Reviewer's report

**Title:** Bias in the study of prediction of change: A Monte Carlo simulation study of the effects of selective attrition and inappropriate modelling for regression toward the mean

**Version:** 2  
**Date:** 28 July 2014

**Reviewer:** Jichen Yang

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The manuscript “Bias in the study of prediction of change: A Monte Carlo simulation study of the effects of selective attrition and inappropriate modelling for regression toward the mean” conducted simulation studies to investigate the effects of selective attrition. Authors estimated prediction of change from MR and from change score analysis, and the results show that both methods produced biased results in certain situations. Authors further analyzed under which situation, selective attrition will lead to biased results for two methods, respectively. I am not familiar with the literature on this topic, but I think the introduced analysis is interesting. However, I am not clear with a message authors tried to transfer, that is: biases related to selective attrition and to inappropriate modelling of RTM worked together in a complex way. In the Discussion section, several conclusion were listed without being proved, such as: “inappropriate use of MR in itself lead to quite biased results, but the results got less biased as attrition got increasingly more selective. This happened because the effects of the two sources of bias worked in opposite directions” and “However, results from change score analysis got less biased when selective attrition was more heavily related to baseline than to follow-up variables. This happened because the bias related to selective attrition was most pronounced under these circumstances, and because the bias related to selective attrition and to inappropriate use of change score analysis worked in opposite directions.”

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.