Reviewer's report

Title: The value of the UK Clinical Aptitude Test in predicting pre-clinical performance: a prospective cohort study at Nottingham Medical School

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Reviewer: Donald A Barr

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1) This manuscript provides valuable, though preliminary, data on the association between a student’s scores on the UKCAT and the student’s performance in the core subjects studied in the first two years of the medical curriculum. In doing so, the authors begin to address the question of whether an instrument such as the UKCAT, intended to assess cognitive ability rather than acquired knowledge. As traditional school-leaving exams such as A levels assess primarily the latter, and as such are subject to socio-economic bias, the intent in developing the UKCAT was to avoid such bias while also assessing an applicant’s qualifications for entry into the medical curriculum.

2) The methodology of the paper is quite sound. While the relatively small sample size (n=195) makes the assessment of multiple correlations somewhat problematic, the authors have allowed for this in their discussion of the outcomes. The principal outcome seems to be that “the UKCAT has very limited predictive value for performance over the first two years of preclinical study at Nottingham.” (p. 12)

3) As the authors suggest, the ultimate test of the added value of the UKCAT will be when the authors are able to compare performance on the UKCAT with ultimate quality of a student’s professional performance as a physician. After all, this is the ultimate outcome we as medical educators are hoping to attain. Here it should be noted that this issue has come up in the U.S. How do the outcomes of the Medical College Admissions Test (MCAT) predict performance in medical training? Two studies (Veloski et al. Academic Medicine. 2000; 75(Supplement): S28-S30; Donnon et al. Academic Medicine. 2007; 82:100-6.) have shown that, while the MCAT scores for scientific knowledge are associated with performance in the first two years of medical school, only the MCAT assessment of Verbal Reasoning (a less knowledge-based, more cognitive-based scale) has a consistently strong association with tests of professional ability at the completion of training. I would expect the UKCAT to show similar associations, however, as the authors suggest, this will take several years to evaluate. I would hope that other medical schools might join in this assessment, thereby increasing the sample size.

4) I have a concern about data reported on p. 10 of the manuscript. The authors report that five students left the course, and an additional four were unable to complete the course in the normal two-year period. These students were
dropped from the study group. I would like the authors to report the UKCAT scores of these students, to determine if they might be outliers. If so, they might raise the following question: Is an unusually low UKCAT score associated with an increased likelihood of failing to complete the first two years of training? In the history of the development of the MCAT in the U.S., the MCAT’s initial purpose was to predict, based on extremely low test scores, which students were at an increased risk of failing to complete the early years of training. (See for example Moss FA. Journal of the Association of American Medical Colleges. 1930; 5:90-110.)

5) There is one final point I would like the authors to comment on. Table 3 shows the correlation matrix for scores in the first and second year of the principal themes within the curriculum. The first two seem to assess scientific knowledge (the Cell, the Person) while the latter three seem to assess behavioral and social science elements. I note the correlations coefficients for Themes A and B are quite a bit higher than those for Themes C, D, and the OSCE. I would like the authors to suggest what the source of this difference might be, and to suggest what implications the difference might have in attempts to assess scientific knowledge vs. one’s understanding of the social and behavioral aspects of medical care.

**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 will receive royalties from Johns Hopkins University Press for a book I have written on the topic of premedical education. The book, published in March 2010, discusses some of the same issues raised in this manuscript.

Other than this, I declare that I have no competing interests.