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Title: Stability of Executive Functioning Performance in a 5-year Longitudinal Study of Bipolar Disorder

Background: The authors focused on the temporal stability of executive function deficits in BD. Using a 5-year longitudinal cohort, 91 individuals with BD and 25 HC were administered a battery of neuropsychological tests that captured four main areas of EF: Processing Speed with Interference Resolution, Verbal Fluency with Processing Speed, Inhibitory Control, and Conceptual Reasoning and Set Shifting. Evaluations occurred at study entry, one, and five years later. Latent Growth Curve Modeling demonstrated that the BD group performed significantly worse in all EF areas than the HC group. Changes in EF from baseline to 5-year follow-up were similar across all diagnostic groups. Older age at baseline, above and beyond education and diagnosis, was associated with worse initial performance in EF. Being of older age was associated with greater decline in Processing Speed with Interference Resolution, Inhibitory Control, and Verbal Fluency with Processing Speed. Higher education was associated with a smaller declining slope for most of the executive factors. Executive functioning deficits in BD persist over time, and in the context of normative age-related decline, may place individuals at greater risk for cognitive disability as the disease progresses. Age and having a BD diagnosis, however, do not interact to accelerate executive functioning decline over time.

Comment: I commend the authors for their work on longitudinal changes in executive function performance. Indeed despite the growing number of paper suggesting mechanisms of neuroprogression, little is known about cognitive performance and potential decline over the lifespan in BD. Thus these findings have significant clinical relevance and deserve to be published in a timely fashion. I am glad the authors selected a robust method such as Latent Growth Modelling to analyze their data and address typical issues such as missing data, non-linear variables etc. I would like to recommend few minor changes that should be easy to address for the authors.

Title: would the authors consider referring to “latent growth modelling” in their title?

Table 1: I would recommend that the authors provide mean/SD values for HRDS, YMRS, education, IQ, number of episodes/onset of BD and comorbidities.

Data: 1.I was wondering if the authors could please clarify which outcome measures they had access to prior to calculating the four executive functioning scores with the factor analyses. For instance, did they use both reaction times and accuracy for all the tasks or only TMT-B, Stroop, and Wisconsin Card Sorting Test? As far as I know for the other tasks there are time-discontinuation limits.

2. I am asking question 1. because of the well-known “slowing” in processing speed over time. However, if the 4 executive function factors take into account of accuracy as well there may implications in terms of fluid and crystallized intelligence. Could the authors please clarify?