Author's response to reviews

Title: Undergraduate Educational Environment, Perceived Preparedness for Postgraduate Clinical Training, and Pass Rate on the National Medical Licensure Examination in Japan

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Author's response to reviews: see over
Responses to reviewers’ comments

Dear Reviewers,

Thank you very much for review of our manuscript. We would like to submit the revised version of the manuscript with responses to the comments. We have highlighted the revised or inserted text by using blue-coloring in this revised manuscript.

**Reviewer: DR Sue Roff**

A very interesting article/study.
In order to refine the findings a little more precisely I recommend the following MINOR ESSENTIAL REVISIONS:
1) in abstract the last line should read 'self-assessed preparedness for practice'

**Response:** We have revised the sentence.

2) In section Survey Contents I can't see why the first footnote 6 is there. There should be a footnote to the next line, the Japanese translation (Medical Teacher). Again I can't see why the reference 6 is there the second time.

**Response:** We have revised the sentences and placed appropriate footnotes.

3) In Discussion section, first line should read 'only 17% of our responding newly graduated physicians...'

**Response:** We have revised the sentence.

4) later in Discussion it should read: 'with statistically significant positive correlations between self-assessed preparedness for all clinical areas and a better perception of educational environment...'

**Response:** We have revised the sentence.

5) I can't see that the reference 8/Wass is relevant to the sentence it is attached
to re Model Core Curriculum/Japan.

**Response:** We have deleted the reference.

6) Reference 17 needs the chapter title etc.

**Response:** We have revised the reference.

7) Table I would be enhanced by having the number of respondents from each medical school so that it is clear that these are not DREEM scores for full samples from each school.

**Response:** We have revised the table.

**Reviewer: DR Edward Krupat**

The manuscript by Tokuda et al is a potentially important piece of work, as it contains the results of a survey of all PGY-1’s in an entire country. The authors are to be commended for this coordinated effort, however an effort of this magnitude requires that the paper based on it is also substantial. Having said this, although I found the paper generally well-written, there are many areas in which I believe that it needs improvement, clarification, and expansion. Let me outline these:

- Two of the key themes the authors come back to throughout the paper are “learning environment” and “engagement,” yet I think that the authors need to expand on what is meant by these, especially the first. Learning environments can be defined and can vary on so many dimensions that the authors need to tell us more about what makes a learning environment “good” or “poor;” and how or why the learning environment should be associated with the other outcomes they measured. In essence, the authors seem to have an implicit model of how all these variables fit together, and I would think that it would serve the paper well for them to explain just how and why the variables they have measured should or might fit together.

**Response:** We have added the sentences discussing the learning environment
into the introduction (Background) section.

- I am not personally familiar with the DREEM, but the authors note that it has 5 domains and therefore I would assume that it generates sub-scores on these domains as well as a total score. If it does and the scores are not too highly inter-correlated (if they are we should be told so), then I would expect that the analyses would consider these domains to inform us about whether specific aspects/domains of the learning environment were associated with the variables measured.

**Response:** We have added the sentence indicating that the five subscales of the DREEM were highly inter-correlated and shown it in Table 2. A Spearman correlation analysis of the relationships between each of all five DREEM subscales for medical schools and the proportions of participants with confidence in preparedness also indicated significant relationships (all p<0.05) in all six clinical areas. Thus, we have added this point into the results section.

- Toward the end of the paper (in the limitations) the authors note that there is an extremely important difference between preparedness for clinical training and PERCEIVED preparedness. Yet up to that point, virtually throughout the whole paper, the authors fail to insert “perceived” before preparedness, and they sometimes write as if actual preparedness is what they were dealing with. This care in language is important in avoiding the mistaken conclusion that it is the students’ actual preparedness that they have measured. By the way, is there reason to believe that actual and perceived preparedness are related--there is literature on the accuracy of self-perceptions, most notably done by the psychologist David Dunning (see in particular his paper on this comparing people in collectivist vs individualist cultures in the Journal of Personality and Social Psychology, 2008;95:1252-67).

**Response:** Thank you very much for introducing the excellent work by Dr David Dunning and we have learned much from it. We have added the word “perceived” into these sentences for indicating this point, and have referenced Dr. Dunning’s work.

- In the limitations, the authors also warn us about drawing causal conclusions
based on the association between variables. Yet I believe that they use language that implies causality in several places. For instance, in the last sentence of their Intro their language not only implies cause and effect, but also (as noted above) confuses actual with perceived preparedness in noting that a lack of association between (perceived) preparedness and NMLE scores would suggest the need to re-think the exam. It would seem as if the value of the exam could be judged according to many other criteria, and that I would be far more likely to question why students’ perceptions were not predictive of the scores before I questioned the validity of the exam, nor would I expect that changing the exam would increase the relationship (because it is not necessarily a causal relationship).

**Response:** We agree with the comments and have added the sentences indicating this point.

- A high survey response rate is always difficult to get, so I sympathize with the authors, but an overall rate of 36% is fairly low. However, here the authors could tell us more. I would like to know: what was the range of response rates across schools; what percentage of the PGY-1 population was male and female, and what percent of the respondents were males and female. If told this, we could at least determine if the respondents were demographically similar to the larger population (at least in gender, although they may have other information on the population of PGY-1’s which could be compared to determine if the sample of respondents was representative of the total population of PGY-1’s).

**Response:** As mentioned in the methods section, we have conducted a cross-sectional survey for 6725 1st-year resident physicians at 427 teaching hospitals with five or more 1st-year resident physicians. Thus, we did not obtained data from teaching hospitals with four or less 1st-year resident physicians and we do not know the range of response rates across schools and gender ratio in all PGY-1 population. Japanese Ministry of Health, Welfare and Labor does not open data related to individual residents. Based on data about 46,800 medical students in 2006, 33% were women (Kozu T: Medical education in Japan. Acad Med 2006, 81(12):1069-1075). So our sample (38% were women) seemed not much different from the total population).

- In the discussion, the authors note that the level of self-reported preparedness
was lower in Japan than in the US. I do not know the extent to which this can be accounted for by differences in the way that various cultures express modesty in their opinions of self, but if the authors are to make cross-cultural comparisons, which I believe is a good idea, they should also cite literature or at least speculate whether these are likely “real” differences in preparedness and perceptions of preparedness, or simply the result of different cultural norms about expressions of self-confidence or mastery.

**Response:** We have added the sentences indicating this point into the first paragraph in the discussion section.

- The authors note many times that the medical schools in Japan vary greatly in the extent to which they have adopted the Model Core Curriculum. If this is the case, then at the least the authors ought to find some way of characterizing the medical schools (based on the opinions of the school deans? based on a review of their curricula? based on the opinion of respected third parties?) This would allow them to determine the extent to which perceived preparedness, DREEM scores, and pass rates are associated with adoption and implementation of the new model, which could become a key finding that would pull all the results together.


- Since it appears that the national pass rate is around 90% or more, the value of this outcome is limited for analysis purposes (if there is little variability in a measure, then associations between it and other variables will be small and/or of limited use). However, I am certain that students get an actual score, which is a continuous variable that undoubtedly has a good deal of range. Therefore, I would strongly advise the authors to re-analyze using actual scores rather than Pass-Fail, which might make their results look greatly different. In short, this
The project is a notable one, and its findings very much deserve to be published. However, I believe that the authors need to do a considerable job of re-writing and possibly some re-analysis, after which I believe it could be a paper with considerable impact.

**Response:** Thank you for your thoughtful advice. Since the Japanese Ministry of Health, Welfare and Labor does not open data related to individual examinees, we are unable to analyze the data as suggested.

**Reviewer: DR Phillip Cotton**

Reviewer’s report:
1. Is the question posed well defined?
   This is not a question as such. It doesn’t matter. This is a very timely piece for medical education in the UK. The GMC are proposing the introduction of preparation for practice modules with student assistantships. *See 7 below.

   **Response:** Thanks.

2. Are methods appropriate and well described?
   Methods are appropriate. This was a very large study involving 80 medical schools. The coverage is impressive. The method is well described. The use of DREEM is similarly described. The arrangements for ethics could be described a little more – was St Luke’s a national ethics committee?

   **Response:** The committee is in the institution affiliated to the chief investigator at the time of study. There are no national ethics committees for conducting clinical research in Japan.

3. Are data sound? As far as the reader can tell. Some data comes from national databanks such as the NMLE results.
4. Does manuscript adhere to relevant standards? Yes.
5. Are conclusions well balanced and supported by data? Yes. These do not go beyond the data. Again this is highly relevant as we discuss funding streams for facilities in NHS institutions to support teaching.
6. Are limitations clearly stated? Yes. It is legitimate to deal with respondents perceptions of preparedness and I wouldn’t regard this as a limitation particularly. It is interesting that the authors suggest that final exams are an objective measure of preparedness. Is there a substantial difference between medical schools - are they all governed by the same agency?

**Response:** In Japan, medical schools are all governed by Ministry of Education, Culture, Sports, Science and Technology, but the NLME is administered by Ministry of Health, Welfare, and Labor.

7. Do authors acknowledge work they are building on or supporting?
*There is a GMC report that is highly relevant titled: ‘How prepared are medical graduates to begin practice?’ This will justify the study and set a UK context. The GMC’s ‘Tomorrow’s Doctors 3’ is another source that could be quoted to create relevance for a UK audience. These should be included. 'A recent study' in para 2 of the introduction is 2003 - what is recent?

**Response:** We have deleted the word ‘recent’. We have also added these two references, accordingly.

8. Do title and abstract convey what is found? Yes.
9. Is writing acceptable? Very few typos. First sentence of last paragraph needs re-working.

**Response:** We have revised the sentences.

**Reviewer: DR Yasuyuki Suzuki**

Reviewer's report:
Major Compulsory Revisions:
The essence of this article is the presence of correlation between preparedness of graduates and the learning environment during medical schools, however, it is inappropriate to show the name of medical schools on the table and in the text, since such individual data is not necessary for general readers, and the ranking is not fair. As the previous papers showed (Goldacre et al. BMJ 2003, Cave et al.)
BMC Med Educ 2007), anonymous numbering should be adopted. Table 1 is too large and difficult to read out the important message. Figures on the statistical analyses would be better.

**Response:** We have made the name of medical schools anonymous on the table and in the text. We have also inserted Figures showing our results.

**Minor Essential Revisions:**
Reference 8 is not a paper on the Model Core Curriculum, but an editorial on a national licensing exam in the UK. Explanation on the Model Core Curriculum and an adequate reference is necessary.

**Response:** We have replaced the reference 8 by new references and have also added an explanation of the Model Core Curriculum.

How about the correlation between personal DREEM score of respondents and their confidence rating? It might be interesting if students with higher confidence perceive their learning environment more positive.

**Response:** A Spearman correlation analysis of the relationships between DREEM scores of respondents and confidence in preparedness indicated significant relationships in all six clinical areas, with positive coefficients of 0.425 for general clinical skills, 0.377 for basic knowledge of diagnosis and management of common conditions, 0.452 for communication skills, 0.402 for skills for applying evidence-based medicine to clinical care, 0.522 for professionalism, and 0.568 for basic skills for physical examination. However, all these coefficients were smaller than correlation coefficients between mean DREEM scores for medical schools and the proportions of participants with confidence in preparedness.

Finally we appreciate the valuable comments by the reviewers and thus we have added to the Acknowledgements section wording to thank the reviewers.

Sincerely,

Corresponding author
Yasuharu Tokuda, MD, MPH