Table S1

*Means, standard deviations, and correlations with confidence intervals*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 | 3 |
|  |  |  |  |  |  |
| 1. Child Executive Functioning | 0.00 | 0.14 |   |   |   |
|   |   |   |   |   |   |
| 2. Parent Executive Functioning | 0.00 | 0.68 | .15\*\* |   |   |
|   |   |   | [.08, .23] |   |   |
|   |   |   |   |   |   |
| 3. Harsh Parenting (Composite) | 0.01 | 0.62 | -.29\*\* | -.21\*\* |   |
|   |   |   | [-.35, -.22] | [-.28, -.14] |   |
|   |   |   |   |   |   |
| 4. Warm Parenting (Composite) | -0.02 | 0.63 | .26\*\* | .12\*\* | -.33\*\* |
|   |   |   | [.19, .33] | [.04, .19] | [-.39, -.26] |
|   |   |   |   |   |   |

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. Table generated with apaTables package in R (Stanley & Spence, 2018). \* indicates *p* < .05. \*\* indicates *p* < .01.

Table S2

*Cross-trait, cross-twin correlations with confidence intervals*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|  |  |  |  |  |  |  |
| 1. Child Executive Functioning (T1) |   | **.23\*\*** | -.32\*\* | -.23\*\* | .25\*\* | .21\*\* |
|   |   | [.13, .31] | [-.40, -.23] | [-.31, -.13] | [.16, .34] | [.11, .29] |
|  |  |  |  |  |  |  |
| 2. Child Executive Functioning (T2) | **.35\*\*** |   | -.23\*\* | -.32\*\* | .21\*\* | .25\*\* |
|   | [.24, .45] |   | [-.31, -.13] | [-.40, -.23] | [.11, .29] | [.16, .34] |
|   |   |   |   |   |   |  |
| 3. Harsh Parenting (T1) | -.23\*\* | -.16\*\* |   | **.64\*\*** | -.32\*\* | -.20\*\* |
|   | [-.34, -.12] | [-.27, -.04] |   | [.58, .69] | [-.40, -.23] | [-.29, -.10] |
|   |   |   |   |   |   |  |
| 4. Harsh Parenting (T2) | -.16\*\* | -.23\*\* | **.75\*\*** |   | -.20\*\* | -.32\*\* |
|   | [-.27, -.04] | [-.34, -.12] | [.70, .80] |   | [-.29, -.10] | [-.40, -.23] |
|   |   |   |   |   |   |  |
| 5. Warm Parenting (T1) | .23\*\* | .21\*\* | -.36\*\* | -.31\*\* |   | **.70\*\*** |
|   | [.11, .34] | [.10, .32] | [-.45, -.25] | [-.41, -.20] |   | [.65, .74] |
|   |   |   |   |   |   |  |
| 6. Warm Parenting (T2) | .21\*\* | .23\*\* | -.31\*\* | -.36\*\* | **.81\*\*** |  |
|   | [.10, .32] | [.11, .34] | [-.41, -.20] | [-.45, -.25] | [.77, .85] |  |
|   |   |   |   |   |   |  |   |   |

*Note.* Values in square brackets indicate the 95% confidence interval for each correlation. Correlations for monozygotic twins are included below the diagonal and dizygotic twins above the diagonal. T1 and T2 indicate twin 1 and twin 2. Correlations were generated from a double-entered dataset to eliminate any twin ordering effects. Correlations which represent ICCs for child executive functioning, harsh parenting, and warm parenting are bolded for clarity. \* indicates p < .05. \*\* indicates p < .01.

Table S3

*Executive functioning factor score loadings and fit statistics*

|  |  |  |
| --- | --- | --- |
| Item | Estimate (STDYX) | p |
| No-go Drift Rate | 0.15 | 0.00 |
| Go Drift Rate | 0.12 | 0.04 |
| Stop-Signal Drift Rate | 0.16 | 0.01 |
| EATQ Inhibitory Control | 0.49 | 0.00 |
| EATQ Attention | 0.87 | 0.00 |
| EATQ Activation Control | 0.64 | 0.00 |
|  |  |  |
|  |  |  |

CFI = 0.83

TLI = 0.72

RMSEA = 0.12

Chi-sq = 94.01

df = 9

Chi-sq p = 0.00

SRMR = 0.08

Table S4

*Warmer, less harsh parenting predicts better child executive functioning*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*95% CI[LL, UL] | *beta* | *sr2*  | *sr2* 95% CI[LL, UL] | Fit |
| (Intercept) | 0.06 | [-0.01, 0.12] | 0.00 |  |  |  |
| Harsh Parenting | -0.05\*\* | [-0.07, -0.03] | -0.23 | .04 | [.02, .07] |  |
| Warm Parenting | 0.04\*\* | [0.02, 0.05] | 0.17 | .03 | [.00, .05] |  |
| Child Age | -0.00 | [-0.01, 0.00] | -0.06 | .00 | [-.00, .01] |  |
| Child Gender (Female) | -0.00 | [-0.02, 0.02] | -0.02 | .00 | [-.00, .00] |  |
| Child Ethnicity (Nonwhite) | -0.00 | [-0.03, 0.02] | -0.01 | .00 | [-.00, .00] |  |
|  |  |  |  |  |  | *R2*  = .116\*\* |
|  |  |  |  |  |  | 95% CI[.07,.16] |

*Note.* A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. *sr2* represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. *Beta* indicates standardized regression coefficients. Table generated with apaTables package in R (Stanley & Spence, 2018). Beta coefficients generated with lm.beta package in R (Behrendt, 2014).
\* indicates p < .05. \*\* indicates p < .01.

Table S5

*Better parent executive functioning predicts less harsh parenting*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*95% CI[LL, UL] | *Beta* | *sr2*  | *sr2* 95% CI[LL, UL] | Fit |
| (Intercept) | -0.09 | [-0.40, 0.23] | 0.00 |  |  |  |
| Parent Executive Functioning | -0.20\*\* | [-0.27, -0.13] | -0.22 | .05 | [.02, .08] |  |
| Child Age | 0.01 | [-0.02, 0.03] | 0.02 | .00 | [-.00, .00] |  |
| Child Gender (Female) | -0.06 | [-0.15, 0.04] | -0.05 | .00 | [-.00, .01] |  |
| Child Ethnicity (Nonwhite) | 0.18\*\* | [0.06, 0.29] | 0.12 | .02 | [-.00, .03] |  |
|  |  |  |  |  |  | *R2*  = .059\*\* |
|  |  |  |  |  |  | 95% CI[.03, .09] |
|  |  |  |  |  |  |  |

*Note.* A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. *sr2* represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. *Beta* indicates standardized regression coefficients. Table generated with apaTables package in R (Stanley & Spence, 2018). Beta coefficients generated with lm.beta package in R (Behrendt, 2014).
\* indicates p < .05. \*\* indicates p < .01.

Table S6

*Better parent executive functioning predicts more warm parenting*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*95% CI[LL, UL] | *Beta* | *sr2*  | *sr2* 95% CI[LL, UL] | Fit |
| (Intercept) | 0.83\*\* | [0.51, 1.15] | 0.00 |  |  |  |
| Parent Executive Functioning | 0.09\*\* | [0.02, 0.16] | 0.10 | .01 | [-.00, .02] |  |
| Child Age | -0.06\*\* | [-0.09, -0.04] | -0.22 | .05 | [.02, .08] |  |
| Child Gender (Female) | 0.19\*\* | [0.10, 0.28] | 0.15 | .02 | [.00, .04] |  |
| Child Ethnicity (Nonwhite) | -0.02 | [-0.14, 0.10] | -0.01 | .00 | [-.00, .00] |  |
|  |  |  |  |  |  | *R2*  = .076\*\* |
|  |  |  |  |  |  | 95% CI[.04, .11] |
|  |  |  |  |  |  |  |

*Note.* A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. *sr2* represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. *Beta* indicates standardized regression coefficients. Table generated with apaTables package in R (Stanley & Spence, 2018). Beta coefficients generated with lm.beta package in R (Behrendt, 2014).
\* indicates p < .05. \*\* indicates p < .01.

Table S7

*Model estimates and model fit statistics for supplemental ASFE models*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Nuclear Twin Family Model | A | S | F | E | AIC | BIC | ssBIC | RMSEA |
| Executive Functioning (self-report only)ASFE | 0.21[0 0.49] | 0.11[0 0.27] | 0.00[0 0.05] | 0.68 \*\*\*[0.54 0.82] | 3408.31 | 3412.49 | 3412.49 | 0.12 |
| Executive Functioning(behavioral only)ASFE | 0.06[0 0.38] | 0.27 \*\*\*[0.08 0.38] | 0.00[0 0.04] | 0.66 \*\*\*[0.52 0.75] | 3241.11 | 3264.27 | 3245.24 | 0.13 |
|  |  |  |  |  |  |  |  |  |

*Note.* This table depicts estimates and model fit statistics for a supplemental Nuclear Twin Family Model using twin-report executive functioning data only (self-report only) and the behavioral executive functioning measure only (behavioral only) rather than the factor score which combined the two. The ASFE model provides a decomposition of shared environmental contributions (C in classical twin ACE model) into those shared between parents and children (F) and those shared between siblings (S). Note that, consistent with the results from the primary model using an executive functioning factor score, F is estimated at 0 regardless of the measurement strategy. For estimates, \* p <0.05, \*\* p<0.01, \*\*\* p<0.001

Table S8

*Means, standard deviations, and correlations with confidence intervals for all variables included in parent and child EF composites*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Mom MPS Ctrl | 9.70 | 2.35 |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 2. Dad MPS Ctrl | 9.35 | 2.28 | -.02 |   |   |   |   |   |   |   |   |
|   |   |   | [-.10, .07] |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 3. Mom ASR Attn | 5.24 | 4.30 | -.36\*\* | -.14\*\* |   |   |   |   |   |   |   |
|   |   |   | [-.43, -.29] | [-.23, -.06] |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 4. Dad ASR Attn | 4.88 | 3.96 | -.11\*\* | -.29\*\* | .24\*\* |   |   |   |   |   |   |
|   |   |   | [-.20, -.03] | [-.36, -.21] | [.16, .32] |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 5. Twin EATQ Attn | 3.46 | 0.65 | .00 | .06 | -.14\*\* | -.18\*\* |   |   |   |   |   |
|   |   |   | [-.07, .08] | [-.02, .15] | [-.22, -.07] | [-.26, -.09] |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 6. Twin EATQ Act Ctrl | 3.39 | 0.81 | .05 | .14\*\* | -.14\*\* | -.15\*\* | .56\*\* |   |   |   |   |
|   |   |   | [-.03, .12] | [.05, .22] | [-.21, -.06] | [-.24, -.07] | [.50, .61] |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 7. Twin EATQ Inh Ctrl | 3.84 | 0.58 | .06 | .04 | -.09\* | -.04 | .42\*\* | .31\*\* |   |   |   |
|   |   |   | [-.02, .13] | [-.04, .13] | [-.16, -.01] | [-.12, .04] | [.36, .48] | [.24, .38] |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 8. EEA (stop signal) | 3.36 | 0.78 | .11\* | .11 | -.08 | -.03 | .13\* | .06 | .12\* |   |   |
|   |   |   | [.00, .22] | [-.01, .23] | [-.18, .03] | [-.15, .09] | [.03, .24] | [-.05, .17] | [.01, .23] |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 9. EEA (go) | 2.63 | 0.53 | -.00 | .08 | .02 | -.04 | .09\* | .01 | .09\* | .13\* |   |
|   |   |   | [-.08, .08] | [-.01, .17] | [-.06, .10] | [-.13, .05] | [.01, .17] | [-.07, .09] | [.01, .17] | [.01, .24] |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 10. EEA (no-go) | 3.49 | 0.71 | -.01 | .09\* | .01 | -.07 | .12\*\* | .05 | .11\*\* | .07 | .37\*\* |
|   |   |   | [-.09, .07] | [.00, .18] | [-.07, .09] | [-.16, .03] | [.04, .20] | [-.03, .13] | [.03, .19] | [-.04, .19] | [.30, .44] |
|   |   |   |   |   |   |   |   |   |   |   |   |

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. Table generated with apaTables package in R (Stanley & Spence, 2018). \* indicates *p* < .05. \*\* indicates *p* < .01.

Table S9

*Means, standard deviations, and correlations with confidence intervals for subscales included in harsh parenting composite*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  |  |  |  |  |  |  |  |  |  |  |
| 1. PC APQ Inc Disc | 12.68 | 3.72 |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 2. PC APQ Corporal | 2.42 | 0.87 | .45\*\* |   |   |   |   |   |   |   |
|   |   |   | [.39, .51] |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 3. AC APQ Inc Disc | 12.52 | 3.58 | .22\*\* | .15\*\* |   |   |   |   |   |   |
|   |   |   | [.13, .30] | [.06, .23] |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 4. AC APQ Corporal | 2.32 | 0.90 | .16\*\* | .24\*\* | .42\*\* |   |   |   |   |   |
|   |   |   | [.07, .24] | [.16, .32] | [.35, .49] |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 5. Twin APQ Inc Disc | 13.22 | 3.64 | .29\*\* | .13\*\* | .26\*\* | .15\*\* |   |   |   |   |
|   |   |   | [.22, .36] | [.06, .21] | [.18, .34] | [.06, .23] |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 6. Twin APQ Corporal | 7.60 | 3.18 | .19\*\* | .20\*\* | .14\*\* | .23\*\* | .31\*\* |   |   |   |
|   |   |   | [.11, .26] | [.13, .27] | [.06, .23] | [.14, .31] | [.24, .37] |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 7. Twin PEQ Conflict | 20.97 | 6.70 | .30\*\* | .23\*\* | .08 | .15\*\* | .38\*\* | .46\*\* |   |   |
|   |   |   | [.23, .37] | [.15, .30] | [-.01, .17] | [.06, .24] | [.31, .45] | [.40, .52] |   |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 8. PC PEQ Conflict | 20.31 | 5.98 | .48\*\* | .49\*\* | .15\*\* | .23\*\* | .20\*\* | .22\*\* | .46\*\* |   |
|   |   |   | [.41, .53] | [.43, .55] | [.06, .24] | [.14, .31] | [.13, .28] | [.15, .30] | [.40, .52] |   |
|   |   |   |   |   |   |   |   |   |   |   |
| 9. AC PEQ Conflict | 20.42 | 5.91 | .29\*\* | .23\*\* | .48\*\* | .42\*\* | .19\*\* | .21\*\* | .28\*\* | .48\*\* |
|   |   |   | [.22, .36] | [.16, .31] | [.41, .55] | [.34, .49] | [.11, .27] | [.14, .29] | [.21, .35] | [.42, .54] |
|   |   |   |   |   |   |   |   |   |   |   |

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. Table generated with apaTables package in R (Stanley & Spence, 2018). \* indicates *p* < .05. \*\* indicates *p* < .01.

Table S10

*Means, standard deviations, and correlations with confidence intervals of all subscales included in warm parenting composite*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 1. PC APQ Involve | 39.68 | 5.04 |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 2. PC APQ Positive | 24.91 | 3.38 | .60\*\* |   |   |   |   |   |   |   |   |
|   |   |   | [.55, .65] |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 3. AC APQ Involve | 36.31 | 5.94 | .22\*\* | .04 |   |   |   |   |   |   |   |
|   |   |   | [.14, .30] | [-.05, .13] |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 4. AC APQ Positive | 23.70 | 3.68 | .24\*\* | .22\*\* | .63\*\* |   |   |   |   |   |   |
|   |   |   | [.15, .32] | [.14, .30] | [.57, .68] |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 5. Twin APQ Involve (on mom) | 34.73 | 6.56 | .39\*\* | .19\*\* | .17\*\* | .10\* |   |   |   |   |   |
|   |   |   | [.33, .45] | [.12, .26] | [.08, .26] | [.02, .19] |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 6. Twin APQ Involve(on dad) | 30.06 | 8.42 | .29\*\* | .09\* | .24\*\* | .10\* | .53\*\* |   |   |   |   |
|   |   |   | [.22, .36] | [.02, .17] | [.15, .32] | [.01, .19] | [.47, .58] |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 7. Twin APQ Positive | 21.27 | 4.33 | .25\*\* | .30\*\* | .12\*\* | .19\*\* | .65\*\* | .41\*\* |   |   |   |
|   |   |   | [.18, .32] | [.23, .37] | [.03, .21] | [.11, .28] | [.60, .69] | [.34, .47] |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 8. PC PEQ Involve | 43.36 | 4.00 | .59\*\* | .45\*\* | .07 | .18\*\* | .30\*\* | .22\*\* | .25\*\* |   |   |
|   |   |   | [.54, .64] | [.38, .51] | [-.02, .17] | [.09, .27] | [.23, .37] | [.15, .30] | [.17, .32] |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 9. AC PEQ Involve | 41.03 | 5.33 | .21\*\* | .07 | .68\*\* | .57\*\* | .09 | .21\*\* | .06 | .16\*\* |   |
|   |   |   | [.12, .29] | [-.02, .17] | [.63, .73] | [.51, .63] | [-.00, .18] | [.12, .30] | [-.03, .15] | [.07, .25] |   |
|   |   |   |   |   |   |   |   |   |   |   |   |
| 10. Twin PEQ Involve | 40.57 | 5.98 | .23\*\* | .13\*\* | .19\*\* | .14\*\* | .59\*\* | .35\*\* | .53\*\* | .33\*\* | .17\*\* |
|   |   |   | [.15, .30] | [.05, .20] | [.10, .28] | [.05, .23] | [.53, .64] | [.27, .42] | [.46, .58] | [.26, .40] | [.08, .26] |
|   |   |   |   |   |   |   |   |   |   |   |   |

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. Table generated with apaTables package in R (Stanley & Spence, 2018). \* indicates *p* < .05. \*\* indicates *p* < .01.

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