**Supplementary material**

1. **Results of mood ratings before and after mood induction at the three ages**

As shown in Table S1, paired-samples t-tests comparing mood ratings pre- and post-induction indicated that negative mood induction was effective at all three ages. We also examined associations between child age and children’s mood changes by running a repeated-measures ANOVA on the difference score of each age (pre-induction rating minus post-induction rating). The results showed that the mood change at age six was smaller than that of age nine, (*t*(449) = -30.74, *p* < .001, *CI* = [-2.45, -2.16]) and age 12 (*t*(399) = -29.58, *p* < .001, *CI* = [-2.25, -1.97]); mood change at age nine was also larger than age 12 (*t*(407) = 2.40, *p* < .05, *CI* = [0.03, 0.29]).

Table S1. Results of pre- and post-induction mood ratings at ages 6, 9, and 12

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Pre-induction mood | Post-induction mood | Paired-samples t-test | | | Mood change (pre-post) |
|  | Mean(SD) | Mean(SD) | *t*(*df*) | *p* | *CI* | Mean(SD) |
| Age 6 | 4.62(0.76) | 4.52(0.88) | 2.42(493) | .02 | [0.19, 0.02] | 0.10(0.97) |
| Age 9 | 4.16(0.75) | 1.73(0.90) | 44.01(475) | .00 | [2.32, 2.53] | 2.40(1.21) |
| Age 12 | 3.92(0.69) | 1.67(0.73) | 46.24(429) | .00 | [2.15, 2.34] | 2.24(1.02) |

1. **Results of whole-brain voxel-based morphometry analysis**

Table S2.Results of whole-brain analysis with the standardized slope of positive SRET scores as the regressor (peak voxel threshold at *p* < .001, uncorrected)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Peak MNI coordinates | | | # voxels | Cluster-level | | Peak-level | | | | Automated Anatomical Labeling of peak voxel |
| x | y | z | *p*-FWE | *p*-uncorr | *p*-FWE | *p*-uncorr | T(67) | *Z* |
| 35 | 51 | -8 | 229 | .24 | .02 | .06 | .00 | 5.22 | 4.76 | Frontal\_Mid\_Orb\_R |
| 36 | 65 | -6 |  |  |  | 1.00 | .00 | 3.68 | 3.50 | n/a |
| 63 | -35 | 41 | 76 | .91 | .13 | .98 | .00 | 3.84 | 3.64 | SupraMarginal\_R |
| -42 | 51 | 17 | 40 | .99 | .27 | .99 | .00 | 3.79 | 3.59 | Frontal\_Mid\_L |
| 12 | -17 | -3 | 1 | 1.00 | .89 | 1.00 | .00 | 3.71 | 3.53 | Thalamus\_R |
| -50 | -9 | -14 | 47 | .99 | .23 | 1.00 | .00 | 3.71 | 3.52 | Temporal\_Mid\_L |
| 69 | -26 | 29 | 37 | .99 | .29 | 1.00 | .00 | 3.50 | 3.34 | SupraMarginal\_R |
| 48 | -5 | 56 | 10 | 1.00 | .60 | 1.00 | .00 | 3.46 | 3.30 | Frontal\_Mid\_R |
| 65 | 23 | 9 | 1 | 1.00 | .89 | 1.00 | .00 | 3.44 | 3.29 | n/a |
| 6 | 57 | -27 | 9 | 1.00 | .62 | 1.00 | .00 | 3.40 | 3.26 | n/a |
| -45 | -6 | 39 | 3 | 1.00 | .79 | 1.00 | .00 | 3.38 | 3.24 | Precentral\_L |
| -42 | -56 | 36 | 3 | 1.00 | .79 | 1.00 | .00 | 3.32 | 3.18 | Angular\_L |

*Note.* n/a: no identifiable grey-matter tissue

Table S3.Results of whole-brain analysis with the standardized slope of negative SRET scores as the regressor (peak voxel threshold at *p* < .001, uncorrected)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Peak MNI coordinates | | | # voxels | Cluster-level | | Peak-level | | | | Automated Anatomical Labeling of peak voxel |
| x | y | z | *p*-FWE | *p*-uncorr | *p*-FWE | *p*-uncorr | T(67) | *Z* |
| -44 | -41 | 33 | 44 | .99 | .25 | .79 | .00 | 4.18 | 3.93 | SupraMarginal\_L |
| 11 | -30 | 56 | 49 | .98 | .22 | .98 | .00 | 3.85 | 3.64 | Paracentral\_Lobule\_R |
| -2 | 5 | 78 | 1 | 1.00 | .89 | 1.00 | .00 | 3.63 | 3.45 | n/a |
| 41 | -30 | -11 | 6 | 1.00 | .69 | 1.00 | .00 | 3.61 | 3.44 | n/a |
| 20 | 2 | 56 | 19 | 1.00 | .45 | 1.00 | .00 | 3.53 | 3.37 | Frontal\_Sup\_R |
| 50 | 0 | 27 | 6 | 1.00 | .69 | 1.00 | .00 | 3.45 | 3.30 | Precentral\_R |
| 12 | -39 | 41 | 6 | 1.00 | .69 | 1.00 | .00 | 3.35 | 3.21 | Cingulum\_Mid\_R |
| 11 | -30 | -9 | 2 | 1.00 | .84 | 1.00 | .00 | 3.33 | 3.19 | Lingual\_R |
| 12 | -11 | 65 | 1 | 1.00 | .89 | 1.00 | .00 | 3.26 | 3.13 | Supp\_Motor\_Area\_R |

*Note.* n/a: no identifiable grey-matter tissue

1. **Post-hoc regression analysis**

In order to examine the relative contribution of each regressor (and covariate) to the GMV of the significant vlPFC cluster, we ran a post-hoc analysis by extracting the indicators of GMV from this vlPFC cluster as the dependent variable, which was subjected to a regression model with the same regressor (slope of positive SRET scores) and covariates (intercept of positive SRET scores, age, sex, ICV, and CDI symptoms) as those in the voxel-wise morphometry analysis in the main text. Of note, the standardized beta values generated by this post-hoc analysis are approximations of the contribution of each regressor, rather than indicators of the actual effect size.

Table S4. Results of the post-hoc regression analysis on the GMV of the vlPFC cluster

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Unstandardized *b* | *SE* | Standardized *β* | *p* |
| Slope of Positive SRET score | 0.08 | 0.02 | 0.55 | .00 |
| Intercept of Positive SRET score | 0.13 | 0.03 | 0.53 | .00 |
| Sex (1=boys, 2=girls) | 0.00 | 0.01 | 0.00 | .98 |
| Age | -0.02 | 0.01 | -0.23 | .01 |
| CDI symptoms | 0.00 | 0.00 | 0.09 | .29 |
| ICV | 0.00 | 0.00 | 0.69 | .00 |

*Note.* GMV: grey matter volume; vlPFC: ventrolateral prefrontal cortex; SRET: self-referent encoding task; SE: standard error; CDI: Child Depression Inventory; ICV: intracranial volume.