Reviewer's report

Title: A cross-sectional pilot study of the Scottish Early Development Instrument: A tool for addressing inequality

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Reviewer: Orla Doyle

Reviewer's report:

This paper tested the validity of the Early Development Instrument for use in a Scottish school district. It conducted an initial pilot of the original EDI on a small sample, then made minor adjustments and tested the revised version, known as the SEDI, on a larger sample. The instrument displayed high internal reliability and was able to identify significant differences by deprivation and gender. Overall, this is a good paper, looking at an interesting topic with definite policy relevance for Scotland. In particular, it demonstrates the time and cost implications of rolling out SEDI testing in Scottish Local Authorities. In addition, there is a nice comparison of the results of the Scottish study to findings in Canada and Australia. However, there are a couple of issues which could enhance the paper if addressed:

Major Compulsory revisions

(i) On page 8 under ‘Procedure’ the authors should make it clear how the instrument was completed i.e. paper and pen or web-based. The EDI is usually administered through an online web-survey. From the text it is not clear how the assessment was administered in either the first or second phase.

(ii) For those unfamiliar with the Scottish educational system, could the authors please provide a short explanation of the Scottish primary school system, such as the minimum and maximum school starting age? The children were on average 5.7 years at phase 1 and 5.51 years at phase 2 – is this the first year of primary school? Did the children already spend a year in kindergarten? Also, the end of page 8 refers to ‘independent schools’ - what are these?

(iii) Could the authors state when the assessment took place during the school year i.e. how long did the teachers know the children when they made the assessment? The text on page 5 states ‘some months’, but how many months exactly?

(iv) What were the teacher response rates? Were teachers compensated for conducting the assessment?

(v) There is no discussion on the extent of item-level missing data on the SEDI or how missing data were handled. There is a sentence on page 10 of the ‘Reliability’ section which states that ‘item deletion did not significantly improve reliabilities’, which suggest that there were missing data, however how much
data were missing and how was this dealt with in subsequent analysis?

(vi) Could the authors please provide a table including all the reliabilities for each of the domains and subdomains? On page 10 under ‘Reliabilities’ it states that ‘four of the five individual domains were greater than .9, and the fifth was .78’ but it does not state what this fifth domain was – I assume it was the physical health and well-being?

(vii) Were the items/sub-domains with the low reliability e.g. physical independence and physical readiness for school day, included or excluded from the overall physical health and well-being domain? Should subdomains with low reliability be included in the analysis?

(viii) On page 10 under ‘Reliabilities’ it states that the reliabilities for the overall SEDI was .97, however there is no description of how the overall SEDI was constructed. I was not aware that an overall EDI score could be constructed.

(ix) In order to aid the interpretation of the results, could the authors provide some description of the school district in which the study was conducted? It appears to have a low level of deprivation. Is it representative of Scottish school districts?

Minor Essential revisions
(i) The second and third sentences in the abstract are extremely long, please divide.

(ii) While the number of items included in the EDI is stated in the abstract, it would also be useful for include the number in the text on page 5/6 when describing the EDI.

(iii) On page 7/8 under ‘Measure’ a description of all the subdomains should be provided.

(iv) On page 9 under ‘Procedure’ it states that pupil postcodes were used to create deprivation quintiles – please make it clear whether these postcodes were the pupils home address or the pupils school address, as it is possible they are not the same.

Discretionary Revisions
(i) As the authors are probably aware, there is a short form version of the EDI called the S-EDI (Janus, Duku, & Stat, 2005). Originally when I saw the paper I thought this was a pilot study of the short form (S-EDI), rather than the Scottish form (SEDI). The authors may want to bear this in mind when referring to the instrument.

(ii) One of the stated objectives of the study (page 7) was ‘to provide the community with information about children’s strengths and vulnerabilities’ – how was this done?
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests