Reviewer’s report

Title: Determinants of motor performance in middle childhood: the role of sociodemographic factors in a resource-constrained rural African setting

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Reviewer: Marina M Schoemaker

Reviewer’s report:


Aim of this study was to establish normative standards and examine the associations between background variables and motor scores. The topic of the study is important as we know very little about the development of gross and fine motor skills in school-age children, and the influence of socio-demographic and family factors on motor development. However, after reading this interesting paper, some questions arose, which need to be answered before publication of the paper.

Major Compulsory Revisions

1. The authors do not explain why they choose to compose a new test. Several motor tests are available for children in this age range, such as the Movement ABC-2 or the BOTMP-2. They only remark that the existing published norms may not be appropriate due to the possibility of superior performance of African children. However, an advantage of the application of an existing test is that the test has proven to be valid and reliable. We know very little about the validity and reliability of the test battery the authors composed. Some data about test-retest reliability are presented, and the authors remark that they have done a factor analysis (but data are lacking), but we do not know whether the test battery is valid, as the test is not compared with the results of a comparable test. In addition, the authors do not provide a rationale for their choice of test items. In step 1 of the 4-step systematic test adaptation procedure, they mention how they define motor proficiency, but they do not explain to what extent the designed tests tap these aspects of motor proficiency.

2. Data analysis (1): the authors report to analyze ‘internal consistency reliability’, but no data regarding Cronbach’s alpha are supplied.

3. Data analysis (2): in the method section, the authors report the results of the factor analysis. As this is a new test, the results of the factor analysis (including a table with results) need to be presented in the results section.

4. Results: which method was used to replace missing values?

5. Discussion:

a. ‘Internal reliability levels of the tests ranged from moderate to excellent’. No data were provided for internal reliability analysis.
b. Gender differences: The authors remark that ‘girls showed better performance than boys on the constituents gross motor measures, as well as on the Static and Dynamic Balance composite score’. However, the results are not statistically significant. It is not justified to claim that differences exists if they are not statistically different.

c. Effects of nutritional status: ‘There was a trend to lower performance levels among poorly nourished children on both the constituent and composite test scores’. Please be more specific, only some of the constituent test scores are significant, and only the Balance composite score.

d. Influence of household resources: ‘We recorded the expected upward trend in motor scores of children grouped according to household resources on two measures, the Hopping in Squares and Jumping and Clapping tests’. Yet the results for these items are not significant. Conclusion: there is no upward trend. In addition the authors state that this trend was expected. However, on the next page they remark that they did not anticipate that SES would have significant effects, which is in contradiction with the remark that the (non-existent) trend was expected.

e. Area of residence: Again: please only report that scores are lower when the results are statistically significant. According to table 4a, only the results for hopping in squares are significant.

f. Effect sizes were overall small. How does this affect the results?

- Minor Essential Revisions
  • Test administration: who assessed the children (qualifications)? How much training was involved? How much time did it take to assess a child?
  • Stork balance test: were both legs assessed? How are errors defined? Did the best performance out of two count, or only the second?
  • Results: please specify direction of significant differences for nutritional status, static and dynamic balance, motor coordination.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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 that I have no competing interests'