SUPPLEMENT 1

Threat Bias Task

Subjects performed 192 trials of a dot-probe task, divided into 2 blocks of 96 trials. Each trial began with the presentation of a central fixation cross. Next, 500 milliseconds after the central cross appeared, 2 faces were simultaneously presented, 1 to the left and 1 to the right of fixation. On a given trial, 1 face had a neutral expression and the other had an angry (50% of trials) or sad (50% of trials) expression of the same actor. Only the 96 trials with neutral–angry pairings were considered for this current study, because of the substantial literature supporting threat bias toward angry faces in individuals with depression and/or anxiety disorders. Faces were presented for 500 milliseconds, and a target probe appeared at the location of 1 of the 2 faces (randomly selected) immediately after the faces disappeared. The subjects' task was to indicate with a button press whether the target probe was an upright versus inverted T. The probe remained on the screen until a response was recorded, and the next trial began 1,300 milliseconds after the subject's response. During the 1,300-millisecond intertrial interval, the screen was blank.

Trials with incorrect responses or reaction times greater than 2,000 milliseconds were initially eliminated from analysis. After this initial step, any trials with reaction time greater than 2 standard deviations from the subject's mean reaction time were also eliminated. These processing steps resulted in an average retention of 89.9% (SD 3.5%) of trials for analysis across subjects. Threat bias was calculated as the difference in average reaction time between retained trials in which the probe was at the neutral minus angry face location (such that a positive threat bias score means faster reaction time when the probe was at the angry face location). A total of 19 children with a history of anxiety and/or depression (ANX/DEP) and 13 healthy control subjects (HC) from the imaging study performed this dot–probe task. One ANX/DEP subject had a threat bias greater than 2 SD from the mean threat bias score across subjects and so was eliminated from subsequent analyses.

Apparatus and Stimuli

The dot-probe task was programmed in E-Prime (Psychology Software Tools, Pittsburgh, PA) and responses were recorded using the numeric keypad of a standard keyboard. Faces were 16 actors selected from the NimStim dataset.[1] Subjects performed the task while resting their chin in a chin rest to standardize viewing distance. The screen was 68 cm from subjects' eyes. Face and probe stimuli were centered 6 degrees visual angle to the left or right of fixation, and face stimuli were 4.56 degrees wide.

SUPPLEMENTAL REFERENCES

1. Tottenham N, Tanaka JW, Leon AC, et al. The NimStim set of facial expressions: judgments from untrained research participants. Psychiatry Res. 2009;168:242-249.

FIGURE S1   Among children with a history of an anxiety disorder and/or depression (ANX/DEP) subjects, there was no significant relationship (as measured by Pearson correlation coefficient) between the number of assessments meeting criteria for depression or an anxiety disorder and ventral attention network (VAN) resting state functional connectivity (RSFC) ($p = .84$, analysis restricted to ANX/DEP subjects). Note: Each circle represents an individual subject, with color indicating whether subjects were ANX/DEP versus healthy control subjects (HC).
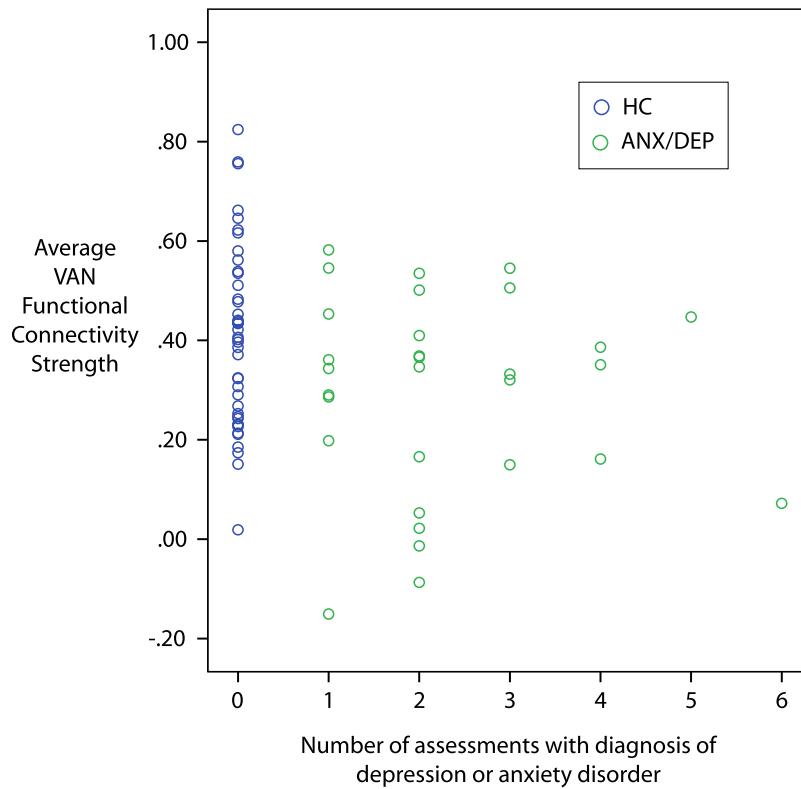

TABLE S1   Longitudinal Diagnostic Assessments of Children With a History of Anxiety and/or Depression (ANX/DEP)

Age at Assessment, y, m (SD)	Assessed Subjects Meeting Criteria for Depression or Anxiety Disorder, %
4.50 (0.76)	65.5
5.52 (0.76)	32.1
6.58 (0.76)	22.2
9.18 (0.78)	40.1
10.19 (0.77)	44.8
11.19 (0.80)	38.5

Note: These data indicate the percentage of subjects in ANX/DEP who met the criteria for an anxiety disorder or depression at each annual wave in the Validation of Preschool Depression study. To be included in ANX/DEP, subjects had to meet criteria for depression or an anxiety disorder in at least 1 assessment. The diagnostic assessment closest to the time that neuroimaging data were collected varied by subject (mean age, 10.6 years at time of scan), and 48.0% of ANX/DEP subjects met criteria for depression or an anxiety disorder at the assessment that was closest to scan.

FIGURE S2   There was no significant relationship (as measured by Pearson correlation coefficient) between time since last diagnosis of depression and/or anxiety disorder and ventral attention network (VAN) resting state functional connectivity (RSFC) strength among children with a history of an anxiety disorder and/or depression (ANX/DEP) (p = .44). Note: Each circle represents an individual ANX/DEP subject. HC = healthy control subjects.

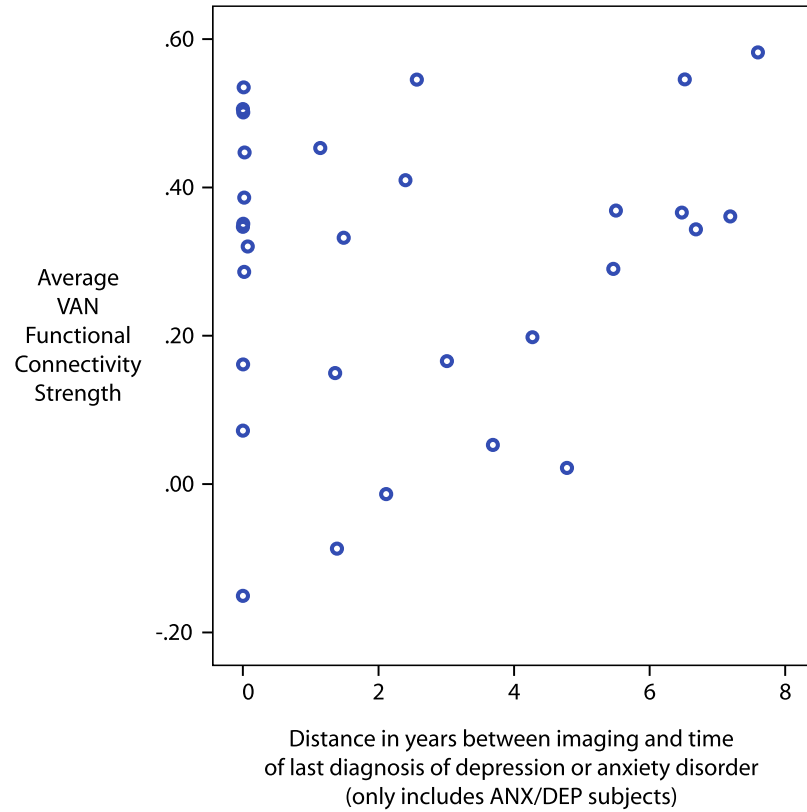**TABLE S2**   Number of Annual Assessments That Each Child With a History of Anxiety and/or Depression (ANX/DEP) Met Criteria for Either Depression or an Anxiety Disorder

Assessments Meeting Criteria for Depression and/or an Anxiety Disorder Among ANX/DEP Subjects, n	ANX/DEP Subjects, n (%)
1	9 (30)
2	11 (36.7)
3	5 (16.7)
4	3 (10)
5	1 (3.3)
6	1 (3.3)

TABLE S3   Demographic Characteristics for Included Subjects Versus Subjects Excluded on the Basis of Excessive Motion During Collection of Neuroimaging Data

Characteristic	ANX/DEP Included (n = 30)	ANX/DEP Excluded (n = 41)	p Value, (ANX/DEP Included vs. Excluded)	HC Included (n = 42)	HC Excluded (n = 38)	p Value (HC Included vs Excluded)
Male, %	40.0	48.8	.46	47.6	52.6	.65
Ethnicity, %			.45			.56
White	53.3	56.1		52.4	63.2	
Black	40.0	29.3		40.5	28.0	
Other	6.7	14.6		7.1	7.9	
Age, mo, m (SD)	127.13 (16.3)	118.51 (13.9)	**.02**	127.19 (15.1)	116.18 (13.9)	**.01**
Pubertal status, %			.52			.08
Prepubertal	60.0	64.1		51.2	63.2	
Early pubertal	6.7	15.4		14.6	23.7	
Mid pubertal	23.3	15.4		22.0	13.2	
Late pubertal	10.0	5.1		12.2	0.0	
Family income in $, %			.92			.78
≤20,000	23.3	17.1		16.7	10.5	
20,001–40,000	20.0	24.3		19.0	26.3	
40,001–60,000	10.0	9.8		16.7	18.4	
≥60,001	46.7	48.8		47.6	44.7	
Parental education, %			.67			.77
HS diploma or less	6.7	12.2		7.5	10.5	
Some college	36.7	41.5		42.5	31.6	
4-Year college degree	20.0	21.2		27.5	34.2	
Graduate education or more	36.7	24.4		22.5	23.7	
Dominant hand at scan, %			.69			.46
Right	90.0	92.7		88.1	84.2	
Left	10.0	7.3		9.5	15.8	
Both	0.0	0.0		2.4	0.0	
Ever taken psychiatric medicine, %	20.0	22.0	.84	4.8	0.0	.17
IQ, mean (SD)	106.6 (16.6)	104.22 (16.0)	.56	108.5 (11.7)	108.7 (16.6)	.95
Stressful life events, m (SD)	10.6 (7.4)	10.3 (6.3)	.84	7.1 (5.9)	8.3 (10.3)	.50
Traumatic life events, m (SD)	5.3 (3.8)	7.1 (6.5)	.21	2.5 (2.2)	2.9 (2.6)	.42
Core depression sum score, m (SD)	2.6 (1.9)	2.6 (1.9)	.94	1.3 (1.2)	1.2 (1.2)	.85
Externalizing sum score, m (SD)	3.1 (4.1)	5.5 (5.1)	**.04**	0.8 (1.6)	1.2 (1.6)	.21
Internalizing sum score, m (SD)	2.7 (2.3)	2.7 (2.6)	.99	0.7 (0.9)	1.0 (1.2)	.25
CDI (child), m (SD)	4.6 (4.0)	5.1 (4.4)	.66	3.1 (3.7)	4.5 (4.1)	.12
CDI (parent), m (SD)	7.7 (4.2)	10.9 (5.4)	**.01**	6.4 (4.0)	5.7 (4.1)	.45
First-degree relative mood/anxiety disorder or suicide attempt, %	83.3	92.7	.22	66.7	78.9	.22
History of maternal psychiatric illness, %						
Major depression	31.0	31.7	.95	26.2	26.3	.57
Bipolar disorder	0.0	4.9	.23	4.8	2.6	.62
Anxiety disorder	3.4	12.2	.20	9.5	2.6	.45
Suicide attempt	6.9	4.9	.72	4.8	2.6	.62
ADHD	0.0	0.0		2.4	0.0	.34
Substance abuse	6.9	9.8	.67	2.3	2.6	.94

Note: Boldface type indicates significant p values. ADHD = attention-deficit/hyperactivity disorder; ANX/DEP = children and adolescents with a history of an anxiety disorder and/or depression; CDI = Children's Depression Inventory; HC = healthy control subjects; HS = high school.

TABLE S4   Demographic Characteristics Comparing Children With a History of Anxiety and/or Depression (ANX/DEP) Without a Comorbid Externalizing Disorder (Attention-Deficit/Hyperactivity Disorder [ADHD], Conduct Disorder [CD], Oppositional Defiant Disorder [ODD]) Versus ANX/DEP With a Comorbid Externalizing Disorder

	ANX/DEP Without Externalizing (N = 15)	ANX/DEP With Externalizing (N = 15)	Significance ANX/DEP Included vs. Excluded
Male, %	33.3	46.7	.46
Ethnicity, %			.33
White	60.0	46.7	
Black	40.0	40.0	
Other	0.0	13.3	
Age, mo, m (SD)	130.7 (15.0)	123.5 (17.3)	.23
Pubertal status, %			.87
Prepubertal	53.3	66.7	
Early pubertal	6.7	6.7	
Mid pubertal	26.7	20.0	
Late pubertal	13.3	6.7	
Family income in $, %			.08
≤20,000	6.7	40.0	
20,001−40,000	20.0	20.0	
40,001−60,000	20.0	0.0	
≥60,001	53.3	40.0	
Parental education, %			.42
HS diploma or less	0.0	13.3	
Some college	33.3	40.0	
4-Year college degree	26.6	13.3	
Graduate education or more	40.0	33.3	
Dominant hand at scan, %			.07
Right	100.0	80.0	
Left	0.0	20.0	
Both	0.0	0.0	
Ever taken psychiatric medicine, %	6.7	33.3	.07
IQ, m (SD)	108.3 (12.8)	104.8 (20.3)	.58
Stressful life events, m (SD)	9.0 (5.5)	12.2 (8.8)	.24
Traumatic life events, m (SD)	5.7 (4.7)	5.0 (3.0)	.65
Core depression sum score, m (SD)	2.0 (1.6)	3.3 (2.0)	.06
Externalizing sum score, m (SD)	1.0 (1.5)	5.4 (4.9)	**<0.01**
Internalizing sum score, m (SD)	2.6 (2.6)	2.9 (2.4)	.79
CDI (child), m (SD)	4.6 (4.2)	4.6 (4.0)	.99
CDI (parent), m (SD)	5.9 (2.8)	9.5 (4.6)	**.02**
First-degree relative mood/anxiety disorder or suicide attempt, %	86.7	80.0	.62
History of maternal psychiatric illness, %			
Major depression	28.6	33.3	.78
Bipolar disorder	0.0	0.0	
Anxiety disorder	7.1	0.0	.29
Suicide attempt	0.0	13.3	.16
ADHD	0.0	0.0	
Substance abuse	7.1	6.7	.96

Note: Boldface type indicates significant p values. CDI = Children's Depression Inventory; HS = high school.