# The relationship between autism spectrum disorder and prodromal psychosis in the $\Delta D$ **Adolescent Brain Cognitive Development cohort**

Amandeep Jutla<sup>1,2</sup>, Jennifer Foss-Feig<sup>3</sup>, Meghan Rose Donohue<sup>4</sup>, Jeremy Veenstra-VanderWeele<sup>1,2</sup>

<sup>1</sup>Columbia University; <sup>2</sup>New York State Psychiatric Institute; <sup>3</sup>Icahn School of Medicine at Mount Sinai; <sup>4</sup>Washington University School of Medicine in St. Louis

Schizophrenia (**SCZ**) is 3-4x more common in autism spectrum disorder (**ASD**) than the general population.

Does this hold true for **prodromal psychosis**?

How can we best **identify ASD youth at risk**?

We explored the relationship between parent-reported ASD diagnosis and emerging psychotic-like symptoms in the

#### Adolescent Brain Cognitive Development (ABCD) cohort.

ABCD cohort		Study samp
11 – 11,075	- 2,115 with missing data	11 – 0,070
	Income-to-needs (1211)	
	Cognitive measures (198)	
	Family history (138) ASD screen (39)	
	PQ-BC score (16)	
	Ethnicity (13) Developmental history (6)	
	Sex (3)	

#### 

PQ-BC distress	<b>3.53 ± 7.35</b>
ASD screen +	161 (1.65%)
NIH TB working memory	101.47 ± 14.73
NIH TB processing speed	94.17 ± 22.04
NIH TB card sort	97.35 ± 15.25
FH psychosis	1,014 (10.49%)
Income-to-needs	4.48 ± 2.88
Latinx ethnicity	1,819 (18.64%)
"Other" race	1,853 (18.99%)
Black race	1,274 (13.05%)
White race	6,633 (67.96%)
Male sex	5,111 (52.37%)
Age in years	9.91 ± 0.62
Study sample characteristics	

## **Predictors of PQ-BC distress score**

	ASD diagnosis -	$\beta = 2.44, t(9730) = 4.31, p \le 0.001$
	Black race -	$\beta = 1.06, t(8106) = 3.61, p \le 0.001$
Fami	ly history of psychosis -	$\beta = 0.99, t(8181) = 4.07, p \le 0.001$
	Latinx ethnicity -	$\beta = 0.87, t(7517) = 3.83, p \le 0.001$
Ď	Male sex -	$\beta = 0.09, t(9425) = 0.58, p = 0.56$
Predict	Executive function -	$\beta = -0.2, t(9678) = -1.26, p = 0.209$
	White race -	$\beta = -0.22, t(8235) = -1.11, p = 0.269$
	Processing speed -	$\beta = -0.27, t(9732) = -1.71, p = 0.087$
	Age -	$\beta = -0.72, t(9668) = -4.94, p \le 0.001$
	Working memory - –	$\beta = -1.17, t(9734) = -7.61, p \le 0.001$
	Income-to-needs ratio	$\beta = -1.26, t(8273) = -7.45, p \le 0.001$
		-1 0 1 2 3
		Change in PQ-BC distress score

## **Predictors of PQ-BC distress in top 5%**

I	ASD diagnosis -
	Latinx ethnicity -
	Family history of psychosis -
	Black race -
	Executive function -
	- Bredicto Male sex
	White race -
	Processing speed -
	Age -
β	Working memory -
β=	Income-to-needs ratio -
0 1 2 Odds ratio	

$\beta = 2.92, t = 3.75, p \le 0.001$
$\beta = 1.54, t = 3.03, p = 0.002$
$\beta = 1.53, t = 2.93, p = 0.003$
$\beta = 1.28, t = 1.41, p = 0.159$
$\beta = 1, t = 0, p = 0.997$
$\beta = 0.96, t = -0.43, p = 0.665$
$\beta = 0.88, t = -0.93, p = 0.351$
$\beta = 0.84, t = -1.55, p = 0.12$
$\beta = 0.79, t = -2.25, p = 0.024$
$b_3 = 0.51, t = -5.9, p \le 0.001$
$= 0.46, t = -5.97, p \le 0.001$

#### **PQ-BC** distress items with higher mean scores in ASD participants

Did you lose concentration because you noticed sounds in the distance that you usually don't hear? (#10)

Did you honestly believe in things that other people would say are unusual or weird? (#15)

Did you suddenly start to notice that people sometimes had a hard time understanding what you were saying, even though they used to understand you well? (#21)

ASD seems to be a strong predictor of psychotic-like symptoms in middle childhood, even relative to long-established risk factors.

Future work will need to establish what this means **longitudinally**.



Sponsorship: Whitaker Scholar in Developmental Neuropsychiatry Award (Marilyn and James Simons Foundation)

**Contact:** Amandeep.Jutla@nyspi.columbia.edu



### **Predictors of reported ASD diagnosis**



F(1, 9758) = 9.37, corrected p = 0.046

F(1, 9758) = 10.89, corrected p = 0.020

F(1, 9758) = 11.06, corrected p = 0.019