**Supplement**

Neural response to errors and risk for depression in mothers with a history of recurrent depression and their adolescent daughters

**Behavioral performance**

During the Flanker task, we collected the following indices of behavioral performance: accuracy, reaction times (RT) for congruent and incongruent trials (for both correct and error trials), and post-error slowing (PES). Those measures were analyzed with t-tests and mixed ANOVAs (with Congruency as within-subjects factor) to assess the impact of maternal history of depression on behavioral performance. Pearson correlations were also performed to assess the familiality of task performance as well as associations with maternal symptoms of depression.

Mothers had better accuracy than their adolescent daughters during the task [F(1,176) = 10.64, p = .001]. Mothers and daughters did not differ on RT for correct [F(1,175) = 3.18, p = .076] and error [F(1,175) = .28, p = .60] trials, as well as PES [F(1,175) = .20, p = .89].

Among adolescent girls, age was associated with faster RT on correct compatible [r(85) = -.53, p < .001], correct incompatible [r(86) = -.48, p < .001], and error incompatible [r(86) = -.35, p = .001]. There was no association between adolescent age and accuracy, RT on error compatible trials, or PES (all p-values > .059).

Among mothers, age was positively associated with RT on correct compatible [r(76) = .30, p = .008] and incompatible trials [r(76) = .31, p = .007]. There was no association between mothers’ age and accuracy, RT on error trials, or PES (all p-values > .088).

A history of depression had no impact on task performance among mothers [all p-values > .23] and those measures were not associated with measures of current symptoms of depression [all p-values > .12].

Regarding familiality analyses, none of the behavioral measures of task performance in mothers were correlated with that of their daughters [all p-values > .24].

Among daughters, there was no association between maternal symptoms of depression and task performance (all p-values > .36). There was a significant Group by Congruency condition regarding RT for correct trials, such that daughters with a maternal history of depression had a larger congruency effect (RTincompatible – RTcompatible) than those without maternal history of recurrent depression [t(86) = 2.1, p = .038]. There was no effect of maternal history of depression on daughters’ accuracy, RT during error trials, or PES [all p-values > .45].

**Supplementary results**

Analyses presented in Figure 1 and Figure 3 in the main paper were repeated to account for current maternal symptoms of anxiety and history of maternal anxiety disorders. Anxiety symptoms were assessed with a composite score that included the total sum of 8 IDAS-II anxiety subscales (panic, social anxiety, claustrophobia, traumatic intrusions, traumatic avoidance, checking, ordering, and cleaning). This composite scores thus includes 42 items. History of anxiety disorders was assessed with the SCID-5. Analyses were separately conducted with (1) current maternal anxiety symptoms and (2) maternal history of anxiety disorders added as covariates

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| **Table S1: Analyses accounting for maternal anxiety symptoms and history of anxiety disorder** | | | |
| Analysis | Original result | Current maternal anxiety symptoms added as covariate | History of maternal anxiety disorder added as covariate |
| Differences in Δdelta in mothers according to history of recurrent MDD | **Decreased in mothers with recurrent MDD [t(50) = 2.09, p = .042]** | No significant difference [F(1,48) = 2.09, p = .15] | No significant difference [F(1,49) = 2.60, p = .11] |
| Differences in Δtheta in mothers according to history of recurrent MDD | **Increased in mothers with recurrent MDD [t(50) = -2.18, p = .034]** | **Increased in mothers with recurrent MDD [F(1,48) = 5.50, p = .023]** | No significant difference [F(1,49) = 3.75, p = .059] |
| Differences in ΔERN in mothers according to history of recurrent MDD | No significant difference [t(52) = 1.14, p = .26]. | No significant difference [F(1,52) = 0.79, p = .37] | No significant difference [F(1,51) = 1.71, p = .17] |
| Association between depression symptoms and Δdelta | **Significant association [*r*(50) = -.28, *p* = .045]** | No significant association [β = -.18, t(49) = -1.04, p = .31] | No significant association [β = -.23, t(49) = -1.04, p = .31] |
| Association between depression symptoms and Δtheta | **Significant association [*r*(50 = .28, *p* = .049]** | **Significant association [β = .40, t(49) = 2.33, p = .024]** | No significant association [β = .23, t(48) = 1.53 p = .13] |
| Association between depression symptoms and ΔERN | No significant association [*r*(52) = -.20, *p* = .15]. | No significant association [β = -.21, t(51) = -1.16, p = .25] | No significant association [β = -.23, t(48) = -1.59, p = .11] |
| Familiality - Δdelta | No significant association [*r*(44) = .14, *p* = .34]. | No significant association [β = .11, t(42) = .65, p = .52] | No significant association [β = .12, t(42) = .79, p = .45] |
| Familiality - Δtheta | No significant association [*r*(44) = .25, *p* = .095]. | No significant association [β = .27, t(42) = 1.83, p = .074] | No significant association [β = .27, t(42) = 1.77, p = .084] |
| Familiality - ΔERN | **Significant association [*r*(46) = .41, *p* = .004].** | **Significant association [β = .45, t(44) = 3.31, p = .002]** | **Significant association [β = .41, t(44) = 3.04, p = .004]** |
| Differences in Δdelta in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.75, p = .086] | No significant difference [F(1,61) = 1.06, p = .31] | No significant difference [F(1,65) = 2.03, p = .16] |
| Differences in Δtheta in daughters according to maternal history of recurrent MDD | No significant difference (65) = 0.45, p = .66]. | No significant difference [F(1,61) = 0.043, p = .84] | No significant difference [F(1,65) = 0.12, p = .73] |
| Differences in ΔERN in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.28, p = .21] | No significant difference [F(1,61) = 1.66, p = .20] | No significant difference [F(1,64) = 2.01, p = .16] |
| Girls - Association between maternal depression symptoms and Δdelta | **Significant association [r(62) = -.37, p = .002]** | **Significant association [β = -.31, t(61) = -2.11, p = .039]** | **Significant association [β = -.37, t(62) = -2.91, p = .005]** |
| Girls - Association between maternal depression symptoms and Δtheta | No significant association [r(62) = .11, p = .41] | No significant association [β =.23, t(61) = 1.51, p = .14] | No significant association [β =.23, t(62) = 1.05, p = .30] |
| Girls - Association between maternal depression symptoms and ΔERN | No significant association [r(62) = -.17, p = .19] | No significant association [β = -.16, t(61) = -1.02, p = .31] | No significant association [β = -.18, t(61) = -1.35, p = .18] |
| Note: The 1st column lists all analyses presented in Figure 1, 2, and 3. The 2nd column lists the original result of each analysis, without controlling for maternal anxiety. The 3rd column lists the results of each analysis when current maternal anxiety symptoms were added as covariate. The 4th column lists the results of each analysis when history of maternal anxiety disorder was added as covariate. Significant results are in bold. | | | |

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| **Table S2: Analyses** **accounting for daughters’ anxiety symptoms and history of anxiety disorder** | | | |
| Analysis | Original result | Current anxiety symptoms added as covariate | History of anxiety disorder added as covariate |
| Familiality - Δdelta | No significant association [*r*(44) = .14, *p* = .34]. | No significant association [β = .14, t(43) = .95, p = .35] | No significant association [β = .14, t(43) = .94, p = .35] |
| Familiality - Δtheta | No significant association [*r*(44) = .25, *p* = .095]. | No significant association [β = .24, t(43) = .1.62, p = .11] | No significant association [β = .25, t(43) = .1.65, p = .11] |
| Familiality - ΔERN | **Significant association [*r*(46) = .41, *p* = .004].** | **Significant association [β = .41, t(45) = 3.01, p = .004]** | **Significant association [β = .41, t(45) = 3.00, p = .004]** |
| Differences in Δdelta in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.75, p = .086] | No significant difference [F(1,62) = 2.37, p = .13] | No significant difference [ F(1,64) = 2.47, p = .12] |
| Differences in Δtheta in daughters according to maternal history of recurrent MDD | No significant difference (65) = 0.45, p = .66]. | No significant difference [ F(1,62) = .16, p = .69] | No significant difference [ F(1,64) = .08, p = .78] |
| Differences in ΔERN in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.28, p = .21] | No significant difference [ F(1,62) = 2.16, p = .15] | No significant difference [ F(1,64) = 2.01, p = .16] |
| Girls - Association between maternal depression symptoms and Δdelta | **Significant association [r(62) = -.37, p = .002]** | **Significant association [β = -.36, t(60) = -2.99, p = .004]** | **Significant association [β = -.37, t(60) = -3.11, p = .003]** |
| Girls - Association between maternal depression symptoms and Δtheta | No significant association [r(62) = .11, p = .41] | No significant association [β = .10, t(60) = .76, p = .45] | No significant association [β = .12, t(60) = .98, p = .33] |
| Girls - Association between maternal depression symptoms and ΔERN | No significant association [r(62) = -.17, p = .19] | No significant association [β = -.16, t(60) = -1.26, p = .21] | No significant association [β = -.17, t(61) = -1.34, p = .19] |
| Note: The 1st column lists all analyses presented in Figure 2 and Figure 3. The 2nd column lists the original result of each analysis, without controlling for anxiety. The 3rd column lists the results of each analysis when current anxiety symptoms were added as covariate. The 4th column lists the results of each analysis when history of anxiety disorder was added as covariate. Significant results are in bold. | | | |

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| **Table S3: Analyses accounting for mothers’** **age and family income** | | | |
| Analysis | Original result | Mothers’ age | Family income |
| Differences in Δdelta in mothers according to history of recurrent MDD | **Decreased in mothers with recurrent MDD [t(50) = 2.09, p = .042]** | **Decreased in mothers with recurrent MDD [F(1,50) = 4.50, p = .039]** | No significant difference [F(1,43) = 2.57, p = .12] |
| Differences in Δtheta in mothers according to history of recurrent MDD | **Increased in mothers with recurrent MDD [t(50) = -2.18, p = .034]** | No significant difference [F(1,50) = 3.80, p = .057] | **Increased in mothers with recurrent MDD [F(1,43) = 4.27, p = .045]** |
| Differences in ΔERN in mothers according to history of recurrent MDD | No significant difference [t(52) = 1.14, p = .26]. | No significant difference [F(1,52) = .84, p = .37] | No significant difference [F(1,44) = 1.11, p = .30] |
| Association between depression symptoms and Δdelta | **Significant association [*r*(50) = -.28, *p* = .045]** | **Significant association [β = -.36, t(49) = -2.56, p = .014]** | **Significant association [β = -.37, t(42) = -2.50, p = .016]** |
| Association between depression symptoms and Δtheta | **Significant association [*r*(50 = .28, *p* = .049]** | No significant association [β = .24, t(49) = 1.67, p = .10] | **Significant association [β = .31, t(42) = 2.06, p = .046]** |
| Association between depression symptoms and ΔERN | No significant association [*r*(52) = -.20, *p* = .15]. | No significant association [β = -.12, t(51) = -.86, p = .40] | No significant association [β = -.13, t(43) = -.83, p = .41] |
| Familiality - Δdelta | No significant association [*r*(44) = .14, *p* = .34]. | No significant association [β = .15, t(43) = .98, p = .33] | **Significant association [β = .36, t(37) = 2.25, p = .031]** |
| Familiality - Δtheta | No significant association [*r*(44) = .25, *p* = .095]. | **Significant association [β = .31, t(43) = 2.04, p = .048]** | No significant association [β = .26, t(37) = 1.62, p = .11] |
| Familiality - ΔERN | **Significant association [*r*(46) = .41, *p* = .004].** | **Significant association [β = .44, t(45) = 3.12, p = .003]** | **Significant association [β = .38, t(38) = 2.43, p = .020]** |
| Differences in Δdelta in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.75, p = .086] | No significant difference [F(1,63) = 1.97, p = .17] | **Decreased in daughters with maternal history of depression [F(1,48) = 8.61, p = .005].** |
| Differences in Δtheta in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 0.45, p = .66]. | No significant difference [F(1,63) = .01, p = .91] | No significant difference [F(1,48) = .20, p = .66] |
| Differences in ΔERN in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.28, p = .21] | No significant difference [F(1,63) = 1.55, p = .22] | No significant difference [F(1,48) = .00, p = .96] |
| Girls - Association between maternal depression symptoms and Δdelta | **Significant association [r(62) = -.37, p = .002]** | **Significant association [β = -.36, t(61) = -2.85, p = .006]** | **Significant association [β = -.55, t(46) = -3.78, p < .001]** |
| Girls - Association between maternal depression symptoms and Δtheta | No significant association [r(62) = .11, p = .41] | No significant association [β = .17, t(61) = 1.26, p = .21] | No significant association [β = .11, t(46) = .63, p = .53] |
| Girls - Association between maternal depression symptoms and ΔERN | No significant association [r(62) = -.17, p = .19] | No significant association [β = -.20, t(61) = -1.47, p = .15] | No significant association [β = -.15, t(46) = -.94, p = .35] |
| Note: The 1st column lists all analyses presented in Figure 1 and Figure 3. The 2nd column lists the original result of each analysis, without controlling mothers’ age or family income. The 3rd column lists the results of each analysis when maternal age was added as covariate. The 4th column lists the results of each analysis when family income was added as covariate. Significant results are in bold. | | | |

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| **Table S4: Analyses accounting for daughters’ age and depression symptoms** | | | |
| Analysis | Original result | Age added as covariate | Current depression symptoms added as covariate |
| Familiality - Δdelta | No significant association [*r*(44) = .14, *p* = .34]. | No significant association [β = .20, t(43) = 1.31, p = .20] | No significant association [β = .14, t(43) = .92, p = .36] |
| Familiality - Δtheta | No significant association [*r*(44) = .25, *p* = .095]. | No significant association [β = .28, t(43) = 1.90, p = .064] | No significant association [β = .26, t(43) = 1.73, p = .090] |
| Familiality - ΔERN | **Significant association [*r*(46) = .41, *p* = .004].** | **Significant association [β = .43, t(45) = 3.23, p = .002]** | **Significant association [β = .43, t(45) = 3.15, p = .003]** |
| Differences in Δdelta in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.75, p = .086] | No significant difference [F(1,63) = 3.96, p = .051] | No significant difference [F(1,62) = 2.98, p = .089] |
| Differences in Δtheta in daughters according to maternal history of recurrent MDD | No significant difference (65) = 0.45, p = .66]. | No significant difference [F(1,63) = .07, p = .79] | No significant difference [F(1,62) = .10, p = .75] |
| Differences in ΔERN in daughters according to maternal history of recurrent MDD | No significant difference [t(65) = 1.28, p = .21] | No significant difference [F(1,63) = 2.71, p = .11] | No significant difference [F(1,62) = 2.10, p = .15] |
| Girls - Association between maternal depression symptoms and Δdelta | **Significant association [r(62) = -.37, p = .002]** | **Significant association [β = -.44, t(61) = -3.80, p < .001]** | **Significant association [β = -.37, t(60) = -3.08, p = .003]** |
| Girls - Association between maternal depression symptoms and Δtheta | No significant association [r(62) = .11, p = .41] | No significant association [β = .13, t(61) = 1.03, p = .31] | No significant association [β = .10, t(60) = .81, p = .42] |
| Girls - Association between maternal depression symptoms and ΔERN | No significant association [r(62) = -.17, p = .19] | No significant association [β = -.22, t(61) = -1.79, p = .078] | No significant association [β = -.16, t(60) = -1.27, p = .21] |
| Note: The 1st column lists all analyses presented in Figure 2 and Figure 3. The 2nd column lists the original result of each analysis, without controlling for daughters’ age. The 3rd and 4th column list the results of each analysis when daughters’ age and self-reported depression symptoms were assed added as covariate. Significant results are in bold. | | | |