**Supplementary 2.** Coefficient comparison for the results with and without multiple imputation using 5 permutations.

Missing data was imputed (using 5 imputed datasets) with the *MVN* algorithm in Stata. A small proportion of the sample had data missing on several of the variables included in the analysis.

**Supplementary Table 2.** The percentage of participants who had data missing on each variable (variables not included had no missing data).

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Percentage (%)** | **Variable** | **Percentage (%)** |
| Childhood Adversity | <0.01 | Income Quintile | 6.95 |
| Externalising Problems (Age 13) | <0.01 | Self-Concept | 6.71 |
| Internalising Problems  (Age 13) | <0.01 | Parent-Child Conflict | <0.01 |
| Persistent Externalising Problems | <0.01 | Parent-Child Positive | <0.01 |
| Persistent Internalising Problems | <0.01 | Hobby Participation | <0.01 |

**Analysis 1.**

**Analysis 1. The association between childhood adversity and psychopathology.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Age 13 Externalising problems** | **Age 13 Internalising problems** | **Persistent externalising problems** | **Persistent Internalising problems** |
| **Observed** | 0.45  (0.25 - 0.65) | 0.61  (0.42 - 0.79) | 0.59  (0.34 - 0.84) | 1.13  (0.90 - 1.38) |
| **Multiple Imputations** | 0.43  (0.23 - 0.62) | 0.61  (0.43 - 0.79) | 0.46  (0.23 - 0.70) | 1.10  (0.87 - 1.33) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 2.**

**Analysis 2a. The association between childhood adversity and each mediator variable.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.12  (0.06 - 0.18) | 0.27  (0.22 - 0.32) | 0.01  (-0.04 - 0.07) | -0.30  (-0.45 - -0.15) |
| **Multiple Imputations** | 0.12  (0.06 - 0.17) | 0.26  (0.21 - 0.31) | 0.02  (-0.03 - 0.07) | -0.31  (-0.45 - -0.16) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 2b. The association between each mediator variable and Age 13 Externalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.24  (0.15 - 0.32) | 0.49  (0.40 - 0.58) | 0.08  (-0.01 - 0.16) | -0.38  (-0.62 - -0.14) |
| **Multiple Imputations** | 0.26  (0.17 - 0.35) | 0.49  (0.40 - 0.57) | 0.08  (0.01 - 0.16) | -0.33  (-0.56 - -0.10) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 2c. The association between each mediator variable and Age 13 Internalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.16  (0.08 - 0.25) | 0.44  (0.36 - 0.52) | 0.06  (-0.02 - 0.14) | -0.36  (-0.59 - -0.14) |
| **Multiple Imputations** | 0.20  (0.11 - 0.28) | 0.45  (0.37 - 0.52) | 0.06  (-0.02 - 0.13) | -0.35  (-0.57 - -0.13) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 2d. The association between each mediator variable and Persistent Externalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.42  (0.32 - 0.52) | 0.99  (0.89 - 1.09) | 0.34  (0.25 - 0.43) | -0.83  (-1.10 - -0.56) |
| **Multiple Imputations** | 0.41  (0.29 - 0.54) | 0.94  (0.85 - 1.03) | 0.38  (0.30 - 0.47) | -0.82  (-1.07 - -0.56) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 2e. The association between each mediator variable and Persistent Internalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.38  (0.28 - 0.48) | 0.84  (0.74 - 0.94) | 0.30  (0.20 - 0.39) | -0.78  (-1.05 - -0.50) |
| **Multiple Imputations** | 0.38  (0.27 - 0.48) | 0.84  (0.74 - 0.93) | 0.33  (0.24 - 0.42) | -0.84  (-1.10 - -0.59) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 3.**

**Analysis 3a. Mediating effects of each variable on the relationship between childhood adversity and Age 13 Externalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.02  (0.01 - 0.05) | 0.09  (0.05 - 0.14) | -0.01  (-0.01 - 0.01) | -0.01  (-0.01 - 0.03) |
| **Multiple Imputations** | 0.02  (0.01 - 0.05) | 0.10  (0.05 - 0.14) | -0.01  (-0.01 - 0.01) | 0.01  (-0.01 - 0.02) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 3b. Mediating effects of each variable on the relationship between childhood adversity and Age 13 Internalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.02  (-0.01 - 0.03) | 0.09  (0.05 - 0.13) | -0.01  (-0.01 - 0.01) | -0.01  (-0.01 - -0.02) |
| **Multiple Imputations** | 0.02  (-0.01 - 0.03) | 0.08  (0.05 - 0.12) | -0.01  (-0.01 - 0.01) | 0.01  (-0.01 - 0.02) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 3c. Mediating effects of each variable on the relationship between childhood adversity and Persistent Externalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.05  (0.01 - 0.09) | 0.26  (0.17 - 0.35) | 0.01  (-0.02 - 0.04) | 0.02  (-0.01 - 0.06) |
| **Multiple Imputations** | 0.05  (0.01 - 0.09) | 0.25  (0.16 - 0.33) | 0.01  (-0.02 - 0.04) | 0.03  (0.01 - 0.06) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 3d. Mediating effects of each variable on the relationship between childhood adversity and Persistent Internalising Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Coefficient Beta** | **Self- Concept** | **Parent-Child Conflict** | **Parent Child Positive** | **Hobby Participation** |
| **Observed** | 0.04  (0.01 - 0.08) | 0.22  (0.14 - 0.29) | 0.01  (-0.02 - 0.03) | 0.03  (-0.01 - 0.05) |
| **Multiple Imputations** | 0.04  (0.01 - 0.08) | 0.21  (0.14 - 0.28) | 0.01  (-0.02 - 0.03) | 0.03  (0.01 - 0.06) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.

**Analysis 4. The Indirect effect of the multivariate path decomposition on the relationship between childhood adversity and Age 13 Externalising problems, Persistent Externalising Problems and Persistent Internalising Problems.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Coefficient Beta** | **Age 13 Externalising problems** | **Persistent externalising problems** | **Persistent Internalising problems** |
| **Observed** | 0.12  (0.06 - 0.17) | 0.27  (0.18 - 0.35) | 0.23  (0.15 - 0.30) |
| **Multiple Imputations** | 0.11  (0.06 - 0.16) | 0.27  (0.18 - 0.37) | 0.22  (0.14 - 0.30) |

**Note.** Confidence intervals (95%ile) are presented in parentheses.