**Supplementary material**

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## Table S1. Symptom description, proportions and counts

|   |   |   |   | CAP | CSC | ALL |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item / description | Values | Value Labels | % | n | % | n | % | n |
| T1\_SD2 | I am restless. I cannot stay still for long. | 0 | Not true | 36.4% | 591 | 53.0% | 3143 | 49.5% | 3734 |
| T1\_SD2 |  | 1 | Somewhat true or Certainly true | 63.6% | 1034 | 47.0% | 2783 | 50.5% | 3817 |
| T1\_SD3 | I get a lot of headaches, stomach-aches, or sickness. | 0 | Not true | 61.2% | 994 | 66.5% | 3938 | 65.3% | 4932 |
| T1\_SD3 |  | 1 | Somewhat true or Certainly true | 38.8% | 631 | 33.5% | 1987 | 34.7% | 2618 |
| T1\_SD5 | I get very angry and often lose my temper. | 0 | Not true | 52.0% | 845 | 63.2% | 3741 | 60.8% | 4586 |
| T1\_SD5 |  | 1 | Somewhat true or Certainly true | 48.0% | 780 | 36.8% | 2180 | 39.2% | 2960 |
| T1\_SD6 | I am usually on my own. I generally play alone or keep to myself. | 0 | Not true | 74.8% | 1215 | 71.7% | 4246 | 72.4% | 5461 |
| T1\_SD6 |  | 1 | Somewhat true or Certainly true | 25.2% | 410 | 28.3% | 1675 | 27.6% | 2085 |
| T1\_SD8 | I worry a lot. | 0 | Not true | 44.7% | 726 | 57.9% | 3424 | 55.1% | 4150 |
| T1\_SD8 |  | 1 | Somewhat true or Certainly true | 55.3% | 899 | 42.1% | 2488 | 44.9% | 3387 |
| T1\_SD10 | I am constantly fidgeting or squirming. | 0 | Not true | 57.8% | 940 | 64.4% | 3806 | 63.0% | 4746 |
| T1\_SD10 |  | 1 | Somewhat true or Certainly true | 42.2% | 685 | 35.6% | 2106 | 37.0% | 2791 |
| T1\_SD12 | I fight a lot. I can make other people do what I want. | 0 | Not true | 79.1% | 1285 | 83.8% | 4956 | 82.8% | 6241 |
| T1\_SD12 |  | 1 | Somewhat true or Certainly true | 20.9% | 340 | 16.2% | 957 | 17.2% | 1297 |
| T1\_SD13 | I am often unhappy, down-hearted, or tearful. | 0 | Not true | 74.8% | 1216 | 76.1% | 4498 | 75.8% | 5714 |
| T1\_SD13 |  | 1 | Somewhat true or Certainly true | 25.2% | 409 | 23.9% | 1415 | 24.2% | 1824 |
| T1\_SD15 | I am easily distracted. I find it difficult to concentrate. | 0 | Not true | 39.6% | 643 | 45.8% | 2707 | 44.4% | 3350 |
| T1\_SD15 |  | 1 | Somewhat true or Certainly true | 60.4% | 982 | 54.2% | 3207 | 55.6% | 4189 |
| T1\_SD16 | I am nervous in new situations. I easily lose confidence. | 0 | Not true | 38.2% | 620 | 45.8% | 2709 | 44.2% | 3329 |
| T1\_SD16 |  | 1 | Somewhat true or Certainly true | 61.8% | 1005 | 54.2% | 3206 | 55.8% | 4211 |
| T1\_SD18 | I am often accused of lying or cheating. | 0 | Not true | 65.7% | 1067 | 71.3% | 4208 | 70.1% | 5275 |
| T1\_SD18 |  | 1 | Somewhat true or Certainly true | 34.3% | 558 | 28.7% | 1697 | 29.9% | 2255 |
| T1\_SD19 | Often children or young people pick on me or bully me. | 0 | Not true | 81.5% | 1324 | 82.6% | 4880 | 82.4% | 6204 |
| T1\_SD19 |  | 1 | Somewhat true or Certainly true | 18.5% | 301 | 17.4% | 1028 | 17.6% | 1329 |
| T1\_SD23 | I get on better with adults than with people my own age. | 0 | Not true | 63.3% | 1029 | 58.4% | 3448 | 59.5% | 4477 |
| T1\_SD23 |  | 1 | Somewhat true or Certainly true | 36.7% | 596 | 41.6% | 2452 | 40.5% | 3048 |
| T1\_SD24 | 24. I have many fears. I am easily scared. | 0 | Not true | 59.4% | 965 | 63.5% | 3750 | 62.6% | 4715 |
| T1\_SD24 |  | 1 | Somewhat true or Certainly true | 40.6% | 660 | 36.5% | 2159 | 37.4% | 2819 |
| T1\_SD22 | I take things that are not mine from home, school or elsewhere. | 0 | Not true | 82.5% | 1341 | 87.5% | 4239 | 86.3% | 5580 |
| T1\_SD22 |  | 1 | Somewhat true or Certainly true | 17.5% | 284 | 12.5% | 604 | 13.7% | 888 |
| T1\_AUC1 | How often did you have a std alcoholic drink of any kind in the past 6 mths? | 0 | Never or less than monthly | 98.3% | 2222 | 97.0% | 2869 | 97.6% | 5091 |
| T1\_AUC1 |  | 1 | Once a month, 2-3 times a month, Weekly, Daily or almost daily | 1.7% | 38 | 3.0% | 88 | 2.4% | 126 |
| T1\_AUC2 | How often do you have 5+ std drinks in the past 6 mths? | 0 | Never or less than monthly | 98.3% | 2221 | 97.8% | 2518 | 98.0% | 4739 |
| T1\_AUC2 |  | 1 | Once a month, 2-3 times a month, Weekly, Daily or almost daily | 1.7% | 39 | 2.2% | 56 | 2.0% | 95 |
| T1\_AUC3 | In the past 6 mths, how many std drinks on a typical day? | 0 | None or 1-2 | 98.6% | 2229 | 98.1% | 2901 | 98.4% | 5130 |
| T1\_AUC3 |  | 1 | 3-4, 5-6,7-9, 10+ | 1.4% | 31 | 1.9% | 55 | 1.6% | 86 |
| *In the past 6 months how many times have you experienced the following as a consequence of drinking alcohol* |  |  |  |  |  |  |
| T1\_AH1 | Got into fights, acted bad, or did mean things. | 0 | Never | 56.6% | 1275 | 90.6% | 5710 | 81.6% | 6985 |
| T1\_AH1 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 43.4% | 979 | 9.4% | 592 | 18.4% | 1571 |
| T1\_AH2 | Caused shame or embarrassment to someone. | 0 | Never | 59.7% | 1345 | 92.4% | 5821 | 83.7% | 7166 |
| T1\_AH2 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 40.3% | 909 | 7.6% | 482 | 16.3% | 1391 |
| T1\_AH3 | Neglected my responsibilities. | 0 | Never | 56.9% | 1282 | 92.8% | 5844 | 83.3% | 7126 |
| T1\_AH3 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 43.1% | 972 | 7.2% | 455 | 16.7% | 1427 |
| T1\_AH4 | Felt that I need more alcohol than I used to in order to get the same effect. | 0 | Never | 51.0% | 1150 | 92.3% | 5815 | 81.4% | 6965 |
| T1\_AH4 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 49.0% | 1104 | 7.7% | 487 | 18.6% | 1591 |
| T1\_AH5 | Noticed a change in my personality. | 0 | Never | 78.5% | 1769 | 96.8% | 6100 | 92.0% | 7869 |
| T1\_AH5 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 21.5% | 485 | 3.2% | 202 | 8.0% | 687 |
| T1\_AH6 | Tried to cut down or quit drinking. | 0 | Never | 96.6% | 2177 | 98.3% | 6199 | 97.9% | 8376 |
| T1\_AH6 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 3.4% | 77 | 1.7% | 104 | 2.1% | 181 |
| T1\_AH7 | Suddenly found myself in a place that I could not remember getting to. | 0 | Never | 96.0% | 2163 | 98.2% | 6184 | 97.6% | 8347 |
| T1\_AH7 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 4.0% | 91 | 1.8% | 113 | 2.4% | 204 |
| T1\_AH8 | Felt I was going crazy. | 0 | Never | 82.7% | 1863 | 95.6% | 6025 | 92.2% | 7888 |
| T1\_AH8 |  | 1 | 1-2 times, 3-4 times, 5+6 times, More than 6 times | 17.3% | 391 | 4.4% | 276 | 7.8% | 667 |
| *In the last 4 weeks, about how often did you feel* |  |  |  |  |  |  |  |  |
| T1\_K61R | …nervous? | 0 | None of the time | 19.3% | 422 | 17.1% | 1046 | 17.7% | 1468 |
| T1\_K61R |  | 1 | A little of the time, some of the time, most of the time, all of the time | 80.7% | 1761 | 82.9% | 5075 | 82.3% | 6836 |
| T1\_K62R | … hopeless? | 0 | None of the time | 49.4% | 1079 | 51.5% | 3152 | 51.0% | 4231 |
| T1\_K62R |  | 1 | A little of the time, some of the time, most of the time, all of the time | 50.6% | 1104 | 48.5% | 2964 | 49.0% | 4068 |
| T1\_K63R | … restless or fidgety? | 0 | None of the time | 29.9% | 653 | 28.2% | 1722 | 28.7% | 2375 |
| T1\_K63R |  | 1 | A little of the time, some of the time, most of the time, all of the time | 70.1% | 1529 | 71.8% | 4384 | 71.3% | 5913 |
| T1\_K64R | … so depressed that nothing could cheer you up? | 0 | None of the time | 66.6% | 1453 | 68.7% | 4200 | 68.1% | 5653 |
| T1\_K64R |  | 1 | A little of the time, some of the time, most of the time, all of the time | 33.4% | 730 | 31.3% | 1912 | 31.9% | 2642 |
| T1\_K65R | … that everything was an effort? | 0 | None of the time | 33.1% | 722 | 35.6% | 2177 | 35.0% | 2899 |
| T1\_K65R |  | 1 | A little of the time, some of the time, most of the time, all of the time | 66.9% | 1461 | 64.4% | 3930 | 65.0% | 5391 |
| T1\_K66R | … worthless? | 0 | None of the time | 64.9% | 1416 | 64.2% | 3919 | 64.3% | 5335 |
| T1\_K66R |   | 1 | A little of the time, some of the time, most of the time, all of the time | 35.1% | 767 | 35.8% | 2190 | 35.7% | 2957 |

## Table S2. Correlation matrix for symptoms of psychopathology

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **SD16** | **SD24** | **K61R** | **K63R** | **SD3** | **SD8** | **SD13** | **K62R** | **K64R** | **K65R** | **K66R** | **AUC1** | **AUC2** | **AUC3** | **AH1** | **AH2** | **AH3** | **AH4** | **AH5** | **AH6** | **AH7** | **AH8** | **SD2** | **SD5** | **SD10** | **SD12** | **SD15** | **SD18** | **SD22** |
| **SD16** | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **SD24** | 0.552 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K61R** | 0.370 | 0.268 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K63R** | 0.283 | 0.235 | 0.578 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **SD3** | 0.414 | 0.429 | 0.264 | 0.297 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **SD8** | 0.586 | 0.546 | 0.419 | 0.332 | 0.507 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **SD13** | 0.527 | 0.542 | 0.250 | 0.316 | 0.572 | 0.659 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K62R** | 0.435 | 0.397 | 0.580 | 0.513 | 0.396 | 0.529 | 0.610 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K64R** | 0.383 | 0.384 | 0.440 | 0.425 | 0.474 | 0.504 | 0.693 | 0.734 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K65R** | 0.312 | 0.267 | 0.490 | 0.544 | 0.325 | 0.344 | 0.405 | 0.562 | 0.570 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K66R** | 0.426 | 0.392 | 0.482 | 0.464 | 0.422 | 0.514 | 0.689 | 0.822 | 0.799 | 0.578 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AUC1** | 0.012 | -0.070 | -0.010 | 0.086 | 0.192 | 0.090 | 0.226 | 0.120 | 0.287 | 0.089 | 0.188 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AUC2** | -0.070 | -0.030 | -0.066 | 0.136 | 0.184 | 0.022 | 0.236 | 0.107 | 0.292 | 0.083 | 0.222 | 0.908 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AUC3** | -0.102 | -0.085 | 0.058 | 0.181 | 0.213 | -0.014 | 0.243 | 0.194 | 0.356 | 0.191 | 0.309 | 0.797 | 0.898 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AH1** | 0.101 | 0.046 | 0.022 | 0.080 | 0.208 | 0.083 | 0.225 | 0.141 | 0.216 | 0.146 | 0.185 | 0.675 | 0.728 | 0.705 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AH2** | 0.112 | 0.095 | 0.037 | 0.112 | 0.242 | 0.124 | 0.268 | 0.133 | 0.227 | 0.201 | 0.205 | 0.648 | 0.762 | 0.681 | 0.937 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **AH3** | 0.106 | 0.051 | 0.058 | 0.120 | 0.191 | 0.095 | 0.231 | 0.155 | 0.229 | 0.172 | 0.204 | 0.602 | 0.703 | 0.670 | 0.925 | 0.924 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |
| **AH4** | 0.184 | 0.113 | 0.146 | 0.139 | 0.280 | 0.203 | 0.288 | 0.214 | 0.292 | 0.222 | 0.272 | 0.675 | 0.712 | 0.622 | 0.881 | 0.894 | 0.882 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| **AH5** | 0.097 | 0.115 | 0.036 | 0.139 | 0.304 | 0.168 | 0.271 | 0.187 | 0.299 | 0.158 | 0.210 | 0.695 | 0.771 | 0.713 | 0.870 | 0.872 | 0.871 | 0.886 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| **AH6** | 0.162 | 0.138 | -0.005 | 0.097 | 0.302 | 0.224 | 0.366 | 0.176 | 0.251 | 0.121 | 0.252 | 0.738 | 0.818 | 0.728 | 0.775 | 0.771 | 0.775 | 0.796 | 0.831 | 1.000 |  |  |  |  |  |  |  |  |  |
| **AH7** | 0.168 | 0.094 | 0.016 | 0.090 | 0.255 | 0.165 | 0.331 | 0.191 | 0.295 | 0.142 | 0.282 | 0.650 | 0.738 | 0.648 | 0.747 | 0.750 | 0.723 | 0.801 | 0.804 | 0.850 | 1.000 |  |  |  |  |  |  |  |  |
| **AH8** | 0.165 | 0.181 | 0.110 | 0.232 | 0.296 | 0.205 | 0.377 | 0.303 | 0.384 | 0.240 | 0.353 | 0.611 | 0.744 | 0.637 | 0.808 | 0.838 | 0.830 | 0.894 | 0.845 | 0.782 | 0.766 | 1.000 |  |  |  |  |  |  |  |
| **SD2** | 0.323 | 0.290 | 0.167 | 0.453 | 0.369 | 0.369 | 0.378 | 0.277 | 0.288 | 0.305 | 0.299 | 0.189 | 0.134 | 0.079 | 0.195 | 0.194 | 0.202 | 0.227 | 0.246 | 0.261 | 0.193 | 0.298 | 1.000 |  |  |  |  |  |  |
| **SD5** | 0.387 | 0.360 | 0.183 | 0.304 | 0.423 | 0.409 | 0.528 | 0.358 | 0.412 | 0.328 | 0.392 | 0.176 | 0.214 | 0.223 | 0.266 | 0.251 | 0.213 | 0.274 | 0.228 | 0.307 | 0.261 | 0.312 | 0.423 | 1.000 |  |  |  |  |  |
| **SD10** | 0.361 | 0.328 | 0.156 | 0.486 | 0.401 | 0.415 | 0.458 | 0.318 | 0.340 | 0.304 | 0.353 | 0.244 | 0.160 | 0.159 | 0.199 | 0.221 | 0.202 | 0.237 | 0.231 | 0.286 | 0.286 | 0.328 | 0.764 | 0.437 | 1.000 |  |  |  |  |
| **SD12** | 0.268 | 0.259 | 0.023 | 0.198 | 0.343 | 0.300 | 0.459 | 0.217 | 0.295 | 0.230 | 0.273 | 0.404 | 0.417 | 0.255 | 0.340 | 0.346 | 0.305 | 0.337 | 0.361 | 0.484 | 0.399 | 0.379 | 0.424 | 0.558 | 0.459 | 1.000 |  |  |  |
| **SD15** | 0.450 | 0.375 | 0.175 | 0.355 | 0.402 | 0.373 | 0.439 | 0.348 | 0.344 | 0.360 | 0.376 | 0.127 | 0.166 | 0.051 | 0.259 | 0.233 | 0.257 | 0.295 | 0.249 | 0.263 | 0.255 | 0.320 | 0.568 | 0.458 | 0.583 | 0.425 | 1.000 |  |  |
| **SD18** | 0.324 | 0.298 | 0.084 | 0.253 | 0.344 | 0.288 | 0.464 | 0.291 | 0.356 | 0.278 | 0.329 | 0.240 | 0.326 | 0.271 | 0.315 | 0.336 | 0.302 | 0.344 | 0.386 | 0.334 | 0.339 | 0.352 | 0.367 | 0.476 | 0.423 | 0.506 | 0.454 | 1.000 |  |
| **SD22** | 0.309 | 0.348 | 0.002 | 0.105 | 0.342 | 0.270 | 0.463 | 0.189 | 0.259 | 0.213 | 0.221 | 0.300 | 0.351 | 0.286 | 0.357 | 0.393 | 0.341 | 0.334 | 0.457 | 0.462 | 0.440 | 0.434 | 0.358 | 0.394 | 0.409 | 0.593 | 0.407 | 0.560 | 1.000 |

## Table S3. Estimates for latent variable indirect effects models for anxiety sensitivity

|   | **Total Effect** | **Direct Effect** | **% accounted for by higher order factor(s)** |
| --- | --- | --- | --- |
| **Symptoms** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Nervous in new situations | 0.366 | 0.010 | 0.000 | 0.139 | 0.014 | 0.000 | **62%** |
| Many fears | 0.393 | 0.014 | 0.000 | 0.185 | 0.017 | 0.000 | **53%** |
| Nervous | 0.189 | 0.016 | 0.000 | -0.064 | 0.019 | 0.001 | 100% |
| Restless or fidgety | 0.127 | 0.014 | 0.000 | -0.285 | 0.021 | 0.000 | 100% |
| Somatic symptoms | 0.262 | 0.015 | 0.000 | 0.048 | 0.016 | 0.002 | 82% |
| Worries | 0.368 | 0.012 | 0.000 | 0.165 | 0.014 | 0.000 | **55%** |
| Unhappy | 0.312 | 0.017 | 0.000 | 0.021 | 0.017 | 0.234 | 93% |
| Hopeless | 0.265 | 0.016 | 0.000 | -0.034 | 0.015 | 0.022 | 100% |
| Depressed | 0.082 | 0.005 | 0.000 | -0.026 | 0.004 | 0.000 | 100% |
| Effort | 0.191 | 0.016 | 0.000 | -0.048 | 0.015 | 0.001 | 100% |
| Worthless | 0.242 | 0.015 | 0.000 | -0.101 | 0.014 | 0.000 | 100% |
| Frequency | 0.023 | 0.028 | 0.416 | -0.040 | 0.025 | 0.115 | 100% |
| Binge | 0.009 | 0.031 | 0.774 | -0.064 | 0.025 | 0.011 | 100% |
| Quantity | -0.037 | 0.030 | 0.221 | -0.105 | 0.027 | 0.000 | 100% |
| Shame/embarrassment | 0.061 | 0.020 | 0.003 | -0.013 | 0.016 | 0.417 | 100% |
| Neglected responsibilities | 0.059 | 0.020 | 0.003 | -0.011 | 0.015 | 0.448 | 100% |
| Tolerance | 0.105 | 0.023 | 0.000 | 0.039 | 0.019 | 0.042 | 63% |
| Personality change | 0.096 | 0.025 | 0.000 | 0.029 | 0.018 | 0.117 | 70% |
| Tried to cut down | 0.095 | 0.029 | 0.001 | 0.031 | 0.023 | 0.167 | 67% |
| Memory loss | 0.102 | 0.028 | 0.000 | 0.040 | 0.024 | 0.097 | 61% |
| Crazy | 0.119 | 0.027 | 0.000 | 0.053 | 0.020 | 0.007 | 55% |
| Restless | 0.196 | 0.013 | 0.000 | 0.001 | 0.014 | 0.964 | 99% |
| Temper | 0.209 | 0.013 | 0.000 | 0.024 | 0.014 | 0.095 | 89% |
| Fidgety | 0.190 | 0.015 | 0.000 | -0.030 | 0.012 | 0.018 | 100% |
| Fight a lot | 0.111 | 0.019 | 0.000 | -0.081 | 0.016 | 0.000 | 100% |
| Easily distracted | 0.229 | 0.013 | 0.000 | 0.048 | 0.012 | 0.000 | **79%** |
| Lies or cheats | 0.185 | 0.017 | 0.000 | 0.005 | 0.016 | 0.736 | 97% |
| Steals | 0.169 | 0.021 | 0.000 | -0.007 | 0.019 | 0.730 | 100% |
| **First-order factors** |   |   |   |   |   |   |   |
| Alcohol use | 0.077 | 0.020 | 0.000 | -0.267 | 0.020 | 0.000 | 100% |
| Conduct/Inattention | 0.263 | 0.014 | 0.000 | -0.015 | 0.015 | 0.297 | 100% |
| Distress | 0.347 | 0.013 | 0.000 | 0.121 | 0.013 | 0.000 | **65%** |
| Fear | 0.392 | 0.011 | 0.000 | 0.164 | 0.013 | 0.000 | **58%** |
| **Second-order factor** |   |   |   |   |   |   |   |
| General psychopathology | 0.369 | 0.013 | 0.000 | - | - | - | - |

*Notes. Percentages accounted for by higher order factor(s) in bold indicate meaningful direct effects (ie. Statistically significant, percentage below 100% and no evidence of suppression effect).*

## Table S4. Estimates for latent variable indirect effects models for negative thinking

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Total Effect** | **Direct Effect** | **% accounted for by higher order factor(s)** |
| **Symptoms** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Nervous in new situations | 0.274 | 0.015 | 0.000 | 0.056 | 0.014 | 0.000 | **80%** |
| Many fears | 0.256 | 0.016 | 0.000 | 0.065 | 0.015 | 0.000 | **75%** |
| Nervous | 0.147 | 0.016 | 0.000 | -0.082 | 0.015 | 0.000 | 100% |
| Restless or fidgety | 0.211 | 0.016 | 0.000 | -0.044 | 0.019 | 0.019 | 100% |
| Somatic symptoms | 0.322 | 0.015 | 0.000 | -0.033 | 0.013 | 0.013 | 100% |
| Worries | 0.300 | 0.017 | 0.000 | -0.137 | 0.017 | 0.000 | 100% |
| Unhappy | 0.508 | 0.015 | 0.000 | 0.095 | 0.013 | 0.000 | **81%** |
| Hopeless | 0.448 | 0.014 | 0.000 | -0.002 | 0.013 | 0.861 | 100% |
| Depressed | 0.490 | 0.015 | 0.000 | 0.063 | 0.011 | 0.000 | **87%** |
| Effort | 0.329 | 0.015 | 0.000 | -0.045 | 0.016 | 0.005 | 100% |
| Worthless | 0.511 | 0.014 | 0.000 | 0.063 | 0.011 | 0.000 | **88%** |
| Frequency | 0.251 | 0.028 | 0.000 | 0.063 | 0.027 | 0.020 | 75% |
| Binge | 0.276 | 0.033 | 0.000 | 0.057 | 0.032 | 0.074 | 79% |
| Quantity | 0.289 | 0.030 | 0.000 | 0.104 | 0.034 | 0.003 | 64% |
| Shame/embarrassment | 0.212 | 0.023 | 0.000 | -0.032 | 0.015 | 0.034 | 100% |
| Neglected responsibilities | 0.185 | 0.021 | 0.000 | -0.060 | 0.016 | 0.000 | 100% |
| Tolerance | 0.203 | 0.024 | 0.000 | -0.046 | 0.016 | 0.005 | 100% |
| Personality change | 0.216 | 0.030 | 0.000 | -0.023 | 0.022 | 0.302 | 100% |
| Tried to cut down | 0.255 | 0.028 | 0.000 | 0.040 | 0.025 | 0.104 | 84% |
| Memory loss | 0.228 | 0.038 | 0.000 | 0.015 | 0.031 | 0.639 | 93% |
| Crazy | 0.260 | 0.027 | 0.000 | 0.028 | 0.022 | 0.215 | 89% |
| Restless | 0.191 | 0.019 | 0.000 | -0.091 | 0.014 | 0.000 | 100% |
| Temper | 0.274 | 0.015 | 0.000 | 0.042 | 0.012 | 0.000 | **85%** |
| Fidgety | 0.231 | 0.016 | 0.000 | -0.065 | 0.012 | 0.000 | 100% |
| Fight a lot | 0.249 | 0.016 | 0.000 | 0.029 | 0.015 | 0.048 | 88% |
| Easily distracted | 0.254 | 0.017 | 0.000 | 0.005 | 0.011 | 0.642 | 98% |
| Lies or cheats | 0.276 | 0.015 | 0.000 | 0.062 | 0.012 | 0.000 | **78%** |
| Steals | 0.237 | 0.018 | 0.000 | 0.020 | 0.018 | 0.263 | 92% |
| **First-order factors** |   |   |   |   |   |   |   |
| Alcohol use | 0.258 | 0.021 | 0.000 | -0.180 | 0.031 | 0.000 | 100% |
| Conduct/Inattention | 0.340 | 0.018 | 0.000 | -0.067 | 0.013 | 0.000 | 100% |
| Distress | 0.538 | 0.016 | 0.000 | 0.268 | 0.013 | 0.000 | **50%** |
| Fear | 0.319 | 0.018 | 0.000 | -0.076 | 0.014 | 0.000 | 100% |
| **Second-order factor** |   |   |   |   |   |   |   |
| General psychopathology | 0.514 | 0.017 | 0.000 |   |   |   |   |

*Notes. Percentages accounted for by higher order factor(s) in bold indicate meaningful direct effects (ie. Statistically significant, percentage below 100% and no evidence of suppression effect).*

## Table S5. Estimates for latent variable indirect effects models for impulsivity

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Total Effect** | **Direct Effect** | **% accounted for by higher order factor(s)** |
| **Symptoms** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Nervous in new situations | 0.256 | 0.015 | 0.000 | 0.043 | 0.014 | 0.002 | 83% |
| Many fears | 0.253 | 0.014 | 0.000 | 0.073 | 0.016 | 0.000 | **71%** |
| Nervous | 0.103 | 0.013 | 0.000 | -0.139 | 0.017 | 0.000 | 100% |
| Restless or fidgety | 0.245 | 0.014 | 0.000 | 0.044 | 0.016 | 0.006 | 82% |
| Somatic symptoms | 0.275 | 0.014 | 0.000 | 0.056 | 0.015 | 0.000 | **80%** |
| Worries | 0.244 | 0.014 | 0.000 | -0.022 | 0.016 | 0.172 | 100% |
| Unhappy | 0.336 | 0.016 | 0.000 | 0.034 | 0.015 | 0.021 | 90% |
| Hopeless | 0.286 | 0.014 | 0.000 | -0.032 | 0.012 | 0.009 | 100% |
| Depressed | 0.298 | 0.016 | 0.000 | -0.022 | 0.012 | 0.071 | 100% |
| Effort | 0.289 | 0.015 | 0.000 | 0.065 | 0.014 | 0.000 | **78%** |
| Worthless | 0.291 | 0.017 | 0.000 | -0.058 | 0.012 | 0.000 | 100% |
| Frequency | 0.269 | 0.027 | 0.000 | 0.007 | 0.024 | 0.776 | 97% |
| Binge | 0.294 | 0.032 | 0.000 | -0.012 | 0.027 | 0.655 | 100% |
| Quantity | 0.162 | 0.030 | 0.000 | -0.136 | 0.023 | 0.000 | 100% |
| Shame/embarrassment | 0.305 | 0.019 | 0.000 | -0.011 | 0.016 | 0.483 | 100% |
| Neglected responsibilities | 0.300 | 0.022 | 0.000 | -0.003 | 0.017 | 0.840 | 100% |
| Tolerance | 0.327 | 0.022 | 0.000 | 0.015 | 0.017 | 0.379 | 95% |
| Personality change | 0.343 | 0.027 | 0.000 | 0.041 | 0.017 | 0.017 | 88% |
| Tried to cut down | 0.330 | 0.037 | 0.000 | 0.046 | 0.028 | 0.099 | 86% |
| Memory loss | 0.318 | 0.031 | 0.000 | 0.041 | 0.027 | 0.121 | 87% |
| Crazy | 0.343 | 0.028 | 0.000 | 0.039 | 0.020 | 0.045 | 89% |
| Restless | 0.374 | 0.013 | 0.000 | -0.110 | 0.017 | 0.000 | 100% |
| Temper | 0.402 | 0.014 | 0.000 | -0.016 | 0.017 | 0.342 | 100% |
| Fidgety | 0.377 | 0.017 | 0.000 | -0.153 | 0.019 | 0.000 | 100% |
| Fight a lot | 0.443 | 0.016 | 0.000 | 0.101 | 0.018 | 0.000 | **77%** |
| Easily distracted | 0.464 | 0.013 | 0.000 | 0.078 | 0.016 | 0.000 | **83%** |
| Lies or cheats | 0.447 | 0.013 | 0.000 | 0.105 | 0.014 | 0.000 | **77%** |
| Steals | 0.409 | 0.021 | 0.000 | 0.059 | 0.024 | 0.012 | 86% |
| **First-order factors** |   |   |   |   |   |   |   |
| Alcohol use | 0.341 | 0.023 | 0.000 | -0.088 | 0.024 | 0.000 | 100% |
| Conduct/Inattention | 0.572 | 0.013 | 0.000 | 0.270 | 0.013 | 0.000 | **53%** |
| Distress | 0.368 | 0.013 | 0.000 | -0.059 | 0.013 | 0.000 | 100% |
| Fear | 0.293 | 0.013 | 0.000 | -0.150 | 0.017 | 0.000 | 100% |
| **Second-order factor** |   |   |   |   |   |   |   |
| General psychopathology | 0.544 | 0.015 | 0.000 |   |   |   |   |

*Notes. Percentages accounted for by higher order factor(s) in bold indicate meaningful direct effects (ie. Statistically significant, percentage below 100% and no evidence of suppression effect).*

## Table S6. Estimates for latent variable indirect effects models for sensation seeking

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Total Effect** | **Direct Effect** | **Percentage accounted for by higher order factor(s)** |
| **Symptoms** | **b** | **se** | **p** | **b** | **se** | **p** |  |
| Nervous in new situations | -0.057 | 0.018 | 0.001 | 0.015 | 0.016 | 0.356 | 100% |
| Many fears | -0.181 | 0.014 | 0.000 | -0.170 | 0.014 | 0.000 | **6%** |
| Nervous | -0.040 | 0.015 | 0.007 | 0.017 | 0.015 | 0.238 | 100% |
| Restless or fidgety | 0.056 | 0.016 | 0.000 | 0.164 | 0.017 | 0.000 | 100% |
| Somatic symptoms | 0.024 | 0.014 | 0.087 | 0.036 | 0.013 | 0.004 | 50% |
| Worries | -0.041 | 0.014 | 0.003 | -0.036 | 0.015 | 0.016 | 12% |
| Unhappy | -0.014 | 0.015 | 0.337 | -0.003 | 0.012 | 0.781 | 79% |
| Hopeless | -0.009 | 0.013 | 0.520 | 0.003 | 0.010 | 0.750 | 100% |
| Depressed | -0.027 | 0.014 | 0.065 | -0.018 | 0.011 | 0.091 | 33% |
| Effort | 0.027 | 0.015 | 0.080 | 0.039 | 0.012 | 0.002 | 44% |
| Worthless | -0.022 | 0.016 | 0.170 | -0.011 | 0.011 | 0.316 | 50% |
| Frequency | 0.189 | 0.023 | 0.000 | 0.039 | 0.020 | 0.048 | 79% |
| Binge | 0.174 | 0.027 | 0.000 | -0.006 | 0.025 | 0.817 | 100% |
| Quantity | 0.074 | 0.028 | 0.008 | -0.095 | 0.023 | 0.000 | 100% |
| Shame/embarrassment | 0.148 | 0.026 | 0.000 | -0.046 | 0.016 | 0.005 | 100% |
| Neglected responsibilities | 0.197 | 0.027 | 0.000 | 0.022 | 0.016 | 0.176 | 89% |
| Tolerance | 0.194 | 0.028 | 0.000 | 0.009 | 0.021 | 0.672 | 95% |
| Personality change | 0.200 | 0.030 | 0.000 | 0.018 | 0.017 | 0.281 | 91% |
| Tried to cut down | 0.215 | 0.032 | 0.000 | 0.046 | 0.023 | 0.043 | 79% |
| Memory loss | 0.186 | 0.032 | 0.000 | 0.019 | 0.025 | 0.455 | 90% |
| Crazy | 0.192 | 0.031 | 0.000 | 0.008 | 0.022 | 0.715 | 96% |
| Restless | 0.128 | 0.016 | 0.000 | 0.010 | 0.014 | 0.474 | 92% |
| Temper | 0.054 | 0.016 | 0.000 | -0.081 | 0.014 | 0.000 | 100% |
| Fidgety | 0.127 | 0.018 | 0.000 | -0.004 | 0.013 | 0.770 | 100% |
| Fight a lot | 0.167 | 0.020 | 0.000 | 0.066 | 0.016 | 0.000 | **60%** |
| Easily distracted | 0.134 | 0.016 | 0.000 | 0.018 | 0.012 | 0.138 | 87% |
| Lies or cheats | 0.123 | 0.018 | 0.000 | 0.014 | 0.014 | 0.325 | 89% |
| Steals | 0.116 | 0.020 | 0.000 | 0.011 | 0.016 | 0.499 | 91% |
| **First-order factors** |   |   |   |   |   |   |   |
| Alcohol use | 0.203 | 0.025 | 0.000 | 0.182 | 0.025 | 0.000 | **10%** |
| Conduct/Inattention | 0.162 | 0.018 | 0.000 | 0.141 | 0.013 | 0.000 | **13%** |
| Distress | -0.013 | 0.013 | 0.288 | -0.117 | 0.012 | 0.000 | 100% |
| Fear | -0.088 | 0.015 | 0.000 | -0.170 | 0.017 | 0.000 | **93%** |
| **Second-order factor** |   |   |   |   |   |   |   |
| General psychopathology | 0.073 | 0.016 | 0.000 |   |   |   |   |

*Notes. Percentages accounted for by higher order factor(s) in bold indicate meaningful direct effects (ie. Statistically significant, percentage below 100% and no evidence of suppression effect).*

## Table S7. Estimates for total effect estimates from the four correlated factor models

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Personality** | **Psychopathology Latent Variable** | **b** | **se** | **p** |
| Anxiety Sensitivity | Alcohol use | 0.075 | 0.019 | .000 |
| Anxiety Sensitivity | Conduct/inattention | 0.267 | 0.014 | .000 |
| Anxiety Sensitivity | Distress | 0.351 | 0.013 | .000 |
| Anxiety Sensitivity | Fear | 0.453 | 0.012 | .000 |
| Impulsivity | Alcohol use | 0.331 | 0.022 | .000 |
| Impulsivity | Conduct/inattention | 0.577 | 0.013 | .000 |
| Impulsivity | Distress | 0.374 | 0.014 | .000 |
| Impulsivity | Fear | 0.328 | 0.015 | .000 |
| Negative Thinking | Alcohol use | 0.251 | 0.02 | .000 |
| Negative Thinking | Conduct/inattention | 0.344 | 0.018 | .000 |
| Negative Thinking | Distress | 0.553 | 0.016 | .000 |
| Negative Thinking | Fear | 0.352 | 0.019 | .000 |
| Sensation Seeking | Alcohol use | 0.195 | 0.024 | .000 |
| Sensation Seeking | Conduct/inattention | 0.167 | 0.018 | .000 |
| Sensation Seeking | Distress | -0.014 | 0.013 | .275 |
| Sensation Seeking | Fear | -0.100 | 0.016 | .000 |

# Additional structural models of psychopathology

In addition to the models described in the main text, a further four models were examined. Specifically, we explored a modified bifactor model, where the specific factors were permitted to correlate, and three ‘mid-tier’ models featuring two general factors, one representing internalizing and one representing externalizing, and four specific factors fear, distress, alcohol use, and conduct/inattention. We estimated a 2-bifactor, 2-higher-order and modified 2-bifactor (where the general factors were permitted to correlate). **Path diagrams for each of these models are shown in Figures S1 to S4.** The goodness-of-fit indices, standardized factor loadings and inter-factor correlations can be found in Table S7 and S8, respectively. Reliability indices are presented in Table S9.

**The structures examining internalizing and externalizing general factors were proposed based on the observation that the general psychopathology factors in the models described in the main text were more heavily defined by fear and distress, rather than conduct/inattention and alcohol use, suggesting that the data may be better represented by two general/higher-order factors. Ideally, we would have examined the external validity of one of these models, as well as the model reported on in the main text. However, the complexity if these models and associated computational demands led to difficulties with model convergence, making the stability of the estimates unreliable. Furthermore, we encountered identification issues when assessing measurement invariance across the cohorts. Altogether, these convergence and identification issues suggested that the data were not well represented by a model with two general/higher-order factors.**

## Table S8. Fit indices for additional models of adolescent psychopathology (n=8,589)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | WLSMV | MLR (Default integration) | MLR (Montecarlo(2000) integration) |
| Model | No. of parameters | χ2 | df | CFI | TLI | RMSEA (90% CI) | AIC | BIC | SSABIC | AIC | BIC | SSABIC |
| 2-Bifactor (general internalizing & general externalizing) | 87 | 11142.964 | 348 | 0.802 | 0.769 | 0.06 (0.059-0.061) | NA |  | 161612.5 | 162226.6 | 161950.1 |
| 2-Bifactor (correlated general factors) | 88 | 1926.553 | 347 | 0.971 | 0.966 | 0.023 (0.022-0.024) | NA |  | 159063.5 | 159684.6 | 159404.9 |
| 2-Higher-Order | 63 | 2633.846 | 372 | 0.958 | 0.955 | 0.027 (0.026-0.028) | 161050.557 | 161495.226 | 161295.024 | 161141.1 | 161585.8 | 161385.5 |
| Modified Bifactor  | 93 | 1933.024 | 342 |  0.971  |  0.965  | 0.023 (0.022-0.024) | NA |  | 158945.6 | 159602.1 | 159306.5 |

## Figure S1. Path diagrams for 2-bifactor model of adolescent psychopathology



## Figure S2. Path diagrams for 2-bifactor model of adolescent psychopathology with correlated general factors



## Figure S3. Path diagrams for 2-higher-order model of adolescent psychopathology



## Figure S4. Path diagrams for Modified bifactor model of adolescent psychopathology with correlated specific factors



## Table S9. Standardized Factor loadings on general and specific (fear, distress, alcohol use/harms, conduct/inattention) factors using WLSMV estimator and inter-factor correlations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   |   | 2-Bifactor | Modified 2-Bifactor (correlated general factors) | 2-Higher-order | Modified Bifactor |
| Symptom | Item ID | General Internalizing | General Externalizing | Specific Internalizing | Specific Externalizing | General Internalizing | General Externalizing | Specific Internalizing | Specific Externalizing | General Internalizing | General Externalizing | Specific Internalizing | Specific Externalizing | General | Specific |
| **Fear** |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Nervous in new situations | SD16 | **0.654** |  | **-0.267** |  | **0.662** |  | **-0.193** |  |  |  | **0.669** |  | **0.538** | **0.368** |
| Many fears | SD24 | **0.631** |  | **-0.383** |  | **0.628** |  | **-0.254** |  |  |  | **0.637** |  | **0.504** | **0.353** |
| Nervous | K61R | **0.628** |  | **0.361** |  | **0.515** |  | **0.320** |  |  |  | **0.557** |  | **0.193** | **0.760** |
| Restless or fidgety  | K63R | **0.610** |  | **0.457** |  | **0.627** |  | **0.723** |  |  |  | **0.640** |  | **0.436** | **0.497** |
| **Distress** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Somatic symptoms | SD3 | **0.617** |  | 0.005 |  | **0.687** |  | **-0.114** |  |  |  | **0.643** |  | **0.573** | **0.266** |
| Worries | SD8 | **0.811** |  | **-0.116** |  | **0.759** |  | -0.045 |  |  |  | **0.721** |  | **0.567** | **0.415** |
| Unhappy | SD13 | **0.783** |  | **0.183** |  | **0.847** |  | **0.099** |  |  |  | **0.842** |  | **0.690** | **0.456** |
| Hopeless | K62R | **0.721** |  | **0.484** |  | **0.689** |  | **0.527** |  |  |  | **0.828** |  | **0.398** | **0.793** |
| Depressed | K64R | **0.697** |  | **0.496** |  | **0.720** |  | **0.460** |  |  |  | **0.835** |  | **0.482** | **0.698** |
| Effort | K65R | **0.567** |  | **0.305** |  | **0.583** |  | **0.289** |  |  |  | **0.642** |  | **0.393** | **0.523** |
| Worthless | K66R | **0.706** |  | **0.634** |  | **0.711** |  | **0.627** |  |  |  | **0.881** |  | **0.451** | **0.795** |
| **Alcohol use/harms** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Frequency | AUC1 |  | **0.354** |  | **0.748** |  | **0.297** |  | **0.771** |  |  |  | **0.819** | **0.254** | **0.787** |
| Binge | AUC2 |  | **0.371** |  | **0.853** |  | **0.292** |  | **0.883** |  |  |  | **0.914** | **0.250** | **0.897** |
| Quantity | AUC3 |  | **0.274** |  | **0.794** |  | **0.271** |  | **0.785** |  |  |  | **0.819** | **0.224** | **0.803** |
| Acted bad | AH1 |  | **0.435** |  | **0.846** |  | **0.344** |  | **0.889** |  |  |  | **0.942** | **0.310** | **0.900** |
| Shame/embarrassment | AH2 |  | **0.445** |  | **0.846** |  | **0.374** |  | **0.880** |  |  |  | **0.952** | **0.336** | **0.895** |
| Neglected responsibilities | AH3 |  | **0.411** |  | **0.852** |  | **0.343** |  | **0.881** |  |  |  | **0.934** | **0.313** | **0.890** |
| Tolerance | AH4 |  | **0.489** |  | **0.804** |  | **0.443** |  | **0.831** |  |  |  | **0.943** | **0.405** | **0.849** |
| Personality change | AH5 |  | **0.517** |  | **0.767** |  | **0.440** |  | **0.813** |  |  |  | **0.927** | **0.394** | **0.837** |
| Tried to cut down | AH6 |  | **0.570** |  | **0.669** |  | **0.478** |  | **0.731** |  |  |  | **0.877** | **0.433** | **0.758** |
| Memory loss | AH7 |  | **0.535** |  | **0.652** |  | **0.442** |  | **0.712** |  |  |  | **0.844** | **0.407** | **0.735** |
| Crazy | AH8 |  | **0.561** |  | **0.715** |  | **0.525** |  | **0.747** |  |  |  | **0.917** | **0.489** | **0.770** |
| **Conduct/inattention** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Restless | SD2 |  | **0.446** |  | **0.750** |  | **0.678** |  | **0.543** |  |  |  | **0.734** | **0.747** | **0.309** |
| Temper | SD5 |  | **0.612** |  | **0.216** |  | **0.742** |  | **-0.145** |  |  |  | **0.729** | **0.705** | **-0.152** |
| Fidgety | SD10 |  | **0.500** |  | **0.717** |  | **0.730** |  | **0.486** |  |  |  | **0.794** | **0.808** | **0.303** |
| Fight a lot | SD12 |  | **0.764** |  | **0.110** |  | **0.687** |  | **-0.131** |  |  |  | **0.672** | **0.640** | **-0.373** |
| Easily distracted | SD15 |  | **0.548** |  | **0.434** |  | **0.716** |  | **0.156** |  |  |  | **0.732** | **0.731** | 0.051 |
| Lies or cheats | SD18 |  | **0.701** |  | **0.099** |  | **0.685** |  | **-0.186** |  |  |  | **0.667** | **0.635** | **-0.336** |
| Steals | SD22 |  | **0.784** |  | -0.005 |  | **0.673** |  | **-0.218** |  |  |  | **0.652** | **0.602** | **-0.483** |
| **First order factors** |  |  |  |  |  |   |   |   |   |  |  |  |  |   |   |
| Fear |  | - | - | - | - | - | - | - | - | **0.942** |  | - | - | - | - |
| Distress |  | - | - | - | - | - | - | - | - | **0.947** |  | - | - | - | - |
| Alcohol Use |  | - | - | - | - | - | - | - | - |  | **0.432** | - | - | - | - |
| Conduct/inattention |  | - | - | - | - | - | - | - | - |  | **0.998** | - | - | - | - |
| **Inter-factor correlations** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Externalizing with Internalizing |  | 0.000 | - | - | - | **0.698** | - | - | - | **0.672** | - | - | - | - | - |
| Internalizing with Fear |  | 0.000 | - | - | - | 0.000 | - | - | - | **0.942** | - | - | - | - | - |
| Internalizing with Distress |  | 0.000 | - | - | - | 0.000 | - | - | - | **0.947** | - | - | - | - | - |
| Internalizing with Alcohol Use |  | 0.000 | - | - | - | 0.000 | - | - | - | **0.291** | - | - | - | - | - |
| Internalizing with Conduct/Inattention |  | 0.000 | - | - | - | 0.000 | - | - | - | **0.671** | - | - | - | - | - |
| Externalizing with Alcohol Use |  | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.432** | - | - | - | - |
| Externalizing with Conduct/Inattention |  | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.998** | - | - | - | - |
| Externalizing with Fear |  | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.634** | - | - | - | - |
| Externalizing with Distress |  | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.637** | - | - | - | - |
| Fear with Distress |  | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.892** | - | 0.000 | **0.765** |
| Fear with Alcohol Use |  | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.274** | - | 0.000 | **-0.111** |
| Fear with Conduct/Inattention |  | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.633** | - | 0.000 | **0.207** |
| Alcohol use with Conduct/Inattention |  | - | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.635** | 0.000 | **-0.327** |
| Alcohol use with Distress |  | - | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.275** | 0.000 | **0.085** |
| Conduct/inattention with Distress |   | - | - | - | 0.000 | - | - | - | 0.000 | - | - | - | **0.431** | 0.000 | **-0.075** |
| SD = SDQ, items from Strengths and Difficulties Questionnaire; AH = Alcohol Harms, items from Rutgers Alcohol Problem Index (RAPI); K6 = Kessler 6 Plus scale (K6+); AUC = Alcohol use, AUDIT-C items; WLSMV = weighted least square mean and variance adjusted. Factor loadings and correlations with a *p* value ≤ 0.05 are shown in bold. |

## Table S10. Reliability indices for additional structural models of psychopathology

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Index** | **Factor** | **2-Bifactor** | **2-Bifactor****(correlated general factors)** | **2-Higher-Order** | **Modified Bifactor****(correlated specific factors)** |
| H | General Psychopathology | - | - | - | **0.93** |
|  | General Internalizing | **0.91** | **0.91** | **0.92** | - |
|  | General Externalizing | **0.90** | **0.90** | **0.90** | - |
|  | Fear | 0.40 | 0.57 | 0.16 | 0.67 |
|  | Distress | 0.59 | 0.59 | 0.32 | **0.84** |
|  | Alcohol use | **0.95** | **0.96** | **0.96** | **0.97** |
|  | Conduct/inattention | **0.73** | 0.47 | 0.01 | 0.45 |
| Omega | General Psychopathology | **-** | **-** | **-** | **0.97** |
|  | General Internalizing | **0.93** | **0.93** | **0.92** | **-** |
|  | General Externalizing | **0.97** | **0.97** | **0.97** | **-** |
| OmegaS | Fear | **0.78** | **0.78** | 0.72 | **0.76** |
|  | Distress | **0.92** | **0.92** | **0.91** | **0.91** |
|  | Alcohol use | **0.98** | **0.98** | **0.98** | **0.98** |
|  | Conduct/inattention | **0.90** | **0.89** | **0.88** | **0.89** |
| OmegaH | General Psychopathology | **-** | **-** | **-** | 0.63 |
|  | General Internalizing | **0.87** | **0.87** | **0.86** | **-** |
|  | General Externalizing | 0.51 | 0.50 | 0.50 | **-** |
| OmegaHS | Fear | 0.00 | 0.04 | 0.08 | 0.44 |
|  | Distress | 0.13 | 0.11 | 0.09 | 0.51 |
|  | Alcohol use | 0.73 | **0.80** | **0.80** | **0.83** |
|  | Conduct/inattention | 0.20 | 0.01 | 0.00 | 0.02 |
| ECV\_NEW | General Psychopathology | **-** | **-** | **-** | 0.39 |
|  | General Internalizing | 0.76 | 0.75 | **0.89** | **-** |
|  | General Externalizing | 0.39 | 0.39 | 0.42 | **-** |
| ECV\_S\_NEW | Fear | 0.26 | 0.33 | 0.11 | 0.59 |
|  | Distress | 0.23 | 0.22 | 0.10 | 0.57 |
|  | Alcohol use | **0.74** | **0.81** | **0.81** | **0.85** |
|   | Conduct/inattention | 0.32 | 0.16 | 0.00 | 0.17 |
| Note. Results in bold indicate acceptable reliability. Indices for 2-higher-Order model cannot be calculated, indices presented are based on Schmid-Leiman transformed (SLT) model. ECV = Explained Common Variance, ECV\_S = Explained Common Variance of specific factors, H = measure of construct replicability, Omega = internal reliability of general factor/s, OmegaS = internal reliability of specific factor/s, OmegaH = Omega Hierarchical, OmegaHS = Omega Hierarchical subscale, PUC = Percent of Uncontaminated Correlations, SLT = Schmid-Leiman transformation |