Author’s response to reviews

Title: Searching for the optimal number of response alternatives for the distress scale of the Four Dimensional Symptom Questionnaire

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Author’s response to reviews:

Second response to reviewers BMC “Searching for the optimal …”

In the first place, I want to apologize for not responding to the reviewer’s concern before. Honestly, I completely overlooked this comment until the omission was pointed out by Mr. Imai.

Reviewer comment:

Is about the discriminant validity, in the response, authors said that to asses discriminant validity the choice measure to evaluate this validity (in this case neuroticism) should be a construct related with the objective construct (distress) but to a lesser degree than the measures uses to asses convergent validity. Indeed in the Measures, measurements, and types of scales scores section you explain that neuroticism should have lower correlations with distress to asses better discriminant validity. However, in the results section both, GHQ (that is used as convergent validity measure) and Neuroticism show both high correlations coefficients and high significance in this correlations (p < 0.1), and authors interpret the high GHQ correlations as a measure of convergent validity, but also, the high neuroticism as a measure of divergent validity. Then, my problem is in the interpretation of this as divergent validity, I think that your results here show neuroticism convergent with the distress scale. Then, you have two options, step back and
explain neuroticism as a convergent validity measure (I provide a reference in the last review that can explain that theoretically; Ploubidis & Frangou, 2011), or preferably, explain that you fail in obtain the discriminant validity with neuroticism and that relationship show this scale as convergent with distress, in discussion and results. Finally, revise the Table 3, you put Neuroticisme instead of Neuroticism.

Our reply:

We compare two possible scoring rules for the distress scale of the 4DSQ in our article. For the measures of convergent validity (GHQ & MHQ), a higher correlation coefficient is desirable and thus indicates the better scoring rule. For the measure of discriminant validity, a lower correlation coefficient is indicative of the better scoring rule. Strictly speaking, our study is not about the sizes of individual correlation coefficients, but about differences between these coefficients computed from two possible scoring rules (0-2 versus 0-4) for the distress scale of the 4DSQ. The results can be found in Table 3 in the results section, which is also displayed for convenience below:

<table>
<thead>
<tr>
<th>MQ</th>
<th>GHQ</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distress 0-2</td>
<td>-.642**</td>
<td>.536** .543**</td>
</tr>
<tr>
<td>Distress 0-4</td>
<td>-.662**</td>
<td>.555** .550**</td>
</tr>
</tbody>
</table>

Following, we state that “As shown in Table 3, both scoring rules yield approximately the same correlation coefficients with other nonspecific indicators of mental health. In addition, both scoring rules are equally strongly related to the construct of Neuroticism. Thus, the indicators of convergent validity were slightly in favor of the 0-4 scoring rule, and with respect to discriminant validity, both scoring options performed equally well.”

We think that the reviewer is trying to draw our attention to the fact that our criterion for assessing discriminant validity (Neuroticism) correlates approximately as high with the construct of interest (distress) than the second indicator of convergent validity (GHQ). We expected lower correlations of both scoring rules with Neuroticism; approximately in the range of .30 to .45, and we have to admit that this finding thus questions the choice we made in the Methods section (that is to use Neuroticism as a criterion for assessing discriminant validity). We acknowledge that
this is something that should be mentioned in the Discussion section, so, we decided to add the following sentences to the Strengths and limitations paragraph in the Discussion section:

“We also want to acknowledge that our choice for the Neuroticism scale of the NEO-FFI as an indicator of discriminant validity is disputable from a theoretical point of view (Ploubidis & Frangou, 2011). Even more because the correlation coefficients of both scoring rules with Neuroticism were approximately as high as the correlation coefficients of both scoring rules with the second indicator of convergent validity (the GHQ).”

In addition, we are grateful for the reviewer for indicating that we used the Dutch term Neuroticisme instead of Neuroticism in the first row of Table 3.