**Supplemental Materials**

Table S1.

*Factorial invariance tests of self-control and cooperation from age 8 to 11*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fit Statistics | Configural Invariance | Weak Invariance | Strong Invariance | Strict Invariance |
| Self-control models |  |  |  |  |
| χ2 (df) | 43.64 (30) | 54.995 (36) | 64.22 (42) | 75.644 (51) |
| AIC | 2615.06 | 2614.85 | 2612.16 | 2604.83 |
| BIC | 2915.41 | 2885.17 | 2852.44 | 2800.06 |
| RMSEA | 0.020 | 0.022 | 0.022 | 0.021 |
| CFI | 0.997 | 0.996 | 0.996 | 0.995 |
| TLI | 0.994 | 0.993 | 0.993 | 0.994 |
| SRMR | 0.016 | 0.028 | 0.032 | 0.046 |
| ΔCFI |  | 0.001 | 0.000 | 0.001 |
| Cooperation models |  |  |  |  |
| χ2 (df) | 47.36 (30) | 52.27 (36) | 76.39 (42) | 92.33 (51) |
| AIC | 3247.30 | 3240.48 | 3253.88 | 3251.06 |
| BIC | 3547.64 | 3510.80 | 3494.16 | 3446.29 |
| RMSEA | 0.023 | 0.020 | 0.027 | 0.027 |
| CFI | 0.996 | 0.997 | 0.993 | 0.991 |
| TLI | 0.992 | 0.994 | 0.989 | 0.989 |
| SRMR | 0.025 | 0.027 | 0.030 | 0.043 |
| ΔCFI |  | 0.001 | 0.004 | 0.002 |

Table S2.

*Functional form of the change in children’s self-control and cooperation from age 8 to 11*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | ꭓ2 | df | *p* | Scaling CorrectionFactor for MLR | Satorra-BentlerScaled Δꭓ2 | Δdf | *p* | RMSEA | 95% CI | CFI | TLI | SRMR |
| Self-control model |  |  |  |  |  |  |  |  |  |  |  |  |
| No Growth | 98.13 | 53 | .000 | 1.0383 | — | — | — | 0.028 | [0.019, 0.036] | 0.991 | 0.989 | 0.038 |
| Linear a | 79.35 | 50 | .005 | 1.0350 | 18.08 | 3 | .000 | 0.023 | [0.013, 0.032] | 0.994 | 0.993 | 0.037 |
| Quadratic Ϯ | 78.87 | 49 | .004 | 1.0356 | 0.45 | 1 | .504 | 0.024 | [0.013, 0.033] | 0.994 | 0.992 | 0.037 |
| Cooperation model |  |  |  |  |  |  |  |  |  |  |  |  |
| No Growth | 111.57 | 53 | .000 | 1.0817 | — | — | — | 0.032 | [0.023, 0.040] | 0.988 | 0.985 | 0.040 |
| Linear a | 92.65 | 50 | .000 | 1.0778 | 18.16 | 3 | .000 | 0.028 | [0.019, 0.037] | 0.991 | 0.988 | 0.039 |
| Quadratic | 88.28 | 46 | .000 | 1.0757 | 4.44 | 4 | .349 | 0.029 | [0.020, 0.038] | 0.991 | 0.987 | 0.037 |
| Linear Model | Mean | SE | *p* | Variance | SE | *p* |  |  |  |  |  |  |
| Self-control model |  |  |  |  |  |  |  |  |  |  |  |  |
| Intercept | 1.37 | (0.01) | .000 | 0.05 | (0.01) | .000 |  |  |  |  |  |  |
| Linear slope | 0.01 | (0.002) | .012 | 0.001 | (0.00) | .004 |  |  |  |  |  |  |
| Cooperation model |  |  |  |  |  |  |  |  |  |  |  |  |
| Intercept | 1.22 | (0.01) | .000 | 0.05 | (0.01) | .000 |  |  |  |  |  |  |
| Linear slope | -0.001 | (0.003) | .779 | 0.002 | (0.00) | .001 |  |  |  |  |  |  |

*Note.* a Linear model was selected based on the Satorra-Bentler Scaled ꭓ2 difference test (Satorra & Bentler, 2010), overall model fit indices (Hu & Bentler, 1999), and the statistical significance of the means and variances of the intercepts and slopes (Grimm et al., 2017).

Ϯ When we tested quadratic function of self-control, Mplus created a warning message related to slope of self-control indicated “a negative variance/residual variance for a latent variable, a correlation greater or equal to one between two latent variables, or a linear dependency among more than two latent variables.” We fix the problem by setting the variance of quadratic term to be zero because it was zero and not statistically significant.

Figure S1.A

*Second-order linear growth models of self-control from age 8 to 11*

1.00

.69\*\*\*

1.08

.75\*\*\*

.70

.42\*\*\*

1.00

.70\*\*\*

1.08

.73\*\*\*

.70

.43\*\*\*

1.00

.73\*\*\*

1.08

.74\*\*\*

.70

.42\*\*\*

1.00

.73\*\*\*

1.08

.75\*\*\*

.70

.45\*\*\*

SC M 8

SC F 8

SC T 8

SC M 9

SC F 9

SC T 9

SC M 10

SC F 10

SC T 10

SC M 11

SC F 11

SC T 11

.00 / -.06 n.s.

1

.97\*\*\*

1

.95\*\*\*

1

.96\*\*\*

1

.92\*\*\*

1

.13\*\*\*

2

.26\*\*\*

3

.37\*\*\*

*Note.* Model fit the data well. ꭓ2 (50) = 79.35, *p* = .005, RMSEA (90 % CI) = 0.02 [0.01, 0.03], CFI = 0.99, TLI = 0.99, SRMR = 0.04. First number indicates unstandardized estimates, second number below indicates standardized estimates. Intercept was set at age 8. \*\*\* *p* < .001.

Figure S1.B

*Second-order linear growth models of cooperation from age 8 to 11*

C M 8

C F 8

C T 8

C M 9

C F 9

C T 9

C M 10

C F 10

C T 10

C M 11

C F 11

C T 11

1.00

.71\*\*\*

1.06

.74\*\*\*

.67

.35\*\*\*

1.00

.67\*\*\*

1.06

.71\*\*\*

.67

.37\*\*\*

1.00

.71\*\*\*

1.06

.73\*\*\*

.67

.38\*\*\*

1.00

.70\*\*\*

1.06

.74\*\*\*

.67

.37\*\*\*

-.001 / -.17 n.s.

1

.94\*\*\*

1

.94\*\*\*

1

.95\*\*\*

1

.90\*\*\*

1

.17\*\*\*

2

.34\*\*\*

3

.48\*\*\*

*Note*. Model fit the data well. *ꭓ2* (50) = 92.65, *p* < .001, RMSEA (90 % CI) = 0.03 [0.02, 0.04], CFI = 0.99, TLI = 0.99, SRMR = 0.04. First number indicates unstandardized estimates, second number below indicates standardized estimates. Intercept was set at age 8. \*\*\* *p* < .001.

**Robustness Check**

Figure S2.A.

*Childhood self-control in relations to subsequent self-control and moral disengagement in adolescence*

Self-Control

Age 15

Moral Disengagement

Age 18

-.18\*\*

.30\*\*\*

**Mother, Father, and Teacher Report**

**Youth Self-Report**

**Youth Self-Report**

.25

-.02

-.002

-.15

*Note.* Model fit the data well: N = 733, *ꭓ2* (210) = 344.20, *p <* .001, RMSEA (90 % CI) = 0.03 [0.02, 0.04], CFI = 0.97, TLI = 0.96, SRMR = 0.04. Only standardized estimates are shown.

\*\*\* *p* < .001. \*\* *p* < .01.

Figure S2.B.

*Childhood cooperation in relations to subsequent cooperation and moral disengagement in adolescence*

Cooperation

Age 15

Moral Disengagement

Age 18

-.21\*\*\*

.30\*\*\*

**Mother, Father, and Teacher Report**

**Youth Self-Report**

**Youth Self-Report**

.05

-.05

-.19

-.10

*Note.* Model fit the data well: N = 733, *ꭓ2* (210) = 375.99, *p* < .001, RMSEA (90 % CI) = 0.03 [0.03, 0.04], CFI = 0.96, TLI = 0.95, SRMR = 0.05. Only standardized estimates are shown. Bold arrows indicate significant indirect effects.

\*\*\* *p* < .001. \*\* *p* < .01.