

Supplementary Online Content

Papanastasiou E, Mouchlianitis E, Joyce DW, et al. Examination of the neural basis of psychotic-like experiences in adolescence. *JAMA Psychiatry*. Published online August 1, 2018.
doi:10.1001/jamapsychiatry.2018.1973

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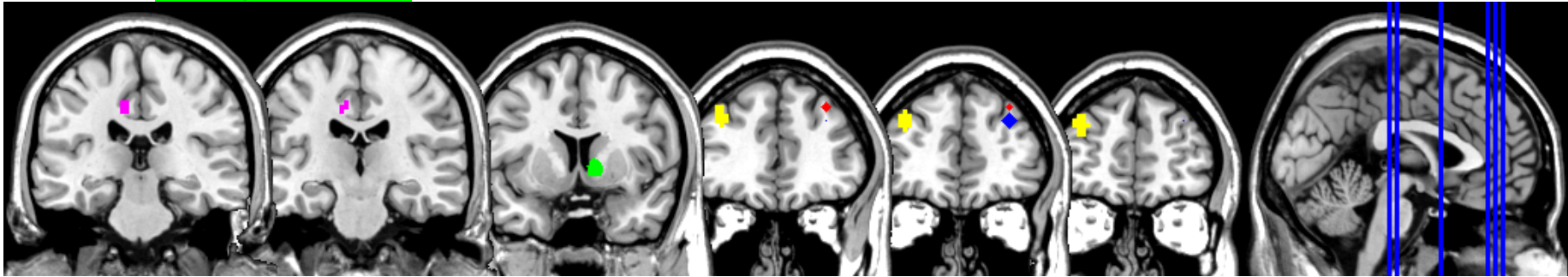
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This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure 1. MID Study, ROIs selected for analysis, Illustration (Coronal View)

BASELINE [33 41 40] Right Middle Frontal Gyrus (L>H); [33 44 31] Right Middle Frontal Gyrus (L>H); [-12 -28 40] Left Cingulate Gyrus (L>H);
[-36 47 31] Left Middle Frontal Gyrus (L>H)

FOLLOW-UP [9 8 1] Right Caudate Head (L>H)



Coronal View

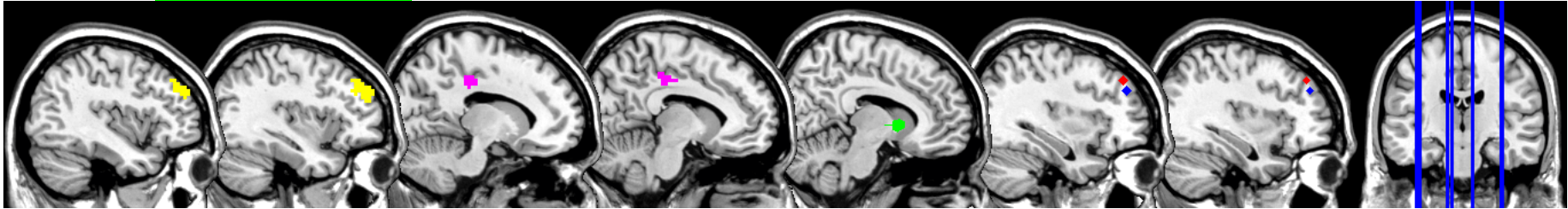
Horizontal Axis: Left=Left, Right=Right

Vertical Axis: Up=Superior, Down=Inferior

eFigure 2. MID Study, ROIs selected for analysis, Illustration (Sagittal View)

BASELINE [33 41 40] Right Middle Frontal Gyrus (L>H); [33 44 31] Right Middle Frontal Gyrus (L>H); [-12 -28 40] Left Cingulate Gyrus (L>H);
[-36 47 31] Left Middle Frontal Gyrus (L>H)

FOLLOW-UP [9 8 1] Right Caudate Head (L>H)



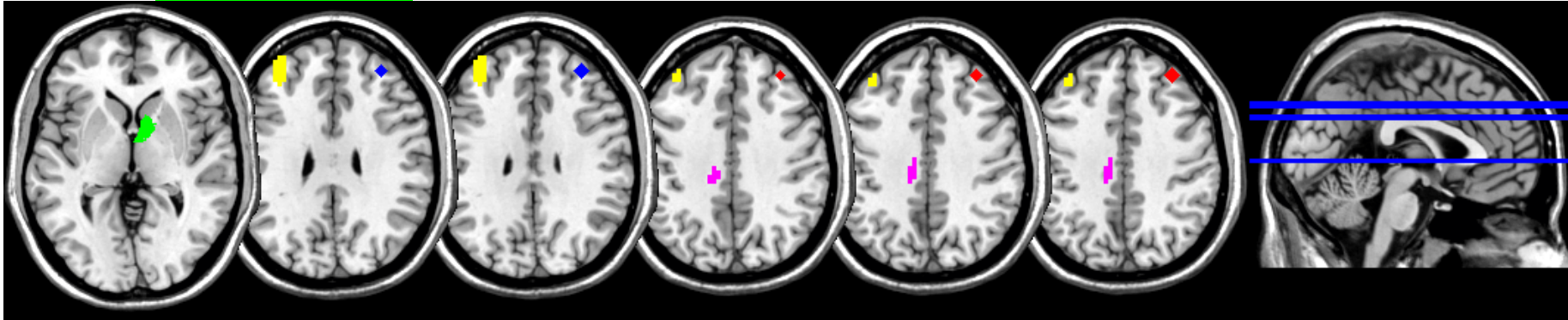
Sagittal View

Horizontal Axis: Left=Posterior, Right=Anterior

Vertical Axis: Up=Superior, Down=Inferior

eFigure 3. MID Study, ROIs selected for analysis, Illustration (Axial View)

BASELINE [33 41 40] Right Middle Frontal Gyrus (L>H); [33 44 31] Right Middle Frontal Gyrus (L>H); [-12 -28 40] Left Cingulate Gyrus (L>H);
[-36 47 31] Left Middle Frontal Gyrus (L>H)
FOLLOW-UP [9 8 1] Right Caudate Head (L>H)



Axial View

Horizontal Axis: Left=Left, Right=Right

Vertical Axis: Up=Anterior, Down=Posterior

eTable 1. MID Study, fROI Brain Analysis

Time-Point	Contrast	Analysis	MNI coordinates			Anatomical Area	K	p(FEW-corr) Cluster Level	p(FEW-corr) Peak Level	T score	Z score
			X	Y	Z						
FU	Anticipation LW-NW	Group Average Positive	9	8	1	Right Caudate Head	1073	<0.0001	<0.0001	11.67	Inf.
BL	Feedback LW-NW	Low>High	33	41	40	Right Frontal Lobe, Middle Frontal Gyrus, BA09	1	0.015*	0.037*	5.04	4.88
BL	Feedback LW-NW	Group Average Negative	33	44	31	Right Frontal Lobe, Middle Frontal Gyrus, BA09	1	0.015*	0.05*	4.98	4.82
BL	Feedback LW-NW	Group Average Negative	-36	47	31	Left Frontal Lobe, Middle Frontal Gyrus, BA09/10	66	<0.0001	<0.0001	7.25	6.8
BL	Feedback LW-NW	Group Average Negative	-12	-28	40	Left Limbic Lobe, Cingulate Gyrus, BA31	28	<0.0001	<0.0001	7.37	6.9
Abbreviations											
<p>BL: Baseline, age 14; FU: Follow-up, age 19; LW: Large Win; NW: No Win; High Group: Scorers in upper 10% of CAPE Total Score, n=149; Low Group: Scorers in lower 10% CAPE Total Score, n=149; High>Low: showing increased activation in the High but not in the Low Group; Low>High: showing increased activation in the Low but not in the High Group; Group Average Positive: showing increased activation in both High and Low Groups; Group Average Negative: showing decreased activation in both High and Low Groups; BA: Brodmann Area; K: number of Voxels; p(FWE-corr): p value corrected for Family Wise Error (false positives); (*): did not survive Bonferoni correction for multiple testing at 0.0125 (0.05/4).</p>											

eTable 2. MID Study, fROIs Factorial Analysis, Mixed Model 2-Way ANOVA

	Type III Sum of Squares	df	Mean Square	F	Sig.	r
Caudate ROI [9 8 1] Brain Activation, General Stratification						
TIME	1.684	1	1.684	1.635	0.205*	0.140
GROUP	1.100	1	1.100	2.791	0.099*	0.181
TIME * GROUP	1.593	1	1.593	1.546	0.217*	0.136
Error(TIME)	84.455	82	1.030			
Error(GROUP)	32.311	82	0.394			
Frontal ROI [33 41 40] Brain Activation, General Stratification						
TIME	7.632	1	7.632	1.527	0.220*	0.127
GROUP	4.108	1	4.108	3.598	0.061*	0.193
TIME * GROUP	37.236	1	37.236	7.448	0.008	0.272
Error(TIME)	464.966	93	5.000			
Error(GROUP)	106.187	93	1.142			
Frontal ROI [33 44 31] Brain Activation, General Stratification						
TIME	25.604	1	25.604	5.009	0.028	0.226
GROUP	2.323	1	2.323	1.821	0.180*	0.139
TIME * GROUP	8.606	1	8.606	1.684	0.198*	0.133
Error(TIME)	475.398	93	5.112			
Error(GROUP)	118.659	93	1.276			
Frontal ROI [-36 47 31] Brain Activation, General Stratification						
TIME	33.354	1	33.354	5.559	0.020	0.237
GROUP	2.24	1	2.24	1.77	0.187*	0.137
TIME * GROUP	19.871	1	19.871	3.312	0.072*	0.185
Error(TIME)	558.029	93	6			
Error(GROUP)	117.68	93	1.265			
Limbic ROI [-12 -28 40] Brain Activation, General Stratification						
TIME	5.911	1	5.911	1.906	0.171*	0.142
GROUP	0.839	1	0.839	0.801	0.373*	0.092
TIME * GROUP	0.086	1	0.086	0.028	0.868*	0.017
Error(TIME)	288.332	93	3.100			
Error(GROUP)	97.359	93	1.047			
Abbreviations						
df: degrees of Freedom; F: F-ratio; (*): not statistically significant at a p=0.05 level; r: Pearson's correlation coefficient; BL : Baseline, age 14; FU : Follow-up, age 19.						

eTable 3. MID Study, Exploratory Cross-Sectional Analysis, Independent T-tests.

Time-Point	MNI Coordinates			Anatomical Area	High Group Mean Brain Activation (Parameter Estimates)	Low Group Mean Brain Activation (Parameter Estimates)	Group Activation Relation	t-test for Equality of Means			
	X	Y	Z					t-test	df	Sig.	r
BL	33	41	40	Right Frontal Lobe, Middle Frontal Gyrus, BA09	-0.986	0.134	L>H	-5.069	188	<0.0001	0.346
BL	33	44	31	Right Frontal Lobe, Middle Frontal Gyrus, BA09	-1.011	-0.249	L>H	-3.029	188	0.003	0.215
BL	-36	47	31	Left Frontal Lobe, Middle Frontal Gyrus, BA09/10	-1.446	-0.637	L>H	-2.818	187	0.005	0.202
BL	-12	-28	40	Left Limbic Lobe, Cingulate Gyrus, BA31	-0.966	-0.426	L>H	-2.82	169	0.005	0.212
FU	9	8	1	Right Caudate Head	0.578	0.959	L>H	-2.846	141	0.005	0.233
Abbreviations											
BL: Baseline, age 14; FU: Follow-up, age 19; BA: Brodmann Area; H>L: High Group showing more activation than Low Group; L>H: Low Group showing more activation than High Group; r: Pearson’s correlation coefficient; df: degrees of Freedom.											

eTable 4. MID Study, Exploratory Longitudinal Analysis, Paired T-tests.

MNI Coordinates			Anatomical Area	Groups	Baseline Mean Brain Activation (Parameter Estimates)	Follow-up Mean Brain Activation (Parameter Estimates)	Group Activation Relation	t-test for Equality of Means			
X	Y	Z						t-test	df	Sig.	r
-36	47	31	Left Frontal Lobe, Middle Frontal Gyrus, BA09/10	HIGH & LOW General	-1.025	-0.482	FU>BL	-2.135	94	0.035	0.215
				HIGH General	-1.454	-0.397	FU>BL	-2.851	41	0.007	0.407
				LOW General	-0.684	-0.548	FU>BL	-0.399	52	0.692*	0.055
33	44	31	Right Frontal Lobe, Middle Frontal Gyrus, BA09	HIGH & LOW General	-0.711	-0.223	FU>BL	-2.094	94	0.039	0.212
				HIGH General	-1.055	-0.230	FU>BL	-2.902	41	0.006	0.413
				LOW General	-0.437	-0.218	FU>BL	-0.629	52	0.532*	0.087
33	41	40	Right Frontal Lobe, Middle Frontal Gyrus, BA09	HIGH & LOW General	-0.461	-0.248	FU>BL	-0.896	94	0.373*	0.092
				HIGH General	-1.046	-0.131	FU>BL	-3.18	41	0.003	0.445
				LOW General	0.002	-0.342	BL>FU	1.009	52	0.318*	0.138

Abbreviations
BA: Brodmann Area; **BL:** Baseline, age 14; **FU:** Follow-up, age 19; **BL>FU:** Baseline activation greater than Follow-up activation; **FU>BL:** Follow-up activation greater than Baseline activation; **r:** Pearson’s correlation coefficient; **(*):** not statistically significant at a p=0.05 level; **df:** degrees of Freedom.
High General: Scorers in upper 10% of CAPE Total Score, n=149; **Low General:** Scorers in lower 10% CAPE Total Score, n=149.

eTable 5. CANTAB Measures Exploratory Cross-Sectional Analysis, Independent T-Tests.

CANTAB Variable	Timepoint	High Group Mean Score	Low Group Mean Score	Group Scores Relation	t-test for Equality of Means			
					t-test	df	Sig.	r
AGN Total Omissions Negative	BL	10.052	13.177	L>H	-3.021	235	0.003	0.193
AGN Total Omissions Positive	BL	12.035	14.645	L>H	-2.817	237	0.005	0.180

Abbreviations
AGN Total Omissions Negative/Positive: Affective Go-NoGo Task, total number of missed responses to targets in the blocks specified by the value of target type (negative, positive); **CGT Risk Adjustment:** Cambridge Gambling Task, tendency to get higher proportions of points when the large majority of boxes are the colour chosen; **H>L:** High Group showing greater scores than Low Group; **L>H:** Low Group showing greater scores than High Group; **r:** Pearson’s correlation coefficient; **BL:** Baseline, age 14; **FU:** Follow-up, age 19; **df:** degrees of Freedom.

eTable 6. CANTAB Measures Exploratory Longitudinal Analysis, Paired T-Tests.

CANTAB Variable	Group	Baseline Mean Score	Follow-up Mean Score	Group Scores Relation	t-test for Equality of Means			
					t-test	df	Sig.	r
AGN Total Omissions Negative	ALL	11.899	6.647	BL>FU	18.932	781	<0.0001	0.561
	HIGH	10.065	6.688	BL>FU	3.745	76	<0.0001	0.395
	LOW	12.369	7.095	BL>FU	6.385	83	<0.0001	0.574
AGN Total Omissions Positive	ALL	13.787	8.551	BL>FU	19.853	781	<0.0001	0.579
	HIGH	12.195	8.273	BL>FU	4.529	76	<0.0001	0.461
	LOW	14.274	8.964	BL>FU	6.352	83	<0.0001	0.572

Abbreviations
AGN Total Omissions Negative/Positive: Affective Go-NoGo Task, total number of missed responses to targets in the blocks specified by the value of target type (negative, positive); **CGT Risk Adjustment:** Cambridge Gambling Task, tendency to get higher proportions of points when the large majority of boxes are the colour chosen; **BL>FU:** Mean Scores greater at BL; **FU>BL:** Mean Scores greater at FU; **r:** Pearson's correlation coefficient; **BL:** Baseline, age 14; **FU:** Follow-up, age 19; **ALL:** Whole sample, n=1,434; **df:** degrees of Freedom.

eFigure 4. CANTAB Measures: Mean AGN Total Omissions Positive and Negative Stimuli Scores at age 14 and 19; statistically significant changes at $p=0.05$ level for both the High and Low PLEs Group, SE bars are displayed

