

October 25, 2018

Natasha V. Raikhel
Interim Editor-in-Chief, PNAS
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Dear Dr. Raikhel,

I am pleased to submit a systematic review and original research article titled ‘A large-scale analysis of test-retest reliabilities of self-regulation measures’ by myself, Ian Eisenberg, Patrick Bissett, Gina Mazza, David MacKinnon, Lisa Marsh and Russell Poldrack for consideration for publication for *Proceedings of the National Academy of Sciences (PNAS)*. The paper consists of 27 pages and 6 figures. It also includes additional 81 pages of Supplementary Information to be included online.

Self-control is studied in many different ways across the behavioral and neural sciences, many of which are used to describe self-control function as a trait that can be studied across individuals. This paper demonstrates that many of the cognitive tasks used to study self-control and related executive functions suffer from serious shortcomings in measurement. We demonstrate this through analysis of a large behavioral dataset in which individuals were retested across several months on a large number of cognitive and survey measures, alongside an extensive literature review. We find that the large majority of cognitive task measures across this domain demonstrate insufficient retest reliability for use as trait measures, despite their common use in this capacity in the literature. We believe this manuscript is appropriate for publication at *PNAS* because it provides a critical assessment of very commonly used measures in self-regulation research, and demonstrates the need for greater attention to measurement issues in the development of cognitive measures. .

As editors we suggest Dr. James Heckman for his interdisciplinary work particularly with psychologists in trying to understand individual differences in economic behaviors, Dr. Daniel Kahneman for his emphasis in measurement rigor in psychological research, and Dr. Richard Shiffrin for his expertise on the large number of our behavioral task measures.

I will be serving as the corresponding author for the manuscript and inform my coauthors of updates throughout the review process. Parts of data used in this paper has been presented as posters at conferences listed in the manuscript but the full manuscript has not been published or under consideration elsewhere. We have no conflicts of interest to disclose. Thank you for your consideration!

Sincerely,



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