Author’s response to reviews

Title: Evaluation of a novel intervention to reduce burnout in doctors-in-training using self-care and digital wellbeing strategies: A mixed-methods pilot

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Response to reviewers:
We would like to thank the reviewers for their constructive comments on our paper.

Reviewer reports:
Saeideh Ghaffarifar, M.D, Ph.D (Reviewer 1): This invaluable study is focused on a pivotal topic (physicians' burnout). Twenty two volunteer junior doctors attended six two-hour workshops in this study. They received integrated education about the use of digital micro boundaries with more traditional stress-reduction techniques. A pre-post-test mixed-methods evaluation was undertaken to assess the acceptability and usefulness of the intervention in reducing burnout and improving wellbeing among participants. One month after the intervention, burnout was reduced and boundary control was improved based on participants' self-assessment. Trainees' feedback about the usefulness and acceptability of the workshop was positive and promising. I have listed my comments about the manuscript as below:

1- The research gap and research question(s) are better to be clearly introduced in the background section. Given the sentences on page 3, lines 28-31 that "A comprehensive systematic review and meta-analysis of interventions to prevent and reduce burnout identified that individual interventions such as mindfulness, stress management and small group discussions can reduce and prevent burnout (13)", the novelty of the intervention is not well justified neither in "Background" nor on "Methods" sections.
Response: Further clarification has been added in “Background” in the abstract.
2- I am wondering if feasibility of the intervention is assessed or not? The measures of its assessment are not announced in the current manuscript. I am also concerned about impact assessment in this study. It seems that just the usefulness of the intervention is self-assessed by the participants.
Response: The feasibility of the intervention was demonstrated by the numbers of doctors expressing an interest in attending the workshops and their subsequent attendance which is discussed in the discussion section.

3- Methods section is better to be completed in terms of different components of the intervention. Digital component of the intervention is underrepresented in the methods section.
Response: We opted for an integrative presentation of in the methods section as whole. More information about the digital component has been added in the “Methods” section.

Later in "Results" section, it is inferred from participants' quotations that they are also trained about meditation techniques, too.
Response: We changed the word “mindfulness” to “mindfulness meditation” to elucidate that mindfulness is a form of meditation as was explained in our workshop.

4- The ways to control threats to internal validity of the findings, such as history effect and maturation effect are better to be added to the methods section.
Response: The following sentence has been added to the design section in the methods: The short-term follow-up time of 1-2 months limits the threats to internal validity posed by history and maturation effects.

5- If member check is recruited in this study, it is better to be added to the methods section.
Response: No member check was performed.

6- When it comes to the time of collecting qualitative data, there is inconsistency in different parts of the text. Examples are: "Quantitative data was collected at two points: survey pre-workshop and one month post-workshop” or "Qualitative data was gathered during semi-structured telephone interviews (1-2 months post-workshop)".
Response: The time frames for data collection are correct as the first sentence refers to quantitative data and the second to qualitative component where data were not collected at the same time.

7- The "Results" is written very long. Presenting the findings from qualitative part of the study on a table may help shortening this section. Such a presentation will help better and faster digestion of the text too.
Response: The quotations have been removed from the results section and can be found in Table 2.

8- Discussion section is supported with only one reference! In includes just the interpretation of the findings. Comparing and contrasting some of the findings such as those about nonsignificant difference in wellbeing score after intervention can be added to this section.
Response: The discussion section has been revised to include further interpretation of the findings drawing on previous work.

9- The information about employing the criteria of credibility, transferability, dependability, and confirmability is better to be moved from "Strengths of the study section" to the "Methods section".

Response: This information has been moved to the Procedure part of the Methods Section.

10- The sentences in "Implications" section should mainly be the authors' own sentences. They are written based on the interpretations of the results of a conducted study. In this manuscript, most sentences of the "Implications" section are better to be moved to the "Introduction" or "Discussion" sections. Examples are: "There have been calls to measure physician wellness routinely, which has been described as a "missing quality indicator" (8)" or "There is an increasing commentary that resilience and self-care need greater attention in medical education, beginning in medical school and continuing through post-graduate training (37, 38)".

Response: We agree with the reviewer. The implications section has been removed and in line with the reviewer’s suggestions incorporated elsewhere within the text. The original first paragraph in the implications section has been moved to the introduction under the sub-title “Doctors mental wellbeing”:

Studies have generally focused on levels of stress, depression, addiction and burnout in doctors. This study measured burnout but also focused on mental wellbeing and doctors’ positive mental health. There have been calls to measure physician wellness routinely, which has been described as a “missing quality indicator” (8). There is limited research on doctors’ mental wellbeing and positive psychological functioning and understanding doctors’ psychological resources and whether these can be enhanced through interventions to provide a buffer from the stresses of training warrants attention. There is an increasing commentary that resilience and self-care need greater attention in medical education, beginning in medical school and continuing through post-graduate training (37, 38). Unfortunately, while attention to this area is growing, medical education focusing on wellbeing currently tends to be the exception as opposed to the norm (37, 39, 40), Redressing this has to be a priority.

The second paragraph in the now deleted implications section has been incorporated into the end of the discussion.

i.e., However, it should be remembered that interventions targeting the individual to increase wellbeing and reduce burnout cannot be the only solution. Such interventions focusing on the doctor alone, run the risk of placing responsibility for good mental health on the doctor themselves, while neglecting the organisational and structural context in which they are operating (25, 41). That organisational and structural factors require change is beyond doubt, but the unfortunate reality is that doctors currently practicing in the NHS will be working in a system that is under pressure (4) for the foreseeable future and organisational level change typically happens at a glacial pace, especially if it is to be sustainable (42). Both interventions that target the individual (e.g.
mindfulness) and organisational factors (e.g. work environment) are required; both of which produce similarly large improvements in burnout (13).

11- The URL for the second reference (General Medical Council. National Training Survey. 2018.) is better to be provided for readers.

Response: This has been updated to include the URL.

Angelo Dante, PhD (Reviewer 2): Thank you for the opportunity to revise this interesting manuscript aimed at describing a novel intervention to reduce burnout in medical students as well as improve their well-being.

I appreciate the mixed-methods approach since it allows to better understand the impact of the workshop intervention on student's well-being.

I think your work could be improved at reporting level following my suggestions:
Page 4. Table 1 should be moved as first section of study results: 'Participants'.

Response: Table 1 details the demographics of the participants and not the results, therefore we feel it is better placed in the ‘participants’ section of the methods than in the results.

Since you used a mixed-methods approach, you should add some details to allow readers to better understand some methodological hidden aspects. I suggest adding details about both the setting as well as participants' inclusion and exclusion criteria.

Response: The following information has been added to the methods section: To be included in the study, participants had to be in post-graduate medical training. Further details are provided about the workshops which took place in three London Hospitals: University College London Hospital, The Whittington Hospital and The Royal Free Hospital.

In addition, is not clearly stated that you used a longitudinal follow-up study design combined with a phenomenological approach.

Response: This has now been clearly stated in the methods section under ‘design’

In addition, I suggest adding details about strategies you used to avoid any possible bias (if any), especially for quantitative section of the study.

Response: There is a detailed section about the strategies to reduce bias for the qualitative section of the study in the procedures section e.g., coding transcripts independently and the use of a qualitative researcher who was independent to the study.

Finally, I suggest adding details about the phenomenological approach. For example, about interview guide (if any), non-participation (reasons), duration of interviews, data saturation, software, and participant checking.
Response: The following has been added to the methods section: A semi-structured interview guide was used. All participants were invited to participate in an interview by email, but not all responded. One declined to participate due to heavy workload. Interviews were scheduled to last approximately 30 minutes. The length of interviews ranged from 20 to 40 minutes with the average being 29 minutes. Data was analysed in NVivo 11.

Page 6, line 53. p value is 'not significant'. Why did you state a significant reduction? Please, check it.

Response: Thank you for calling our attention to the typographical error in the p-value for exhaustion is 0.049 and thus below 0.05. This has been corrected.

Since you stated values higher than 2.25 (for exhaustion) and 2.1 (disengagement) as burnout cut-off, I suggest reconsidering the pre-post workshop results. Even if there was a reduction in students' burnout level following your intervention, study results highlight the persistence of burnout (2.58 and 2.23 are higher than 2.25 and 2.1). I encourage you to consider my point of view and revise the first section of your discussion. Even if qualitative results support the beneficial effects of your intervention, quantitative data should be also considered.

Response: We appreciate the reviewers point and have amended the discussion in light of this: Whilst the results of the intervention are encouraging, burnout levels for both emotional exhaustion and disengagement remained high as classified by the Oldenburg Burnout Inventory suggesting that significant levels of burnout existed in participants post-intervention.