Reviewer's report

Title: Construct-level predictive validity of educational attainment and intellectual aptitude tests in medical student selection: Meta-regression of six UK longitudinal studies

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Reviewer: Trudie T Roberts

Reviewer's report:

General comments
An interesting if somewhat dense paper by a group, some of whom have published in this area before. However as the authors stresses at the outset previous studies are hampered by outcome correlations which only look at individuals who have been selected and not the whole pool. Although as the authors state longitudinal studies are rare in this area the fact that medical curricula have undergone major changes during the time periods of this study muddies the water somewhat. Many medical schools now will not recognise the term basic medical science used to describe an area of the course as integration of underpinning science (basic or otherwise) with clinical medicine and pathology has become much more the normal across the UK. Nevertheless given to interest on selection into medicine this paper is an important contribution to the literature.

Major compulsory revisions
none

Minor essential revisions
none

Discretionary revisions
The authors re-confirm the importance of the ‘A’ level attainment for predicted success in examination and graduation and beyond, although the influence weakens with length of study. The findings around aptitude test in intensity and given the authors associations it is perhaps surprising that further comments are not made regarding UKCAT or other aptitude tests at. What is the rationale for continuing to use these assessments in selection when ‘A’ levels are better predictors? Of course the UKCAT and BMAT scores are available to the medical school at a time when offers are required to be made so this maybe a reason. The statement that UKCAT consortium is also currently piloting non-cognitive tests which may have additional predictive ability is interesting and could be interpreted as a group desperately seeking utility. Particularly as students or their parents are asked to pay for a test which currently doesn’t seem to add anything to the ‘A’ level results. Some comments by the authors around this area would support medical schools admissions team in their deliberations.
The selection of students entering medical school with substantially lower ‘A’ level results is interesting and at a time of great debate on widening access it would have been useful to see some discussion on the implications of these results on this policy. Anything with brings evidence facts to an area so emotive as this makes an important contribution.

In summary a fascinating paper and an important contribution. The denseness of the stats and presentation of the results will, I suspect, limit those able and willing to read in detail but nevertheless this paper is worthy of publication.

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare I have no competing interests