**Supplemental Tables**

S-T1. *Exact Item & Scale Information*

|  |  |  |  |
| --- | --- | --- | --- |
| ***Warmth Parenting*** | ***Label*** | ***Values*** | ***Reliability***  |
| **1. Item Grade 3 – 5**Adolescent 🡪 Mother // Father (PWAM1 // PWAF1) | Adolescent: Mother/Father shows you that she/he likes you. | 1 = Never to 5 = Very often | Adolescent 🡪 Mother:Grade 3: Ω = .74Grade 4: Ω = .77Grade 5: Ω = .78Adolescent 🡪 Father:Grade 3: Ω = .85Grade 4: Ω = .88Grade 5: Ω = .89 |
| **2. Item Grade 3 – 5**Adolescent 🡪 Mother // Father (PWAM2 // PWAF2) | Adolescent: Mother/Father cheers you up when you are sad. | 1 = Never to 5 = Very often |
| **3. Item Grade 3 – 5**Adolescent 🡪 Mother // Father (PWAM3 // PWAF3) | Adolescent: Mother/Father praises you. | 1 = Never to 5 = Very often |
| **1. Item Grade 3 – 5**Mother // Father 🡪 Adolescent (PWMA1 // PWFA1) | Mother/Father: You show your child with words and gestures that you like him/her. | 1 = Never to 5 = Very often | Mother 🡪 Adolescent:Grade 3: Ω = .86Grade 4: Ω = .85Grade 5: Ω = .86Father 🡪 Adolescent:Grade 3: Ω = .83Grade 4: Ω = .84Grade 5: Ω = .83 |
| **2. Item Grade 3 – 5**Mother // Father 🡪 Adolescent (PWMA2 // PWFA2) | Mother/Father: You cheer up your child when he/she is sad. | 1 = Never to 5 = Very often |
| **3. Item Grade 3 – 5**Mother // Father 🡪 Adolescent (PWMA3 // PWFA3) | Mother/Father: You praise your child. | 1 = Never to 5 = Very often |
| ***Psychological Adjustment (Emotional & Social Problems)*** | ***Label*** | ***Values*** | ***Reliability*** |
| **1. Item Grade 3 – 6**Emotional Problems (EMO1) | Emotional Problems: Have many fears/easily scared. | 0 = Not true to 2 = Certainly true | Grade 3: Ω = .73Grade 4: Ω = .74Grade 5: Ω = .70Grade 6: Ω = .75 |
| **2. Item Grade 3 – 6**Emotional Problems (EMO2) | Emotional Problems: Often unhappy/depressed or tearful. | 0 = Not true to 2 = Certainly true |
| **3. Item Grade 3 – 6**Emotional Problems (EMO3) | Emotional Problems: Worry a lot. | 0 = Not true to 2 = Certainly true |
| **1. Item Grade 3 – 6**Social Problems (SOC1) | Social Problems: Get very angry and often lose my temper. | 0 = Not true to 2 = Certainly true | Grade 3: Ω = .61Grade 4: Ω = .64Grade 5: Ω = .60Grade 6: Ω = .63 |
| **2. Item Grade 3 – 6**Social Problems (SOC2) | Social Problems: Often accused of lying or cheating. | 0 = Not true to 2 = Certainly true |
| **3. Item Grade 3 – 6**Social Problems (SOC3) | Social Problems: I fight a lot/I can make other people do what I want | 0 = Not true to 2 = Certainly true |

*Note.* Information about the measurement instruments is taken from the pairfam scales manual (Thönnissen, Wilhelm, Alt, Greischl, & Walper, 2018); PWAM represents the mother–adolescent parental warmth from the adolescents’ perspective; PWAF represents the father–adolescent parental warmth from the adolescents’ perspective; PWMA represents the mother–adolescent parental warmth from the mothers’ perspective; PWFA represents the father-adolescent parental warmth from the fathers’ perspective; EMO represents emotional problems and SOC represents social problems from the adolescents’ perspective; Reliability corresponds to the factor reliability ‘omega’

S-T2. *Fit Statistics for the Invariance Models on Emotional & Social Problem Behavior*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *χ2* | *df* | *p* | CFI | TLI | AIC | BIC | RMSEA | SRMR | ΔRMSEA  | ΔCFI | ΔSRMR |
| Confirmatory Model | 557.9220 | 188 | .000 | .954  | .932 | 64528.42  | 65277.09 | .032 | .033 |  |  |  |
| Weak Model | 557.1835 | 199 | .000 | .955 | .938 | 64507.34  | 65195.45 | .031 | .034 | 0.001a | –0.001a | –0.001a |
| Strong Model | 579.7795 | 208 | .000 | .954 | .939 | 64507.58  | 65146.15 | .031 | .035 | <0.001b | 0.001b | –0.001b |

*Note.* a = Difference Confirmatory Model vs. Weak Model; b = Difference Weak Model vs. Strong Model.

S-T3. *Fit Statistics Invariance Models of Parental Warmth Mother–Adolescent Dyad*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *χ2* | *df* | *p* | CFI | TLI | AIC | BIC | RMSEA | SRMR | ΔRMSEA  | ΔCFI | ΔSRMR |
| Confirmatory Model | 455.34 | 87 | .000 | .961 | .932 | 54479.85  | 55041.36 | .040 | .034 |  |  |  |
| Weak Model | 476.13 | 91 | .000 | .959 | .932 | 54492.65  | 55032.13 | .040 | .036 | <–0.001a | 0.002a | –0.002a |
| Strong Model | 494.42 | 95 | .000 | .957 | .932 | 54502.94 | 55020.41 | .040 | .037 | <–0.001b | 0.002b | –0.001b |

*Note.* a = Difference Confirmatory Model vs. Weak Model; b = Difference Weak Model vs. Strong Model.

S-T4. *Fit Statistics Invariance Models of Parental Warmth Father-Adolescent Dyad*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | χ2 | df | *p* | CFI | TLI | AIC | BIC | RMSEA | SRMR | ΔRMSEA  | ΔCFI | ΔSRMR |
| Confirmatory Model | 470.2084 | 87 | <.001 | .967 | .940 | 67168.29  | 67735.30 | .049 | .039 |  |  |  |
| Weak Model | 53.6604 | 91 | <.001 | .961 | .933 | 67245.19  | 67784.67 | .051 | .040 | –0.002a | 0.005a | –0.001a |
| Strong Model | 560.8557 | 95 | <.001 | .960 | .935 | 67243.18  | 67760.65 | .051 | .041 | <–0.001b | 0.002b | –0.001b |

*Note.* a = Difference Confirmatory Model vs. Weak Model; b = Difference Weak Model vs. Strong Model

Table T-S 5a. *Estimated Latent Cross-Correlations of the Full Structural Model for Mother–Adolescent*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1 | Income | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Gender | -0.020 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | School Type Grade 5 | -0.017 | 0.009 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | EMO Grade 3 | -0.092 | 0.068 | n.est. | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | EMO Grade 3 to 4 | 0.001 | -0.013 | n.est. | -0.452 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | EMO Grade 4 to  | -0.019 | 0.011 | 0.066 | -0.210 | -0.370 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| 7 | EMO Grade 5 to 6 | 0.028 | 0.036 | -0.150 | 0.060 | -0.162 | -0.287 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| 8 | SOC Grade 3 | -0.083 | -0.227 | n.est. | 0.710 | -0.290 | -0.109 | -0.036 | 1.000 |  |  |  |  |  |  |  |  |  |
| 9 | SOC Grade 3 to 4 | -0.046 | 0.070 | n.est. | -0.271 | 0.552 | -0.229 | -0.045 | -0.488 | 1.000 |  |  |  |  |  |  |  |  |
| 10 | SOC Grade 4 to 5 | 0.009 | 0.064 | 0.011 | -0.028 | -0.250 | 0.702 | -0.174 | 0.143 | -0.664 | 1.000 |  |  |  |  |  |  |  |
| 11 | SOC Grade 5 to 6 | 0.111 | -0.016 | -0.108 | -0.277 | 0.063 | -0.215 | 0.666 | -0.407 | 0.178 | -0.189 | 1.000 |  |  |  |  |  |  |
| 12 | Level PW Grade 3 | n.est. | n.est. | n.est. | 0.002 | -0.106 | 0.039 | 0.010 | -0.028 | -0.042 | -0.030 | -0.012 | 1.000 |  |  |  |  |  |
| 13 | Discrepancy PW Grade 3 | n.est. | n.est. | n.est. | 0.013 | 0.012 | 0.025 | 0.040 | 0.053 | 0.010 | 0.035 | -0.011 | 0.024 | 1.000 |  |  |  |  |
| 14 | Level PW Grade 4 | n.est. | n.est. | n.est. | n.est. | n.est. | 0.055 | 0.015 | n.est. | n.est. | -0.045 | -0.015 | 0.699 | 0.164 | 1.000 |  |  |  |
| 15 | Discrepancy PW Grade 4 | n.est. | n.est. | n.est. | n.est. | n.est. | 0.034 | 0.044 | n.est. | n.est. | 0.081 | -0.013 | 0.054 | 0.516 | 0.041 | 1.000 |  |  |
| 16 | Level PW Grade 5 | n.est. | n.est. | n.est. | n.est. | n.est. | n.est. | 0.017 | n.est. | n.est. | n.est. | -0.019 | 0.642 | 0.031 | 0.736 | 0.041 | 1.000 |  |
| 17 | Discrepancy PW Grade 5 | n.est. | n.est. | n.est. | n.est. | n.est. | n.est. | 0.080 | n.est. | n.est. | n.est. | -0.023 | 0.033 | 0.496 | 0.082 | 0.548 | 0.064 | 1.000 |

*Note*. Latent cross-correlations were taken from the final model, with predictions and control variables. EMO = emotional problems; SOC = social problems; PW = parental warmth; n.est. = not estimated; Further results on the regression parameters are provided in Table 5

Table T-S 5b. *Estimated Latent Cross-Correlations of the Full Structural Model for Father–Adolescent*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1 | Income | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Gender | -0.020 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | School Type Grade 5 | -0.017 | 0.009 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | EMO Grade 3 | -0.090 | 0.077 | n.est. | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | EMO Grade 3 to 4 | -0.001 | -0.021 | n.est. | -0.442 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | EMO Grade 4 to  | -0.018 | 0.015 | 0.065 | -0.225 | -0.364 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| 7 | EMO Grade 5 to 6 | 0.027 | 0.035 | -0.145 | 0.069 | -0.178 | -0.296 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| 8 | SOC Grade 3 | -0.083 | -0.221 | n.est. | 0.707 | -0.271 | -0.118 | -0.032 | 1.000 |  |  |  |  |  |  |  |  |  |
| 9 | SOC Grade 3 to 4 | -0.051 | 0.061 | n.est. | -0.263 | 0.543 | -0.218 | -0.055 | -0.469 | 1.000 |  |  |  |  |  |  |  |  |
| 10 | SOC Grade 4 to 5 | 0.016 | 0.067 | 0.015 | -0.055 | -0.240 | 0.693 | -0.185 | 0.120 | -0.666 | 1.000 |  |  |  |  |  |  |  |
| 11 | SOC Grade 5 to 6 | 0.105 | -0.022 | -0.117 | -0.261 | 0.069 | -0.218 | 0.667 | -0.405 | 0.189 | -0.177 | 1.000 |  |  |  |  |  |  |
| 12 | Level PW Grade 3 | n.est. | n.est. | n.est. | -0.023 | -0.065 | 0.039 | -0.041 | -0.067 | 0.025 | -0.068 | 0.035 | 1.000 |  |  |  |  |  |
| 13 | Discrepancy PW Grade 3 | n.est. | n.est. | n.est. | 0.086 | 0.031 | 0.020 | -0.027 | 0.060 | -0.064 | 0.068 | 0.010 | -0.293 | 1.000 |  |  |  |  |
| 14 | Level PW Grade 4 | n.est. | n.est. | n.est. | n.est. | n.est. | 0.055 | -0.043 | n.est. | n.est. | -0.138 | 0.042 | 0.565 | -0.210 | 1.000 |  |  |  |
| 15 | Discrepancy PW Grade 4 | n.est. | n.est. | n.est. | n.est. | n.est. | 0.068 | -0.042 | n.est. | n.est. | 0.150 | 0.017 | -0.091 | 0.397 | -0.313 | 1.000 |  |  |
| 16 | Level PW Grade 5 | n.est. | n.est. | n.est. | n.est. | n.est. | n.est. | -0.075 | n.est. | n.est. | n.est. | 0.070 | 0.462 | -0.131 | 0.648 | -0.162 | 1.000 |  |
| 17 | Discrepancy PW Grade 5 | n.est. | n.est. | n.est. | n.est. | n.est. | n.est. | -0.100 | n.est. | n.est. | n.est. | 0.048 | -0.024 | 0.338 | -0.157 | 0.500 | -0.165 | 1.000 |

*Note*. Latent cross-correlations were taken from the final model, with predictions and control variables. EMO = emotional problems; SOC = social problems; PW = parental warmth; n.est. = not estimated; Further results on the regression parameters are provided in Table 5