

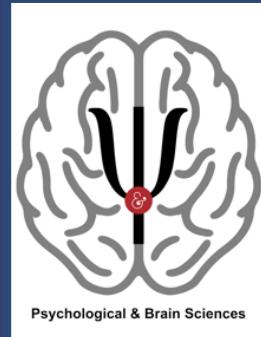
ABCD-ReproNim: An ABCD Course on Reproducible Data Analyses

ABCD: Demographic, Physical, and Mental Health Assessments

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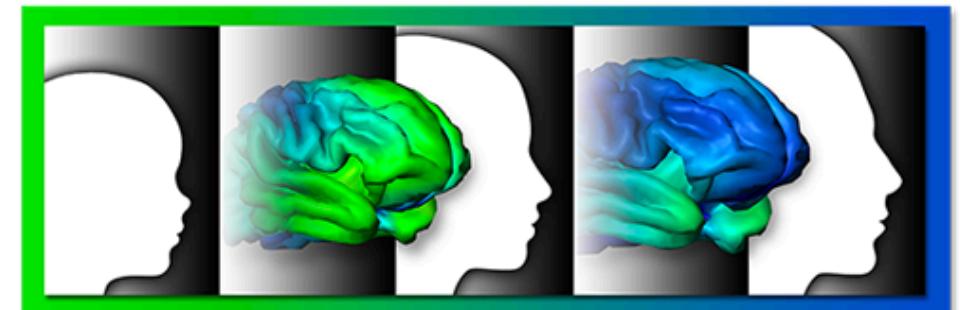


ABCD-ReproNim

Learning Objectives of this Lecture



- Describe the objectives of the mental health assessments in the ABCD Study®
- Describe the objectives of the physical health assessments in the ABCD Study®
- Describe the objectives of the demographic assessments in the ABCD Study®
- Give examples of ABCD principles for assessing particular assessment instruments
- Give examples of known issues in the ABCD mental health, physical health, and demographic data



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Disclosure of Interests



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our ABCD Families and Child participants!**

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Principles



- Where possible, use instruments with documented reliability and validity
- Use developmentally sensitive/appropriate instruments
- Engage the most appropriate informant depending on the developmental stage and domain
- Minimize participant burden
- Be informed by prior relevant literature
- Balance between consistency over time and capturing new behaviors/outcomes



ABCD Assessment Timeline

+

	Baseline (in person)	6 months (phone / on-line)	Year 1 (in person)	18 months (phone / on-line)	Year 2 (in person)	30 months (phone / on-line)	Year 3 (in person)	42 months (phone / on-line)	Year 4 (in person)	Ongoing
Participant Age	9-10 yrs		10-11 yrs		11-12 yrs		12-13 yrs		13-14 yrs	
Substance Use & Related Factors										
Youth Self-Report on Substance Exposure/Use										
Related Risk and Protective Factors										
Saliva & Hair Samples										

	Baseline (in person)	6 months (phone / on-line)	Year 1 (in person)	18 months (phone / on-line)	Year 2 (in person)	30 months (phone / on-line)	Year 3 (in person)	42 months (phone / on-line)	Year 4 (in person)	Ongoing
Participant Age	9-10 yrs		10-11 yrs		11-12 yrs		12-13 yrs		13-14 yrs	
Mental Health & Related Factors										
Parent-Report on Youth										
Youth Self-Report										
Parent Self-Report										
Parent Report on Family										

Factors	U	V	U	V	U	V
Neurocognition						
NIH Toolbox						
Other "cold" cognitive measures						
Other "hot" cognitive measures						
Gender Identity and Sexual Health						
Culture and Environment						
Parent-Report on Youth/Family						
Youth Self-Report						
Geocoding / Neighborhood Factors						
Brain Imaging						



Domains



- Youth & family mental health diagnoses
- Youth & parent dimensional mental health measures
- Youth personality and other relevant “trait” behaviors
- Stress, life events, and friend relationships



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Mental Health Diagnoses



- Diagnosis of Youth Participant in ABCD
 - Parent Report on the Computerized KSADs (baseline+)
 - Computer administered
 - Designed for DSM 5
 - Mood, Anxiety, Psychotic, ADHD, ODD, CD and Suicide
 - Child Self-Report on the computerized KSADs (baseline+)
 - Computer administered, but with RA help in the early years
 - Mood, Some Anxiety, and Suicide
- Diagnosis of Parents and Family
 - Modified Family Interview for Genetic Studies (FIGS) (baseline)



Youth KSADs Modules



		Age:	Baseline	1yr fu	2yr fu	3yr fu	4yr fu
Module Number	Disorder		Youth	Youth	Youth	Youth	Youth
0	Introduction		0	0	0	0	0
1-3	Mood Disorders		1	0	1	0	1
4	Psychosis		0	0	0	0	0
5	Panic Disorder		0	0	0	0	0
6	Agoraphobia		0	0	0	0	0
7	Separation Anxiety		0	0	0	0	0
8	Social Anxiety Disorder		1	0	1	0	1
9	Specific Phobia		0	0	0	0	0
10	Generalized Anxiety Disorder		1	0	1	0	1
11	Obsessive Compulsive Disorder		0	0	0	0	0
12	Enuresis and Encopresis		0	0	0	0	0
13	Eating Disorders		0	0	1	0	1
14	Attention Deficit Hyperactivity Disorder		0	0	0	0	0
15	Oppositional Defiant Disorder		0	0	0	0	0
16	Conduct Disorder		0	0	1	0	1
17	Tic Disorders		0	0	0	0	0
18	Autism Spectrum Disorders		0	0	0	0	0
19	Alcohol Use Disorder		0	1*	1*	1*	1*
20	Drug Use Disorders		0	1*	1*	1*	1*
21	Post-Traumatic Stress Disorder		0	0	0	0	0
22	Sleep Problems		1	0	1	0	1
23	Suicidality		1	1	1	1	1
24	Homicidality		0	0	0	0	0
25	Selective Mutism		0	0	0	0	0



Parent KSADs Modules



ABCD-ReproNim

		Age:	Baseline	1yr fu	2yr fu	3yr fu	4yr fu
			9-10	10-11	11-12	12-13	13-14
0	Introduction		0	0	0	0	0
1-3	Mood Disorders		1	0	1	0	1
4	Psychosis		1	1	1	1	1
5	Panic Disorder		1	0	1	0	1
6	Agoraphobia		1	0	1	0	1
7	Separation Anxiety		1	0	1	0	0
8	Social Anxiety Disorder		1	0	1	0	1
9	Specific Phobia		1	0	1	0	1
10	Generalized Anxiety Disorder		1	0	1	0	1
11	Obsessive Compulsive Disorder		1	0	1	0	1
12	Enuresis and Encopresis		0	0	0	0	0
13	Eating Disorders		1	1	1	1	1
14	Attention Deficit Hyperactivity Disorder		1	1	1	1	1
15	Oppositional Defiant Disorder		1	1	1	1	1
16	Conduct Disorder		1	1	1	1	1
17	Tic Disorders		0	0	0	1	1
18	Autism Spectrum Disorders		1	0	1	0	1
19	Alcohol Use Disorder		1	0	1	1	1
20	Drug Use Disorders		1	0	1	1	1
21	Post-Traumatic Stress Disorder		1	0	1	0	1
22	Sleep Problems		1	0	1	0	1
23	Suicidality		1	0	1	0	1
24	Homicidality		1	0	1	0	1
25	Selective Mutism		0	0	0	0	0



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Scoring and QC Issues



• KSADS

- Symptoms and Diagnoses are 1/0 (present/absent)
- Release 3.0 will distinguish between items that were purposely not asked (did not hit on screen) versus missing data
- Autism-like diagnosis not valid in KSADs 1.0, improved in KSADs 2.0
- Agoraphobia accidentally not administered for part of year 1 (when we changed how it was launched)



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Mental Health Dimensions on Youth

ABCD-ReproNim

- Parent Report

- Child Behavior Checklist (baseline+)
- General Behavior Index of Mania (baseline+)
- Short Social Responsiveness Scale (year 1+)

- Child Self-Report

- Prodromal Psychosis Questionnaire Brief (baseline+) (see Karcher et al., 2019; Karcher et al., 2020 for validation)
- 7UP Measure of Mania (year 1+)
- Brief Problem Monitor (6 months+)
- Brief Delinquency Measure year 1+, missing 1 item year 2)
- Toolbox Positive Mood (6 months+)

- Teacher Report

- Brief Problem Monitor (baseline+)



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Mental Health



- About Parents
 - Adult Self-Report (baseline+)
 - Adult Behavior Checklist (year 2+)
- About Family
 - Family History Interview for Genetics FIGS] (baseline+)



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Mental Health Dimensions



		Baseline	1yr fu	2yr fu	3yr fu	4yr fu
	Age:	9-10	10-11	11-12	12-13	13-14
Measure		Youth	Youth	Youth	Youth	Youth
Prodromal Psychosis		1	1	1	1	1
Mania 7up		0	1	0	1	0
Brief Problem Monitor-Y		0	1	1	1	0
Youth Self Report (parallel of CBCL)		0	0	0	0	1
Brief Delinquency Measure		0	1	1	1	1
Toolbox Positive Mood Items		0	1	0	1	0
Measure		Parent	Parent	Parent	Parent	Parent
Child Behavior Checklist (CBC)		1	1	1	1	1
GB10 (mania)		1	1	1	1	1
Short Social Responsiveness Scale		0	1	0	0	0
Adult Self Report		1	0	1	0	1
Adult Behavior Checklist on Other Parent		0	0	1	0	1
Measure		Teacher	Teacher	Teacher	Teacher	Teacher
Brief Problem Monitor-T		1	1	1	1	1



Personality & Other "behaviors"



- Parent Report
 - Early Adolescent Temperament Questionnaire (year 2+)
 - Difficulties in Emotion Regulation Scale (year 3+)
- Child Self-Report:
 - UPPS-P Measure of Impulsivity (baseline+) (see Watts et al, 2020 for validation)
 - Emotion Regulation Items from the Emotion Regulation Questionnaire (year 3+)



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Personality & Other "behaviors"



		Baseline	1yr fu	2yr fu	3yr fu	4yr fu
	Age:	9-10	10-11	11-12	12-13	13-14
Measure		Youth	Youth	Youth	Youth	Youth
UPPS-P Measure of Impulsivity		1	0	1	0	1
Emotion Regulation Items from ERQ-CA		0	0	0	1	1
Measure		Parent	Parent	Parent	Parent	Parent
Early Adolescent Temperament Questionnaire		0	0	1	0	1
Difficulties in Emotion Regulation Scale		0	0	0	1	1



Stress, Life Events & Friendships



● Parent Report

- Life events (year 1+)

- Added deportation, foster care, school shootings, COVID related items

- Parent Perceived Life Stress (year 3+)

● Child Self-Report

- Life events (year 1+)

- Added deportation, foster care, school shootings, COVID related items

- Experiences of peer victimization and perpetration (year 2+)

- Cyberbullying (year 2+)

- Number of friends (baseline+)



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Stress, Life Events & Friendships



		Baseline	1yr fu	2yr fu	3yr fu	4yr fu
	Age:	9-10	10-11	11-12	12-13	13-14
Measure		Youth	Youth	Youth	Youth	Youth
Life Events (including school shooting, deportation, COVID)		0	1	1	1	1
Peer Experiences Questionnaire (Victimization and Perpetration)		0	0	1	1	1
Number of Friends		1	0	1	0	1
Cyberbullying		0	0	1	1	1
Measure		Parent	Parent	Parent	Parent	Parent
Life Events (including school shooting, deportation, COVID)		0	1	1	1	1
Parent Perceived Life Stress		0	0	0	1	0



Things to think about



ABCD-ReproNim

- Parent and children reports frequently do not agree
 - Common finding in the literature
 - Could think about developing integrated diagnosis
- Different reporters may be better for different types of behavior
 - Others for “externalizing”
 - Self for “internalizing”
- Consistency over time
- When to reassess things like family history



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ABCD Physical Health

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Participant Age	9-10 yrs		10-11 yrs		11-12 yrs		12-13 yrs		13-14 yrs	
Physical Health & Related Factors										
Parent-Report on Youth										
Youth Self-Report										
FitBit					0				0	
Saliva for Hormone Assessment										
Saliva/Blood for DNA & Health Factors										



Youth Measures



ABCD-ReproNim

PHYSICAL HEALTH	Baseline	1yr fu	2yr fu	3yr fu	4yr fu
Youth Measure	Age 9-10	Age 10-11	Age 11-12	Age 12-13	Age 13-14



Parent Measures



ABCD-ReproNim

PHYSICAL HEALTH	Baseline	1yr fu	2yr fu	3yr fu	4yr fu
	Age 9-10	Age 10-11	Age 11-12	Age 12-13	Age 13-14
Parent Measure					



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Demographics



ABCD-ReproNim

- Sex and Gender (dimensional starting at year 1)
- Race and Ethnicity
- Country of Origin in not born in the US
- Family Income
- Parental Occupation
- Family Structure
- Family Financial Adversity
- Neighborhood Adversity (baseline .. more coming)



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Early Results



- Two domains of great interest to NIMH
- Early skepticism about inclusion
 - Suicide
 - Psychosis



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Assessing Psychosis Risk in Children



- 21 questions adopted from the Psychosis Questionnaire-Brief (PQ-B) created for adults (Loewy et al., 2011)
- Modified for use with 9-10-year-olds
 - *“Did you feel like you had special, unusual powers like you could make things happen by magic, or that you could magically know what was inside another person's mind, or magically know what was going to happen in the future when other people could not?”*
 - *“Did you feel confused because something you experienced didn't seem real or it seemed imaginary to you? ”*
 - *“Did you feel that other people might want something bad to happen to you or that you could not trust other people?”*
 - *“Did you suddenly start to be able to see things that other people could not see or they did not seem to see?”*

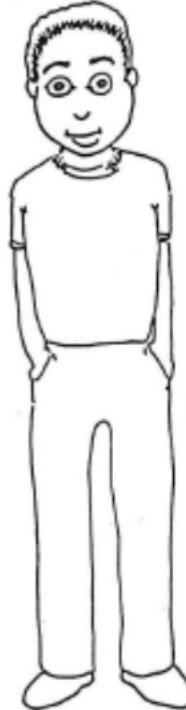




Assessing Psychosis Risk in Children

ABCD-ReproNim

Please CHOOSE THE NUMBER below the appropriate picture that shows us how much that bothered you when it happened.



1

2

3

4

5

Which number did you choose?

1

2

3

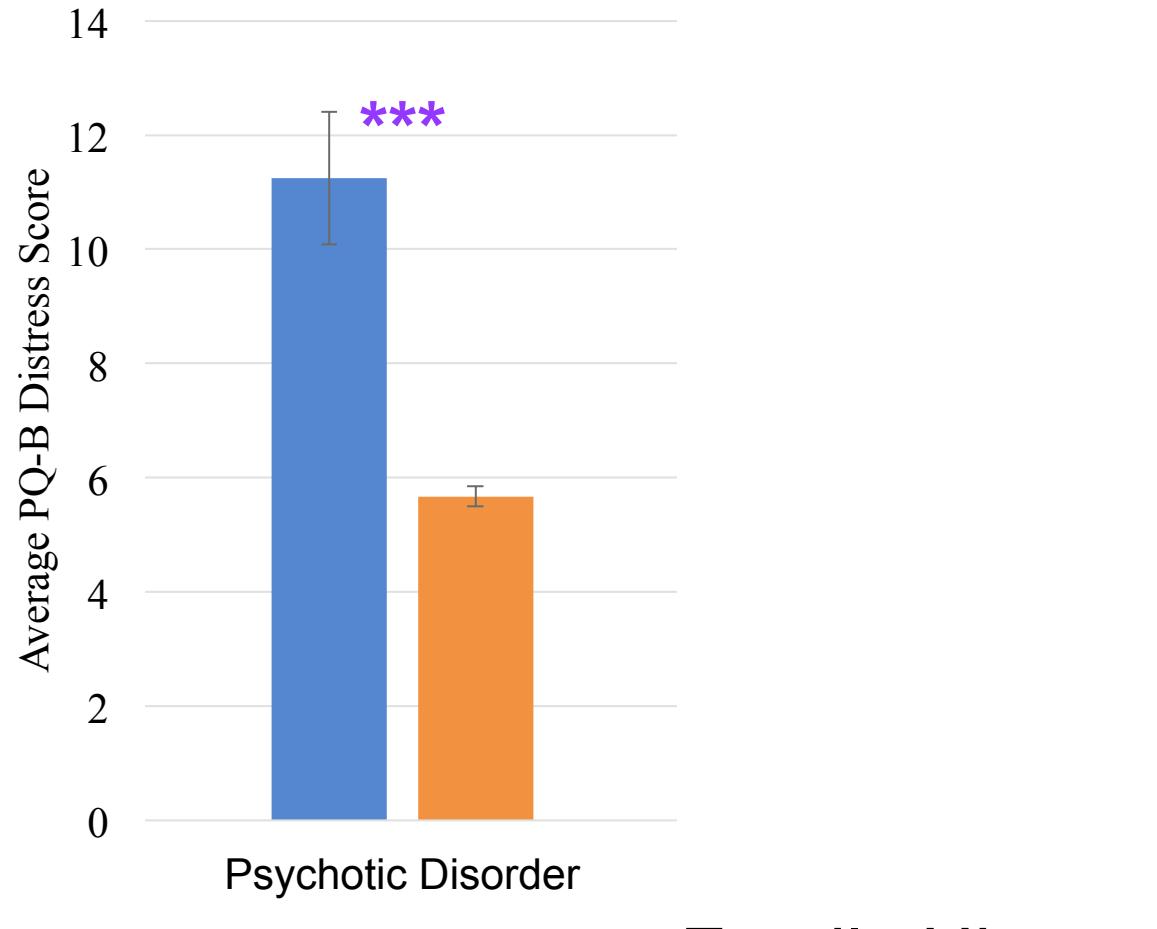
4

5





Family History of Mental Illness



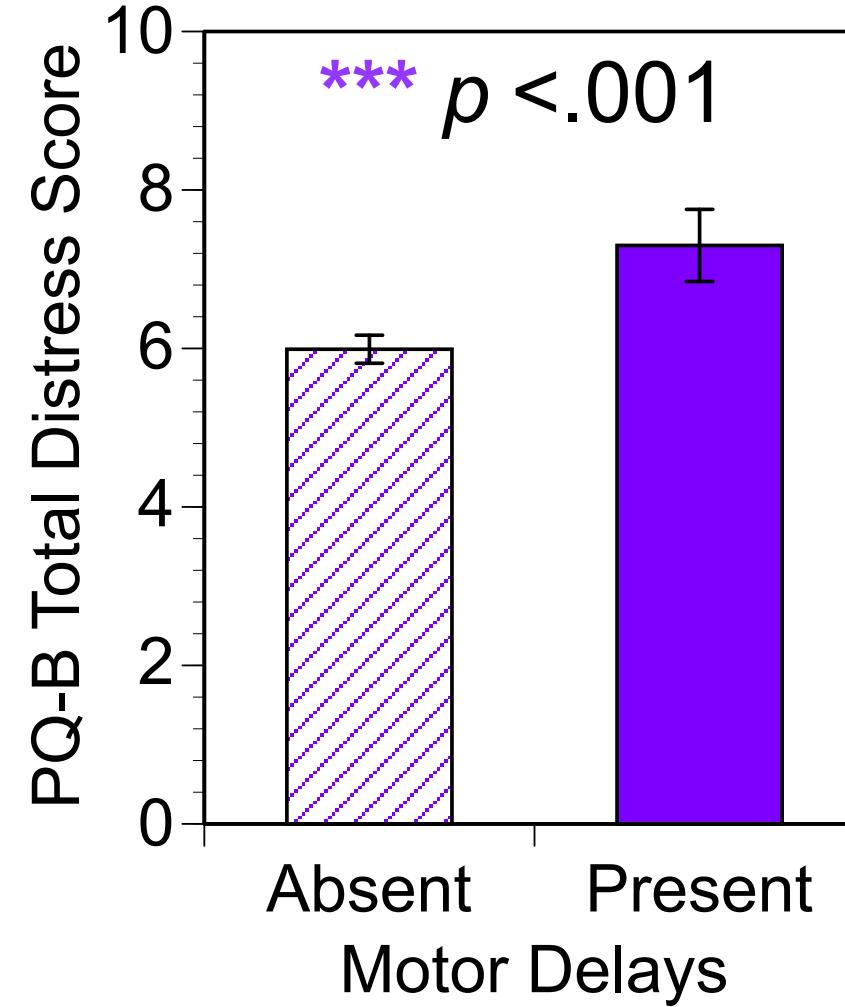
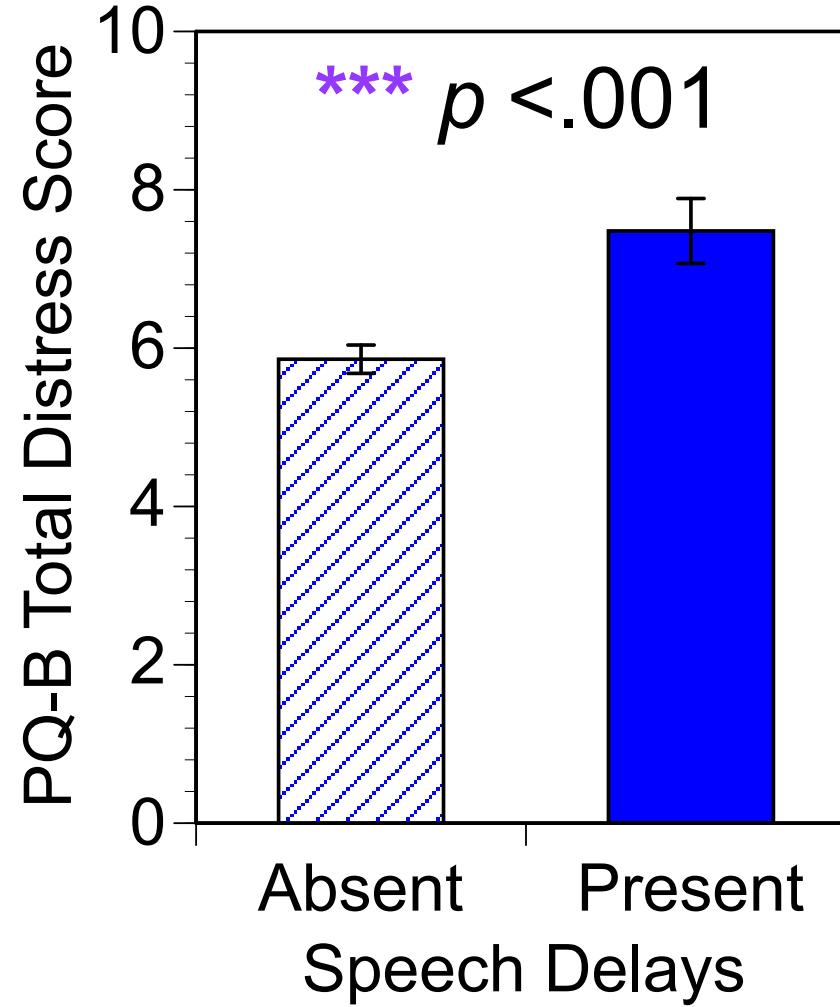
*** $p < .001$

Karcher et al., 2018, JAMA Psychiatry



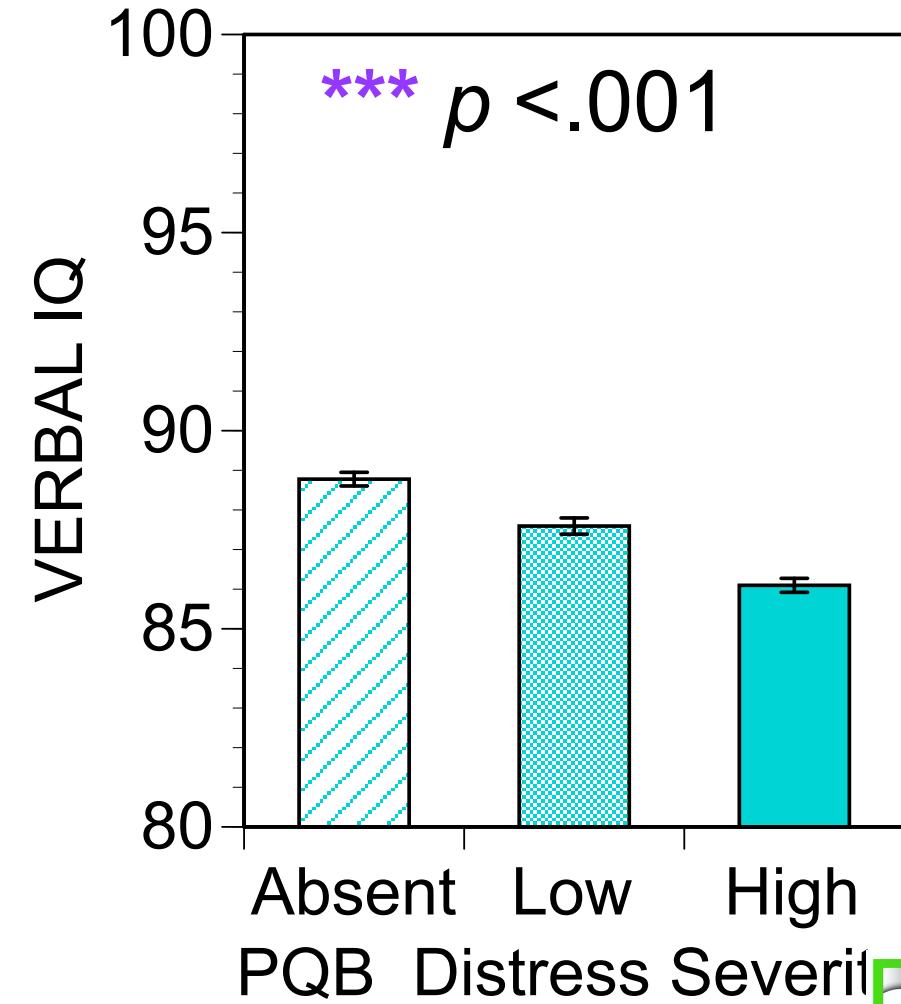
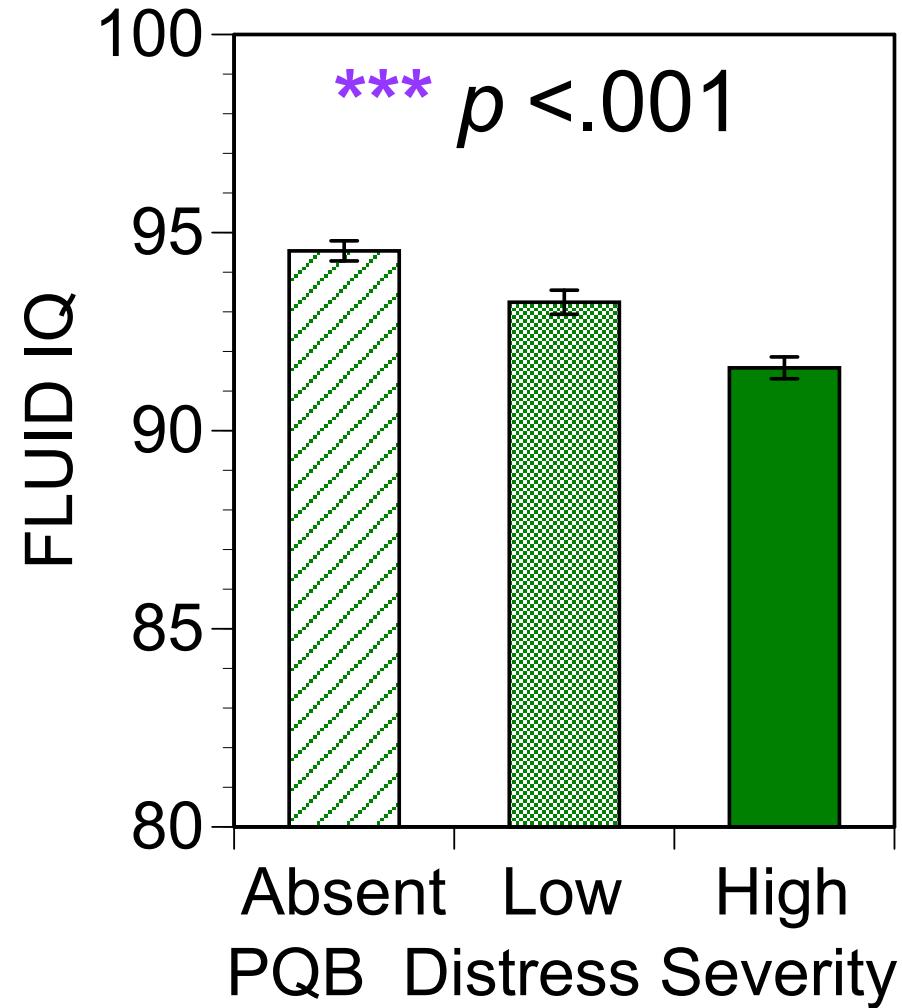


Speech and Motor Milestones





IQ





Cognitive Function

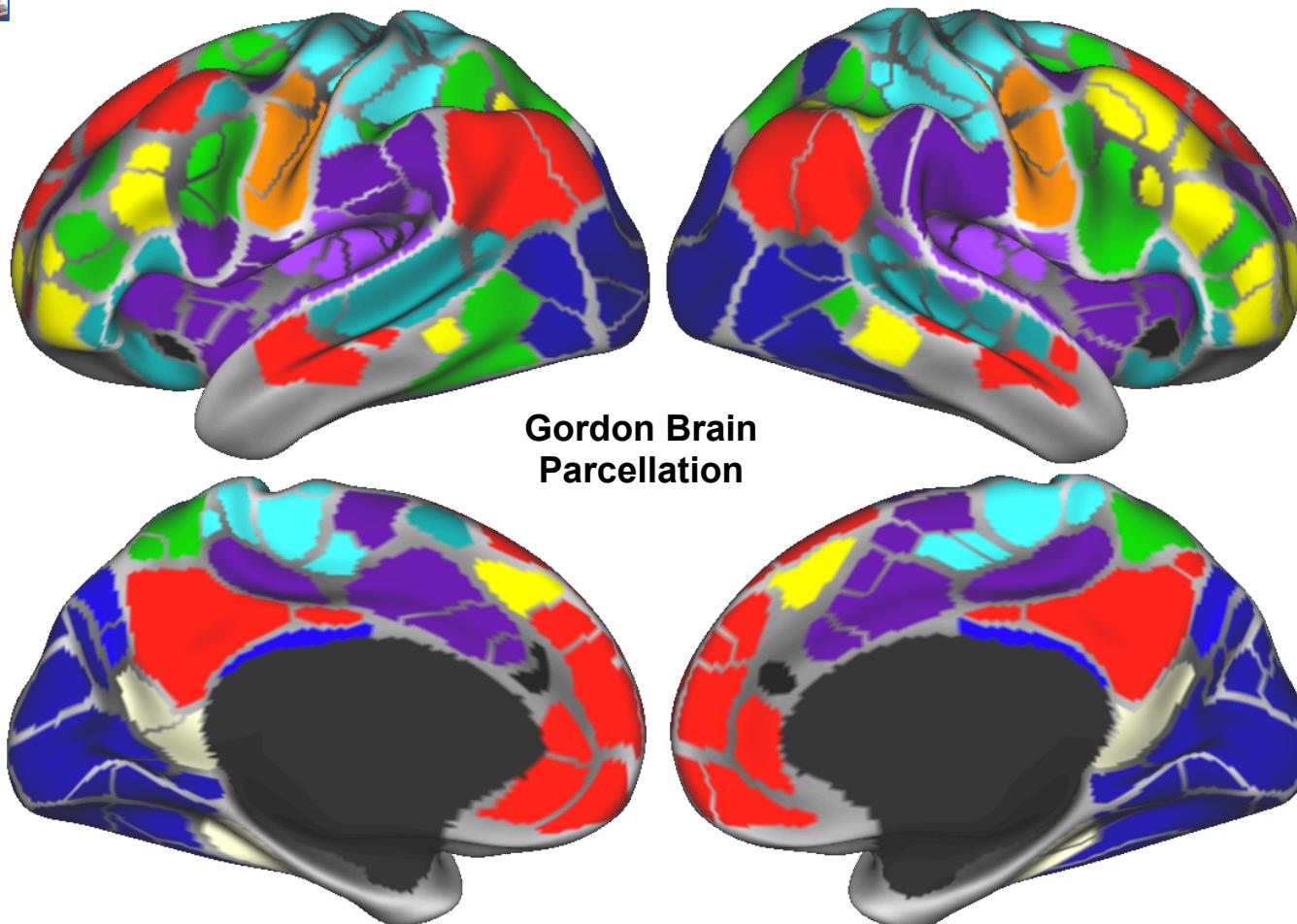


- Higher PQ-B scores in the ABCD children are related to:
 - Worse working memory
 - Worse processing speed
 - Worse episodic memory
 - Worse reading





Brain Networks



- █ Default
- █ Visual
- █ FrontoParietal
- █ Dorsal Attention
- █ Ventral Attention
- █ Salience
- █ Cingulo-Opercular
- █ SM-Hand
- █ SM-Mouth
- █ Auditory
- █ Cingulo-Parietal
- █ Retrosplenial-Temporal

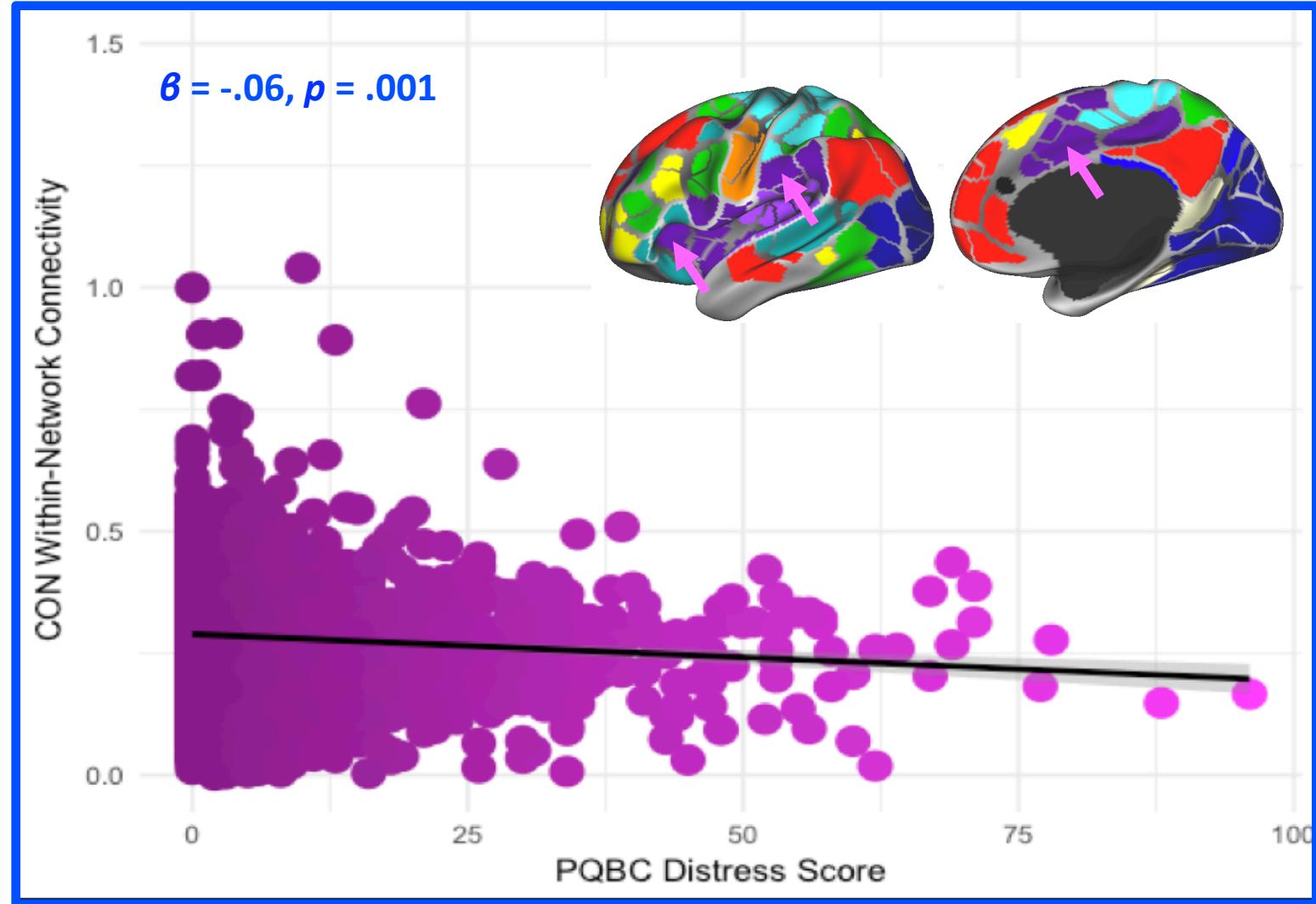




Cingulo-Opercular Connectivity



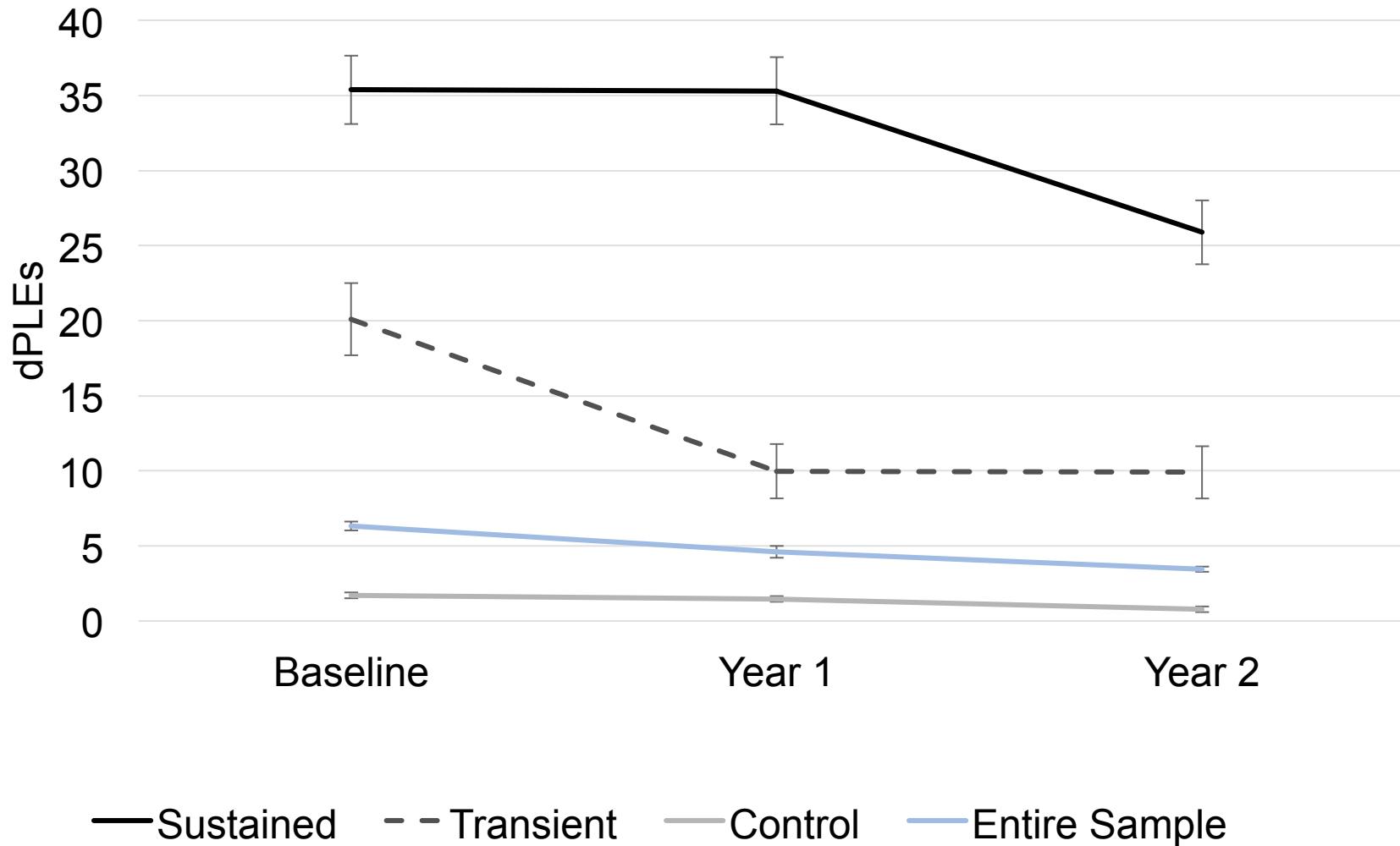
Worse



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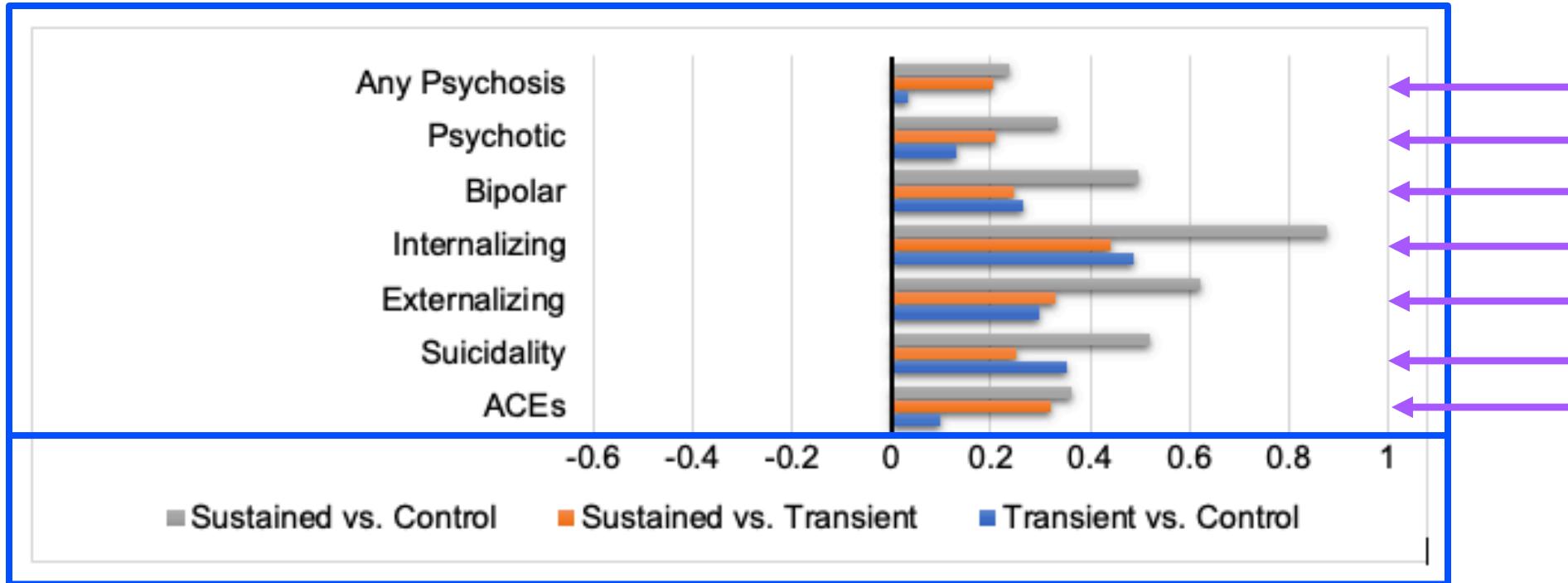


Longitudinal Assessment



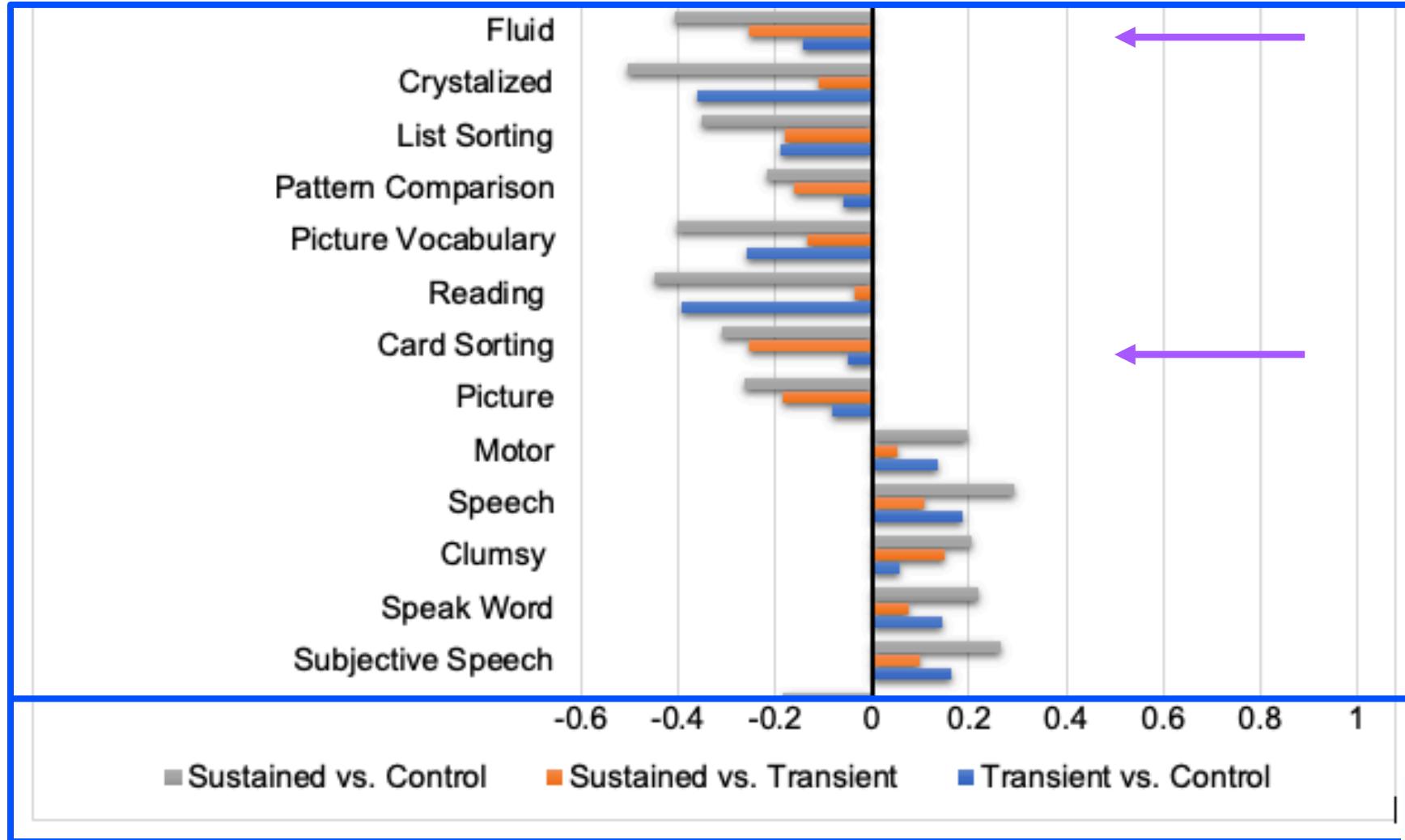


Effect Sizes (Cohen's D)



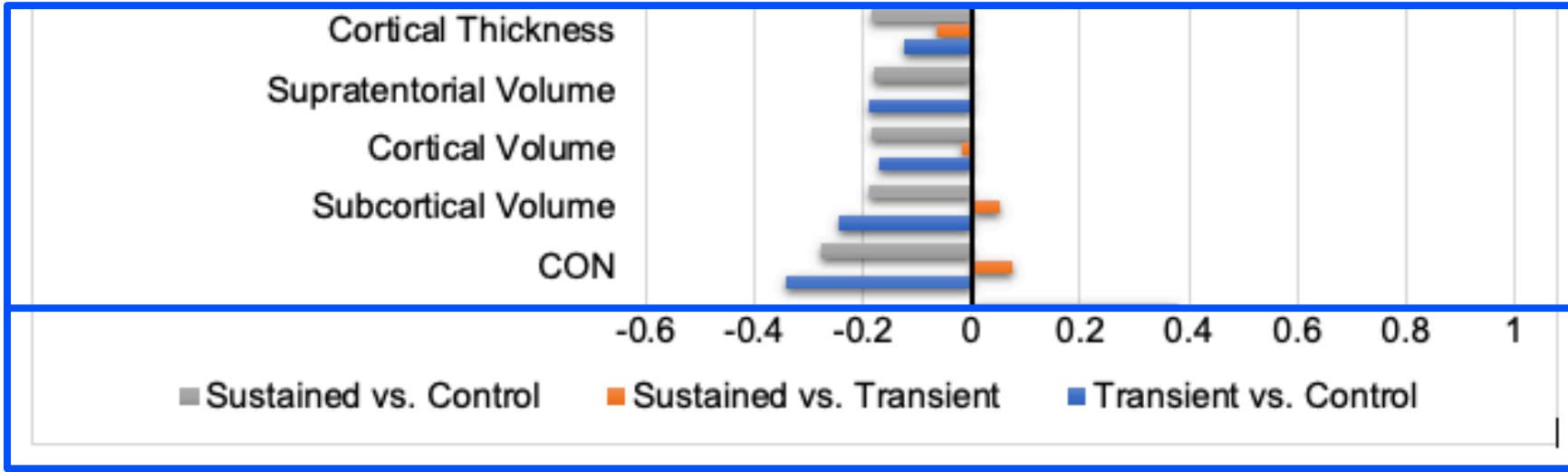


Effect Sizes (Cohen's D)



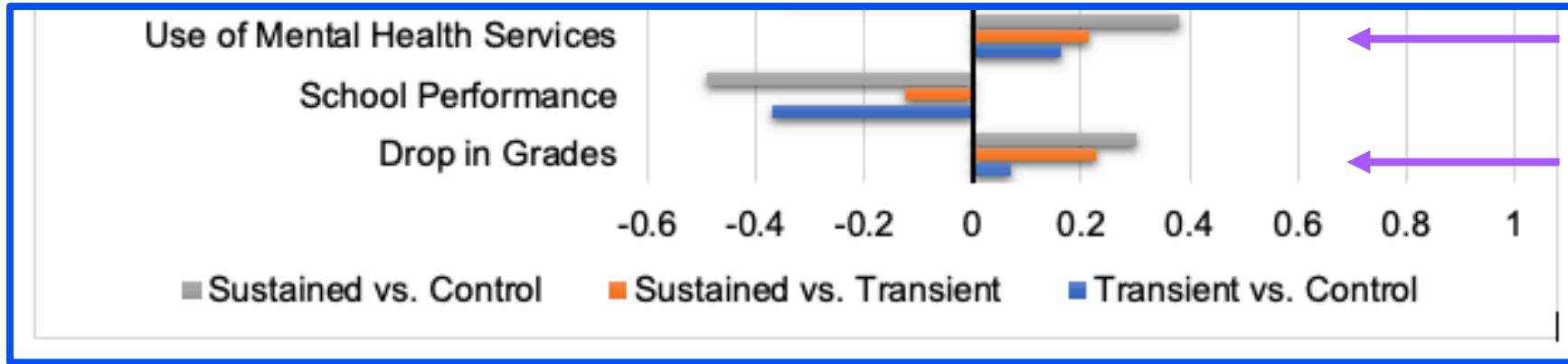


Effect Sizes (Cohen's D)





Effect Sizes (Cohen's D)



Summary & Future Directions

ABCD-ReproNim

- Suggestions for additions in out years always welcome!
- Longitudinal analyses are the next key step
- Will be shifting more assessment to the youth as it becomes developmentally appropriate to do so
- Examining trajectories of mental and physical health symptoms and relevant behaviors will become increasingly important as we have repeated measurements
- We have launched assessments of COVID-19 related experiences, which will be highly informative as to predictors and consequences of responses to the pandemic in terms of mental health in youth and parents



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