**Manuscript:** Neurocognitive measures of research domain criteria and relationships with psychopathology in youth. Preliminary findings from the longitudinal assessment of manic symptoms study

**Title:** consider a shorter, concise and more relevant title

**Introduction:** Scope of the paper is not clearly stated and there is no logic progression to the hypotheses (page 6). Rationale for the hypotheses is not well explained or staed. Despite referring to categorical constructs in psychiatry the authors do not explain or refer to DSM-IV related measures in their introduction. It is also surprising that the authors do not refer to either which psychiatric illnesses they plan to focus on in this paper or possible effects of age in the diagnosis/dimensional assessment of psychiatric illnesses or cognitive skills. Although data from the LAMS study has been previously published it would be helpful if the authors added a few sentences on aims and sample of study and the definition of terms such as baseline/NP testing.

**Method:** The authors should define what they mean by “intellectual deficiency range” and add references for the clinical instruments they used in this study. The choice of the cognitive tests included in this study should also be explained. Were these measures adjusted for age and gender? Are these tests appropriate for children aged 9-10 years? The selection of tests for each RDoC cognitive domain should be explained. In particular, on what kind of evidence was this test allocation based? Or was it based on a purely theoretical approach? And did the authors conduct a factorial analyses to check to what extent RVP discriminability and RVP correct response latency load on the same component? Did IED completed trials included correctly and incorrectly completed trials? Such crucical information should be provided in the (neuro)cognitive section. Also what does the VRM recall total score refer to? correct responses for the short and long term recall? If so how was this composite score calculated. In terms of the AGN, did the authors include reaction times relative to correct responses only? Could the authors provide a rationale for considering prosody discrimination as part of the RDoC Social communication component? In the description of their results they could add a reference to Suppl. Table 1 or Table 2 as they list the RDoC domain and the (neuro)cognitive measures for each domain.

The statistical analyses section should only include a description of the statistical analyses. Hence I would recommend that the authors move the description of the results of the ACP analyses under results. It is also noted that the Suppl Fig1 presents the results for the cognitive control RDoC domain only and not for all domains as reported in the manuscript. Also it would be useful if the authors described the series of SEMs (the authors refer briefly to these models at the end of Page 10). Indices of fit for each of these models should also be mentioned. The authors could also add a table illustrating the loadings for the PCA conducted to find psychopathological constructs. Although SEM is widely used, 2 sentences describing this technique in general terms would make the analyses more understandable. The authors should also explain the choice of the predictors for Aim 2 and the reason(s) that the full scale IQ was explored in Aim 3. All these steps are intuitive but the authors should make an effort to be more explicit in their descriptions.

**Results:** it would be useful to mention what the LAMS neuropsychological testing subsample refers to especially when the authors mention that the differences were small. The authors could have discussed or mentioned which other SEM models they obtained and theirfit indices/factors. It would be useful to explain why Aim 2 is split into aggregate and specific relationships. Such details would improve the understanding of these analyses. The authors should also think about a visual way to present their results, for example by creating graphs or drawing their conceptual model. Aim 3: could the authors explain why they focus on ADHD symptoms, what about other illnesses?

**Discussion:** Although the findings are important and do contribute to research in this field this section is highly unstructured and hard to read and understand. It is unclear what the most relevant findings are and what they really mean. The authors are encouraged to revise and resubmit this section. For example the authors could add a section discussing gender imbalance (males > females) in their sample and possibly differences in neuro/cognitive development as well as part of their discussion between categorical and dimensional psychiatric diagnoses. The authors say that symptoms show stronger association with measures of affective processing. Could they explain why they make such statement, are they sure about this? Additional information on illness duration (I couldn’t find it in the demographic table) could provide additional information on the etiology and vulnerability to illness. The authors could have also highlighted the fact that measures of sustained attention could be used as predictors between GAD and anxiety and anxiety symptoms (Page 16). Why were measures of inattention/hyperactivity had “unanticipated” relationship with affective disorders? How do the authors define “conduct problems”? page 17: the authors say that executive function deficits in ADHD reduce global ability….what about the other diagnoses?

**Technical comments:** the authors often use jargon or technical words without explaining what they are referring to. For example what is a neural system dysfunction. Some formulations are strictly awkward and need to be reformulated, e.g. long sentences, “anticipated to facilitate more rapid identification”. It would also be important that they consistently use either the term of neuropsychological (which refers to cognitive measures) or neurocognitive (brain imaging, cognitive and neural measures). CANTAB should be defined. Could the author define what under-identified refer to (page 11, 2nd line). Page 12: please specify that r is Pearson’s coefficient of correlation. It would also be useful to explain what “independent relationships” refer to. Other words or formulations that should be modified or better explained are : non-exclusive, incremental validity , “as trait as counting” (page 14). The authors refers to 9 assessments at page 14 but they did not describe the study design of the LAMS study. Please add illness duration to Table1. Table 2: provide a better caption describing what the terms “symptoms” and “diagnoses”. Also add the names of the tasks from which the neurocognitive measures were derived, e.g. AGN. Table 3: if these values refer to regression analyses what does “worse” and “faster” refer to? Please explain in the caption. Figure 2: this figure could into the supplementary material unless the authors highlight a specific importance for the findings. Suppl Table 1: this table should be included in the main manuscript rather than in the supplementary material as it would improve the readability of the methods section. Suppl 1/2 : the authors should add units of measure (% and reaction times).