# Supplement 1

In this supplement we present the results of analyses conducted on participants with complete datasets (*n*=187). Descriptive information of all continuous variables (i.e., child age in days, maternal depressive and anxiety symptoms, child fear reactivity and regulation scores, child behavior problems), and their correlations are presented in Table S1.

Table S1

*Descriptive information for all continuous variables,* *and bivariate correlations between the main predictor and outcome variables.*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Continuous variables | *M* (*SD*)  Range |  |  |  |  |  |  |  |  |  |
|  |  | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
| *Mothers* |  |  |  |  |  |  |  |  |  |  |
| 1. BDI scores | 6.67 (5.94)  0-32 | .55\*\* | -.02 | -.04 | .07 | -.16\* | -.12 | -.13† | .22\*\* | .22\*\* |
| 1. STAI-S scores | 32.77 (9.88)  20-70 | - | .05 | -.04 | .07 | .00 | -.08 | -.04 | .21\*\* | .19\*\* |
| *Preschoolers* |  |  |  |  |  |  |  |  |  |  |
| 1. Child’s age (days) | 1260 (29)  1204-1385 |  | - | .02 | -.08 | -.04 | .01 | -.13† | -.06 | -.02 |
| 1. Baseline RSA | 64.70 (31.47)  13.48-191.37 |  |  | - | .16\* | .24\*\* | -.06 | -.06 | -.01 | .04 |
| 5. Fear-related behavior reactivity | -0.07 (0.95)  -1.49–2.23 |  |  |  | - | .21\*\* | -.62\*\* | .10 | .02 | -.05 |
| 6. Fear-related RSA reactivity (msec) | -10.30 (29.42)  -131.71–49.17 |  |  |  |  | - | -.07 | .43\*\* | .05 | -.04 |
| 7. Fear-related behavior regulation | -0.05 (0.83)  -2.09–2.02 |  |  |  |  |  | - | .01 | -.03 | -.06 |
| 8. Fear-related RSA recovery (msec) | -4.15 (30.72)  -147.53–134.00 |  |  |  |  |  |  | - | -.08 | -.20\*\* |
| 9. Internalizing problems | 9.24 (6.14)  0-42 |  |  |  |  |  |  |  | - | .69\*\* |
| 10. Externalizing problems | 11.20 (6.63)  0-29 |  |  |  |  |  |  |  |  | - |

†*p*<.10; \**p*<.05; \*\**p*<.01

**Maternal psychological distress and child emotion-related reactivity and regulation**

First, we assessed whether maternal BDI or STAI-S scores influenced child emotion-related variables. A near-significant effect of maternal BDI scores on child fear-related RSA reactivity was found (Table S2) suggesting that higher maternal depressive symptoms associated with lower fear-related RSA suppression. This effect became significant when STAI-S scores were also included in the analysis. No influence of STAI-S scores on RSA reactivity was found. Additionally, no main effect of maternal BDI or STAI-S on fear-related behavior reactivity was observed.

Maternal BDI scores were also near-significantly associated with fear-related behavior and RSA recovery (Table S2); higher maternal depressive symptoms related to lower child RSA recovery. Again, this effect remained significant when STAI-S scores were also included for only RSA recovery. No effect of STAI-S scores on RSA recovery was observed.

Table S2

*Summary of regression analyses examining the associations between maternal depressive symptoms and anxiety, and child fear reactivity and regulation separately and within the same model. In the first step of all analyses only the control variables, i.e., ethnicity, maternal education, birth order and child age at the time of testing, were included.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome | Predictor | *ΔR2* | *β* | *SE* | *t* | 95% CI  Lower bound | 95% CI  Upper bound |
|  | Step 2: BDI |  |  |  |  |  |  |
| *Fear reactivity* |  |  |  |  |  |  |  |
| Behavior |  | .01 | .08 | .07 | 1.12 | -.05 | .21 |
| RSA |  | .03 | -.18† | .09 | -2.45 | -.36 | .02 |
| *Fear regulation* |  |  |  |  |  |  |  |
| Behavior |  | .02 | -.12† | .06 | -1.89 | -.23 | .01 |
| RSA recovery | .02 | -.13† | .07 | -1.76 | -.27 | .02 |
|  | Step 2: STAI-S |  |  |  |  |  |  |
| *Fear reactivity* |  |  |  |  |  |  |  |
| Behavior |  | .01 | .07 | .07 | 1.05 | -.06 | .19 |
| RSA |  | .00 | -.03 | .07 | -.36 | -.16 | .11 |
| *Fear regulation* |  |  |  |  |  |  |  |
| Behavior |  | .01 | -.09 | .07 | -1.51 | -.22 | .05 |
| RSA recovery |  | .00 | -.04 | .07 | -.47 | -.16 | .08 |
|  | Step 2: BDI and STAI-S | |  |  |  |  |  |
| *Fear reactivity* |  |  |  |  |  |  |  |
| Behavior | BDI | .01 | .06 | .08 | .66 | -.10 | .23 |
|  | STAI-S | .04 | .09 | .53 | -.13 | .20 |
| RSA | BDI | .04 | -.23\* | .11 | -2.67 | -.46 | .00 |
|  | STAI-S | .10 | .08 | 1.12 | -.06 | .25 |
| *Fear regulation* |  |  |  |  |  |  |  |
| Behavior | BDI | .02 | -.09 | .07 | -1.28 | -.23 | .05 |
|  | STAI-S | -.04 | .08 | -.60 | -.19 | .13 |
| RSA recovery | BDI | .02 | -.16† | .08 | -1.77 | -.32 | .02 |
|  | STAI-S | .05 | .08 | .54 | -.10 | .18 |

†*p*<.10, \**p*≤.05.

*Note.* SE=Standard Error;CI=Confidence Interval.

**Child fear-related reactivity and regulation between maternal psychological distress, and child internalizing and externalizing problems**

We assessed whether an indirect effect of maternal BDI or STAI-S scores on child internalizing and externalizing problems through fear-related reactivity and regulation would be present. The first model, assessing the mediating effect of fear-related behavior reactivity, explained 9% and 8% of the variance of internalizing and externalizing problems, respectively, and yielded a good fit: *χ*2/*df*=1.36, CFI=.99, TLI=.94, RMSEA=.04, and RMSEA-associated *p* value=.46. Besides a significant direct effect of maternal BDI scores on child externalizing [*b*=.15, *SE*=.08, *p*=.05, 95%CI(0.00,0.32)] problems, no other paths were significant (Table S3).

The second model, assessing the mediating effect of fear-related RSA reactivity, explained 9% and 8% of the variance of internalizing and externalizing problems, respectively, and yielded a good fit: *χ*2/*df*=1.16, CFI=1.00, TLI=.97, RMSEA=.03, and RMSEA-associated *p* value=.54. A near-significant direct effect of maternal BDI on child internalizing [*b*=.16, *SE*=.09, *p*=.08, 95%CI(-0.03,0.32)] and externalizing [*b*=.15, *SE*=.09, *p*=.07, 95%CI(-0.02,0.31)] problems emerged. In addition, the negative association between maternal BDI scores and child RSA reactivity, indicating a link between higher maternal BDI scores and lower RSA suppression, was significant. No other paths were significant (Table S3).

The third model, assessing the mediating effect of fear-related behavior regulation, explained 9% and 8% of the variance of internalizing and externalizing problems, respectively, and yielded an adequate fit according to all model fit indices except from the TLI (.81): *χ*2/*df*=2.19, CFI=.97, RMSEA=.08, and RMSEA-associated *p* value=.18. Similar to the earlier models, a near-significant direct effect of maternal BDI on child externalizing problems was found. No other paths were significant (Table 5).

The fourth model, assessing the mediating effect of fear-related RSA regulation, explained 09% and 12% of the variance of internalizing and externalizing problems, respectively, and yielded a good fit according to all model fit indices except from the TLI (.85): *χ*2/*df*=1.96, CFI=.98, RMSEA=.07, and RMSEA-associated *p* value=.24. A near-significant negative association between maternal BDI and child RSA regulation emerged, indicating lower RSA recovery with higher maternal BDI scores. Likewise, higher child RSA recovery was associated with lower externalizing problems. The indirect effect between maternal BDI scores on child externalizing problems through child RSA regulation was also significant (Table S3). No other paths were significant.

Table S3

*Direct and indirect effects and confidence intervals of the path models on child internalizing and externalizing problems.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Path | *Standardized direct effect* | *Standardized indirect effect* | *p value* | *Bias-corrected bootstrap 95% confidence interval* |
| Fear-related behavior reactivity |  |  |  |  |
| Maternal BDI score → Behavior reactivity | .05 | - | .62 | -.12,.21 |
| Maternal STAI-S score → Behavior reactivity | .05 | - | .58 | -.12,.23 |
| Behavior reactivity → Child internalizing score | .01 | - | .95 | -.15,.14 |
| Behavior reactivity → Child externalizing score | -.04 | - | .60 | -.18,.11 |
| Maternal BDI score → Behavior reactivity →  Child internalizing score | - | .00 | .76 | -.01,.02 |
| Maternal BDI score → Behavior reactivity →  Child externalizing score | - | .00 | .44 | -.03,.01 |
| Maternal STAI-S score → Behavior reactivity → Child internalizing score | - | .00 | .76 | -.01,.02 |
| Maternal STAI-S score → Behavior reactivity → Child externalizing score | - | .00 | .45 | -.03,.01 |
| Fear-related RSA reactivity |  |  |  |  |
| Maternal BDI score → RSA reactivity | -.23 | - | **.01** | -.39,-.06 |
| Maternal STAI-S score → RSA reactivity | .12 | - | .14 | -.05,.29 |
| RSA reactivity → Child internalizing score | .06 | - | .47 | -.10,.19 |
| RSA reactivity → Child externalizing score | -.02 | - | .72 | -.17,.12 |
| Maternal BDI score → RSA reactivity →  Child internalizing score | - | -.01 | .30 | -.06,.01 |
| Maternal BDI score → RSA reactivity →  Child externalizing score | - | .01 | .63 | -.03,.05 |
| Maternal STAI-S score → RSA reactivity →  Child internalizing score | - | .01 | .26 | -.01,.04 |
| Maternal STAI-S score → RSA reactivity →  Child externalizing score | - | .00 | .49 | -.04,.01 |
| Fear-related behavior regulation |  |  |  |  |
| Maternal BDI score → Behavior regulation | -.10 | - | .23 | -.27,.07 |
| Maternal STAI-S score → Behavior regulation | -.02 | - | .80 | -.19,.15 |
| Behavior regulation → Child internalizing score | -.03 | - | .67 | -.18,.11 |
| Behavior regulation → Child externalizing score | -.06 | - | .41 | -.20,.08 |
| Maternal BDI score → Behavior regulation →  Child internalizing score | - | .00 | .45 | -.01,.04 |
| Maternal BDI score → Behavior regulation →  Child externalizing score | - | .01 | .27 | -.01,.05 |
| Maternal STAI-S score → Behavior regulation → Child internalizing score | - | .00 | .69 | -.01,.02 |
| Maternal STAI-S score → Behavior regulation → Child externalizing score | - | .00 | .58 | -.01,.03 |
| Fear-related RSA regulation |  |  |  |  |
| Maternal BDI score → RSA recovery | -.15 | - | *.08* | -.31,.02 |
| Maternal STAI-S score → RSA recovery | .04 | - | .60 | -.13,.22 |
| RSA recovery→ Child internalizing score | -.07 | - | .29 | -.22,.07 |
| RSA recovery → Child externalizing score | -.20 | - | **.00** | -.33,-.06 |
| Maternal BDI score → RSA recovery →  Child internalizing score | - | .01 | .18 | -.01,.06 |
| Maternal BDI score → RSA recovery → Child externalizing score | - | .03 | **.05** | .00,.09 |
| Maternal STAI-S score → RSA recovery → Child internalizing score | - | .00 | .40 | -.04,.01 |
| Maternal STAI-S score → RSA recovery →  Child externalizing score | - | -.01 | .51 | -.05,.02 |

*Note.* *p* values in bold fond are significant; *p* values in italic font are near-significant.