Reviewer's report

**Title:** Measurement invariance of the depressive symptoms scale during adolescence

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**Reviewer:** Marjolein Verhoeven

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Review: Measurement invariance of the depressive symptoms scale during adolescence

This manuscript reports on the psychometric characteristics of a brief questionnaire (DSS) regarding depressive symptoms in adolescents. The factor structure and gender- and time invariance of the DSS was investigated over a period of 4 years (3 measurement waves), as well as the predictive validity for depression and anxiety disorder scores 3 years later. In general, the manuscript is very well written, comprehensive, and concise. The topic is clinically relevant, as the DSS could potentially be used as a short screening tool for adolescents.

**Major compulsory revision**

The most serious issue I have concerns the way the authors examined time invariance. By using a multi group CFA framework, the authors treated the longitudinal data as if coming from three independent samples of adolescents. However, the authors are using longitudinal data and should treat it as such by incorporating the three waves into one statistical model to examine time invariance (see Motl et al. (2005) and Verhoeven et al. (2012))

**Discretionary revisions**

Some additional minor issues:

- In the introduction the authors argue that there is disagreement whether depression and anxiety are distinct constructs. It is therefore important to examine alternative factor models (resp. 1, 2, or 3 factors) for the DSS, as this questionnaire contains items regarding both constructs. It is, however, unclear why the somatic symptoms measured by the DSS should form a third factor. Some background information is needed here.

- Two recent publications regarding gender- and time invariance of depressive symptoms during adolescence should be included in the reviewed literature: Motl et al (2005) and Verhoeven et al (2012).

- In Table 3 it is shown that measurement invariance across sexes does not hold at all levels for Time 2 and Time 3. This is also the case for longitudinal invariance (Time 1 vs Time 2, and Time 1 vs Time3). Although the constraints of item uniqueness (model 4) and latent factor means (model 7) are indeed very strict tests of measurement invariance and are rarely met, I think the authors
should still explain what the meaning of these results is for the DSS. Otherwise, why even investigate and report these strict tests?

- It is not until the discussion of the manuscript that the authors let the reader know they used analytic techniques geared to ordinal values. This should be stated in the method section.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.