolled at the University of Tsukuba in April 2019. Among them, those who underwent health check-ups in April 2019 were included. Exclusion criteria eliminated those who did not undergo health check-ups in 2020.

In 2019, there were 17,697 enrolled students, with 15,325 being domestic students and 2,372 being international students. Among the 12,265 students who underwent health check-ups in 2019, 10,705 were domestic students and 1,560 were international students.

Among them, 6,221 domestic students and 626 international students underwent health check-ups in 2020.

Comments 2: Data gathering and inclusion criteria should be described more in Abstract.

Response 2: We have added the following sentence to the abstract.

We included all students enrolled in 2019 who underwent health check-ups in both 2019 and 2020.

Comments 3: Introduction should be expanded, particularly previous studies and situation of Japan should be reviewed briefly.

Response 3: We have incorporated and revised the introduction to include the additional references.

In our country, since the confirmation of the first COVID-19 case in January 2020, the number of infections has continued to increase. On April 7, 2020, the first state of emergency was declared. Under the state of emergency, many universities were closed, and in-person activities were replaced with online alternatives. Students refrained from going out and stayed in their rooms. Subsequently, a total of four states of emergency were declared until September 2021.

Longitudinal studies on the mental health of international students before and after the pandemic are limited. Ke et al. conducted a longitudinal investigation into anxiety and depression among Chinese international students at Australian universities. With the onset of the COVID-19 pandemic, there was an increase in the prevalence of anxiety and severe depression. This study did not compare with domestic students, leaving uncertainty regarding whether the effects are specific to international students or applicable to university students in general. In a study by Jamshaid et al., indicators of depression and anxiety worsened among Chinese international students after the pandemic, identifying factors such as youth and female gender as risk factors. The baseline survey period labeled as "pre-pandemic" in this study spanned from December 2019 to April 2020, potentially including periods not strictly considered pre-pandemic, such as the onset of the outbreak in China (December 2019) and the WHO's recognition of the pandemic (March 11, 2020). Razgulin et al. conducted a longitudinal study on Lithuanian international students, revealing anxiety in approximately one-third of the students and emphasizing the importance of social support. However, their baseline data collection also occurred during the COVID-19 pandemic, precluding a comparison between pre- and post-pandemic periods.

Comments 4: What is '[1]' in line 32?

Response 4: We have revised the citation styles as required.

Comments 5: The manuscript needs exact proof-reading for instance line 43.

Response 5: We have checked all of our manuscript. Thank you for pointing out the errors.

Comments 6: Is it correct: The PHQ-9 employs a 4-item Likert scale?

Response 6: We have made the correction to "4-point Likert scale"

Comments 7: Citation should be corrected throughout the manuscript exactly.

Response 7: We have revised the citation styles as required.

Comments 8: Psychometric properties of the Japanese version of PHQ-9 should be added with reference.

Response 8: Reference No. 21 pertains to literature on Psychometric Properties.

Comments 9: 'p=0' should be replaced with exact one.

Response 9: Table 3 and the p-value in the text were corrected from p=0 to p<0.001.

Comments 10: First paragraph of Results should be extremely summarized.

Response 10: I have provided a clearer summary. We believe presenting the data is necessary, and the word count has not been significantly reduced.

We conducted a comparison of demographic data between domestic and international students. International students tended to be older ($p<0.001$), predominantly female ($p<0.001$), and more likely to be graduate students ($p<0.001$). Additionally, smoking was more prevalent among international students ($p<0.001$), while regular exercise habits were more common among them ($p=0.001$). On the other hand, international students reported lower frequencies of alcohol consumption ($p<0.001$) and worse economic conditions ($p<0.001$) compared to domestic students. Before the COVID-19 outbreak, international students had a higher frequency of going out compared to domestic students ($p<0.001$), but this trend reversed after the outbreak ($p<0.001$) (Table 1). Domestic students also exhibited a significant decrease in the frequency of going out post-outbreak compared to pre-outbreak levels (median (IQR): 6(5–6) vs. 1(1-2); Z, -65.653, $p<0.001$), as did international students (6(4.76–6) vs. 1(1-2); Z, -19.498, $p<0.001$).

Comments 11: Tables format should be consistent.

Response 11: We have standardized the format of the tables.

Comments 12: Fig-1&2 should be described clearly in legend.

Response 12: We have added the following legend:

The changes in the importance of each item were visualized using network analysis. The red lines represent 2019, and the blue lines represent 2020. The higher the numerical value in the three centrality measures (moving towards the right), the greater the importance.

Comments 13: 'In terms of the total scores on the PHQ-9, prior to the pandemic, the mental health of international students was relatively good compared to domestic students.' PHQ-9 shows depression, not mental health.

Response 13: I have changed "mental health" to "depressive symptoms".

Comments 14: PHQ-9 is not a diagnostic tool. It should be pointed out as a limitation.

Response 14: We have added the following in limitation section.

The PHQ-9 serves as a screening scale for depression rather than a diagnostic tool.

Comments 15: Conclusion should be a separate section.

Response 15: We have added the conclusion section.

6 . Conclusion

Generally, the act of studying abroad can be a significant challenge for young, inexperienced individuals, but it can also serve as a first step towards enhancing global understanding, international networks, and situational intelligence, ultimately uplifting the collective wisdom and prosperity of humanity. The outbreak of COVID-19 created barriers for studying abroad, but supporting this challenge is crucial. According to the results of this study, the mental health issues faced by international students were similar to those of domestic students, but the patterns differed somewhat. Considering the greater likelihood of isolation among international students, it is believed that they require more substantial support. The insights obtained from this study are deemed valuable for supporting the mental health of international students even in the post-COVID era.

This study's findings suggest that young people studying abroad experience mental health crises similar to their domestic counterparts. Nevertheless, the patterns of these crises may differ between the two groups.