Author’s response to reviews

Title: Psychometric properties of the St. Elizabeth Youngstown Hospital Wellbeing Inventory and Non-Burnout Inventory for physicians and nurses

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Author’s response to reviews:

We are most appreciative of the insightful and constructive reviewer comments of our manuscript. We have made a concerted effort to carefully address the productive comments. We believe that the quality of the manuscript has been substantially improved. If we have failed to adequately address the reviewers’ commentary, we are willing to make further modifications.

Noriko Cable (Reviewer 1): Thank you for letting me to the work, examining the reliability and validity of a well-being measure. I agree that nurses and doctors are vulnerable working populations suffering from growing work demands and expectations who are prone to burnout. However, it is not very clear the need of developing a new measure, while we have plethora of measures to assess well-being, mental health, and stress level, including burnout. The main weakness is lack of sample size; it is a custom to use a large sample size more than 1000 to test validity of the measure. I understand this might be a pilot work. If so, conclusions should be made, addressed this limitation.

Background:
This was short. Authors need to critique existing literature to justify why they needed to develop their measure by highlighting weakness/limitation of the existing literature, especially the target population. If they can revise this significantly, readers are likely to understand the study aim.

Methods:
Sample size is a problem here. Authors need to justify the size. If this is a pilot, they need to state in abstract as well.
Conclusions:
Given the sample size, they may want to modify their concluding statement.

Critique existing literature to justify why they needed to develop their measure by highlighting weakness/limitation of the existing literature, especially the target population:

Our intent was to use a wellbeing measure that assessed positive and negative affect constructs in nurses and physicians working in a United States hospital. Although PANAS has been validated in several settings, we could find no evidence that PANAS has been validated in a cohort of physicians or nurses working in a United States hospital. Therefore, we did not have any compelling motivation to use the PANAS measure. We found one publication assessing a PA and NA tool in United States hospital-based nurses and the manuscript provided evidence that the tool had an acceptable Cronbach alpha and exploratory factor analysis results [Agho, 1993]. Because the manuscript did not provide confirmatory factor analysis or concurrent validity results, there was inadequate evidence that the tool was valid. Our objective was to assess wellbeing in our BIS neurofeedback study where learning sessions and wellbeing evaluations were occurring weekly for four sessions in each subject. We could find no evidence that the Maslach Burnout Inventory has been validated in physicians or nurses working in a United States hospital. Further, the item response options were a concern in relation to our study objectives. That is, the Maslach Burnout Inventory item responses include options for time periods much greater than a few days; i.e.; weekly, monthly, few times a year, and never. We also felt that a wellbeing measure with only a modest number of items would facilitate capturing more accurate subject self-appraisals, when compared to a larger set of items.

Please see manuscript lines 81-82 and 251-265.

Justification of sample size:

The initial sample size target was to obtain at least 20 surveys for each survey item (n=220). This number of surveys was provided by the BIS neurofeedback study (n=228). In order to assess correlations between our Wellbeing Inventory and PANAS, we captured Wellbeing Inventory item responses for an additional 191 subjects to yield a total of 419 surveys. We thought that the sample size was adequate, because 1) there were at least 20 surveys for each survey item; 2) the Cronbach alpha was acceptable, 3) the exploratory factor loadings were compelling; 4) confirmatory factor analysis was satisfactory; and 5) concurrent criterion validity correlations were significant. Based on these findings, we determined that this provided a reasonable appraisal of the Wellbeing Inventory. Certainly, obtaining similar psychometric properties in a larger cohort would be more compelling.

Please see manuscript lines 92-99.

We have added statements regarding sample size to the following:
• conclusion of abstract (lines 49 and 50)
• study limitations (lines 305 and 306)
• conclusion of text (lines 312 and 313)
Valerio Capraro (Reviewer 2): This study examines the reliability and construct validity of a new scale devoted to measure wellbeing among physicians and nurses.

This work seems well executed and potentially interesting. The main shortcoming, in my opinion, regards the presentation, which I think can be improved.

The Introduction, as it stands now, immediately introduces numerous acronyms, whose effect is to make the reading extremely hard and uninteresting. The same limitation applies to the other sections. Clearly, it is normal that the Methods and the Results section are somewhat more technical sections. However, I think that the authors should consider doing some serious rewriting, at least in the Introduction and the Conclusion section, in order to make their work more readable and therefore maximise the impact of a paper that has certainly potential.

Major reductions in acronym use:

Although some acronyms continue to be used in the manuscript, we have markedly reduce the frequency of their use. Below is a summary of the deletion and revision process:

<table>
<thead>
<tr>
<th>Previous Abbreviations</th>
<th>Revised Wording</th>
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<tbody>
<tr>
<td>NFB</td>
<td>neurofeedback</td>
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<td>WBI</td>
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