**APPENDIX**

**Appendix A**

**Table A1: Path estimates for latent variable indirect effects models for poor sleep on weeknights.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.85 | 0.39 | 0.00 | -0.22 | 0.40 | 0.58 | 2.07 | 0.37 | 0.00 | 0.80 |
| Social anxiety disorder | 1.25 | 0.35 | 0.00 | -0.71 | 0.40 | 0.07 | 1.96 | 0.36 | 0.00 | 0.49 |
| Generalized anxiety disorder | 2.92 | 0.54 | 0.00 | 0.50 | 0.42 | 0.23 | 2.42 | 0.60 | 0.00 | 1.65 |
| Major depressive disorder | 2.40 | 0.42 | 0.00 | 0.33 | 0.35 | 0.36 | 2.07 | 0.46 | 0.00 | 1.39 |
| Attention deficit hyperactivity disorder | 0.66 | 0.24 | 0.01 | -0.24 | 0.29 | 0.40 | 0.90 | 0.20 | 0.00 | 0.79 |
| Binge drinking | 0.81 | 0.21 | 0.00 | -0.44 | 0.20 | 0.02 | 1.25 | 0.18 | 0.00 | 0.64 |
| Tobacco use | 2.51 | 0.41 | 0.00 | 0.43 | 0.28 | 0.13 | 2.08 | 0.37 | 0.00 | 1.54 |
| Cannabis use | 2.17 | 0.38 | 0.00 | 0.18 | 0.30 | 0.56 | 1.99 | 0.40 | 0.00 | 1.20 |
| Other illicit drug use | 1.49 | 0.33 | 0.00 | -0.05 | 0.33 | 0.88 | 1.54 | 0.28 | 0.00 | 0.95 |
| Conduct disorder | 1.28 | 0.48 | 0.01 | 0.09 | 0.48 | 0.86 | 1.19 | 0.25 | 0.00 | 1.09 |
| Paranoia | 1.59 | 0.20 | 0.00 | 0.54 | 0.18 | 0.00 | 1.05 | 0.17 | 0.00 | 1.72 |
| Unusual beliefs | 1.09 | 0.30 | 0.00 | -0.40 | 0.35 | 0.26 | 1.49 | 0.26 | 0.00 | 0.67 |
| Mind reading | 1.11 | 0.28 | 0.00 | -0.05 | 0.30 | 0.87 | 1.16 | 0.20 | 0.00 | 0.95 |
| Visual hallucinations | 2.38 | 0.45 | 0.00 | -0.40 | 0.32 | 0.22 | 2.78 | 0.50 | 0.00 | 0.67 |
| Auditory hallucinations | 1.94 | 0.32 | 0.00 | -0.08 | 0.26 | 0.75 | 2.02 | 0.35 | 0.00 | 0.92 |
| Internalizing | 0.79 | 0.08 | 0.00 | 0.60 | 0.11 | 0.00 | 0.19 | 0.07 | 0.01 | - |
| Externalizing | 0.57 | 0.07 | 0.00 | -0.31 | 0.30 | 0.17 | 0.88 | 0.22 | 0.00 | - |
| Psychotic-like experiences | 0.71 | 0.07 | 0.00 | -0.29 | 0.37 | 0.44 | 1.00 | 0.36 | 0.01 | - |
| General psychopathology | 1.15 | 0.13 | 0.00 | - |  |  | - |  |  | - |

**Table A2: Path estimates for latent variable indirect effects models for poor sleep on weekend nights.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.46 | 0.41 | 0.00 | -0.08 | 0.36 | 0.83 | 1.53 | 0.32 | 0.00 | 1.00 |
| Social anxiety disorder | 1.41 | 0.32 | 0.00 | 0.10 | 0.30 | 0.73 | 1.31 | 0.28 | 0.00 | 1.11 |
| Generalized anxiety disorder | 2.13 | 0.49 | 0.00 | 0.18 | 0.45 | 0.70 | 1.95 | 0.51 | 0.00 | 1.20 |
| Major depressive disorder | 1.56 | 0.38 | 0.00 | -0.24 | 0.33 | 0.47 | 1.80 | 0.42 | 0.00 | 0.79 |
| Attention deficit hyperactivity disorder | 0.66 | 0.23 | 0.00 | 0.00 | 0.25 | 0.99 | 0.66 | 0.15 | 0.00 | 1.00 |
| Binge drinking | 0.79 | 0.20 | 0.00 | -0.32 | 0.18 | 0.08 | 1.11 | 0.18 | 0.00 | 0.73 |
| Tobacco use | 2.64 | 0.45 | 0.00 | 0.81 | 0.28 | 0.00 | 1.83 | 0.38 | 0.00 | 2.25 |
| Cannabis use | 1.82 | 0.33 | 0.00 | -0.16 | 0.26 | 0.54 | 1.98 | 0.35 | 0.00 | 0.85 |
| Other illicit drug use | 1.07 | 0.36 | 0.00 | -0.39 | 0.32 | 0.23 | 1.46 | 0.28 | 0.00 | 0.68 |
| Conduct disorder | 1.33 | 0.45 | 0.00 | 0.26 | 0.39 | 0.51 | 1.07 | 0.33 | 0.00 | 1.30 |
| Paranoia | 0.96 | 0.19 | 0.00 | 0.03 | 0.20 | 0.86 | 0.93 | 0.15 | 0.00 | 1.03 |
| Unusual beliefs | 1.23 | 0.32 | 0.00 | 0.14 | 0.28 | 0.62 | 1.09 | 0.20 | 0.00 | 1.15 |
| Mind reading | 0.97 | 0.27 | 0.00 | 0.09 | 0.24 | 0.71 | 0.88 | 0.16 | 0.00 | 1.09 |
| Visual hallucinations | 1.87 | 0.40 | 0.00 | -0.33 | 0.33 | 0.32 | 2.20 | 0.44 | 0.00 | 0.72 |
| Auditory hallucinations | 1.64 | 0.29 | 0.00 | 0.12 | 0.25 | 0.63 | 1.52 | 0.28 | 0.00 | 1.13 |
| Internalizing | 0.60 | 0.08 | 0.00 | 0.43 | 0.10 | 0.00 | 0.17 | 0.05 | 0.00 | - |
| Externalizing | 0.51 | 0.07 | 0.00 | -0.07 | 0.16 | 0.66 | 0.59 | 0.15 | 0.00 | - |
| Psychotic-like experiences | 0.55 | 0.07 | 0.00 | -0.20 | 0.27 | 0.46 | 0.75 | 0.26 | 0.00 | - |
| General psychopathology | 0.79 | 0.18 | 0.00 | - | - | - | - | - | - | - |

**Table A3: Path estimates for latent variable indirect effects models for self-harm.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.46 | 0.46 | 0.00 | -0.97 | 0.55 | 0.08 | 2.43 | 0.49 | 0.00 | 0.38 |
| Social anxiety disorder | 1.40 | 0.40 | 0.00 | -0.63 | 0.40 | 0.12 | 2.03 | 0.38 | 0.00 | 0.53 |
| Generalized anxiety disorder | 2.44 | 0.67 | 0.00 | -0.40 | 0.52 | 0.45 | 2.83 | 0.68 | 0.00 | 0.67 |
| Major depressive disorder | 3.21 | 0.55 | 0.00 | 1.39 | 0.42 | 0.00 | 1.82 | 0.46 | 0.00 | 4.00 |
| Attention deficit hyperactivity disorder | 0.37 | 0.35 | 0.30 | -0.63 | 0.39 | 0.11 | 1.00 | 0.22 | 0.00 | 0.53 |
| Binge drinking | 1.56 | 0.30 | 0.00 | -0.24 | 0.25 | 0.33 | 1.80 | 0.26 | 0.00 | 0.78 |
| Tobacco use | 3.36 | 0.55 | 0.00 | -0.03 | 0.35 | 0.94 | 3.39 | 0.59 | 0.00 | 0.97 |
| Cannabis use | 3.32 | 0.53 | 0.00 | 0.19 | 0.38 | 0.62 | 3.13 | 0.63 | 0.00 | 1.21 |
| Other illicit drug use | 2.72 | 0.45 | 0.00 | 0.50 | 0.41 | 0.22 | 2.21 | 0.40 | 0.00 | 1.65 |
| Conduct disorder | 0.95 | 0.63 | 0.13 | -1.01 | 0.67 | 0.13 | 1.97 | 0.38 | 0.00 | 0.36 |
| Paranoia | 2.22 | 0.26 | 0.00 | 0.65 | 0.25 | 0.01 | 1.57 | 0.23 | 0.00 | 1.92 |
| Unusual beliefs | 1.38 | 0.39 | 0.00 | -0.96 | 0.50 | 0.06 | 2.34 | 0.40 | 0.00 | 0.38 |
| Mind reading | 1.51 | 0.31 | 0.00 | -0.25 | 0.34 | 0.48 | 1.76 | 0.29 | 0.00 | 0.78 |
| Visual hallucinations | 3.57 | 0.59 | 0.00 | -0.50 | 0.38 | 0.19 | 4.07 | 0.73 | 0.00 | 0.61 |
| Auditory hallucinations | 3.11 | 0.41 | 0.00 | 0.23 | 0.32 | 0.47 | 2.88 | 0.50 | 0.00 | 1.26 |
| Internalizing | 0.86 | 0.11 | 0.00 | 0.38 | 0.34 | 0.27 | 0.48 | 0.33 | 0.14 | - |
| Externalizing | 0.87 | 0.09 | 0.00 | -0.15 | 0.31 | 0.63 | 1.02 | 0.29 | 0.00 | - |
| Psychotic-like experiences | 1.06 | 0.09 | 0.00 | -0.17 | 0.49 | 0.73 | 1.23 | 0.48 | 0.01 | - |
| General psychopathology | 1.62 | 0.19 | 0.00 | - | - | - | - | - | - | - |

**Table A4: Path estimates for latent variable indirect effects models suicidal ideation.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.71 | 0.47 | 0.00 | -1.09 | 0.54 | 0.04 | 2.80 | 0.57 | 0.00 | 0.34 |
| Social anxiety disorder | 1.41 | 0.41 | 0.00 | -1.01 | 0.43 | 0.02 | 2.41 | 0.43 | 0.00 | 0.37 |
| Generalized anxiety disorder | 2.78 | 0.66 | 0.00 | -0.39 | 0.51 | 0.45 | 3.17 | 0.74 | 0.00 | 0.68 |
| Major depressive disorder | 3.68 | 0.57 | 0.00 | 1.62 | 0.45 | 0.00 | 2.06 | 0.45 | 0.00 | 5.06 |
| Attention deficit hyperactivity disorder | 0.74 | 0.35 | 0.04 | -0.37 | 0.40 | 0.36 | 1.11 | 0.23 | 0.00 | 0.69 |
| Binge drinking | 1.48 | 0.31 | 0.00 | -0.53 | 0.26 | 0.04 | 2.01 | 0.29 | 0.00 | 0.59 |
| Tobacco use | 3.57 | 0.57 | 0.00 | 0.07 | 0.31 | 0.83 | 3.50 | 0.58 | 0.00 | 1.07 |
| Cannabis use | 3.58 | 0.56 | 0.00 | 0.35 | 0.38 | 0.35 | 3.22 | 0.65 | 0.00 | 1.42 |
| Other illicit drug use | 2.82 | 0.42 | 0.00 | 0.49 | 0.40 | 0.22 | 2.33 | 0.42 | 0.00 | 1.63 |
| Conduct disorder | 1.33 | 0.57 | 0.02 | -0.71 | 0.63 | 0.26 | 2.03 | 0.41 | 0.00 | 0.49 |
| Paranoia | 2.18 | 0.27 | 0.00 | 0.42 | 0.24 | 0.09 | 1.76 | 0.25 | 0.00 | 1.52 |
| Unusual beliefs | 1.66 | 0.40 | 0.00 | -0.83 | 0.44 | 0.06 | 2.49 | 0.38 | 0.00 | 0.44 |
| Mind reading | 1.78 | 0.30 | 0.00 | -0.04 | 0.23 | 0.91 | 1.82 | 0.29 | 0.00 | 0.96 |
| Visual hallucinations | 3.93 | 0.61 | 0.00 | -0.42 | 0.45 | 0.35 | 4.35 | 0.80 | 0.00 | 0.66 |
| Auditory hallucinations | 3.37 | 0.44 | 0.00 | 0.27 | 0.34 | 0.42 | 3.10 | 0.51 | 0.00 | 1.31 |
| Internalizing | 1.00 | 0.10 | 0.00 | 0.47 | 0.46 | 0.31 | 0.53 | 0.45 | 0.25 | - |
| Externalizing | 0.92 | 0.09 | 0.00 | -0.36 | 0.42 | 0.39 | 1.28 | 0.41 | 0.00 | - |
| Psychotic-like experiences | 1.16 | 0.09 | 0.00 | -0.21 | 0.51 | 0.68 | 1.37 | 0.51 | 0.01 | - |
| General psychopathology | 1.86 | 0.16 | 0.00 | - | - | - | - | - | - | - |

**Table A5: Path estimates for latent variable indirect effects models for suicide attempt.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 2.22 | 0.67 | 0.00 | -1.24 | 0.65 | 0.06 | 3.45 | 0.70 | 0.00 | 0.29 |
| Social anxiety disorder | 2.36 | 0.57 | 0.00 | -0.45 | 0.57 | 0.43 | 2.80 | 0.52 | 0.00 | 0.64 |
| Generalized anxiety disorder | 3.24 | 0.88 | 0.00 | -1.07 | 0.74 | 0.15 | 4.31 | 1.05 | 0.00 | 0.34 |
| Major depressive disorder | 4.67 | 0.79 | 0.00 | 1.98 | 0.82 | 0.02 | 2.69 | 0.63 | 0.00 | 7.26 |
| Attention deficit hyperactivity disorder | 1.09 | 0.44 | 0.01 | -0.29 | 0.53 | 0.58 | 1.38 | 0.29 | 0.00 | 0.75 |
| Binge drinking | 2.41 | 0.49 | 0.00 | -0.58 | 0.40 | 0.14 | 2.99 | 0.44 | 0.00 | 0.56 |
| Tobacco use | 5.90 | 0.87 | 0.00 | 0.76 | 0.44 | 0.09 | 5.13 | 0.89 | 0.00 | 2.15 |
| Cannabis use | 5.05 | 0.87 | 0.00 | -0.55 | 0.66 | 0.42 | 5.60 | 1.09 | 0.00 | 0.58 |
| Other illicit drug use | 4.07 | 0.62 | 0.00 | 0.44 | 0.63 | 0.49 | 3.63 | 0.65 | 0.00 | 1.55 |
| Conduct disorder | 2.52 | 0.70 | 0.00 | -0.51 | 0.75 | 0.50 | 3.02 | 0.62 | 0.00 | 0.60 |
| Paranoia | 2.47 | 0.39 | 0.00 | 0.28 | 0.34 | 0.41 | 2.19 | 0.32 | 0.00 | 1.32 |
| Unusual beliefs | 1.99 | 0.53 | 0.00 | -0.92 | 0.57 | 0.11 | 2.91 | 0.49 | 0.00 | 0.40 |
| Mind reading | 1.96 | 0.46 | 0.00 | -0.27 | 0.56 | 0.63 | 2.23 | 0.40 | 0.00 | 0.76 |
| Visual hallucinations | 5.05 | 0.84 | 0.00 | 0.16 | 0.54 | 0.76 | 4.89 | 0.90 | 0.00 | 1.18 |
| Auditory hallucinations | 4.04 | 0.65 | 0.00 | 0.27 | 0.49 | 0.59 | 3.78 | 0.67 | 0.00 | 1.31 |
| Internalizing | 1.26 | 0.14 | 0.00 | 0.82 | 0.22 | 0.00 | 0.44 | 0.17 | 0.01 | - |
| Externalizing | 1.45 | 0.15 | 0.00 | 0.17 | 0.38 | 0.66 | 1.28 | 0.35 | 0.00 | - |
| Psychotic-like experiences | 1.37 | 0.14 | 0.00 | -0.58 | 0.63 | 0.36 | 1.94 | 0.60 | 0.00 | - |
| General psychopathology | 2.23 | 0.28 | 0.00 | - | - | - | - | - | - | - |

**Table A6: Path estimates for latent variable indirect effects models for multiple sexual partners.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.45 | 0.65 | 0.03 | 0.04 | 0.49 | 0.94 | 1.42 | 0.46 | 0.00 | 1.04 |
| Social anxiety disorder | 0.67 | 0.60 | 0.26 | -0.72 | 0.53 | 0.17 | 1.39 | 0.41 | 0.00 | 0.48 |
| Generalized anxiety disorder | 1.59 | 0.76 | 0.04 | -0.32 | 0.62 | 0.61 | 1.91 | 0.66 | 0.00 | 0.73 |
| Major depressive disorder | 2.15 | 0.60 | 0.00 | 0.95 | 0.64 | 0.14 | 1.20 | 0.57 | 0.03 | 2.58 |
| Attention deficit hyperactivity disorder | -0.06 | 0.48 | 0.90 | -0.74 | 0.52 | 0.15 | 0.68 | 0.22 | 0.00 | 0.48 |
| Binge drinking | 2.76 | 0.36 | 0.00 | -0.11 | 0.31 | 0.72 | 2.87 | 0.36 | 0.00 | 0.89 |
| Tobacco use | 5.53 | 0.74 | 0.00 | 0.32 | 0.45 | 0.47 | 5.21 | 0.84 | 0.00 | 1.38 |
| Cannabis use | 5.23 | 0.77 | 0.00 | -0.11 | 0.50 | 0.83 | 5.34 | 0.99 | 0.00 | 0.90 |
| Other illicit drug use | 3.73 | 0.48 | 0.00 | 0.00 | 0.46 | 1.00 | 3.73 | 0.59 | 0.00 | 1.00 |
| Conduct disorder | 2.52 | 0.56 | 0.00 | -0.51 | 0.65 | 0.43 | 3.03 | 0.62 | 0.00 | 0.60 |
| Paranoia | 1.28 | 0.34 | 0.00 | 0.07 | 0.32 | 0.83 | 1.21 | 0.27 | 0.00 | 1.07 |
| Unusual beliefs | 1.21 | 0.49 | 0.01 | -0.31 | 0.44 | 0.49 | 1.52 | 0.34 | 0.00 | 0.74 |
| Mind reading | 0.14 | 0.58 | 0.81 | -1.21 | 0.54 | 0.04 | 1.35 | 0.29 | 0.00 | 0.30 |
| Visual hallucinations | 3.08 | 0.66 | 0.00 | 0.65 | 0.46 | 0.16 | 2.43 | 0.64 | 0.00 | 1.91 |
| Auditory hallucinations | 2.15 | 0.51 | 0.00 | 0.11 | 0.35 | 0.75 | 2.04 | 0.48 | 0.00 | 1.12 |
| Internalizing | 0.57 | 0.16 | 0.00 | 0.04 | 0.18 | 0.82 | 0.52 | 0.12 | 0.00 | - |
| Externalizing | 1.51 | 0.10 | 0.00 | 1.00 | 0.14 | 0.00 | 0.51 | 0.16 | 0.00 | - |
| Psychotic-like experiences | 0.73 | 0.14 | 0.00 | -0.57 | 0.45 | 0.20 | 1.31 | 0.44 | 0.00 | - |
| General psychopathology | 1.61 | 0.12 | 0.00 | - | - | - | - | - | - | - |

**Table A7: Path estimates for latent variable indirect effects models for condom use.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 0.97 | 0.42 | 0.02 | -0.34 | 0.43 | 0.43 | 1.31 | 0.34 | 0.00 | 0.71 |
| Social anxiety disorder | 0.78 | 0.43 | 0.07 | -0.40 | 0.43 | 0.35 | 1.17 | 0.29 | 0.00 | 0.67 |
| Generalized anxiety disorder | 0.93 | 0.60 | 0.12 | -0.95 | 0.50 | 0.06 | 1.87 | 0.51 | 0.00 | 0.39 |
| Major depressive disorder | 2.04 | 0.45 | 0.00 | 1.10 | 0.48 | 0.02 | 0.94 | 0.37 | 0.01 | 3.01 |
| Attention deficit hyperactivity disorder | 0.57 | 0.37 | 0.12 | 0.04 | 0.39 | 0.92 | 0.54 | 0.15 | 0.00 | 1.04 |
| Binge drinking | 2.45 | 0.27 | 0.00 | 0.02 | 0.25 | 0.93 | 2.43 | 0.31 | 0.00 | 1.02 |
| Tobacco use | 4.44 | 0.61 | 0.00 | -0.47 | 0.41 | 0.26 | 4.91 | 0.77 | 0.00 | 0.63 |
| Cannabis use | 4.91 | 0.65 | 0.00 | 0.56 | 0.37 | 0.13 | 4.34 | 0.80 | 0.00 | 1.75 |
| Other illicit drug use | 3.28 | 0.41 | 0.00 | 0.09 | 0.40 | 0.83 | 3.19 | 0.50 | 0.00 | 1.09 |
| Conduct disorder | 1.93 | 0.54 | 0.00 | -0.93 | 0.64 | 0.15 | 2.86 | 0.55 | 0.00 | 0.39 |
| Paranoia | 1.14 | 0.24 | 0.00 | 0.11 | 0.23 | 0.62 | 1.02 | 0.19 | 0.00 | 1.12 |
| Unusual beliefs | 0.72 | 0.44 | 0.11 | -0.63 | 0.43 | 0.15 | 1.34 | 0.25 | 0.00 | 0.54 |
| Mind reading | 0.36 | 0.41 | 0.38 | -0.77 | 0.39 | 0.05 | 1.12 | 0.21 | 0.00 | 0.46 |
| Visual hallucinations | 2.26 | 0.51 | 0.00 | -0.13 | 0.40 | 0.76 | 2.38 | 0.55 | 0.00 | 0.88 |
| Auditory hallucinations | 2.13 | 0.37 | 0.00 | 0.61 | 0.30 | 0.05 | 1.52 | 0.34 | 0.00 | 1.84 |
| Internalizing | 0.50 | 0.10 | 0.00 | 0.05 | 0.14 | 0.75 | 0.45 | 0.11 | 0.00 | - |
| Externalizing | 1.33 | 0.08 | 0.00 | 0.90 | 0.12 | 0.00 | 0.43 | 0.12 | 0.00 | - |
| Psychotic-like experiences | 0.62 | 0.09 | 0.00 | -0.64 | 0.41 | 0.12 | 1.26 | 0.41 | 0.00 | - |
| General psychopathology | 1.43 | 0.08 | 0.00 | - |  |  | - |  |  | - |

**Table A8: Path estimates for latent variable indirect effects models for low self-esteem.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total effect** | |  | **Direct effect** | |  | **Total indirect** | |  | **OR(Direct effect)** |
|  | **b** | **se** | **p** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Separation Anxiety | 1.93 | 0.66 | 0.00 | -0.69 | 0.72 | 0.34 | 2.62 | 0.55 | 0.00 | 0.50 |
| Social anxiety disorder | 2.19 | 0.44 | 0.00 | 0.10 | 0.45 | 0.83 | 2.09 | 0.41 | 0.00 | 1.11 |
| Generalized anxiety disorder | 2.52 | 0.71 | 0.00 | -0.84 | 0.64 | 0.19 | 3.37 | 0.80 | 0.00 | 0.43 |
| Major depressive disorder | 3.47 | 0.67 | 0.00 | 1.16 | 0.56 | 0.04 | 2.32 | 0.61 | 0.00 | 3.18 |
| Attention deficit hyperactivity disorder | 0.20 | 0.57 | 0.73 | -0.94 | 0.61 | 0.13 | 1.13 | 0.24 | 0.00 | 0.39 |
| Binge drinking | 0.48 | 0.51 | 0.35 | -0.73 | 0.42 | 0.08 | 1.21 | 0.36 | 0.00 | 0.48 |
| Tobacco use | 2.23 | 0.79 | 0.01 | 0.15 | 0.54 | 0.78 | 2.08 | 0.78 | 0.01 | 1.16 |
| Cannabis use | 2.12 | 0.76 | 0.01 | 0.21 | 0.57 | 0.71 | 1.92 | 0.76 | 0.01 | 1.23 |
| Other illicit drug use | 2.04 | 0.62 | 0.00 | 0.66 | 0.67 | 0.32 | 1.38 | 0.50 | 0.01 | 1.94 |
| Conduct disorder | 1.18 | 0.97 | 0.22 | 0.06 | 0.84 | 0.94 | 1.12 | 0.41 | 0.01 | 1.06 |
| Paranoia | 2.32 | 0.37 | 0.00 | 0.69 | 0.28 | 0.01 | 1.63 | 0.28 | 0.00 | 2.00 |
| Unusual beliefs | 1.71 | 0.57 | 0.00 | -0.49 | 0.70 | 0.48 | 2.20 | 0.44 | 0.00 | 0.61 |
| Mind reading | 2.47 | 0.41 | 0.00 | 0.92 | 0.38 | 0.02 | 1.55 | 0.31 | 0.00 | 2.51 |
| Visual hallucinations | 3.21 | 0.74 | 0.00 | -1.21 | 0.60 | 0.04 | 4.42 | 0.90 | 0.00 | 0.30 |
| Auditory hallucinations | 2.89 | 0.58 | 0.00 | -0.22 | 0.53 | 0.68 | 3.11 | 0.63 | 0.00 | 0.80 |
| Internalizing | 0.98 | 0.13 | 0.00 | 0.75 | 0.14 | 0.00 | 0.23 | 0.08 | 0.00 | - |
| Externalizing | 0.54 | 0.17 | 0.00 | -0.60 | 0.33 | 0.07 | 1.13 | 0.28 | 0.00 | - |
| Psychotic-like experiences | 1.06 | 0.14 | 0.00 | 0.30 | 0.34 | 0.38 | 0.76 | 0.29 | 0.01 | - |
| General psychopathology | 0.92 | 0.38 | 0.02 | - | - | - | - | - | - | - |

**Table Notes**: Path estimates represent unstandardized coefficients for the binary dependent variables whereas the estimates represent y-standardized (STDY) coefficients for latent continuous dependent variables. Direct effects for binary dependent variables can be interpreted as a change from 0 to 1 on the binary independent variable (e.g. self-harm) is associated with a *x* change in the log odds of receiving a diagnosis versus not receiving a diagnosis (e.g. social anxiety disorder), holding changes in the higher order latent variables constant (e.g. internalising, general psychopathology). Odds ratios (OR) of the direct effects represent exponentiated direct effects for binary dependent variables. Direct effects for the continuous dependent variables can be interpreted as a change from 0 to 1 on the binary independent variable (e.g. self-harm) is associated with a change of *x* standard deviations on the underlying factor score (e.g. internalizing), holding changes in the higher order latent variable (e.g. general psychopathology) constant. Bolded coefficients indicate significant at the p<0.01 level.

**Appendix B**

**Appendix B1: Example Mplus input for the higher order factor model. For additional information regarding description of the syntax please refer to the Mplus user’s guide.**

Title: higher order factor model;

Data:

file is ymmstruc4.csv;

Variable:

names are cluster sad sa gad ocd mdd adhd cd odd age binge weight smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5 selfha sidea sattem sexmult sexcon sleep male lowse asd;

usevar are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5;

categorical are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5; !list the binary dependent variables;

weight=weight; !specify survey weight;

cluster=cluster; !specify survey cluster variable;

Analysis:

type=complex;

estimator = mlr; !robust maximum likelihood estimator;

Model:

int by sa\* sad gad mdd adhd; !estimate internalizing latent factor;

int@1; !fix variance to 1 for identification purposes;

ext by binge\* smoked cannabis illdrg cd; !estimate externalising latent factor;

ext@1; !fix variance to 1 for identification purposes;

psy by psy1\* psy2 psy3 psy4 psy5; !estimate the psychotic like experiences latent factor;

psy@1; !fix variance to 1 for identification purposes;

p by int\* ext psy; !estimate higher order general psychopathology latent factor;

p@1; !fix variance to 1 for identification purposes;

Output:

standardized; cinterval; residual;

**Appendix B2: Example Mplus input for the latent class model. For additional information regarding description of the syntax please refer to the Mplus user’s guide.**

Title: 5-class model;

Data:

file is ymmstruc4.csv;

Variable:

names are cluster sad sa gad ocd mdd adhd cd odd age binge weight smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5 selfha sidea sattem sexmult sexcon sleep male lowse asd;

usevar are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5;

categorical are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5; !list the binary dependent variables;

weight=weight; !specify survey weight;

cluster=cluster; !specify survey cluster variable;

classes = c(5); !specify latent categorical variable and the number of classes;

Analysis:

type = mixture complex;

estimator = mlr; !robust maximum likelihood estimator;

algorithm= integration; !use numerical integration;

starts = 500 40; !specifies number of initial stage random sets of starting values and the number of final stage optimizations to use;

stiterations = 40; !specify the maximum number of iterations allowed in the initial stage;

Output:

standardized; cinterval; residual; tech11;

**Appendix B3: Example Mplus input for factor mixture model. For additional information regarding description of the syntax please refer to the Mplus user’s guide.**

Title: 3 factors 7 class model;

Data:

file is ymmstruc4.csv;

Variable:

names are cluster sad sa gad ocd mdd adhd cd odd age binge weight smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5 selfha sidea sattem sexmult sexcon sleep male lowse asd;

usevar are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5;

categorical are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5; !list the binary dependent variables;

weight=weight; !specify survey weight;

cluster=cluster; !specify survey cluster variable;

classes = c(7); !specify latent categorical variable and the number of classes;

Analysis:

type = mixture complex;

estimator = mlr; !robust maximum likelihood estimator;

algorithm = integration; !use numerical integration;

link = logit; !specify logit link;

starts = 200 50; !specifies number of initial stage random sets of starting values and the number of final stage optimizations to use;

processors = 4; !number of processors to be used for parallel computing;

Model:

%overall%

int by sad sa gad mdd adhd; !estimate the internalizing latent factor;

[sad$1](1); [sa$1](2); [gad$1](3); [mdd$1](4); [adhd$1](5); !hold thresholds constant across latent classes;

int@0; !fix internalising variance to zero;

ext by binge smoked cannabis illdrg cd; !estimate the externalizing latent factor;

[binge$1](6); [smoked$1](7); [cannabis$1](8); [illdrg$1](9); [cd$1](10); !hold the thresholds constant across latent classes;

ext@0; !fix the externalising variance to zero;

psy by psy1 psy2 psy3 psy4 psy5; !estimate the psychotic-like experiences latent factor;

[psy1$1](11); [psy2$1](12); [psy3$1](13); [psy4$1](14); [psy5$1](15); !hold thresholds constant across latent classes;

psy@0; !fix psychotic like experience variance to zero;

ext with int@0; psy with int@0; psy with ext@0; !fix covariances to zero;

Output:

standardized; cinterval; residual; tech11;

**Appendix B4: Example Mplus input for MIMIC model examining direct effect between major depressive disorder and low self-esteem**. **For additional information regarding description of the syntax please refer to the Mplus user’s guide.**

Title: Direct effect model MDD on low self-esteem;

Data:

file is ymmstruc4.csv;

variable: names are cluster sad sa gad ocd mdd adhd cd odd age binge weight smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5 selfha sidea sattem sexmult sexcon sleep male lowse asd;

usevar are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5 age male lowse;

categorical are sad sa gad mdd adhd cd binge smoked cannabis illdrg psy1 psy2 psy3 psy4 psy5; !list the binary dependent variables;

weight=weight; !specify survey weight;

cluster=cluster; !specify survey cluster variable;

Define:

center age (grandmean); !center covariates using grand sample mean;

Analysis:

type=complex;

estimator = mlr; !robust maximum likelihood estimator;

Model:

int by sa\* sad gad

mdd (l)

adhd; !estimate the internalizing latent factor and label the factor loading for MDD to estimate MIMIC-ES;

int@1; !fix variance to 1 for identification purposes;

ext by binge\* smoked cannabis illdrg cd; !estimate the internalizing latent factor;

ext@1; !fix variance to 1 for identification purposes;

psy by psy1\* psy2 psy3 psy4 psy5; !estimate the psychotic like experiences latent factor;

psy@1; !fix variance to 1 for identification purposes;

p by int\* ext psy; !estimate the higher order general psychopathology factor;

p@1; !fix variance to 1 for identification purposes;

p on age male lowse; !regress general psychopathology on covariates, in this case age, sex, and low self-esteem;

int on age male lowse; !regress internalizing on covariates, in this case age, sex, and low self-esteem;

mdd on age male

lowse (d); !estimate the direct effect in this case between mdd and low self-esteem and label direct effect to estimate MIMIC-ES;

Model indirect:

mdd IND lowse; !estimate total, indirect, and direct effects for, in this case, MDD and low self-esteem. Note that these variable labels change in separate models that examine other total, indirect and direct effects;

Model constraint:

new(es);

es=d/l; !estimate MIMIC-ES using parameter labels;

Output:

sampstat stand cint tech1 tech4;