Reviewer’s report

Title: GAMSAT: A 10-year retrospective analysis

Version: 2 Date: 11 November 2014

Reviewer: Miles R Bore

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Major Compulsory Revisions

1) The aim stated (line 30) is to review the performance of GAMSAT over the last 10 years. But only the 2014 data is reported. There is commentary given on some aspects of performance of the past ten years, but no table of comparisons of means (for example) over the ten year period. The only reference to the past 10 years in the Results section is in lines 170-173. Reference to data over that last ten years is made at a number of points in the Discussion e.g., line 246-248. Should this not be included in the Results section?

2) The Results point to some apparent biases in test performance (e.g., males seem to have a significant advantage in Section 3). While this is noted in the Discussion, would it be also worthwhile considering the implications of this for the selection of medical students?

Minor Essential Revisions

3) In line 35 the variables to be reported on are referred to as “outcome variables”. This implies a validity study with the variables of interest predicting variables of outcomes. This is not the case here. Could they be referred to as selection variables?

4) Line 96 states “All items undergo review to ensure they are fair, valid and reliable.” The use of the word ‘valid’ this way is a bit misleading. The psychometric concept of validity is the accumulation of evidence that you are measuring what you think you are measuring (in which case, if found, you have a greater probability of predicting future behaviour). I think here the meaning is that the items are reviewed for face validity, which is quite a different thing.

Discretionary Revisions

5) Line 114: could an explanation be given as to why Section three is given twice the weighting of Section 1 and 2?

6) In the Discussion, starting at Line 228, an analysis of individual items is described. Would this be better placed in the Results section?

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

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I am one of the authors of the Personal Qualities Assessment (PQA) tests which are used by a small number of medical schools in the selection of medical students and associated research. Where the PQA tests are used commercially I receive a royalty payment.