

## Supplementary Information

### Sex as a moderator between parent ratings of executive dysfunction and social difficulties in children and adolescents with autism spectrum disorder

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Supplementary Table S1. Age, IQ, BRIEF and ADI-R scores for girls and boys with ASD matched sample (N = 66) <sup>a</sup>

Scale	Girls		Boys		df	<i>p-value</i>	Glass' delta
	M (SD)	n	M (SD)	n			
Age	11.9 (3.1)	22	11.2 (3.3)	44	44.6	0.415	-0.21
Full-scale IQ	93.5 (9.3)	22	92.1 (11.3)	44	50.1	0.604	-0.12
BRIEF Global Executive Composite (GEC)	69.5 (10.5)	22	67.0 (11.3)	44	45.0	0.376	-0.22
BRIEF Behavioral Regulation Index (BRI)	68.3 (15.2)	22	67.8 (11.7)	42	34.6	0.891	-0.04
BRIEF Metacognition Index (MI)	68.4 (8.7)	22	64.2 (11.2)	44	52.6	0.102	-0.38
ADI-R (A) Reciprocal Social Interaction domain	11.7 (6.5)	22	12.1 (5.1)	44	34.4	0.842	0.08
ADI-R (B) Communication domain	8.9 (5.6)	21	9.3 (4.5)	43	33.2	0.803	0.09
ADI-R (C) Restricted, repetitive and stereotyped behavior domain	2.5 (2.1)	21	3.9 (2.4)	43	44.8	0.021	0.58

\*  $p = 0.008$

Welch's t-tests were conducted for age, IQ, BRIEF and ADI-R comparisons between sexes.

IQ = Intelligence Quotient

BRIEF: Behavior Rating Inventory of Executive Functions

ADI-R: Autism Diagnostic Interview-Revised diagnostic algorithm

Note. BRIEF scores are reported as T scores (M = 50, SD = 10) and ADI-R scores are reported as domain scores from the diagnostic algorithm.

<sup>a</sup> The participants were recruited from Norwegian health services specializing in the assessment of ASD and other neurodevelopmental disorders. The study was part of the national BUPGEN network. The matched sample consisted of 22 girls and 44 boys with ASD who were recruited between 2013 and May 2018 and assessed at age 5-19 years. Nine of the children (2 girls, 7 boys) were diagnosed with childhood autism, 5 (2 girls, 3 boys) with atypical autism, 27 (11 girls, 16 boys) with Asperger syndrome and 25 (7 girls, 18 boys) with unspecified pervasive developmental disorder (PDD-NOS). The male:female ratio was 2:1. In total, 17 children (25.8%) had a comorbid disorder of attention deficit/hyperactivity disorder (ADHD). Participants had an intelligence quotient (IQ) within the normal range based on a standardized Wechsler's test (Full-scale IQ  $\geq 70$ ) and spoke Norwegian fluently. Exclusion criteria were significant sensory losses (vision and/or hearing).

Supplementary Table S2. Nested hierarchical model summary: Reciprocal Social Interaction domain matched sample (N = 66)

ADI-R A	$R^2$	$B$	$SE B$	$p$
Model 1	0.03			0.740
Constant		20.95	6.80	0.003*
Sex		-0.28	1.50	0.850
IQ		-0.08	0.07	0.219
ADHD diagnosis		-1.06	1.62	0.516
Age		-0.06	0.22	0.783
Model 2	0.15			0.070
Constant		8.89	7.62	0.248
Sex		-0.79	1.42	0.580
IQ		-0.07	0.06	0.275
ADHD diagnosis		-1.65	1.54	0.288
Age		-0.10	0.21	0.614
BRIEF GEC		0.18	0.06	0.005*
Model 3	0.29			0.002*
Constant		46.82	13.16	<0.001*
Sex		-30.27	8.75	0.001*
IQ		-0.07	0.06	0.203
ADHD diagnosis		-0.43	1.46	0.768
Age		-0.03	0.19	0.878
BRIEF GEC		-0.39	0.18	0.031
BRIEF GEC * Sex		0.43	0.13	0.001*

\*  $p = 0.017$

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

B = unstandardized regression coefficients

Supplementary Table S3. Nested hierarchical model summary: Communication domain matched sample (N = 66)

ADI-R B	$R^2$	$B$	$SE B$	$p$
Model 1	0.04			0.604
Constant		16.87	5.89	0.006*
Sex		-0.10	1.31	0.938
IQ		-0.08	0.06	0.180
ADHD diagnosis		0.95	1.43	0.511
Age		-0.05	0.19	0.802
Model 2	0.14			0.122
Constant		7.85	6.72	0.248
Sex		-0.56	1.27	0.662
IQ		-0.07	0.06	0.239
ADHD diagnosis		0.56	1.38	0.685
Age		-0.09	0.19	0.614
BRIEF GEC		0.13	0.05	0.016*
Model 3	0.27			0.004*
Constant		40.29	11.68	0.001*
Sex		-26.08	7.86	0.002*
IQ		-0.07	0.05	0.195
ADHD diagnosis		1.66	1.32	0.212
Age		-0.05	0.17	0.764
BRIEF GEC		-0.35	0.16	0.029
BRIEF GEC * Sex		0.37	0.11	0.002*

\*  $p = 0.017$

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

B = unstandardized regression coefficients

Supplementary Table S4. Nested hierarchical model summary: Restricted, repetitive and stereotyped behavior domain matched sample (N = 66)

ADI-R C	$R^2$	$B$	$SE B$	$p$
Model 1	0.08			0.285
Constant		6.40	2.86	0.029
Sex		-1.38	0.64	0.034
IQ		-0.01	0.03	0.690
ADHD diagnosis		0.02	0.69	0.972
Age		0.00	0.09	0.958
Model 2	0.16			0.067
Constant		2.26	3.29	0.494
Sex		-1.59	0.62	0.013*
IQ		-0.01	0.03	0.835
ADHD diagnosis		-0.15	0.67	0.823
Age		-0.03	0.09	0.776
BRIEF GEC		0.06	0.03	0.023
Model 3	0.19			0.048
Constant		10.33	6.10	0.096
Sex		-7.94	4.10	0.058
IQ		-0.01	0.03	0.824
ADHD diagnosis		0.12	0.69	0.859
Age		-0.02	0.09	0.864
BRIEF GEC		-0.06	0.08	0.472
BRIEF GEC * Sex		0.09	0.06	0.123

\*  $p = 0.017$

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

B = unstandardized regression coefficients

Supplementary Table S5. Bootstrapped model ADI-R A

Model 1				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	9.65	30.30	10.88	29.43
Sex	-2.75	2.49	-3.27	2.81
IQ	-0.16	0.02	-0.15	0.00
ADHD	-3.56	1.04	-3.59	1.14
Age	-0.42	0.25	-0.40	0.19

  

Model 2				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	-1.14	22.49	-0.59	20.59
Sex	-3.09	1.99	-3.21	2.25
IQ	-0.15	0.01	-0.13	0.01
ADHD	-4.13	0.38	-4.30	0.60
Age	-0.40	0.25	-0.39	0.23
BRIEF GEC	0.04	0.24	0.05	0.25

  

Model 3				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	22.99	66.39	26.46	62.74
Sex	-45.07	-13.34	-42.59	-14.55
IQ	-0.15	0.01	-0.14	0.00
ADHD	-3.21	1.14	-3.40	1.25
Age	-0.36	0.25	-0.34	0.25
BRIEF GEC	-0.66	-0.07	-0.63	-0.11
BRIEF GEC * Sex	0.19	0.65	0.21	0.61

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain

IQ: Intelligence Quotient

ADHD: Attention deficit/ hyperactivity disorder

BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

The standardized residuals from models 1 ( $p = 0.02$ ), 2 ( $p = 0.01$ ), and 3 ( $p = 0.003$ ) were not normally distributed. Confidence intervals for the intercept and slopes of this model were similar to a bootstrapped model (Supplementary Table S5), indicating that there were no considerable problems with non-normal distribution of residuals in the model.

Supplementary Table S6. Bootstrapped model ADI-R B

Model 1				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	3.98	21.74	4.34	21.20
Sex	-2.68	1.85	-2.82	2.31
IQ	-0.11	0.04	-0.10	0.04
ADHD	-1.57	2.45	-1.64	2.53
Age	-0.28	0.30	-0.23	0.27

  

Model 2				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	-4.14	16.35	-3.40	14.52
Sex	-2.99	1.47	-2.98	1.70
IQ	-0.11	0.04	-0.10	0.03
ADHD	-2.01	1.98	-2.16	2.17
Age	-0.27	0.29	-0.28	0.28
BRIEF GEC	0.02	0.19	0.02	0.19

  

Model 3				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	16.08	54.31	19.23	52.03
Sex	-39.47	-11.26	-38.80	-12.33
IQ	-0.10	0.04	-0.09	0.03
ADHD	-1.18	2.68	-1.27	2.76
Age	-0.25	0.28	-0.24	0.25
BRIEF GEC	-0.59	-0.07	-0.59	-0.09
BRIEF GEC * Sex	0.15	0.56	0.17	0.55

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain  
 IQ: Intelligence Quotient  
 ADHD: Attention deficit/ hyperactivity disorder  
 BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

The standardized residuals from models 1 ( $p = 0.004$ ), 2 ( $p = 0.02$ ), and 3 ( $p = 0.01$ ) were not normally distributed. Confidence intervals for the intercept and slopes of this model were similar to a bootstrapped model (Supplementary Table S6), indicating that there were no considerable problems with non-normal distribution of residuals in the model.

Supplementary Table S7. Bootstrapped model ADI-R C

Model 1				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	1.41	9.98	1.78	9.67
Sex	-2.09	0.10	-2.05	0.10
IQ	-0.05	0.02	-0.05	0.02
ADHD	-1.35	0.57	-1.25	0.68
Age	-0.13	0.15	-0.11	0.13

  

Model 2				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	-2.28	7.65	-2.03	7.51
Sex	-2.23	-0.07	-2.14	-0.10
IQ	-0.05	0.02	-0.05	0.02
ADHD	-1.54	0.37	-1.47	0.49
Age	-0.13	0.15	-0.10	0.13
BRIEF GEC	0.01	0.09	0.00	0.09

  

Model 3				
Predictors	Direct model		Bootstrapped model	
	2.50 %	97.50 %	2.50 %	97.50 %
Intercept	0.64	20.01	1.92	19.60
Sex	-14.77	-0.47	-14.28	-1.56
IQ	-0.05	0.02	-0.05	0.03
ADHD	-1.35	0.58	-1.30	0.64
Age	-0.12	0.15	-0.09	0.14
BRIEF GEC	-0.20	0.06	-0.19	0.05
BRIEF GEC * Sex	-0.01	0.20	0.00	0.19

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain

IQ: Intelligence Quotient

ADHD: Attention deficit/ hyperactivity disorder

BRIEF\_GEC: Behavior Rating Inventory of Executive Function, Global Executive Composite

The standardized residuals from models 2 and 3, which included the predictor of EF were normally distributed ( $p > 0.05$ ), however, they were not normally distributed for the first model ( $p = 0.01$ ). Confidence intervals for the intercept and slopes of this model were similar to a bootstrapped model (Supplementary Table S7), indicating that there were no considerable problems with non-normal distribution of residuals in the model.



Supplementary Table S8. Age, IQ, BRIEF and ADI-R scores for girls and boys with ASD age 11 and younger (pre-puberty) (N=70)

Scale	Girls		Boys		df	<i>p-value</i>	Glass' delta
	Mean (SD)	n	Mean (SD)	n			
Age	9.3 (1.7)	11	8.5 (2.0)	59	16.1	0.219	-0.44
Full-scale IQ	94.6 (8.8)	10	97.9 (12.4)	49	17.2	0.334	0.37
BRIEF Global Executive Composite (GEC)	70.4 (9.3)	11	66.5 (11.2)	59	23.2	0.240	-0.42
BRIEF Behavioral Regulation Index (BRI)	68.5 (16.4)	11	67.5 (11.6)	54	12.1	0.841	-0.06
BRIEF Metacognition Index (MI)	69.4 (6.5)	11	63.8 (11.8)	59	24.2	0.035	-0.86
ADI-R (A) Reciprocal Social Interaction domain	13.5 (5.5)	11	11.7 (4.9)	59	13.2	0.347	-0.32
ADI-R (B) Communication domain	8.6 (4.5)	11	9.4 (4.5)	57	14.1	0.619	0.17
ADI-R (C) Restricted, repetitive and stereotyped behavior domain	2.4 (2.5)	11	3.3 (2.1)	58	12.9	0.244	0.39

\*  $p = 0.008$

Welch's t-tests were conducted for age, IQ, BRIEF and ADI-R comparisons between sexes

IQ = Intelligence Quotient

BRIEF: Behavior Rating Inventory of Executive Functions

ADI-R: Autism Diagnostic Interview-Revised

Note. BRIEF scores are reported as T scores (M = 50, SD = 10) and ADI-R scores are reported as domain scores from the diagnostic algorithm.

Supplementary Table S9. Age, IQ, BRIEF and ADI-R scores for girls and boys with ASD age 12 and older (post-puberty) (N=46)

Scale	Girls Mean (SD)	n	Boys Mean (SD)	n	df	<i>p-value</i>	Glass' delta
Age	14.1 (2.1)	14	13.8 (1.8)	32	21.4	0.613	-0.16
Full-scale IQ	92.5 (10.0)	12	92.0 (13.6)	31	27.5	0.902	-0.05
BRIEF Global Executive Composite (GEC)	68.6 (11.1)	14	68.5 (10.2)	32	23.2	0.960	-0.02
BRIEF Behavioral Regulation Index (BRI)	66.9 (13.7)	14	68.8 (12.4)	32	22.8	0.662	0.14
BRIEF Metacognition Index (MI)	68.1 (9.6)	14	65.8 (9.4)	32	24.3	0.473	-0.23
ADI-R (A) Reciprocal Social Interaction domain	10.6 (6.5)	14	11.8 (5.4)	32	21.1	0.551	0.18
ADI-R (B) Communication domain	8.9 (5.9)	13	8.9 (4.1)	30	17.3	0.989	-0.00
ADI-R (C) Restricted, repetitive and stereotyped behavior domain	2.4 (1.7)	13	3.5 (2.4)	30	31.19	0.083	0.67

\*  $p = 0.008$

Welch's t-tests were conducted for age, IQ, BRIEF and ADI-R comparisons between sexes

IQ = Intelligence Quotient

BRIEF: Behavior Rating Inventory of Executive Functions

ADI-R: Autism Diagnostic Interview-Revised

*Note.* BRIEF scores are reported as T scores (M = 50, SD = 10) and ADI-R scores are reported as domain scores from the diagnostic algorithm.

Supplementary Table S10. Nested hierarchical model summary: Reciprocal social interaction domain and Behavior Regulation Index

ADI-R A	R <sup>2</sup>	B	SE B	95% CI	<i>p</i>
Model 1	0.03				0.486
Constant		19.98	5.20	[9.65, 30.30]	< .001*
Sex		-0.13	1.32	[-2.75, 2.49]	0.923
IQ		-0.07	0.04	[-0.16, 0.02]	0.104
ADHD diagnosis		-1.26	1.16	[-3.56, 1.04]	0.279
Age		-0.08	0.17	[-0.42, 0.25]	0.618
Model 2	0.14				0.015*
Constant		13.93	5.81	[2.38, 25.47]	0.019
Sex		-0.31	1.26	[-2.83, 2.21]	0.807
IQ		-0.10	0.04	[-0.18, -0.01]	0.369
ADHD diagnosis		-2.23	1.15	[-4.52, 0.06]	0.056
Age		-0.09	0.17	[-0.44, 0.27]	0.631
BRIEF BRI		0.13	0.04	[0.04, 0.21]	0.003*
Model 3	0.21				0.001*
Constant		34.76	9.29	[16.30, 53.21]	< .001*
Sex		-17.32	6.17	[-29.58, -5.06]	0.006*
IQ		-0.08	0.04	[-0.17, 0.00]	0.055
ADHD diagnosis		-1.43	1.15	[-3.71, 0.85]	0.215
Age		-0.04	0.17	[-0.38, 0.30]	0.819
BRIEF BRI		-0.21	0.13	[-0.46, 0.04]	0.104
BRIEF BRI * Sex		0.25	0.09	[0.07, 0.43]	0.006*

*p* = 0.017

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_BRI: Behavior Rating Inventory of Executive Function, Behavioral Regulation Index

B = unstandardized regression coefficients, CI = confidence interval

Supplementary Table S11. Nested hierarchical model summary: Communication domain and Behavior Regulation Index

ADI-R B	R <sup>2</sup>	B	SE B	95% CI	p
Model 1	0.01				0.843
Constant		12.86	4.47	[3.98, 21.74]	0.005*
Sex		-0.42	1.14	[-2.68, 1.85]	0.717
IQ		-0.04	0.04	[-0.11, 0.04]	0.357
ADHD diagnosis		0.44	1.01	[-1.57, 2.45]	0.664
Age		0.01	0.15	[-0.28, 0.30]	0.963
Model 2	0.09				0.129
Constant		7.81	5.11	[-2.34, 17.97]	0.130
Sex		-0.58	1.12	[-2.81, 1.66]	0.609
IQ		-0.04	0.04	[-0.12, 0.04]	0.278
ADHD diagnosis		0.17	1.03	[-1.88, 2.22]	0.871
Age		-0.06	0.16	[-0.37, 0.25]	0.709
BRIEF BRI		0.10	0.04	[0.03, 0.17]	0.008*
Model 3	0.19				0.006*
Constant		28.53	8.14	[12.35, 44.70]	0.001*
Sex		-17.58	5.46	[-28.43, -6.72]	0.002*
IQ		-0.03	0.03	[-0.11, 0.04]	0.416
ADHD diagnosis		0.99	1.02	[-1.03, 3.01]	0.332
Age		-0.03	0.15	[-0.33, 0.27]	0.850
BRIEF BRI		-0.23	0.11	[-0.45, -0.01]	0.040
BRIEF BRI * Sex		0.25	0.08	[0.09, 0.41]	0.002*

p = 0.017

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_BRI: Behavior Rating Inventory of Executive Function, Behavioral Regulation Index

B = unstandardized regression coefficients, CI = confidence interval

Supplementary Table S12. Nested hierarchical model summary: Restricted, repetitive and stereotyped behavior domain and Behavior Regulation Index

ADI-R C	R <sup>2</sup>	B	SE B	95% CI	p
Model 1	0.04				0.435
Constant		5.70	2.16	[1.41, 9.98]	0.010*
Sex		-1.00	0.55	[-2.09, 0.10]	0.073
IQ		-0.01	0.02	[-0.05, 0.02]	0.478
ADHD diagnosis		-0.39	0.48	[-1.35, 0.57]	0.422
Age		0.01	0.07	[-0.13, 0.15]	0.889
Model 2	0.08				0.211
Constant		3.43	2.51	[-1.55, 8.42]	0.175
Sex		-1.07	0.55	[-2.16, -0.03]	0.057
IQ		-0.01	0.02	[-0.05, 0.03]	0.687
ADHD diagnosis		-0.52	0.50	[-1.52, 0.47]	0.301
Age		-0.02	0.08	[-0.17, 0.13]	0.804
BRIEF BRI		0.03	0.02	[-0.00, 0.07]	0.072
Model 3	0.11				0.109
Constant		9.46	4.14	[1.23, 17.70]	0.025
Sex		-6.01	2.78	[-11.54, -0.49]	0.033
IQ		-0.00	0.02	[-0.04, 0.03]	0.822
ADHD diagnosis		-0.29	0.51	[-1.30, 0.73]	0.575
Age		-0.01	0.08	[-0.16, 0.14]	0.893
BRIEF BRI		-0.06	0.06	[-0.17, 0.05]	0.263
BRIEF BRI * Sex		0.07	0.04	[-0.01, 0.15]	0.073

\*  $p = 0.017$

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_BRI: Behavior Rating Inventory of Executive Function, Behavioral Regulation Index

B = unstandardized regression coefficients, CI = confidence interval

Supplementary Table S13. Nested hierarchical model summary: Reciprocal social interaction domain and Metacognition Index

ADI-R A	R <sup>2</sup>	B	SE B	95% CI	p
Model 1	0.03				0.486
Constant		19.98	5.20	[9.65, 30.30]	< .001*
Sex		-0.13	1.32	[-2.75, 2.49]	0.923
IQ		-0.07	0.04	[-0.16, 0.02]	0.104
ADHD diagnosis		-1.26	1.16	[-3.56, 1.04]	0.279
Age		-0.08	0.17	[-0.42, 0.25]	0.618
Model 2	0.09				0.111
Constant		12.32	6.03	[0.35, 24.28]	0.044
Sex		-0.70	1.31	[-3.30, 1.90]	0.594
IQ		-0.07	0.04	[-0.15, 0.02]	0.121
ADHD diagnosis		-1.87	1.16	[-4.18, 0.43]	0.110
Age		-0.07	0.17	[-0.40, 0.26]	0.680
BRIEF MI		0.12	0.05	[0.02, 0.22]	0.020
Model 3	0.18				0.004*
Constant		47.07	12.00	[23.24, 70.90]	< .001*
Sex		-30.98	9.27	[-49.38, -12.58]	0.001*
IQ		-0.07	0.04	[-0.15, 0.01]	0.097
ADHD diagnosis		-1.40	1.11	[-3.62, 0.81]	0.211
Age		-0.07	0.16	[-0.38, 0.24]	0.656
BRIEF MI		-0.40	0.16	[-0.72, -0.07]	0.018
BRIEF MI * Sex		0.45	0.14	[0.18, 0.72]	0.001*

p = 0.017

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_MI: Behavior Rating Inventory of Executive Function, Metacognition Index

B = unstandardized regression coefficients, CI = confidence interval

Supplementary Table S14. Nested hierarchical model summary: Communication domain and Metacognition Index

ADI-R B	R <sup>2</sup>	B	SE B	95% CI	p
Model 1	0.01				0.843
Constant		12.86	4.47	[3.98, 21.74]	0.005*
Sex		-0.42	1.14	[-2.68, 1.85]	0.717
IQ		-0.04	0.04	[-0.11, 0.04]	0.357
ADHD diagnosis		0.44	1.01	[-1.57, 2.45]	0.664
Age		0.01	0.15	[-0.28, 0.30]	0.963
Model 2	0.06				0.328
Constant		7.01	5.20	[-3.31, 17.34]	0.181
Sex		-0.87	1.14	[-3.14, 1.40]	0.447
IQ		-0.03	0.04	[-0.11, 0.04]	0.408
ADHD diagnosis		-0.05	1.02	[-2.08, 1.97]	0.990
Age		0.02	0.14	[-0.27, 0.30]	0.907
BRIEF MI		0.09	0.04	[0.01, 0.18]	0.038
Model 3	0.13				0.047
Constant		31.95	10.62	[10.85, 53.06]	0.003*
Sex		-22.59	8.22	[-38.92, -6.26]	0.007*
IQ		-0.03	0.04	[-0.10, 0.04]	0.383
ADHD diagnosis		0.32	1.00	[-1.66, 2.30]	0.750
Age		0.01	0.14	[-0.27, 0.28]	0.966
BRIEF MI		-0.28	0.14	[-0.56, 0.01]	0.059
BRIEF MI * Sex		0.32	0.12	[0.08, 0.56]	0.009*

p = 0.017

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.  
 ADHD: Attention deficit/ hyperactivity disorder  
 IQ: Intelligence Quotient  
 BRIEF\_MI: Behavior Rating Inventory of Executive Function, Metacognition Index  
 B = unstandardized regression coefficients, CI = confidence interval

Supplementary Table S15. Nested hierarchical model summary: Restricted, repetitive and stereotyped behavior domain and Metacognition Index

ADI-R C	R <sup>2</sup>	B	SE B	95% CI	p
Model 1	0.04				0.435
Constant		5.70	2.16	[1.41, 9.98]	0.010*
Sex		-1.00	0.55	[-2.09, 0.10]	0.073
IQ		-0.01	0.02	[-0.05, 0.02]	0.478
ADHD diagnosis		-0.39	0.48	[-1.35, 0.57]	0.422
Age		0.01	0.07	[-0.13, 0.15]	0.889
Model 2	0.08				0.153
Constant		2.91	2.51	[-2.28, 7.65]	0.249
Sex		-1.22	0.55	[-2.23, -0.07]	0.030
IQ		-0.01	0.02	[-0.05, 0.02]	0.540
ADHD diagnosis		-0.62	0.49	[-1.54, 0.37]	0.210
Age		0.01	0.07	[-0.13, 0.15]	0.832
BRIEF MI		0.04	0.02	[0.01, 0.09]	0.040
Model 3	0.10				0.128
Constant		9.28	5.27	[-1.18, 19.74]	0.081
Sex		-6.77	4.08	[-14.87, 1.33]	0.100
IQ		-0.01	0.02	[-0.05, 0.02]	0.533
ADHD diagnosis		-0.52	0.49	[-1.50, 0.45]	0.287
Age		0.01	0.07	[-1.13, 0.15]	0.862
BRIEF MI		-0.05	0.07	[-0.19, 0.09]	0.486
BRIEF MI * Sex		0.08	0.06	[-0.04, 0.20]	0.173

\*  $p = 0.017$

ADI-R: Autism Diagnostic Interview- Revised, diagnostic algorithm. A: Reciprocal Social Interaction domain, B: Communication domain, C: Restricted, repetitive and stereotyped behavior domain.

ADHD: Attention deficit/ hyperactivity disorder

IQ: Intelligence Quotient

BRIEF\_MI: Behavior Rating Inventory of Executive Function, Metacognition Index

B = unstandardized regression coefficients, CI = confidence interval