

Patient and Caregiver Reports of Anxiety, Depression, and Executive Dysfunction in Children with Heterogeneous Neurodevelopmental Disorders

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OBJECTIVES

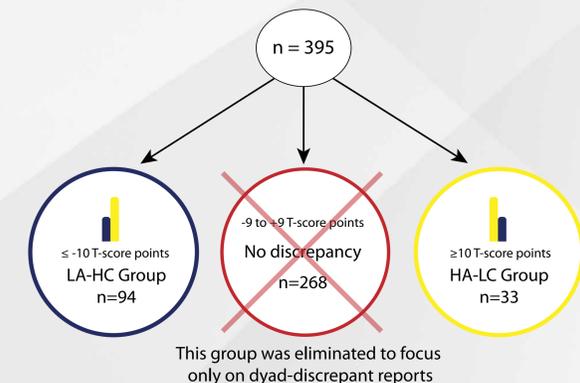
- Prior studies have reported discrepancies regarding anxiety/depression between adolescent self-report and caregiver-report about their adolescent.
- We compared adolescent-caregiver dyads characterized either by low adolescent-high caregiver (LA-HC) report of anxiety/depression symptoms or high adolescent-low caregiver (HA-LC) report of anxiety/depression symptoms.
- While anxiety/depression can lead to executive dysfunction, we considered the possibility that greater executive dysfunction, particularly in metacognitive processes such as lack of insight into emotional functioning, would lead to adolescents underreporting anxiety/depression symptoms relative to their caregivers.
- We explored executive dysfunction as a possible explanation for the discrepancy in the LA-HC group, utilizing a sample of pediatric patients with neurological and neurodevelopmental disorders in which executive dysfunction is common.

HYPOTHESIS

- We hypothesized that caregivers in the LA-HC group would report significantly greater executive dysfunction on several measures than caregivers in the HA-LC group.

PARTICIPANTS & METHODS

- We examined discrepancies on the Anxiety/Depression (AD) scale from the Youth Self Report (YSR) relative to caregiver scores on the corresponding AD scale of the Child Behavior Checklist (CBCL).
 - Higher T-scores = greater concern or impairment
- Between 2012-2018, 395 adolescent-caregiver dyads completed the YSR and the CBCL, as well as additional questionnaires (identified in the table below) in our neuropsychology service.
- Dyads were assigned to 1 of 3 groups using the following:
YSR AD T-score – CBCL AD T-score = Discrepancy score



Variables compared between groups

	Metric	LA-HC	HA-LC
Age	Years	14.93 ± 1.91	15.77 ± 1.85
IQ	Standard Score	90.87 ± 13.69	93.58 ± 11.08
BRIEF GEC*	T-score	69.37 ± 10.51	57.73 ± 11.78
Conners 3** scales			
Inattentive	T-score	76.41 ± 12.62	63.59 ± 14.68
Hyperactive	T-score	68 ± 17.67	54.33 ± 13.65
Executive Function	T-score	69.21 ± 14.34	62.47 ± 14.93

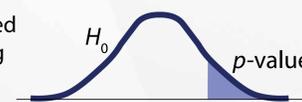
*Behavior Rating Inventory of Executive Function (BRIEF) Global Executive Composite (GEC)
 • Some caregivers completed the BRIEF while others completed the BRIEF-2. The GEC from each version was collapsed into a single variable for analyses.
 ** Conners 3rd Edition Parent

Statistical analyses:

- Analyses conducted using JASP software
- Checks for normality and equality of variances indicated parametric statistics were appropriate
- Independent samples T-tests
- Bayesian independent samples T-tests
 - A prior of 0.707 was used as a relatively conservative estimate that corresponded with expected medium-large effect sizes
- Why use two types of analyses?

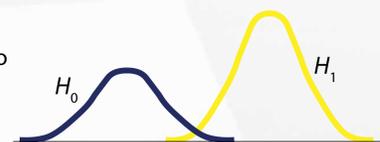
Frequentist analyses:

p-values only tell us the probability of obtaining findings at least as extreme as those reported given that the null hypothesis is true → This results in interpretation as a dichotomy regarding acceptance or rejection of the null hypothesis.



Bayesian analyses:

Bayes factors take what we already know (priors) and tell us what the observed data add to that knowledge → Bayes factors quantify the degree to which the actual data do or do not support each the null hypothesis and the alternative hypothesis.



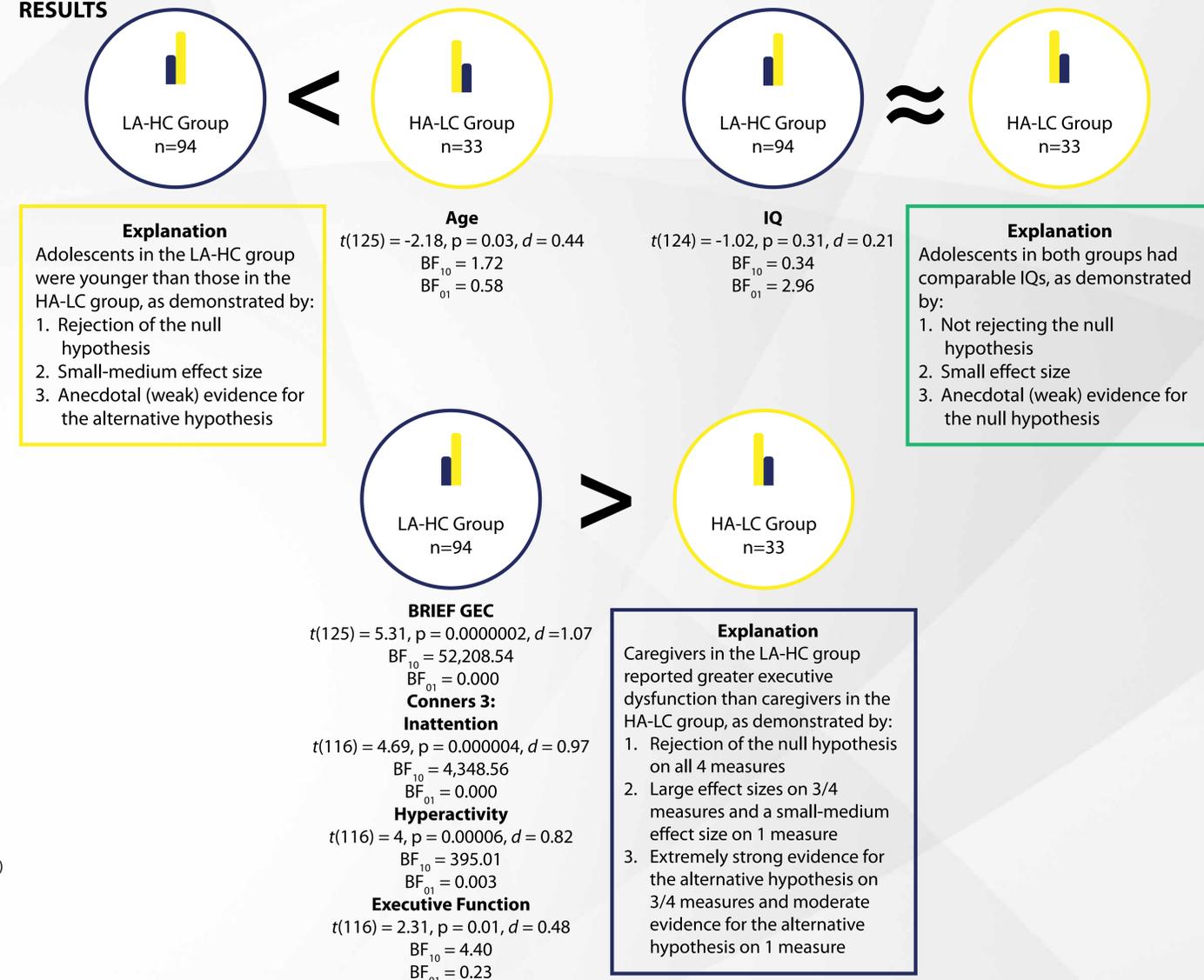
Evidential properties of p-values vs. Bayes factors

	p-values	Bayes factors
Uses only observed data?	No	Yes
Explicitly tests alternative hypothesis?	No	Yes
Provides positive evidence?	No	Yes
Information about effect size?	No	Yes
Consistently interpretable across studies?	No	Yes

Bayes factors are represented two ways:

- BF_{01} = The degree to which the data favor the null hypothesis
- BF_{10} = The degree to which the data favor the alternative hypothesis
- Higher Bayes factor values, especially >3, indicate stronger evidence for the corresponding hypothesis. Bayes factor values <1 indicate greater evidence for the other hypothesis.

RESULTS



Big Picture Summary of Results:

Caregivers in the LA-HC group reported far more executive dysfunction (on two separate measures), inattention, and hyperactivity than caregivers in the HA-LC group; however, adolescents in the LA-HC group were mildly younger (by about 1 year) than adolescents in the HA-LC group. Group differences cannot be accounted for by IQ, which was comparable between groups.

CONCLUSIONS

- Our hypothesis was strongly supported by Bayesian findings, but causality remains unknown.
- Some may assume that because those in the LA-HC group were younger, greater executive dysfunction could be due to age.
 - This is unlikely because age-adjusted T-scores were used.
- We proposed that greater executive dysfunction in the LA-HC group may have reflected greater neurodevelopmental impact on executive neural substrates that inform awareness and insight.
 - However, we only broadly examined executive functioning rather than its specific components.
- Clinicians should consider that executive functioning may impact anxiety/depression, and conversely, anxiety/depression may impact executive functioning, rather than assuming a unidirectional relationship.
- Another possible explanation for the discrepancy is that caregivers in the LA-HC group generally over-reported across the CBCL and other measures.
- Prior research on YSR-CBCL discrepancies suggests examining raw scores instead of T-scores due to possible data distortion.
 - Future research should include comparisons of raw scores in exploring supportive or alternative explanations, as well as caregiver response styles.

For a copy of the poster and contact information:

