Reviewer’s report

Title: Does academic interest play a more important role in medical sciences than in other disciplines? A nationwide cross-sectional study in China

Version: 0 Date: 17 Apr 2019

Reviewer: Dirk Tempelaar

Reviewer's report:

In this paper, the method of propensity scores takes a crucial position. The description of the method is very brief, and kind of replaced by a reference to Rosenbaum and Rubin (1983). But that is not sufficient. For example, as a measure of effect, the authors apply the ATT, whereas in the Rosenbaum and Rubin article the more commonly used ATE measure is applied. The authors provide a formula for the ATT that differs from what I know from the literature (should the conditioning refer to the full expression, as in the current paper, or only the second term of the expression). Any information about the statistical inference with regard to ATT is missing. This section is too brief: more information needs to be in.

This is an observational study, based on data of cross-sectional type. That brings many limitations, as acknowledged on p.15/16. However, in the remainder of the paper, the authors seem to be less aware of these limitations. In quite some places, they write sentences that presume causal mechanisms. Such as 'Academic interest does have a significant causal effect on academic performance' (p.1), 'The results demonstrated that academic interest does have an influence on achievement' (p. 16), 'students need to have a relatively high academic interest to achieve academic excellence' (p. 13), 'academic interest does have a significant effect on students' academic achievement' (p. 14). But you need more than mere correlations to make these claims!! Please revise all of the statements, so that nowhere any causal claim is made.

Why is Interest classified in 2 classes, rather than 4? The measure is of Likert type with 4 categories, so why throw away the information contained in that rich classification in favour of a classification in 2 types? The authors just mention it; I would also expect a justification for such an unusual step.
Interest is measured through a one-item instrument. The authors shortly discuss single-item measures versus multiple-item measures, but that is only one argument, one of secondary nature. The more important issue is that all contemporary theories of interest in learning regard the construct as a multifaceted one. Maybe one can do with one item per construct, but one does need at least one item per different facet. This study disregards all of these contemporary views on the role of interest in learning processes. That requires at least mention in the limitations section.

Language issues. Please have a final check by a native speaker. Although the paper reads well, there are quite some sentences that do not run smoothly (Another explanation for this phenomenon is that higher academic interest that also indicates, …; p. 14) or use terms that are
incorrect (various mythological or analytical issues (p. 4); I assume you mean methodological issues).

**Are the methods appropriate and well described?**  
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**  
If not, please specify which controls are required in your comments to the authors.

Yes

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No

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