Author’s response to reviews

Title: UKCAT and medical student selection in the UK – what has changed since 2006?

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Author’s response to reviews:

Thank you for the reviewers comments relating to the above manuscript. I am pleased to provide this cover note to accompany the submission of our revised manuscript. As requested I have provided a response to each of the comments made by the reviewers.

Comments from Reviewer 1 (Dietrich Klusmann, Dr.)

1This is a valuable contribution to an understanding of recent changes in methods for student selection. The general trend showing increased adoption of the UKCAT is well described in the discussion section. Noted

2However, the presentation of detailed results is sometimes ambiguous, especially regarding the use of the UKCAT in combination with other factors, e.g. on p.7 "Mean factor use of the UKCAT increased from 26% to 39%" could be understood as "the weight of the UKCAT when used in combination with other scores increased from 26% to 39%. Or: "Use of the UKCAT in a weighted combination with other scores increased from 26% to 39% of all medical schools." This sentence has been amended.

3The 7 figures are aesthetically beautiful, but overloaded with detailed information, whilst a legend to explain the many shorthands is missing. In line with these comments we have reviewed each of the figures with the intention of simplifying the presentation of data:

•Figure 1 has been removed. The data underpinning this table is presented numerically in new Additional File 2.
•Figure 1 (previous Figure 2) – an additional comment in legend references the fact that Use of the Test Categories are as outlined in Table 1.
•Figure 2 (previous Figure 3) has been amended. Additional data underpinning this table is presented numerically in new Additional File 3.
•Figure 3 (previous Figure 4) has been amended. Additional data underpinning this table is presented numerically in new Additional File 3.
•Figure 4 (previous Figure 5) – an additional comment in legend references the fact that Use of the Test Categories are as outlined in Table 1.
Figure 5 (previous Figure 6) has been amended. Additional data underpinning this table is presented numerically in new Additional File 3.

4 The use of symbols is not consistent, e.g. in fig. 3 fat lines stand for counts, while in fig. 4 for averages. Figure 4 revised for consistency.

5 Tab. 2 entails shorthands for selection methods the meaning of which can only be guessed. Table 2 amended for clarity.

6 Perhaps the material could be made more transparent if organized not only by the 4 categories supplemented by ad hoc differentiations, but according to a system of attributes, e.g. for the use of the UKCAT in 2018: Proportion of applicants who sat the UKCAT What of kind of selection happened before the UKCAT was taken? What of kind of selection happened after the UKCAT was taken? If the UKCAT was combined with other factors, show these factors and their weighting. If weighting was used, how were the weights computed? This could be tabulated with all medical school or with grouping according to similar pattern as row entries. This paper builds on previous work and involves recognised methods of describing how the UKCAT is used in selection.

In response to a number of comments by reviewers we have provided greater clarity/interpretation in relation to how the test is used. An example after Table 1 of a hypothetical University’s use of the UKCAT over time helps put the use of the test categories into context. Some of the information requested is already described (e.g. figure 3). Figures have been simplified for greater clarity.

Comment from Reviewer 2 (David Alan Powis)

7 This paper is a simply a very lengthy summary statement of how UKCAT has been used by British medical schools between 2006 and 2019. It presents a large number of facts, but offers no interpretation, nor explanations (e.g., the authors mention that some schools use a 'factor' approach, but don't explain what kind(s) of factors.) It's acceptable not to report specific cases, lest these schools become 'gamed' by applicants, but to leave the reader without any clue as to what the numbers actually mean makes the data of little value.

In response to a number of comments by reviewers we have provided greater clarity/interpretation in relation to how the test is used. Figures have been simplified to an extent so are easier to interpret. An example after Table 1 of a hypothetical University’s use of the UKCAT over time helps put the use of the test categories into context.

8 Another major criticism is there is no explanation, even in the discussion, about why the selection procedures are used as they are by individual schools. The paper provides no insight about what is going on, even in terms of 'widening access' which is mentioned specifically in the Abstract. For example, what are the outcomes desired by the various schools in terms of applicant characteristics? The reader might be drawn to the most reasonable conclusion that UKCAT serves merely as a convenient administrative tool to reduce the number of applicants to a manageable number. The reasonableness of this conclusion is confirmed by Table 1 which leaves little doubt
that the prime focus is on the administrative benefits of this national procedure, rather than it being an instrument to determine and quantify specific desirable personal qualities.

This descriptive paper is intended to provide information about how the UKCAT has been used since inception. We reference a number of papers which discuss wider issues in medical selection and the impact different uses of the UKCAT has had. The drivers behind change in medical selection over this period are considered in the Discussion section.

9I consider that the figures are unsatisfactory. In addition to lacking explanatory titles, they are difficult to interpret. In the case of the stacked bars graphs, it is difficult to trace the trends of one type of outcome from year to year, because one needs to take into account all the outcomes below (this is recognised as a shortcoming of this kind of graph in stats books). In the cases of 3, 4 and 6, it is challenging to understand which lines are being referring to. It would be much better in most cases to use ordinary line graphs (lines joining up the number of schools for each variable for each year).

These issues have been addressed. Figures have been simplified to an extent so are easier to interpret.

Other points:
10Page 2/5: I have a personal issue with such tests as UKCAT being designated 'aptitude' tests. Aptitude for what? Certainly not 'Clinical Aptitude'. We are aware that there is a debate regarding the use of term ‘aptitude’ to describe tests such as the UKCAT. However, the test has been so named since 2006 and was designed to test the aptitude of candidates across a range of traits.

11Page 2/30: Surely the increase in use of the SJT occurred only because it was now incorporated into UKCAT. Previously there was no SJT to use! (reference to THE SJT implies that it is a fixed entity, that there is only one.)

This sentence has been amended.

12Page 2/36-38: The meaning of these two sentences is unclear. The second seems be a non-sequitur.

This sentence has been amended.

13Page 2/41: "used more strongly"?

This sentence has been amended.

14'Criteria' used in many places where 'criterion' is the correct form.

Amendments made.

Comment from Reviewer 3 (Jill Yelder)

15This is an interesting article that reports on the use of the UKCAT for the selection of students for medical programmes. It is methodologically simple, using retrospective annual telephone interviews with medical schools belonging to the UKCAT Consortium (how many interviews were there annually? The methods section doesn't specify). While it doesn't offer anything new
conceptually, it does present information useful for medical schools internationally that use UCAT, or that may be thinking of taking this approach.

The Methods Section now indicates and the number of interviews ranged from 23 to 26.

I have minimal suggestions for change, focusing on editing issues:

16* I suggest that some attention is paid to the hierarchy of headings used. These were confusing. There need to be major headings for Background, Methods, Results, Discussion and Conclusions, then there seem to be two layers of sub-headings within these, but they aren't consistently indicated by heading type, with some having the same level of heading as the major headings above and others written in italics.

In addition, all the figures need to have their own headings, as distinct to the section headings.

Hierarchy of headings have been checked and amendments made. We believe we have provided figure headings in line with the journal requirements but will take advice on this if required.

17* The way numbers are written is inconsistent, sometimes being in words, other times numerals. Generally, a consistent approach is to put numbers less than 10 in full and others in numerals.

Done.

18* There are many places where it is written 'medical selection'. I think it would be more useful to write this as 'medical student selection', as these students may not graduate into the profession of medicine.

Done.

Further details are noted by page, not to be pedantic, just to help the reader:

19* P.2 Abstract, line 9 '…student numbers have increased…'

Done.

20* P.2, line 29, I suggest that the term 'borderline' is added to, is borderline what? Could be borderline for selection. I think that to put '… at a decision borderline' would be sufficient here.

Done.

21* P.2, line 36, 'Whilst student numbers have increased…'

Done.

22* P.2 Background, line 56 (and in other places in the article), 'Medical student selection…'

Done.

23* P.3, line 1, commas needed either side of 'and challenge'

Done.

24* P.3, line 6, UCAS needs to be written in full first time

Done.

25* P.3, line 18 - I assume this too means medical student numbers?

Done.
26* P.3, line 39 - are they not called 'medical programmes' rather than 'medicine programmes'? Done.

27* P.3, line 51 - why is Jane Adam named specifically while RG isn't? It's not usual to name the people involved in data collection explicitly like this. Reference removed.

28* P.4, Borderline description - I think it would be useful for a very brief explanation of the term 'light touch' that is used through the article - this is the first mention. This sentence has been amended.

29* P.6, line 2, it might be useful to elaborate this a little further, ie 'This number rose steadily over time, from one school in 2007'. Done.

30* P.8, line 14, '...use of the test to distinguish...' Done.

31* P.8, section on widening access - it would be helpful for the reader to have some examples here, particularly for an international audience. Also, the first sentence of the third paragraph says some schools did not require some widening access candidates to take the test - why not, how did they decide who should take it and who didn't need to? Paragraph added regarding widening access in the UK.

32* P.9, line 23 'medical and dental schools', ie plural Done.

33* P.9, line 37, rather than saying 'all but 3 schools used...', it may be more meaningful to the reader to say 'x out of y schools used...' Done.

34* P.10, lines 22-23, this sentence needs reworking. Maybe deleting the first 'and' with a comma after 'above' would help. Done.

35* P.10, line 48, egs of under-represented groups would be useful for an international audience Additional paragraph added in results section regarding widening access.