Author's response to reviews

Title: Self-rated Health of Primary Care House Officers and its Relationship to Psychological and Spiritual Well-being

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Author's response to reviews: see over
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Dr. Lolu da-Silva
Assistant Editor, BMC-series journals

Dear Dr. da-Silva:

We appreciate the opportunity to resubmit our manuscript (#1634273328116992), “Self-rated Health of Physicians in Training,” for consideration for publication in *BMC Medical Education*. In response to the reviewer’s comments, we have changed the title to “Self-rated Health of Primary Care House Officers and its Relationship to Psychological and Spiritual Well-being.”

In the following pages, we outline our response to each comment.

**Editor’s Comments**

1. The editor noted that Dr. Puchalski is founder and Director of the George Washington Institute of Spirituality and Health and that we should declare this affiliation as a competing interest.

   - As suggested, we have changed the text to declare Dr. Puchalski’s affiliation as a competing interest on page 12, paragraph 1 under “Competing Interests.”

2. “Please change "Residents" to "Residents’ " in the first line of the Conclusions paragraph.”

   - We have changed the word to “Residents’ on the first line of the conclusions paragraph in the abstract on page 2.

**Reviewer #1**

1. The reviewer advised “the study could be improved if the authors clearly hypothesized a link between spirituality and health in the introduction (see comment #6 below).”

   - We have clarified the hypothesized salutary effects of religion/spirituality on health outcomes and have cited the paper mentioned by the reviewer on page 4, paragraph 1, sentence 5 and page 3, last sentence to page 4, sentence 1.

2. The reviewer recommended that the title reflect the principal issues and findings.
Accordingly, we have changed the title to “Self-rated Health of Primary Care House Officers and its Relationship to Psychological and Spiritual Well-being.”

3. Due to the relatively skewed distribution of the health rating scores, the reviewer asked for an analysis using log transformed scores.

- We tested our final model using log transformed health ratings (Table below). Our final statistical relationships between the outcome and independent variables remained very similar. We note this in the text on page 7 paragraph 3, sentences 3 and 4.

<table>
<thead>
<tr>
<th>Significant Independent Variables</th>
<th>Parameter Estimate</th>
<th>P value</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined internal medicine-pediatrics</td>
<td>0.035</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>0.026</td>
<td>&lt;0.01</td>
<td>0.13</td>
</tr>
<tr>
<td>CESD-10</td>
<td>-0.002</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>FACIT-SpEx</td>
<td>0.001</td>
<td>0.03</td>
<td></td>
</tr>
</tbody>
</table>

4. The reviewer was concerned about using both the depression scale (CESD-10) and the spirituality scale (FACIT-SpEx) due to potential collinearity – the level of depressive symptoms may correlate inversely with level of spiritual well-being. As such, the reviewer requested forced entry analyses to confirm an independent effect of spiritual well being.

- Thank you for this important comment. We posited that collinearity may be a potential problem a priori because we were using a number of psychological variables that measure distinct but potentially overlapping domains. We ran collinearity regression diagnostics on our final model (Table 3 in the paper) and found no problems (maximum variance inflation factor of 1.35; minimum tolerance of 0.74), as we clarify on page 7, paragraph 3, sentence 5. Additionally, we performed the forced entry analyses recommended by the reviewer (table below), which showed that the addition of the CESD-10 variable into the final model produced a small but statistically significant change in the R².
5. The reviewer recommended that we consider adding age and gender into the model.

- As recommended, we forced age and sex into the model (table below) and found that those variables were not associated with health rating scores whereas the other variables continued to be significantly associated with scores. Therefore, we did not include age and sex in the final model.

### Multivariable Correlates with Health Rating Scores

<table>
<thead>
<tr>
<th>Significant Independent Variables</th>
<th>Parameter</th>
<th>P value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.1</td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.1</td>
<td>0.92</td>
<td></td>
</tr>
<tr>
<td>Combined internal medicine-pediatrics</td>
<td>5.9</td>
<td>&lt;0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>4.4</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>CESD-10</td>
<td>-0.34</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>FACIT-SpEx</td>
<td>0.14</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

6. The reviewer advised that “there is one important prospective study (More et al., The Johns Hopkins' Precursors Study, Am J Med 1990:88; 332–36) that found a lack of religious affiliation in medical school as a risk factor for poor health (alcohol abuse) many years later.”

- Thank you for this important reference. We have added the Moore reference as reference #26. Also please note our response to reviewer comment #1.
7. The reviewer suggested that “the internal medicine residents (n = 62), with the lowest level of mean health rating (and widest SD) should be analyzed post hoc for associations between RCOPE and self-rated health.”

- As per the reviewer’s recommendations, we ran those analyses (table below) and found no significant associations between the RCOPE and self-rated health in internal medicine residents.

<table>
<thead>
<tr>
<th>RCOPE Scale</th>
<th>Correlation with Internal Medicine Residents’ Health Rating Scores (Spearman correlation coefficients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive religious coping</td>
<td>-0.05 (p=0.72)</td>
</tr>
<tr>
<td>Negative religious coping</td>
<td>-0.10 (p=0.46)</td>
</tr>
<tr>
<td>Religious discontent</td>
<td>-0.10 (p=0.45)</td>
</tr>
<tr>
<td>Spiritual support seeking</td>
<td>0.05 (p=0.69)</td>
</tr>
<tr>
<td>Religious support seeking</td>
<td>0.08 (p=0.56)</td>
</tr>
</tbody>
</table>

8. The reviewer recommended that “the self-rated health scale should be described more accurately; for instance, as in your reference number 41: anchors at 0 ("death or worst possible health") and 100 (“perfect or best possible health”)."

- Thank you for this comment about the health rating measure description. Our descriptors of the anchors in this specific study were “death” at 0 and “perfect health” at 100. We have revised the scale description as recommended by the reviewer on page 5, paragraph 2, sentence 1.

9. The reviewer recommended referencing 2 papers (Mrus et al., Kind et al.) after the description of the health rating scale and the general health question.

- We have added the recommended citations on page 5, paragraph 2, sentences 1 and 2.

10. The reviewer recommended that we emphasize the cross-sectional design as a limitation.

- We have made the recommended change on page 11, paragraph 2, sentence 2.
11. The reviewer recommended that we imbed the range of possible values into Table 2.
   ▪ We have made the recommended change to **Table 2**.

12. The reviewer recommended that we ensure that the shading tones in Figure 2 are discernible.
   ▪ We have made changes to Figure 2 in order to make the grey tones more discernible.

We greatly appreciated your and the reviewer's detailed and thoughtful comments. As a result of the changes, we believe the paper is greatly improved, and we hope it is now suitable for publication.

Thank you for your time and consideration.

Sincerely,

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