**Appendix A**

**Table A1**

*Measurement Invariance for the strengths and difficulties questionnaire across all waves (age 3, 5, 7, 11, and 14 years)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **χ2** | **CFI** | **Δ CFI** | **RMSEA** | **Δ RMSEA** |
| Configural Model | χ2(1325) = 42779.13\*\*\* | .902 | - | .049 [.048, .049] | - |
| Metric Model | χ2(1405) = 49026.147\*\*\* | .887 | .015 | .051 [.050, .051] | .002 |
| Scalar Model | χ2(1485) = 50212.367\*\*\* | .885 | .002 | .050 [.049, .050] | -.001 |

\*\*\* p<.001

**Appendix B**

Tests of Missing Data

**Table B1**

*Missing Completely at Random Test*

|  |  |
| --- | --- |
| test statistic | *p* |
| χ2(1113) = 2505.87 | <.001 |

**Table B2**

*Comparison of Psychopathology and Prosocial Behaviour Scores Based on Missingness*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No missing data  *M*(*SD*) | Missing data  *M*(*SD*) | Mean difference [95% CI] | | test statistic |
| Prosocial behaviour |  |  | |  |  |
| age 3 | 7.09 (2.02) | 7.07 (2.10) | | .03 [-.04, .09] | *t*(14630) = .80 |
| age 5 | 8.36 (1.71) | 8.21 (1.82) | | .14 [.08, .20] | *t*(14571) = 4.80\*\*\* |
| age 7 | 8.61 (1.64) | 8.39 (1.80) | | .22 [.16, .28] | *t*(13314) = 7.07\*\*\* |
| age 11 | 8.82 (1.52) | 8.59 (1.77) | | .23 [.17, .29] | *t*(12652) = 7.71\*\*\* |
| age 14 | 8.34 (1.82) | 8.08 (1.99) | | .26 [.18, .34] | *t*(11114) = 6.40\*\*\* |
| Emotional problems |  |  | |  |  |
| age 3 | 1.26 (1.38) | 1.43 (1.51) | | -.17 [-.22, -.12] | *t*(14629) = -7.03\*\*\* |
| age 5 | 1.30 (1.51) | 1.45 (1.61) | | -.16 [-.21, -.11] | *t*(14571) = -6.14\*\*\* |
| age 7 | 1.45 (1.69) | 1.61 (1.80) | | -.17 [-.23, -.11] | *t*(13312) = -5.38\*\*\* |
| age 11 | 1.81 (1.96) | 1.94 (2.00) | | -.13 [-.21, -.06] | *t*(12650) = -3.64\*\*\* |
| age 14 | 1.95 (2.10) | 2.25 (2.18) | | -.30 [-.39, -.21] | *t*(11112) = -6.50\*\*\* |
| Peer problems |  |  | |  |  |
| age 3 | 1.37 (1.44) | 1.56 (1.50) | | -.18 [-.23, -.14] | *t*(14628) = -7.56\*\*\* |
| age 5 | 1.03 (1.33) | 1.24 (1.42) | | -.21 [-.26, -.17] | *t*(14574) = -9.31\*\*\* |
| age 7 | 1.08 (1.43) | 1.36 (1.54) | | -.28 [-.33, -.23] | *t*(13314) = -10.70\*\*\* |
| age 11 | 1.25 (1.61) | 1.55 (1.72) | | -.30 [-.36, -.24] | *t*(12649) = -9.64\*\*\* |
| age 14 | 1.64 (1.79) | 1.97 (1.80) | | -.32 [-.40, -.25] | *t*(11112) = -8.28\*\*\* |
| Conduct problems |  |  | |  |  |
| age 3 | 2.62 (1.95) | 2.91 (2.08) | | -.28 [-.35, -.22] | *t*(14631) = -8.46\*\*\* |
| age 5 | 1.38 (1.40) | 1.64 (1.56) | | -.26 [-.31, -.21] | *t*(14572) = -10.68\*\*\* |
| age 7 | 1.27 (1.45) | 1.54 (1.61) | | -.28 [-.33, -.22] | *t*(13313) = -10.26\*\*\* |
| age 11 | 1.28 (1.48) | 1.55 (1.66) | | -.27 [-.33, -.22] | *t*(12648) = -9.42\*\*\* |
| age 14 | 1.31 (1.55) | 1.68 (1.77) | | -.37 [-.44, -.30] | *t*(11113) = -10.66\*\*\* |
| Hyperactivity and inattention |  |  | |  |  |
| age 3 | 3.59 (2.26) | 3.93 (2.32) | | -.34 [-.41, -.26] | *t*(14626) = -8.86\*\*\* |
| age 5 | 3.07 (2.29) | 3.46 (2.37) | | -.38 [-.46, -.30] | *t*(14565) = -9.78\*\*\* |
| age 7 | 3.17 (2.44) | 3.55 (2.53) | | -.38 [-.46, -.29] | *t*(13308) = -8.51\*\*\* |
| age 11 | 2.98 (2.41) | 3.31 (2.52) | | -.33 [-.42, -.24] | *t*(12646) = -7.22\*\*\* |
| age 14 | 2.84 (2.37) | 3.33 (2.41) | | -.49 [-.59, -.39] | *t*(11111) = -9.45\*\*\* |

*Note*. The no missing data column represents values for participants with complete data. The missing data column represents values for those participants with missing data on at least one study measure at at least one time point. \*\*\**p* < .001

**Appendix C**

**Table C1**

*The Proportion of Variability Accounted for in Prosocial Behaviour and Dimensions of Psychopathology Across the Four Models*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | *R*2 | *SE* | *p-value* |
| Emotional problems model | |  |  |  |
|  | Prosocial behaviour age 3 | .01 | .002 | .002 |
|  | Prosocial behaviour age 5 | .04 | .005 | < .001 |
|  | Prosocial behaviour age 7 | .06 | .006 | < .001 |
|  | Prosocial behaviour age 11 | .03 | .004 | < .001 |
|  | Prosocial behaviour age 14 | .10 | .007 | < .001 |
|  | Emotional problems age 3 | .03 | .002 | < .001 |
|  | Emotional problems age 5 | .02 | .005 | < .001 |
|  | Emotional problems age 7 | .11 | .006 | < .001 |
|  | Emotional problems age 11 | .12 | .007 | < .001 |
|  | Emotional problems age 14 | .19 | .008 | < .001 |
| Peer problems model | |  |  |  |
|  | Prosocial behaviour age 3 | .01 | .002 | .001 |
|  | Prosocial behaviour age 5 | .04 | .005 | < .001 |
|  | Prosocial behaviour age 7 | .06 | .006 | < .001 |
|  | Prosocial behaviour age 11 | .02 | .004 | < .001 |
|  | Prosocial behaviour age 14 | .09 | .007 | < .001 |
|  | Peer problems age 3 | .01 | .001 | < .001 |
|  | Peer problems age 5 | .01 | .003 | .009 |
|  | Peer problems age 7 | .08 | .008 | < .001 |
|  | Peer problems age 11 | .10 | .008 | < .001 |
|  | Peer problems age 14 | .19 | .008 | < .001 |
| Conduct problems model | |  |  |  |
|  | Prosocial behaviour age 3 | .01 | .002 | .002 |
|  | Prosocial behaviour age 5 | .05 | .005 | < .001 |
|  | Prosocial behaviour age 7 | .06 | .007 | < .001 |
|  | Prosocial behaviour age 11 | .03 | .005 | < .001 |
|  | Prosocial behaviour age 14 | .11 | .008 | < .001 |
|  | Conduct problems age 3 | .02 | .003 | < .001 |
|  | Conduct problems age 5 | .04 | .005 | < .001 |
|  | Conduct problems age 7 | .04 | .006 | < .001 |
|  | Conduct problems age 11 | .04 | .006 | < .001 |
|  | Conduct problems age 14 | .13 | .008 | < .001 |
| Hyperactivity/inattention problems model | |  |  |  |
|  | Prosocial behaviour age 3 | .004 | .001 | .004 |
|  | Prosocial behaviour age 5 | .04 | .005 | < .001 |
|  | Prosocial behaviour age 7 | .07 | .006 | < .001 |
|  | Prosocial behaviour age 11 | .03 | .005 | < .001 |
|  | Prosocial behaviour age 14 | .10 | .007 | < .001 |
|  | Hyperactivity/inattention problems age 3 | .02 | .003 | < .001 |
|  | Hyperactivity/inattention problems age 5 | .07 | .007 | < .001 |
|  | Hyperactivity/inattention problems age 7 | .18 | .007 | < .001 |
|  | Hyperactivity/inattention problems age 11 | .21 | .008 | < .001 |
|  | Hyperactivity/inattention problems age 14 | .22 | .009 | < .001 |