Reviewer's report

Title: Burnout among medical professors; a nationwide survey

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Reviewer: Colin West

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The paper by Tijdink and colleagues evaluates burnout among full professors in the Netherlands. As a relatively understudied group, the results are interesting. However, there are a number of important limitations of the data that should be further addressed before the validity of the results can be considered sufficient.

Major Compulsory Revisions

1. Abstract: The authors assert that emotional exhaustion is the key component of job-related burnout. However, this statement is controversial, and when raised in the Introduction and Results there appears to be no supporting reference. There have been many definitions of burnout applied in the literature, even among studies using the MBI, but considering emotional exhaustion alone seems unusual. Better literature support for this approach is needed. Alternatively, the paper should limit its evaluation to the emotional exhaustion domain of burnout, not burnout globally, or another definition of burnout (such one or both of high levels of EE and DP) should be applied.

2. Results: Given the fairly low response rate of 36.2%, some reassurance regarding the representativeness of the sample would be helpful. For example, is the sex distribution or distribution of other demographic factors known for the target population of Netherlands full professors? If so, this information could be used to support or refute claims of representativeness. If this information cannot be obtained, this is a significant limitation.

3. Results: Another limitation of this study is that many possible contributors to burnout have not been included (e.g., weekly work hours, work-home conflicts, etc.). This is understandable, as no single survey study can include all possible factors, but deserves mention as a limitation and should also serve to soften any conclusions concerning the observed associations.

4. Results: To more fully evaluate the independent roles of factors such as H-index, why not include H-index, demographics, engagement, etc. in the same multivariate models? In addition, presenting the parameter estimates, actual p values, and confidence intervals consistently would be more informative than univariate correlations.

5. Discussion: Could the finding of lower burnout in those more advanced in their careers be a form of survivor bias, such that those who are burned out early in their careers never make it to more senior positions?
Minor Essential Revisions

6. Abstract: the “formal definition of burnout” should be explicitly stated in the abstract.

7. Abstract: the conclusion statements suggest causality, and should be softened as this cross-sectional study cannot support causal conclusions well.

8. Background: Burnout symptoms have seldom been evaluated by academic rank, but this factor has been assessed in some papers. Two examples are Shanafelt et al, Ann Surg, 2009:463-71 and Dyrbye et al, Arch Surg 2011;211-7. In the Shanafelt paper, for example, full professors had greater satisfaction but no difference in burnout relative to those at lesser academic ranks.

9. Methods: I suggest that the cut-off scores applied to the burnout domain s be specified in the Methods rather than the Results.

10. References: For a number of references, there are non-capitalized first letters or other minor typographical errors.

11. Figure 1: The scale in Panel B could be seen as misleading, as it is greatly magnified. I would at least add a discontinuity mark to take the score down to 0.

Discretionary Revisions

12. Results: “by heart” is probably too colloquial. I also think the authors mean “moderately strongly and negatively correlated”.

13. Discussion: The increased risk of burnout in the early career years would be more clearly shown using the dichotomous burnout classification to supplement the raw EE scores, as the raw EE scores can be difficult to interpret.

14. Discussion: The authors note high burnout rates in references 5 and 7 but not reference 6. I have not gone back to that paper, but my recollection is that paper found a very low rate of burnout, in large part because they required high scores in all 3 domains of the MBI. If the authors’ (or more typical) definitions of burnout were used, these rates would have been comparably high, I believe.

15. Tables: Presenting the distribution of H-indexes would be informative.

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests.