Reviewer's report

Title: Student centered curricular elements are associated with healthier educational environment and lower depressive symptoms in medical students

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Reviewer: Thomas Schwenk

Reviewer's report:

This manuscript describes an innovative study of the relationship of the educational environment of a medical school to the prevalence of depressive symptoms in medical students. The authors are correct that this is possibly the most focused study of the relationship of these two variables that has been conducted to date. It has promise but there are several significant weaknesses and deficiencies that need to be corrected.

1. The authors need to be more clear about the distinction between depressive symptoms as measured by a questionnaire and a diagnosis of depression. The BDI measures only the former.

2. Similarly, they need to distinguish between depressive symptoms, stress and burnout that may be related to educational stress, from depression as a clinical diagnosis that occurs in medical students as it does in anyone, and has nothing to do with educational stress.

3. For those not familiar with the DREEM Inventory, there should be a brief description of the 5 subscales and the domains they measure.

4. There appears to be a near doubling of the class from 2007/08 and 2010/11 and a major change in gender mix. These changes need comment, especially in light of the gender-specific results.

5. The authors note that the purpose of the study was revealed in the cover letter and invitation to participate. This has the potential of introducing serious contamination by telling students that educational environment might be linked to stress and depressive symptoms.

6. There needs to be more description of the two curricula with regard to grading systems. Prior studies have shown more association between grading systems (grades vs. pass-fail) than other aspects of the environment.

7. Using means as a method of comparison is not appropriate for measures that are not normally distributed, as these are not.

8. A 3-point difference in BDI-II mean may be statistically significant but is not a minimal clinically important difference. A difference of at least 5 points is the minimum difference of importance and some studies suggest 10 points to be truly important.

9. The authors show 458 students participating from the traditional curriculum, but BDI results for only 294 are shown in Table 4. What happened to the others?
10. The most fundamental weakness of the analysis is that the authors missed the key finding that BDI score changed only for female students from traditional to system-based, not for male students. This is actually the most interesting part of the entire study. What is there about female students who are more affected by a change in EE than are male students? The only reason there is a change in BDI-II score between curricula is because of the change in women.

**Level of interest:** An article whose findings are important to those with closely related research interests

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

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'