*Background: Although the study of cognition in first degree relatives (FDRs) is not new, findings in this group are still somewhat inconsistent and much of the research examining FDR populations include individuals under the age of 25, who are arguably still at significant risk to go on to develop BD. The present study aimed to establish the value of cognitive performance as a genuine endophenotypic marker of familial risk for bipolar disorder (BD), by examining cognition in FDRs aged 25 years or older. Methods: The current study compared the cognitive performance of 27 unaffected FDRs to 47 healthy controls (HCs) and 28 BD patients using the MATRICS Consensus Cognitive Battery (MCCB). Results: Results indicated that FDRs had impaired verbal learning performance, as well as selective impairments on a measure of speed of processing; and a measure of spatial working memory compared to HC. Limitations: Limitations relate to the potential insensitivity of some of the tests in the MCCB for detecting cognitive deficits that have been previously noted in BD and FDR samples using other batteries. Conclusions: Findings from this study implicate verbal learning, processing speed and working memory performance as promising candidate endophenotypes of true familial risk for BD*.

Comment: well-written and methodologically sound study exploring the cognitive functioning of BD patients, unaffected FDR of bipolar patients and HC. Novel is the choice to select FDR aged 25 and over as they are over the critical age to develop BD, and the use of a well-validated cognitive battery such as the MCCB. I have few comments and suggestions regarding the critical appraisal of the results, study rationale and “visualization” of the results.

Introduction: I would recommend to add 1-2 statements highlighting findings by Trivedi et al. 2008, Nehra et al. 2014 and Bauer et al. 2016 focusing on attention and planning deficits in siblings. The authors could link their findings to these papers if relevant.

A reference to “hot cognition” the introduction and/or conclusions may provide additional insight on why relatives show cognitive deficits

A reference to the definition of FDR across studies would also be useful, e.g. siblings, offspring etc.? please describe your FDR sample too (in Table 1 for instance)

Could comorbidities play a role? Please provide an overview of comorbidities in BD and history of Axis I disorders in FDR (in table 1 for instance)

The authors have obviously used the MATRICS in their previous publications. It would nonetheless be helpful to have a summary table showing how many measures/estimates they took into account for each subtest.

The authors state in their highlights that “problem-solving results indicate a point of resilience in the FDR sample”. I don’t think this idea was sufficiently discussed in the conclusions. Please address this.

Minor details: Table 1. Please provide additional information on the subtype of BDs, education, onset of the disease for BD, duration of the disease. please provide \* to indicate which differences in YMRS and MADRS were significant (BD vs HC, BD vs FDR). Please align columns relative to current mood.

Table 2. please add explanation of BACS-SC, WMS-SS and LNS in your caption.

Figure 1. “\* indicates significant differences at p<.0.01 between HC and BD” was stated twice