Author's response to reviews

**Title:** Development and Preliminary Psychometric Properties of a Well-Being Index for Medical Students

**Authors:**

Liselotte N Dyrbye (dyrbye.liselotte@mayo.edu)
Daniel W Szydlo (szydlo.daniel@mayo.edu)
Steven M Downing (sdowning@uic.edu)
Jeff A Sloan (jsloan@mayo.edu)
Tait D Shanafelt (shanafelt.tait@mayo.edu)

**Version:** 3  **Date:** 13 November 2009

**Author's response to reviews:** see over
November 12, 2009

Liselotte N. Dyrbye, MD
Division of Primary Care Internal Medicine
Mayo Clinic College of Medicine
200 First Street SW
Rochester, MN 55905

E-mail: dyrbye.liselotte@mayo.edu

Dr. Melissa Norton, Editor-in-Chief
BMC Medical Education

**Re: Development and Preliminary Psychometric Properties of a Well-Being Index for Medical Students by Dyrbye, Szydlo, Downing, Sloan, and Shanafelt**

**MS 1643351102671180**

Dear Dr. Norton,

Thank you for reconsidering our revised manuscript. We appreciate the reviewer’s comments and we have responded to the suggestions as detailed in the response.

We believe the revisions have strengthened our manuscript and resubmit it for your review. If you need any additional information please do not hesitate to contact me.

Thank you very much for your consideration.

Sincerely yours,

Lotte Dyrbye, M.D.
Mayo Clinic College of Medicine

**Referee**

This paper provides a very well written report using rigor procedures to develop a new instrument to measure medical students’ well-being. A great improvement is shown in this revision.

Reply: We thank the reviewer for this comment.

1. In the method section, before going into the details of stages of the study, it will be helpful to briefly describe the overall design
Response: We have added a summary of the methods to the beginning of the method section on p. 5.

2. Please give references for the nominal group technique (p.5)

Response: A reference has been provided.

3. On p. 7, the paragraph describing the selection of the items from the Maslach Burnout Inventory is unclear (the findings were presented on p. 12). What were correlated? Were the individual item score of the Maslach Burnout Inventory each correlated with the total score and the 2 subscale scores of the Maslach Burnout Inventory? Please clarify.

Response: Individual item scores were correlated with burnout (defined as a dichotomous variable using standard thresholds) and with the emotional exhaustion and depersonalization subscale score (used as a continuous variable). We have clarified the methods on p.7.

4. On p.12, the authors concluded “group members endorsed the three-dimensional construct – emotional exhaustion, depersonalization, and low personal accomplishment- of burnout”… No further discussion on ‘low personal accomplishment.” Also, “low personal accomplishment” is not included in figure 1. Please clarify.

Response: As stated on p.12, medical professionals are considered to have burnout if they have high emotional exhaustion or high depersonalization. Therefore it was decided by the group to limit the domains of burnout to emotional exhaustion and depersonalization. We have added clarified our sentence on p. 12.

5. Authors reported that the Cronbach’s alpha is -.68 for MSWBI. Since all response options of MSWBI are a ‘yes/no’ option, the Kuder-Richardson formulas (KR20), for dichotomous responses, will be a more legitimate approach to estimate internal consistency of the scale. Internal consistency is concerned with the degree to which a set of items designed to measure the same construct are correlated with each other, which is not intended to support ‘the multi-dimensional construct of the instrument’ as described on p. 15.

Response: When the data are dichotomous Cronbach’s alpha and the KR20 are exactly the same. We have removed the reference to multi-dimensionality.

6. Please provide the rationale for using ‘item by item percent pair-wise agreements’ (p.17) instead of inter-item correlations to examine item redundancy. Please provide references for this methodology.
Response: As we have dichotomous data using percent agreement is a reasonable approach to examine redundancy. We have added a reference for this methodology (p.10). In addition we have calculated the phi coefficient, which is a measure of the degree of association between two binary variables. This measure is similar to the correlation coefficient in its interpretation but is more reasonable to use a measure of association as it allows for binary data. Results of the phi calculation are presented on p. 15.