Supplemental Materials to accompany

"Sensitivity to reward as a buffer against negative mental health consequences of pandemic-related stress: a preregistered analysis in the Human Connectome Project in Development"

Supplemental Materials

Items for Pandemic-Related Stressors variable along with reporter

Item	**Reporter**	**Timeframe**	Responses and Coding
got sick with COVID-19	Either parent or participant	Any point in pandemic	Yes = 1 No = 0
had a parent or sibling get sick with COVID-19 did you have a close family member who got sick with the coronavirus, if so who,	Either parent or participant	Any point in pandemic	None of my other family members got sick with coronavirus= 0, parent = +1, sibling = +1, other relative = +1
had another relative get sick with COVID-19	Either parent or participant	Any point in pandemic	None of my other family members got sick with coronavirus= 0, parent = +1, sibling =+1, other relative= +1
knew someone who died as a result of COVID-19	Either parent or participant	Any point in pandemic	Parent = +1, Sibling = +1, Other relative = +1, boyfriend/ girlfriend = +1, close friend = +1, classmate = +1, acquaintance = +1, teacher = +1, other = +1, No = 0
parent is a frontline healthcare worker	Either parent or participant	Any point in pandemic	Yes, they work directly with patients with the coronavirus = 1, Yes, they do not work directly with patients with the coronavirus = 1 No = 0
felt less connected to close friends	Participant	Last month (relative to last school year)	Much less connected = 1 A little less connected = 1 The same = 0 A little more connected = 0 Much more connected = 0
felt less connected to family	Participant	Last month (relative to last school year)	Much less connected = 1 A little less connected = 1 The same = 0 A little more connected = 0 Much more connected = 0

experienced discrimination related to the pandemic	Participant	Last month	I have NOT done this in the last month = 0 I did this SOME of the time in the last month = 1 I did this MOST of the time in the last month = 1 I did this ALL the time in the past month = 1
experienced food insecurity during the pandemic Were you ever hungry but did not eat because there was not enough food or did you ever eat less than you felt you should because you didn't have enough food?	Either parent or participant	Since June 2021	Never = 0 Rarely (on either) = 1 Sometimes (on either) = 1 Often (on either) = 1
parent lost a job during the pandemic	Either parent or participant	Any point in pandemic	Yes = 1 No = 0 Don't know = 0
parent still out of work and/or making less money than before "is your parent or guardian still out of work"	Parent	Any point in pandemic	Yes = 1 No, but they are making less money than before or working fewer hours = 1 No, and they are making a similar salary as before = 0
difficulty doing school work remotely How difficult is it to get school work done? <- since June 2021, so most of these kids would no longer be remote so not sure if this is the right question	Participant	Since June 2021	Not at all difficult = 0 A little difficult = 1 Somewhat difficult = 1 Very difficult = 1

Supplementary Tables:

Supplementary Table 1. Main effects of ROI on T2 symptoms

ROI	**Internalizing**		**Externalizing**	
	β	*p*	β	*p*
Left vmPFC	-0.010	0.820	-0.045	0.352
Right vmPFC	-0.060	0.352	-0.092	0.134
Left Dorsal Striatum	-0.020	0.876	-0.006	0.876
Right Dorsal Striatum	-0.006	0.876	-0.008	0.876
Left Ventral Striatum	-0.050	0.648	0.003	0.972
Right Ventral Striatum	-0.078	0.520	0.002	0.972

Supplementary Table 2. Interaction effects of age and neural activity on T2 Symptoms

ROI	**Internalizing**		**Externalizing**	
	β	*p*	β	*p*
Left vmPFC	0.008	0.959	-0.028	0.959
Right vmPFC	0.057	0.959	0.049	0.959
Left Dorsal Striatum	0.216	0.419	-0.029	0.857
Right Dorsal Striatum	0.209	0.419	0.100	0.714
Left Ventral Striatum	0.187	0.988	0.017	0.988
Right Ventral Striatum	0.093	0.988	0.003	0.988

Supplementary Table 3. Three-way interactions of age, pandemic-related stressors, and neural activity, on T2 symptoms.

ROI	**Internalizing**		**Externalizing**	
	β	*p*	β	*p*
Left vmPFC	0.154	0.964	0.134	0.964
Right vmPFC	0.005	0.989	-0.136	0.964
Left Dorsal Striatum	0.662	0.098	0.020	0.904
Right Dorsal Striatum	0.830	0.070	-0.040	0.904
Left Ventral Striatum	0.199	0.620	-0.220	0.620
Right Ventral Striatum	0.476	0.620	0.346	0.620

Supplementary Table 4. T-tests show activity for wins vs. losses is greater than 0.

ROI	**t**	**df**	***p***	**95% CI**
Left vmPFC	10.634	326	<2.2e-16	18.452, Inf
Right vmPFC	10.504	326	<2.2e-16	16.302, Inf
Left Dorsal Striatum	18.716	325	<2.2e-16	32.147, Inf
Right Dorsal Striatum	18.809	325	<2.2e-16	31.807, Inf
Left Ventral Striatum	10.199	325	<2.2e-16	11.753, Inf
Right Ventral Striatum	10.576	325	<2.2e-16	12.038, Inf

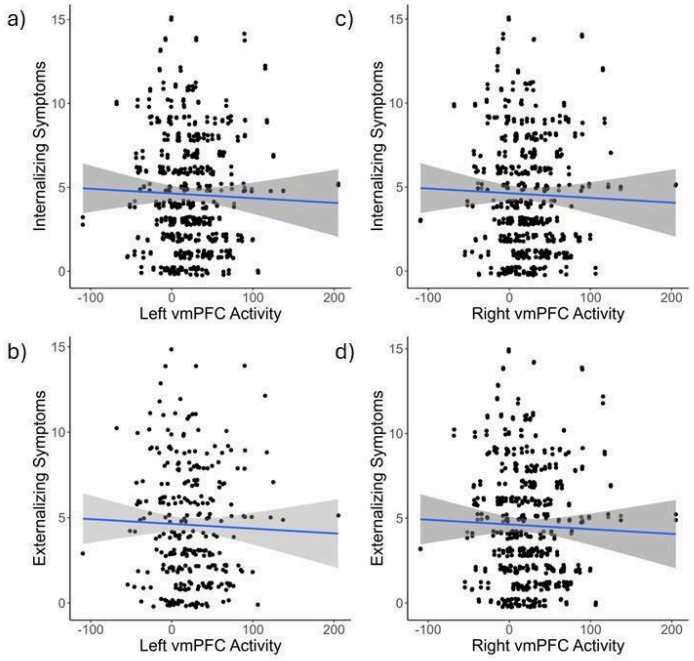
Supplementary Table 5. Age at T1 predicting activity in each ROI, controlling for gender and scanner. *p*-values are uncorrected.

ROI	β	*p*
Left vmPFC	-0.091	0.107
Right vmPFC	-0.082	0.144
Left Dorsal Striatum	0.059	0.296
Right Dorsal Striatum	0.064	0.258
Left Ventral Striatum	0.080	0.160
Right Ventral Striatum	0.103	0.069

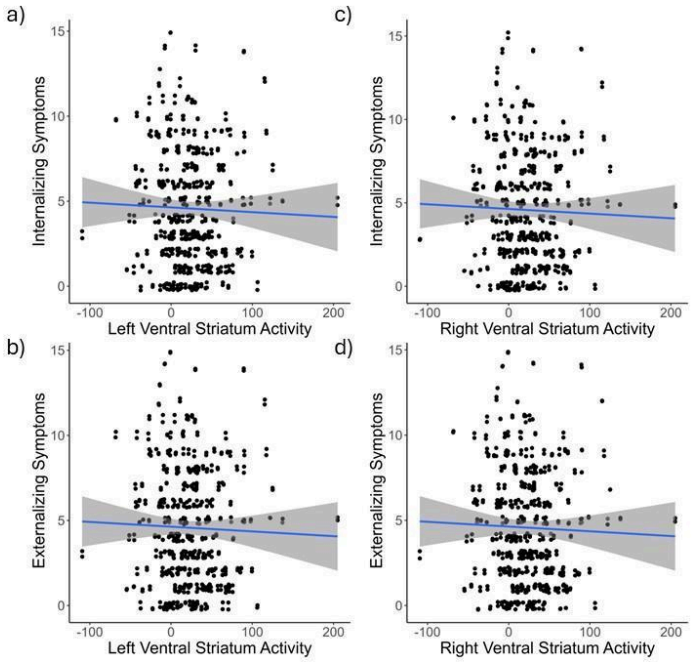
Supplementary Table 6. Age (T2) x pandemic-related interactions predicting psychopathology, controlling for symptoms at T1 and gender. *p*-values are uncorrected.

	β	*p*
Internalizing Symptoms	0.328	0.180
Externalizing Symptom	0.328	0.187

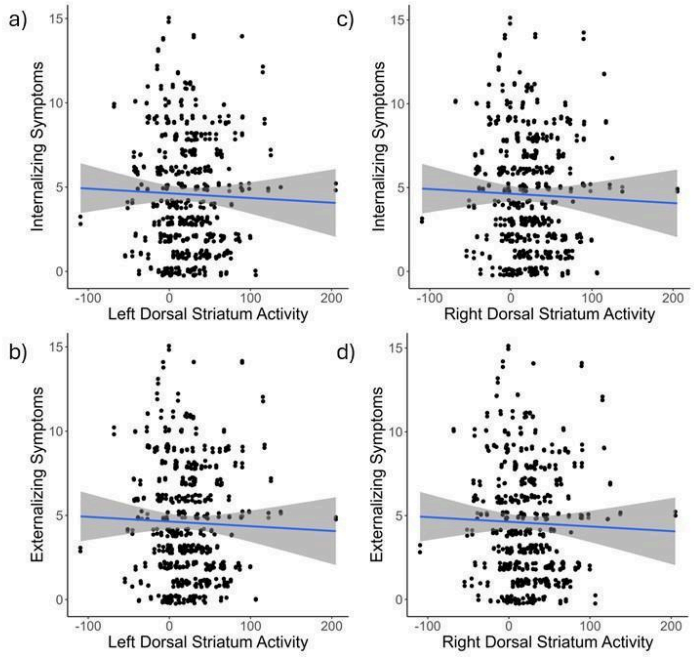
Supplementary Figures:



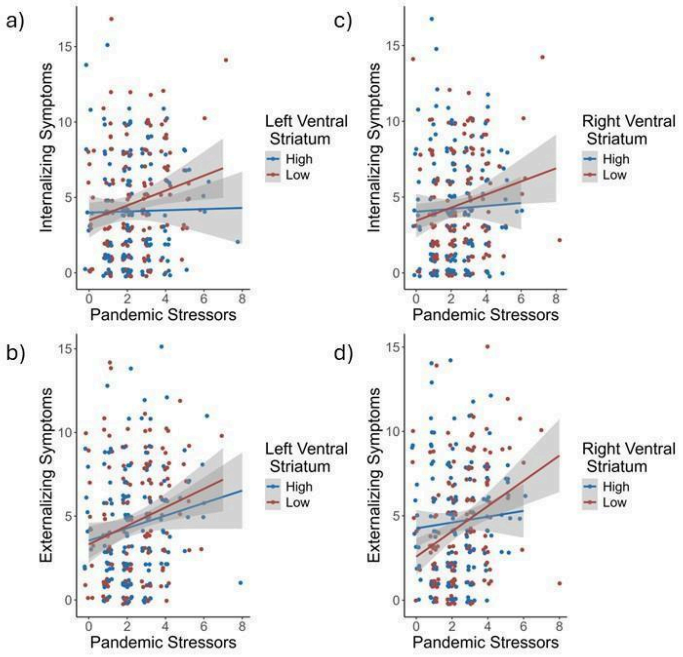
Supplementary Figure 1. Visualization of the association between vmPFC activity and T2 symptoms.



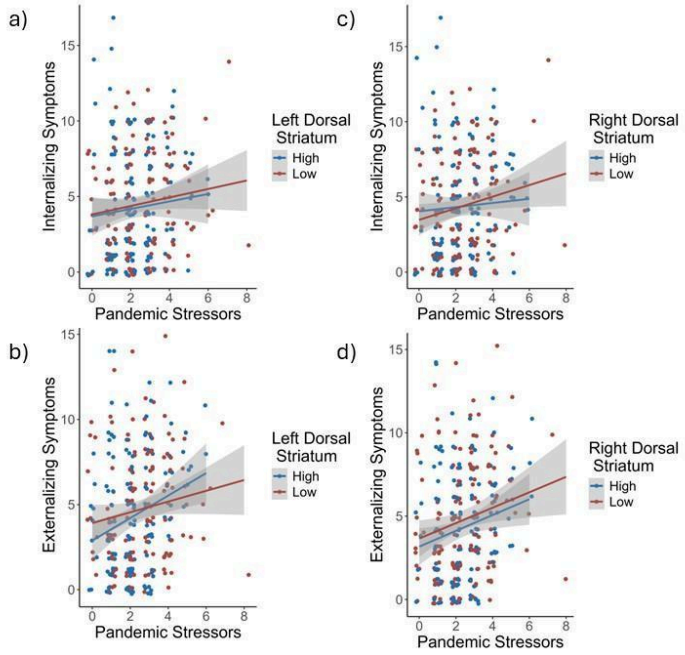
Supplementary Figure 2. Visualization on the association between ventral striatum activity and T2 symptoms.



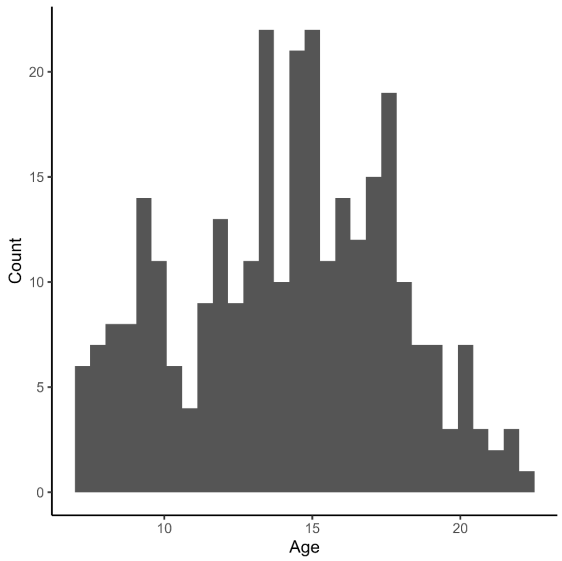
Supplementary Figure 3. Visualization of the association between dorsal striatum activity and T2 symptoms.



Supplementary Figure 4. Interactions of pandemic stress and ventral striatum activity on T2 symptoms.



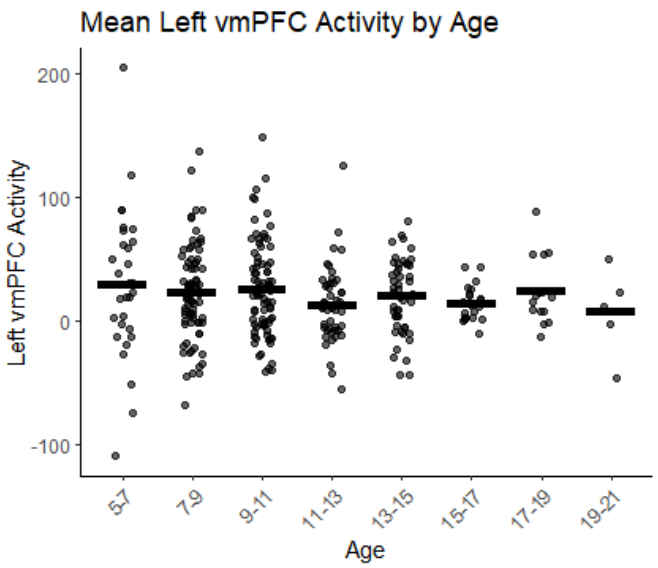
Supplementary Figure 5. Interactions of pandemic stressors and dorsal striatum activity on T2 symptoms.



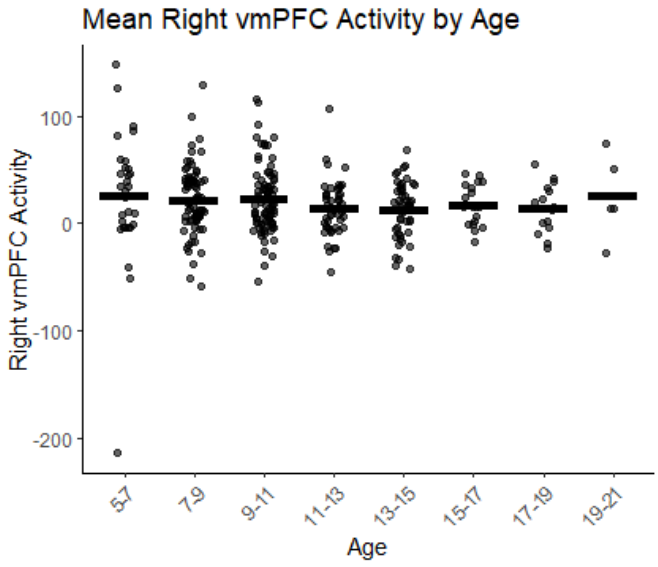
Supplementary Figure 6. Distribution of the sample age.

Supplemental Tables and Figures depicting ROI activation stratified by age. Each dot represents a subject, and horizontal bars illustrate the mean activation for that age group.

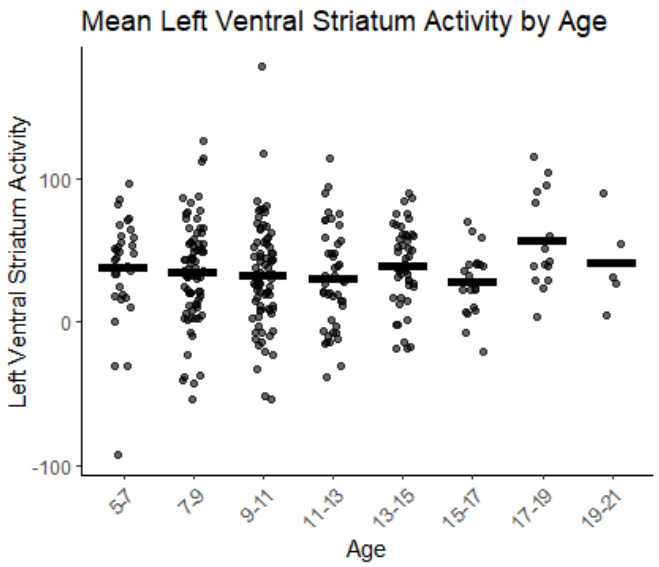
Age	Mean	SD
5-7	29.2	58.4
7-9	22.8	38.7
9-11	26.3	38.0
11-13	13.5	30.3
13-15	20.2	30.3
15-17	14.4	14.5
17-19	23.9	27.3
19-21	7.3	35.4



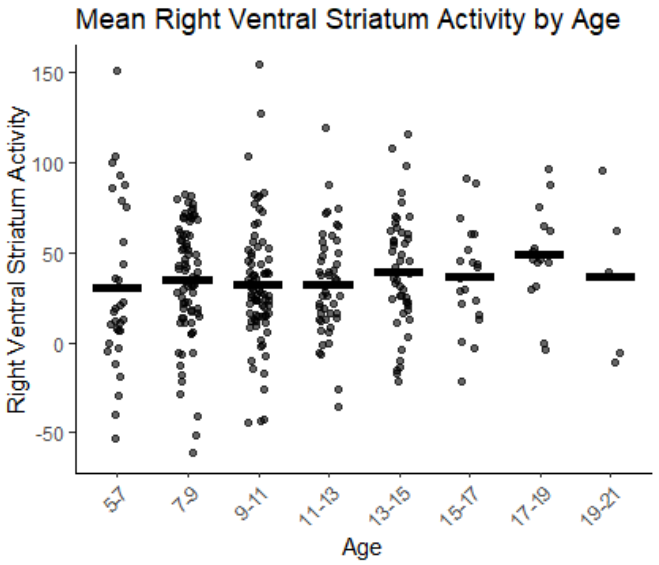
Age	Mean	SD
5-7	25.2	61.0
7-9	21.6	31.7
9-11	22.7	31.8
11-13	14.0	25.6
13-15	13.1	25.9
15-17	17.6	18.1
17-19	14.5	23.2
19-21	25.3	39.1



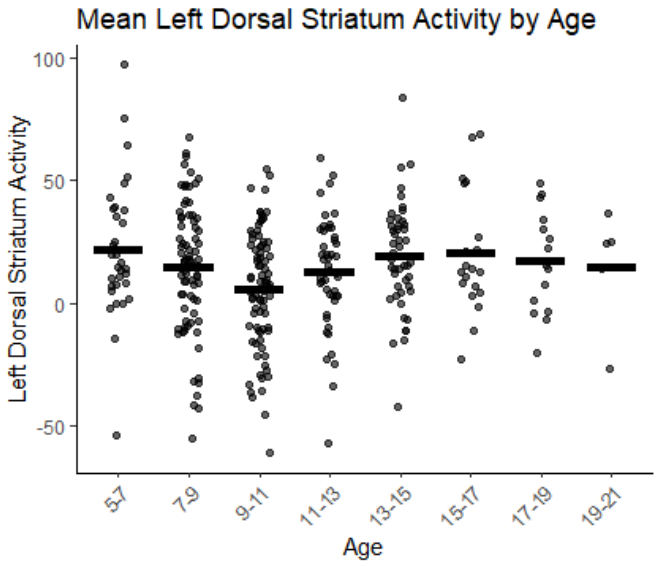
Age	Mean	SD
5-7	37.6	37.9
7-9	34.9	35.3
9-11	32.4	35.9
11-13	30.3	34.1
13-15	39.7	28.2
15-17	27.9	23.1
17-19	56.7	33.6
19-21	41.8	32.2



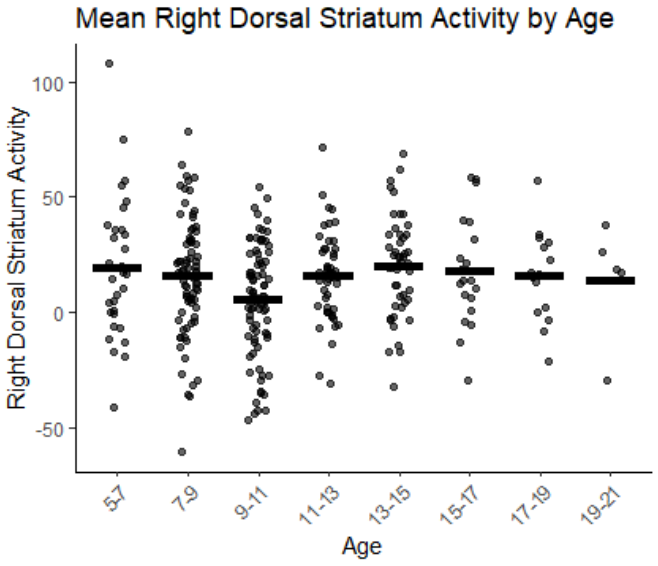
Age	Mean	SD
5-7	30.2	46.5
7-9	34.7	32.2
9-11	32.1	33.5
11-13	32.6	29.2
13-15	39.8	31.8
15-17	37.1	29.1
17-19	48.7	28.0
19-21	36.3	45.1



Age	Mean	SD
5-7	22.0	27.9
7-9	14.8	26.4
9-11	5.8	24.2
11-13	12.5	22.5
13-15	19.1	21.8
15-17	20.4	24.9
17-19	17.0	21.0
19-21	14.7	24.4



Age	Mean	SD
5-7	19.1	30.1
7-9	15.8	25.7
9-11	5.5	24.1
11-13	15.5	19.5
13-15	20.1	21.6
15-17	18.0	23.8
17-19	15.7	19.8
19-21	14.0	25.6



Supplemental Analyses:

Supplemental Analysis 1: Differences in response to follow-up questionnaires.

We investigated potential differences between those who completed the follow-up surveys (complete group) and those who did not (incomplete group) from the original sample. We first identified that neural activity in the left and right vmPFC differed significantly between the complete and incomplete groups, such that those in the complete group had higher

activation than those in the incomplete group (two sample t-test, Left: t=2.4138, df=414.92, p=0.01622, Right: t=2.697, df=404.74, p=0.01458). There were no significant differences in striatal activity for the complete and incomplete groups. We additionally found a significant interaction of race and complete/ incomplete group, with higher than expected counts of white and multi-racial individuals in the complete group (X^2=24.893, df=5, p-value<0.01).