

SUPPLEMENTARY MATERIALS

The following table shows the results of the same set of analyses, previously performed on our sample of young people with ADHD (N = 219), excluding 18 participants who did not suspend their medication 24h prior testing (n= 201).

S Table 1 Pattern of associations between irritability and hot and cool EF measures.

	N	Model	Standardized Beta	Unstandardized Beta (95% CI)	p-value
Cool EFs					
WCST Total errors	N= 162	Unadjusted	B=0.12	B= 0.68 (-0.26; 1.62)	p= 0.18
		Adjusted	B=0.11	B= 0.62 (-0.30; 1.55)	p= 0.19
WCST Perseverative errors	N= 162	Unadjusted	B=0.24	B= 0.73 (0.24; 1.23)**	p= 0.004
		Adjusted	B=0.22	B= 0.69 (0.20; 1.17)*	p= 0.01
GnG RT to go signals	N= 174	Unadjusted	B=0.05	B= 1.82 (-3.98; 7.63)	p= 0.54
		Adjusted	B=0.03	B= 1.08 (-4.54; 6.70)	p= 0.71
GnG Probability of inhibition	N= 174	Unadjusted	B=-0.05	B= -0.76 (-3.36; 1.84)	p= 0.52
		Adjusted	B=0.04	B= 0.57 (-1.77; 2.91)	p= 0.63
Hot EFs					
CPT total number of Cards	N= 191	Unadjusted	B=0.02	B= 0.51 (-3.39; 4.42)	p= 0.80
		Adjusted	B=0.003	B= 0.09 (-3.86; 4.03)	p= 0.97
TDT RT (delayed - immediate choice)	N= 164	Unadjusted	B=-0.10	B= -11.7 (-31.5; 8.11)	p= 0.25
		Adjusted	B=-0.11	B= -13.6 (-33.7; 6.55)	p= 0.18
TDT AUC	N= 164	Unadjusted	B=-0.15	B= -0.02 (-0.05; 0.001)	p= 0.06
		Adjusted	B=-0.15	B= -0.02 (-0.05; 0.002)	p= 0.07
UG Moderately Unfair offers accepted	N= 107	Unadjusted	B=-0.18	B= -0.05 (-0.10; 0.01)	p= 0.08
		Adjusted	B=-0.17	B= -0.05 (-0.10; 0.01)	p= 0.10
CxR propensity to gamble	N= 142	Unadjusted	B=0.09	B= 0.01 (-0.01; 0.02)	p= 0.35
		Adjusted	B=0.08	B= 0.01 (-0.01; 0.02)	p= 0.40

* Significant results

WCST = Wisconsin Card Sorting Test task, GnG = Go/no-Go task, CPT = Continuous Performance Task, TDT = Temporal Discounting Task, UG = Ultimatum Game. RT = Reaction Time, AUC = Area Under the Curve.

Adjusted models were corrected for age, sex, SES, where possible.

The following table shows the results of the same set of analyses, previously performed on our sample of young people with ADHD (N = 219), excluding 72 participants who had CD diagnosis at follow-up (n= 147).

S Table 2 Pattern of associations between irritability and hot and cool EF measures.

	N	Model	Standardised beta	Unstandardized Beta (95% CI)	p-value
Cool EFs					
WCST Total errors	N= 113	Unadjusted	B= 0.07	B= 0.36 (-0.72; 1.43)	p= 0.52
		Adjusted	B= 0.05	B= 0.30 (-0.75; 1.34)	p= 0.58
WCST Perseverative errors	N= 113	Unadjusted	B= 0.21	B= 0.57 (0.05; 1.09)*	p= 0.03
		Adjusted	B= 0.19	B= 0.52 (0.01; 1.03)	p= 0.05
GnG RT to go signals	N= 131	Unadjusted	B= 0.05	B= 1.63 (-4.64; 7.89)	p= 0.61
		Adjusted	B= 0.04	B= 1.25 (-4.68; 7.17)	p= 0.68
GnG Probability of inhibition	N= 131	Unadjusted	B= -0.04	B= -0.61 (-3.53; 2.32)	p= 0.68
		Adjusted	B= 0.03	B= 0.41 (-2.11; 2.93)	p= 0.75
Hot EFs					
CPT total number of Cards	N= 139	Unadjusted	B= -0.05	B= -1.15 (-5.46; 3.17)	p= 0.60
		Adjusted	B= -0.05	B= -1.29 (-5.65; 3.06)	p= 0.56
TDT RT (delayed - immediate choice)	N= 122	Unadjusted	B= -0.05	B= -6.05 (-27.3; 15.2)	p= 0.58
		Adjusted	B= -0.06	B= -7.09 (-28.8; 14.6)	p= 0.52
TDT AUC	N= 122	Unadjusted	B= -0.14	B= -0.02 (-0.05; 0.01)	p= 0.15
		Adjusted	B= -0.12	B= -0.02 (-0.05; 0.01)	p= 0.21
UG Moderately Unfair offers accepted	N= 77	Unadjusted	B= -0.20	B= -0.05 (-0.12; 0.01)	p= 0.10
		Adjusted	B= -0.21	B= -0.06 (-0.12; 0.01)	p= 0.08
CxR propensity to gamble	N= 105	Unadjusted	B= 0.01	B= 0.00 (-0.01; 0.01)	p= 0.94
		Adjusted	B= -0.01	B= 0.00 (-0.01; 0.01)	p= 0.96

* Significant results

WCST = Wisconsin Card Sorting Test task. GnG = Go/no-Go task. CPT = Continuous Performance Task. TDT =

Temporal Discounting Task. UG = Ultimatum Game. RT = Reaction Time. AUC = Area Under the Curve.

Adjusted models were corrected for age. sex. SES. where possible.

The following table shows the results of within time correlations between irritability and executive functions both measured in adolescence.

Notably, as mentioned in the method section of this paper, clinical symptoms and diagnosis were assessed at follow-up using the DAWBA as opposed to the CAPA. This reduced the availability of data on irritability in adolescence and further impacted on the number of individuals with available cognitive data (see S Table 3). The total sample size at follow-up consisted of 149 adolescents with an ADHD diagnosis in childhood.

Irritability composite score at follow-up consisted of summing up responses with a score of 2 (i.e., “A lot more than others”) on the following items of the DABA: “temper outbursts”, “angry or resentful” and “easily annoyed”. Irritability scores ranged from 0 to 3, with a mean of 1.53 (s.d. 1.28).

S Table 3 Correlations between irritability measured in adolescence and executive functions.

EF measures	Irritability in adolescence		
	N	Pearson coefficient	p-value
Cool EF			
WCST Total errors	N= 129	-0.02	0.82
WCST Perseverative errors	N= 129	0.02	0.83
GnG RT to go signals	N= 132	-0.08	0.35
GnG Probability of inhibition	N= 132	-0.01	0.93
Hot EF			
CPT total number of Cards	N= 149	0.11	0.17
TDT RT (delayed - immediate choice)	N= 124	-0.07	0.45
TDT AUC	N= 124	-0.06	0.49
UG Moderately Unfair offers accepted	N= 54	0.01	0.96
CxR propensity to gamble	N= 138	-0.02	0.79

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S Table 4 Correlation matrix between EF measures, IQ and Irritability

	Irritability	WCST Total errors	WCST Perseverative errors	GnG RT to go signals	GnG Probability of inhibition	CPT total number of Cards	TDT RT (delayed - immediate choice)	TDT AUC	UG Moderately Unfair offers accepted	CxR propensity to gamble	IQ
Irritability	1										
WCST Total errors	0.11	1									
WCST Perseverative errors	0.22**	0.78**	1								
GnG RT to go signals	0.05	0.10	0.06	1							
GnG Probability of inhibition	-0.04	-0.03	-0.05	-0.14	1						
CPT total number of Cards	0.02	0.03	0.04	0.15	-0.06	1					
TDT RT (delayed - immediate choice)	-0.10	-0.03	-0.06	0.03	-0.02	0.07	1				
TDT AUC	-0.13	-0.12	-0.13	-0.004	-0.04	0.02	-0.22**	1			
UG Moderately Unfair offers accepted	-0.19*	-0.02	-0.03	0.12	0.11	0.32**	-0.04	-0.09	1		

CxR propensity to gamble	.091	.203*	.126	.033	-.068	.083	.003	.020	-.092	1	
IQ	-0.24**	-0.35**	-0.33**	-0.10	0.06	-0.02	-0.04	-0.02	0.11	-0.18*	1

*significant results $p < 0.05$, ** significant results $p \leq 0.01$

WCST = Wisconsin Card Sorting Test task. GnG = Go/no-Go task. CPT = Continuous Performance Task. TDT = Temporal Discounting Task. UG = Ultimatum Game. RT = Reaction Time. AUC = Area Under the Curve. EF = Executive functions.