Supplementary Information for:

Meta-analysis of structural evidence for the Hierarchical Taxonomy of Psychopathology (HiTOP) model

Table 1. Coding of diagnoses

Table 2. Sample sizes, tau2, and Cochran’s Q for each correlation

Table 3. Factor loadings using unweighted least squares estimator

Table 4. Factor loadings for models with dependent personality disorder

Table 4. Standard errors for factor loadings of final models

Table 5. Model fit indices for each level of the hierarchical model

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| --- |
| Table 1. Coding of diagnoses |
| **Study** | **Coded** | **Operationalization** | **Indicator type** |
| Baek et al., 2019 |  |  |  |
|  | SUD | Alcohol or drug use disorder | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
|  | Eating disorder | Bulimia | Binary presence/absence |
|  | Bipolar disorder | Bipolar I | Binary presence/absence |
| Caspi et al., 2014 |  |  |  |
|  | SUD | Hard drug use | Symptom counts |
|  | AUD | Alcohol use disorder | Symptom counts |
|  | MDD |  | Symptom counts |
|  | GAD |  | Symptom counts |
|  | OCD |  | Symptom counts |
|  | Bipolar disorder | Mania | Symptom counts |
|  | Psychotic disorder | Schizophrenia | Symptom counts |
| Chamberlain et al., 2018 |  |  |  |
|  | Eating disorder | Any eating disorder | Binary presence/absence |
|  | AUD | Alcohol dependence/abuse | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | SUD | Substance dependence/abuse | Binary presence/absence |
|  | OCPD |  | Symptom counts |
| Class et al., 2019 |  |  |  |
|  | ASPD |  | Binary presence/absence |
|  | Bipolar disorder | Mania | Binary presence/absence |
|  | SUD | Cannabis abuse/dependence | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Conway & Brown, 2018 |  |  |  |
|  | AUD | Alcohol dependence/abuse | Binary presence/absence |
|  | Bipolar disorder |  | Binary presence/absence |
|  | SUD | Substance dependence/abuse | Binary presence/absence |
|  | Dysthymia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Conway et al., 2018 |  |  |  |
|  | AUD | Alcohol dependence/abuse | Binary presence/absence aggregated across 2 assessments |
|  | SUD | Substance dependence/abuse | Binary presence/absence aggregated across 2 assessments |
|  | Dysthymia |  | Binary presence/absence aggregated across 2 assessments |
|  | GAD |  | Binary presence/absence aggregated across 2 assessments |
|  | MDD |  | Binary presence/absence aggregated across 2 assessments |
|  | Panic disorder |  | Binary presence/absence aggregated across 2 assessments |
|  | PTSD |  | Binary presence/absence aggregated across 2 assessments |
|  | Social phobia |  | Binary presence/absence aggregated across 2 assessments |
|  | Specific phobia |  | Binary presence/absence aggregated across 2 assessments |
| de Jonge et al., 2018 |  |  |  |
|  | AUD | Alcohol dependence/abuse | Binary presence/absence |
|  | Eating disorder |  | Binary presence/absence |
|  | Bipolar disorder |  | Binary presence/absence |
|  | SUD | Substance dependence/abuse | Binary presence/absence |
|  | Dysthymia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Farmer et al., 2013 |  |  |  |
|  | AUD | Alcohol dependence/abuse | Binary presence/absence aggregated across 5 assessments |
|  | Eating disorder | Bulimia | Binary presence/absence aggregated across 5 assessments |
|  | bipolar disorder | Bipolar I, II, cyclothymic disorders | Binary presence/absence aggregated across 5 assessments |
|  | SUD | Hard drug use disorders | Binary presence/absence aggregated across 5 assessments |
|  | Dysthymia |  | Binary presence/absence aggregated across 5 assessments |
|  | GAD |  | Binary presence/absence aggregated across 5 assessments |
|  | MDD |  | Binary presence/absence aggregated across 5 assessments |
|  | Panic disorder |  | Binary presence/absence aggregated across 5 assessments |
|  | PTSD |  | Binary presence/absence aggregated across 5 assessments |
|  | Social phobia |  | Binary presence/absence aggregated across 5 assessments |
|  | Specific phobia |  | Binary presence/absence aggregated across 5 assessments |
| Fergussen et al., 2006 |  |  |  |
|  | GAD |  | Symptom counts |
|  | MDD |  | Symptom counts |
|  | Panic disorder | Panic disorder w/ or w/o agoraphobia | Symptom counts |
| Finn et al., 2009 |  |  |  |
|  | AUD |  | Symptom counts |
|  | ASPD |  | Symptom counts |
|  | SUD |  | Symptom counts |
|  |  |  |  |
| Forbes et al., 2017 |  |  |  |
|  | AUD |  | Binary presence/absence |
|  | Eating disorder | Anorexia, bulimia, binge eating disorder | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | Bipolar disorder | Manic episode | Binary presence/absence |
|  | BPD |  | Binary presence/absence |
|  | DPD |  | Binary presence/absence |
|  | SUD |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | HPD |  | Binary presence/absence |
|  | MDD | Major depressive episode | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | OCPD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PPD |  | Binary presence/absence |
|  | Psychotic disorder | Presence of psychotic symptoms including diagnosis of schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, brief psychotic disorder, psychosis NOS, MDD with psychosis, bipolar I with psychosis, psychotic symptoms from Module B | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
|  | StyPD |  | Binary presence/absence |
|  | SzPD |  | Binary presence/absence |
| Friedman et al., 2020 |  |  |  |
|  | AUD |  | Symptom counts |
|  | ASPD |  | Symptom counts |
|  | GAD |  | Symptom counts |
|  | SUD | Hard drug use disorders | Symptom counts |
|  | MDD |  | Symptom counts |
| Girard et al., 2017 |  |  |  |
|  | AUD | Alcohol dependence | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | BPD |  | Binary presence/absence |
|  | DPD |  | Binary presence/absence |
|  | SUD | Substance dependence  | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | HPD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | NPD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | OCPD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PPD |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
|  | StyPD |  | Binary presence/absence |
|  | SzPD |  | Binary presence/absence |
| Hicks et al., 2013 |  |  |  |
|  | AUD | Alcohol dependence | Symptom counts |
|  | ASPD |  | Symptom counts |
|  | SUD | Substance dependence  | Symptom counts |
| Ignatyev et al., 2019 |  |  |  |
|  | AUD |  | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | BPD |  | Binary presence/absence |
|  | SUD | Hard drug abuse/dependence | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
| Keyes et al., 2013 |  |  |  |
|  | AUD |  | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | AvPD |  | Binary presence/absence |
|  | Bipolar disorder | Bipolar I or II | Binary presence/absence |
|  | SUD | Hard drug abuse/dependence | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PPD |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
|  | StyPD |  | Binary presence/absence |
|  | SzPD |  | Binary presence/absence |
| Kotov et al., 2015 |  |  |  |
|  | Bipolar disorder | Mania | Symptom count  |
|  | GAD |  | Symptom counts |
|  | MDD |  | Symptom counts |
|  | OCD |  | Symptom counts |
|  | Panic disorder |  | Symptom counts |
|  | PTSD |  | Symptom counts |
|  | Social phobia |  | Symptom counts |
|  | Specific phobia |  | Symptom counts |
| Kotov et al., 2011 |  |  |  |
|  | AUD |  |  |
|  | SUD | Hard drug abuse/dependence | Binary presence/absence |
|  | MDD | Major depressive episode | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | Psychotic disorder | Two out of four symptoms: auditory hallucinations, bizarre delusions, flat affect, overall dysfunction | Binary presence/absence |
| Levinson-Aspen et al., 2019 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Binary presence/absence |
|  | ASPD | Conduct disorder and ASPD combined | Binary presence/absence |
|  | Bipolar disorder | Mania | Binary presence/absence |
|  | SUD | Substance abuse/dependence | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | Psychotic disorder | Schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, atypical psychosis  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Marek et al., 2020 (bariatric) |  |  |  |
|  | SUD |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
| Marek et al., 2020 (pain) |  |  |  |
|  | SUD |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
| McDonald et al., 2019 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | Bipolar disorder\* | Bipolar I or II | Binary presence/absence |
|  | SUD | Substance abuse/dependence | Binary presence/absence |
|  | GAD\* |  | Binary presence/absence |
|  | MDD\* |  | Binary presence/absence |
|  | Psychotic disorder\* |  | Binary presence/absence |
|  | PTSD\* |  | Binary presence/absence |
| Miller et al., 2008 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | SUD | Substance abuse/dependence | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder | Panic disorder w/ or w/o agoraphobia | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
| Oltmanns et al., 2018 |  |  |  |
|  | ASPD |  | Binary presence/absence |
|  | AvPD |  | Binary presence/absence |
|  | BPD |  | Binary presence/absence |
|  | DPD |  | Binary presence/absence |
|  | HPD |  | Binary presence/absence |
|  | NPD |  | Binary presence/absence |
|  | OCPD |  | Binary presence/absence |
|  | PPD |  | Binary presence/absence |
|  | StyPD |  | Binary presence/absence |
|  | SzPD |  | Binary presence/absence |
| Roemer et al., 2018 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Symptom counts |
|  | Eating disorder | Anorexia or bulimia | Symptom counts |
|  | ASPD |  | Symptom counts |
|  | Bipolar disorder | Manic or hypomanic episodes | Symptom counts |
|  | SUD | Substance abuse/dependence | Symptom counts |
|  | MDD | Major depressive episode | Symptom counts |
|  | OCD |  | Symptom counts |
|  | Panic disorder |  | Symptom counts |
|  | Psychotic disorder | Psychotic disorders, mood disorder w/ psychotic features | Symptom counts |
|  | PTSD |  | Symptom counts |
|  | Social phobia |  |  |
| Roysamb et al., 2011 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Binary presence/absence |
|  | Eating disorder |  | Binary presence/absence |
|  | ASPD |  | Symptom counts |
|  | AvPD |  | Symptom counts |
|  | BPD |  | Symptom counts |
|  | DPD |  | Symptom counts |
|  | SUD | Hard drug abuse/dependence | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | HPD |  | Symptom counts |
|  | MDD |  | Binary presence/absence |
|  | NPD |  | Symptom counts |
|  | OCPD |  | Symptom counts |
|  | Panic disorder |  | Binary presence/absence |
|  | PPD |  | Symptom counts |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
|  | StyPD |  | Symptom counts |
|  | SzPD |  | Symptom counts |
| Russotti et al., 2018 |  |  |  |
|  | GAD |  | Symptom counts |
|  | MDD |  | Symptom counts |
| Slade & Watson, 2006 |  |  |  |
|  | AUD | Alcohol dependence | Binary presence/absence |
|  | SUD | Substance dependence  | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | OCD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
| Starr et al., 2014 (mothers) |  |  |  |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder | Panic disorder w/ or w/o agoraphobia | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Vollebergh et al., 2001 |  |  |  |
|  | AUD | Alcohol dependence | Binary presence/absence |
|  | SUD | Substance dependence  | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | Social phobia |  | Binary presence/absence |
|  | Specific phobia |  | Binary presence/absence |
| Wolf et al., 2010 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Binary presence/absence |
|  | ASPD |  | Binary presence/absence |
|  | SUD | Substance abuse/dependence | Binary presence/absence |
|  | Dysthmia |  | Binary presence/absence |
|  | GAD |  | Binary presence/absence |
|  | MDD |  | Binary presence/absence |
|  | Panic disorder |  | Binary presence/absence |
|  | PTSD |  | Binary presence/absence |
| Wright & Simms, 2015 |  |  |  |
|  | AUD | Alcohol abuse/dependence | Symptom counts |
|  | ASPD |  | Symptom counts |
|  | AvPD |  | Symptom counts |
|  | BPD |  | Symptom counts |
|  | DPD |  | Symptom counts |
|  | SUD | Substance abuse/dependence | Symptom counts |
|  | Dysthmia |  | Symptom counts |
|  | GAD |  | Symptom counts |
|  | HPD |  | Symptom counts |
|  | MDD |  | Symptom counts |
|  | NPD |  | Symptom counts |
|  | OCD |  | Symptom counts |
|  | OCPD |  | Symptom counts |
|  | Panic disorder |  | Symptom counts |
|  | PPD |  | Symptom counts |
|  | Psychotic disorder | Sum of delusions, hallucinations, negative symptoms | Symptom counts |
|  | PTSD |  | Symptom counts |
|  | Social phobia |  | Symptom counts |
|  | StyPD |  | Symptom counts |
|  | SzPD |  | Symptom counts |
| Wright et al., 2016 |  |  |  |
|  | AUD\* | Alcohol abuse/dependence | Binary presence/absence |
|  | Eating disorder\* | Anorexia or bulimia | Binary presence/absence |
|  | ASPD |  | Symptom counts |
|  | AvPD |  | Binary presence/absence |
|  | Bipolar\* | Bipolar I or II | Binary presence/absence |
|  | BPD |  | Symptom counts |
|  | DPD |  | Binary presence/absence |
|  | SUD\* | Substance abuse/dependence | Binary presence/absence |
|  | Dysthmia\* |  | Binary presence/absence |
|  | GAD\* |  | Binary presence/absence |
|  | HPD |  | Symptom counts |
|  | MDD\* |  | Binary presence/absence |
|  | NPD |  | Symptom counts |
|  | OCD\* |  | Binary presence/absence |
|  | OCPD |  | Symptom counts |
|  | Panic disorder\* |  | Binary presence/absence |
|  | PPD |  | Symptom counts |
|  | PTSD\* |  | Binary presence/absence |
|  | Social phobia\* |  | Binary presence/absence |
|  | StyPD |  | Symptom counts |
|  | SzPD |  | Symptom counts |

 \*not included in original article but provided by authors

Table 2. Sample size, tau2, and Cochran’s Q for each correlation

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **n** | **Tau2** | **Q** |
| Arx\_Alc | 9484 | .012 | 94.700 |
| Asp\_Alc | 72005 | .009 | 506.318 |
| Avp\_Alc | 39633 | .006 | 57.460 |
| Bip\_Alc | 55133 | .008 | 263.414 |
| Bpd\_Alc | 8307 | .007 | 47.463 |
| Dpd\_Alc | 7880 | .003 | 18.191 |
| Drg\_Alc | 97640 | .011 | 938.354 |
| Dys\_Alc | 77993 | .007 | 411.478 |
| Gad\_Alc | 86809 | .008 | 542.616 |
| Hpd\_Alc | 7880 | .006 | 39.583 |
| Mdd\_Alc | 89030 | .007 | 55.374 |
| Npd\_Alc | 7880 | .008 | 48.892 |
| Ocd\_Alc | 26040 | .025 | 522.341 |
| Ocp\_Alc | 8456 | .011 | 71.582 |
| Pnc\_Alc | 85278 | .015 | 1029.528 |
| Ppd\_Alc | 42533 | .002 | 36.063 |
| Psy\_Alc | 14294 | .018 | 179.192 |
| Pts\_Alc | 77906 | .016 | 966.851 |
| Scl\_Alc | 73542 | .008 | 454.160 |
| Sph\_Alc | 62962 | .010 | 442.345 |
| Stp\_Alc | 42533 | .005 | 8.575 |
| Szp\_Alc | 42533 | .013 | 19.366 |
| Asp\_Arx | 8361 | .019 | 121.139 |
| Avp\_Arx | 3527 | .000 | .058 |
| Bip\_Arx | 6114 | .005 | 24.452 |
| Bpd\_Arx | 6427 | .011 | 45.014 |
| Dpd\_Arx | 6427 | .002 | 1.983 |
| Drg\_Arx | 24676 | .029 | 41.794 |
| Dys\_Arx | 19842 | .020 | 148.864 |
| Gad\_Arx | 24100 | .016 | 219.935 |
| Hpd\_Arx | 6427 | .013 | 51.606 |
| Mdd\_Arx | 24100 | .020 | 265.392 |
| Npd\_Arx | 6427 | .015 | 57.441 |
| Ocd\_Arx | 5298 | .009 | 3.624 |
| Ocp\_Arx | 7003 | .005 | 27.570 |
| Pnc\_Arx | 24407 | .009 | 129.981 |
| Ppd\_Arx | 6427 | .002 | 8.518 |
| Psy\_Arx | 4258 | .009 | 18.117 |
| Pts\_Arx | 24100 | .006 | 87.154 |
| Scl\_Arx | 21200 | .027 | 252.994 |
| Sph\_Arx | 6817 | .012 | 56.935 |
| Stp\_Arx | 6427 | .006 | 23.667 |
| Szp\_Arx | 6427 | .001 | 3.977 |
| Avp\_Asp | 41263 | .035 | 418.423 |
| Bip\_Asp | 48082 | .023 | 499.011 |
| Bpd\_Asp | 9937 | .013 | 104.976 |
| Dpd\_Asp | 9510 | .002 | 22.424 |
| Drg\_Asp | 72005 | .007 | 384.831 |
| Dys\_Asp | 53827 | .012 | 365.788 |
| Gad\_Asp | 61643 | .011 | 455.302 |
| Hpd\_Asp | 9510 | .022 | 167.043 |
| Mdd\_Asp | 63395 | .015 | 661.660 |
| Npd\_Asp | 9510 | .012 | 92.198 |
| Ocd\_Asp | 8695 | .011 | 86.199 |
| Ocp\_Asp | 10086 | .009 | 8.322 |
| Pnc\_Asp | 60336 | .010 | 41.645 |
| Ppd\_Asp | 44163 | .018 | 304.479 |
| Psy\_Asp | 12825 | .015 | 12.954 |
| Pts\_Asp | 60816 | .011 | 455.849 |
| Scl\_Asp | 49376 | .005 | 117.909 |
| Sph\_Asp | 49130 | .011 | 251.272 |
| Stp\_Asp | 44163 | .012 | 206.770 |
| Szp\_Asp | 44163 | .037 | 61.610 |
| Bip\_Avp | 35386 | .101 | 146.457 |
| Bpd\_Avp | 6610 | .011 | 58.900 |
| Dpd\_Avp | 6610 | .006 | 34.277 |
| Drg\_Avp | 39633 | .027 | 249.919 |
| Dys\_Avp | 39633 | .009 | 82.668 |
| Gad\_Avp | 39633 | .026 | 242.082 |
| Hpd\_Avp | 6610 | .009 | 46.533 |
| Mdd\_Avp | 39633 | .047 | 426.816 |
| Npd\_Avp | 6610 | .022 | 107.825 |
| Ocd\_Avp | 2186 | .012 | 19.737 |
| Ocp\_Avp | 6610 | .005 | 26.609 |
| Pnc\_Avp | 39633 | .016 | 147.432 |
| Ppd\_Avp | 41263 | .074 | 886.098 |
| Psy\_Avp | 628 | NA | NA |
| Pts\_Avp | 39633 | .010 | 98.008 |
| Scl\_Avp | 39633 | .028 | 262.940 |
| Sph\_Avp | 38272 | .042 | 279.235 |
| Stp\_Avp | 41263 | .013 | 157.288 |
| Szp\_Avp | 41263 | .034 | 409.738 |
| Bpd\_Bip | 3633 | .000 | .021 |
| Dpd\_Bip | 3633 | .012 | 15.528 |
| Drg\_Bip | 70325 | .014 | 675.823 |
| Dys\_Bip | 64088 | .068 | 2763.568 |
| Gad\_Bip | 70998 | .028 | 1398.480 |
| Hpd\_Bip | 3633 | .003 | 3.930 |
| Mdd\_Bip | 70998 | .099 | 4918.057 |
| Npd\_Bip | 3633 | .002 | 3.465 |
| Ocd\_Bip | 12398 | .007 | 77.538 |
| Ocp\_Bip | 3633 | .006 | 8.557 |
| Pnc\_Bip | 69825 | .038 | 182.774 |
| Ppd\_Bip | 38286 | .066 | 442.943 |
| Psy\_Bip | 13197 | .041 | 333.950 |
| Pts\_Bip | 69998 | .006 | 314.596 |
| Scl\_Bip | 66618 | .019 | 845.840 |
| Sph\_Bip | 67734 | .012 | 546.819 |
| Stp\_Bip | 38286 | .037 | 249.367 |
| Szp\_Bip | 38286 | .143 | 956.287 |
| Dpd\_Bpd | 9510 | .001 | 14.671 |
| Drg\_Bpd | 8307 | .018 | 112.391 |
| Dys\_Bpd | 4980 | .090 | 279.490 |
| Gad\_Bpd | 7880 | .018 | 106.258 |
| Hpd\_Bpd | 9510 | .010 | 79.811 |
| Mdd\_Bpd | 8307 | .033 | 207.139 |
| Npd\_Bpd | 9510 | .011 | 88.242 |
| Ocd\_Bpd | 5513 | .020 | 78.779 |
| Ocp\_Bpd | 9510 | .015 | 113.938 |
| Pnc\_Bpd | 8307 | .011 | 74.624 |
| Ppd\_Bpd | 9510 | .022 | 166.748 |
| Psy\_Bpd | 3528 | .000 | .052 |
| Pts\_Bpd | 8307 | .010 | 66.940 |
| Scl\_Bpd | 5407 | .038 | 14.855 |
| Sph\_Bpd | 6519 | .021 | 83.155 |
| Stp\_Bpd | 9510 | .009 | 72.017 |
| Szp\_Bpd | 9510 | .008 | 64.927 |
| Drg\_Dpd | 7880 | .004 | 26.766 |
| Dys\_Dpd | 4980 | .016 | 52.956 |
| Gad\_Dpd | 7880 | .035 | 199.052 |
| Hpd\_Dpd | 9510 | .010 | 81.809 |
| Mdd\_Dpd | 7880 | .015 | 87.365 |
| Npd\_Dpd | 9510 | .020 | 154.194 |
| Ocd\_Dpd | 5086 | .018 | 58.158 |
| Ocp\_Dpd | 9510 | .005 | 44.555 |
| Pnc\_Dpd | 7880 | .006 | 35.023 |
| Ppd\_Dpd | 9510 | .013 | 101.913 |
| Psy\_Dpd | 3528 | .004 | 5.155 |
| Pts\_Dpd | 7880 | .010 | 6.218 |
| Scl\_Dpd | 4980 | .011 | 36.572 |
| Sph\_Dpd | 6519 | .004 | 16.382 |
| Stp\_Dpd | 9510 | .016 | 125.478 |
| Szp\_Dpd | 9510 | .006 | 51.012 |
| Dys\_Drg | 93492 | .011 | 81.755 |
| Gad\_Drg | 105113 | .010 | 863.671 |
| Hpd\_Drg | 7880 | .007 | 44.145 |
| Mdd\_Drg | 107334 | .010 | 931.020 |
| Npd\_Drg | 7880 | .009 | 52.147 |
| Ocd\_Drg | 25733 | .028 | 562.011 |
| Ocp\_Drg | 8456 | .027 | 174.200 |
| Pnc\_Drg | 101964 | .012 | 1077.028 |
| Ppd\_Drg | 42533 | .008 | 12.761 |
| Psy\_Drg | 14294 | .022 | 218.659 |
| Pts\_Drg | 96210 | .009 | 723.444 |
| Scl\_Drg | 89041 | .007 | 535.018 |
| Sph\_Drg | 78154 | .011 | 629.490 |
| Stp\_Drg | 42533 | .017 | 236.974 |
| Szp\_Drg | 42533 | .053 | 746.975 |
| Gad\_Dys | 93492 | .022 | 1633.748 |
| Hpd\_Dys | 4980 | .018 | 59.085 |
| Mdd\_Dys | 94197 | .041 | 3091.982 |
| Npd\_Dys | 4980 | .024 | 75.960 |
| Ocd\_Dys | 17755 | .118 | 1171.236 |
| Ocp\_Dys | 4980 | .014 | 47.437 |
| Pnc\_Dys | 94197 | .026 | 1996.168 |
| Ppd\_Dys | 39633 | .025 | 234.035 |
| Psy\_Dys | 8087 | .023 | 27.993 |
| Pts\_Dys | 87121 | .018 | 124.762 |
| Scl\_Dys | 87462 | .013 | 919.449 |
| Sph\_Dys | 75460 | .017 | 949.484 |
| Stp\_Dys | 39633 | .008 | 79.427 |
| Szp\_Dys | 39633 | .020 | 189.809 |
| Hpd\_Gad | 7880 | .011 | 66.579 |
| Mdd\_Gad | 107123 | .020 | 1828.044 |
| Npd\_Gad | 7880 | .010 | 57.642 |
| Ocd\_Gad | 24185 | .044 | 797.955 |
| Ocp\_Gad | 7880 | .003 | 19.310 |
| Pnc\_Gad | 101369 | .028 | 2407.766 |
| Ppd\_Gad | 42533 | .030 | 421.257 |
| Psy\_Gad | 13825 | .064 | 579.786 |
| Pts\_Gad | 95131 | .029 | 2272.160 |
| Scl\_Gad | 89287 | .017 | 1223.039 |
| Sph\_Gad | 78827 | .021 | 1255.510 |
| Stp\_Gad | 42533 | .069 | 956.529 |
| Szp\_Gad | 42533 | .043 | 602.502 |
| Mdd\_Hpd | 7880 | .011 | 65.424 |
| Npd\_Hpd | 9510 | .014 | 105.249 |
| Ocd\_Hpd | 5086 | .028 | 91.189 |
| Ocp\_Hpd | 9510 | .023 | 173.363 |
| Pnc\_Hpd | 7880 | .004 | 25.658 |
| Ppd\_Hpd | 9510 | .016 | 119.829 |
| Psy\_Hpd | 3528 | .001 | 2.526 |
| Pts\_Hpd | 7880 | .018 | 106.538 |
| Scl\_Hpd | 4980 | .020 | 64.098 |
| Sph\_Hpd | 6519 | .003 | 15.257 |
| Stp\_Hpd | 9510 | .017 | 126.462 |
| Szp\_Hpd | 9510 | .027 | 2.072 |
| Npd\_Mdd | 7880 | .020 | 116.962 |
| Ocd\_Mdd | 26406 | .046 | 957.414 |
| Ocp\_Mdd | 7880 | .012 | 71.734 |
| Pnc\_Mdd | 104295 | .023 | 2056.955 |
| Ppd\_Mdd | 42533 | .033 | 465.947 |
| Psy\_Mdd | 14294 | .084 | 803.829 |
| Pts\_Mdd | 97588 | .019 | 1527.077 |
| Scl\_Mdd | 90419 | .012 | 88.414 |
| Sph\_Mdd | 79532 | .020 | 1174.580 |
| Stp\_Mdd | 42533 | .065 | 905.746 |
| Szp\_Mdd | 42533 | .039 | 547.173 |
| Ocd\_Npd | 5086 | .017 | 55.187 |
| Ocp\_Npd | 9510 | .009 | 74.710 |
| Pnc\_Npd | 7880 | .009 | 56.270 |
| Ppd\_Npd | 9510 | .016 | 123.429 |
| Psy\_Npd | 3528 | .005 | 6.238 |
| Pts\_Npd | 7880 | .022 | 129.909 |
| Scl\_Npd | 4980 | .022 | 71.725 |
| Sph\_Npd | 6519 | .000 | 1.029 |
| Stp\_Npd | 9510 | .012 | 95.766 |
| Szp\_Npd | 9510 | .017 | 129.746 |
| Ocp\_Ocd | 5086 | .009 | 31.371 |
| Pnc\_Ocd | 25713 | .097 | 1939.923 |
| Ppd\_Ocd | 5086 | .006 | 21.751 |
| Psy\_Ocd | 6355 | .009 | 42.789 |
| Pts\_Ocd | 24937 | .060 | 1139.296 |
| Scl\_Ocd | 20712 | .099 | 1378.441 |
| Sph\_Ocd | 10132 | .021 | 15.763 |
| Stp\_Ocd | 5086 | .000 | 4.069 |
| Szp\_Ocd | 5086 | .012 | 38.890 |
| Pnc\_Ocp | 7880 | .007 | 43.012 |
| Ppd\_Ocp | 9510 | .006 | 46.618 |
| Psy\_Ocp | 3528 | .000 | .052 |
| Pts\_Ocp | 7880 | .022 | 129.291 |
| Scl\_Ocp | 4980 | .002 | 9.792 |
| Sph\_Ocp | 6519 | .000 | 2.148 |
| Stp\_Ocp | 9510 | .022 | 163.615 |
| Szp\_Ocp | 9510 | .003 | 3.514 |
| Ppd\_Pnc | 42533 | .021 | 292.221 |
| Psy\_Pnc | 12814 | .060 | 457.511 |
| Pts\_Pnc | 95797 | .011 | 9.861 |
| Scl\_Pnc | 90419 | .061 | 4369.670 |
| Sph\_Pnc | 79839 | .035 | 2103.142 |
| Stp\_Pnc | 42533 | .025 | 348.159 |
| Szp\_Pnc | 42533 | .039 | 542.795 |
| Psy\_Ppd | 3528 | .000 | .825 |
| Pts\_Ppd | 42533 | .006 | 9.660 |
| Scl\_Ppd | 39633 | .039 | 356.003 |
| Sph\_Ppd | 41172 | .009 | 101.842 |
| Stp\_Ppd | 44163 | .002 | 39.178 |
| Szp\_Ppd | 44163 | .059 | 973.680 |
| Pts\_Psy | 12825 | .013 | 104.887 |
| Scl\_Psy | 9445 | .022 | 73.759 |
| Sph\_Psy | 10359 | .016 | 67.637 |
| Stp\_Psy | 3528 | .004 | 5.155 |
| Szp\_Psy | 3528 | .019 | 2.620 |
| Scl\_Pts | 83343 | .025 | 1606.750 |
| Sph\_Pts | 72456 | .011 | 555.101 |
| Stp\_Pts | 42533 | .011 | 164.494 |
| Szp\_Pts | 42533 | .024 | 334.364 |
| Sph\_Scl | 76632 | .042 | 2353.869 |
| Stp\_Scl | 39633 | .030 | 279.955 |
| Szp\_Scl | 39633 | .036 | 333.878 |
| Stp\_Sph | 41172 | .005 | 57.561 |
| Szp\_Sph | 41172 | .034 | 392.292 |
| Szp\_Stp | 44163 | .004 | 7.230 |

Alc = alcohol use, Arx = anorexia/bulimia, Asp = antisocial PD, Avp = avoidant PD, Bip = bipolar, Bpd = borderline PD, Dpd = dependent PD, Drg = drug use, Dys = dysthymia, Gad = generalized anxiety disorder, Hpd = histrionic PD, Mdd = major depressive disorder, Npd = narcissistic PD, Ocd = obsessive compulsive PD, Ocp = obsessive-compulsive PD, Pnc = panic disorder, Ppd = paranoid PD, Psy = psychosis, Pts = post-traumatic stress disorder, Scl = social phobia, Sph = specific phobia, Stp = schizotypal PD, Szp = schizoid PD

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| Table 3. Factor loadings for model using unweighted least squares estimator |
|  | *Int* | *Dis* | *Ant* | *Tht* | *Det* |
| ALC | .01 | .63 | .10 | -.06 | .02 |
| ARX | .41 | -.08 | .16 | -.06 | -.17 |
| ASP | -.03 | .63 | .27 | .04 | .03 |
| AVP | .30 | -.02 | .03 | .18 | .40 |
| BPD | .33 | .20 | .41 | .10 | -.07 |
| DRG | .11 | .75 | -.05 | -.01 | -.03 |
| DYS | .51 | .02 | -.08 | .20 | .13 |
| GAD | .59 | .02 | .04 | -.15 | .26 |
| HPD | .03 | -.02 | .74 | -.01 | -.40 |
| MDD | .71 | .04 | .01 | -.11 | .07 |
| NPD | -.22 | .05 | .80 | .03 | .04 |
| OCD | .36 | -.01 | .11 | .03 | .14 |
| OCP | .02 | -.12 | .43 | -.05 | .32 |
| PNC | .61 | -.02 | -.01 | .03 | -.01 |
| PPD | .08 | .03 | .36 | .35 | .19 |
| PSY | .14 | .00 | .02 | .45 | .02 |
| PTS | .54 | .06 | -.01 | .18 | -.10 |
| SCL | .47 | .04 | -.03 | .07 | .28 |
| SPH | .41 | -.15 | .04 | .18 | .00 |
| STP | -.02 | .04 | .07 | .87 | -.01 |
| SZP | .01 | -.04 | .00 | .48 | .33 |
| *Note.* AUD = Alcohol use disorder, AN/BN = anorexia/bulimia, AsPD = antisocial personality disorder, AvPD = avoidant personality disorder, BPD = borderline personality disorder, Dis = Disinhibition, Det = Detachment, DUD = drug use disorder, Dys. = dysthymia, GAD = generalized anxiety disorder, HPD = histrionic personality disorder, MDD = major depressive disorder, NPD = narcissistic personality disorder, OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder, PPD = paranoid personality disorder, Psy = psychotic disorders, PTSD = post-traumatic stress disorder, Soc. Ph. = social phobia/social anxiety disorder, Spec. Ph. = specific phobia, StPD = schizotypal personality disorder, SzPD = schizoid personality disorder, Tht = Thought Disorder.  |

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| Table 4. Factor loadings for models with dependent personality disorder |
| **Five Factor Model** |
| ALC | .64 | .00 | .01 | .08 | -.04 |
| ARX | -.06 | -.04 | .38 | .23 | -.13 |
| ASP | .62 | .01 | -.02 | .24 | .07 |
| AVP | .02 | .88 | -.01 | .04 | .06 |
| BPD | .20 | .06 | .30 | .46 | .08 |
| DPD | -.05 | .45 | .07 | .40 | -.07 |
| DRG | .78 | -.02 | .09 | -.05 | -.02 |
| DYS | .02 | .14 | .47 | -.06 | .18 |
| GAD | .01 | .07 | .63 | -.05 | -.03 |
| HPD | .00 | -.12 | .00 | .80 | -.05 |
| MDD | .04 | .06 | .71 | .02 | -.11 |
| NPD | .04 | -.01 | -.13 | .65 | .18 |
| OCD | -.03 | .01 | .40 | .06 | .11 |
| OCP | -.13 | .09 | .11 | .24 | .16 |
| PNC | .00 | .05 | .56 | .03 | .01 |
| PPD | .03 | .07 | .12 | .25 | .48 |
| PSY | .01 | -.06 | .15 | .00 | .51 |
| PTS | .07 | -.10 | .55 | .03 | .18 |
| SCL | .06 | .37 | .35 | -.03 | .04 |
| SPH | -.14 | -.08 | .43 | .02 | .23 |
| STP | .05 | .02 | -.02 | .11 | .77 |
| SZP | -.05 | .20 | .00 | -.09 | .57 |
| **Six Factor Model** |
| ALC | -.01 | .65 | .01 | -.03 | .05 | .01 |
| ARX | .39 | -.06 | .27 | -.10 | .01 | -.01 |
| ASP | -.01 | .65 | .06 | .01 | .22 | .02 |
| AVP | .10 | .03 | .00 | .06 | .04 | .72 |
| BPD | .31 | .22 | .37 | .07 | .22 | .12 |
| DPD | -.01 | -.03 | .58 | -.02 | -.02 | .67 |
| DRG | .09 | .78 | -.09 | .01 | -.04 | -.06 |
| DYS | .47 | .02 | -.03 | .15 | -.04 | .17 |
| GAD | .67 | .00 | -.16 | -.12 | .12 | .03 |
| HPD | .03 | .01 | .57 | -.02 | .44 | -.11 |
| MDD | .72 | .04 | .01 | -.12 | .02 | .03 |
| NPD | -.09 | .03 | .25 | .04 | .72 | -.03 |
| OCD | .38 | -.02 | .05 | .06 | .05 | .08 |
| OCP | .16 | -.14 | -.05 | -.02 | .46 | .08 |
| PNC | .57 | -.01 | .09 | .05 | -.08 | .05 |
| PPD | .19 | .02 | -.03 | .35 | .39 | .04 |
| PSY | .17 | .00 | -.03 | .48 | .01 | -.05 |
| PTS | .57 | .06 | .09 | .22 | -.09 | -.12 |
| SCL | .36 | .08 | -.04 | .03 | -.02 | .37 |
| SPH | .45 | -.15 | -.01 | .19 | .05 | -.09 |
| STP | -.03 | .04 | .07 | .88 | .01 | .05 |
| SZP | .03 | -.05 | -.18 | .45 | .09 | .22 |
| *Note.* AUD = Alcohol use disorder, AN/BN = anorexia/bulimia, AsPD = antisocial personality disorder, AvPD = avoidant personality disorder, BPD = borderline personality disorder, DPD = dependent personality disorder, DUD = drug use disorder, Dys. = dysthymia, GAD = generalized anxiety disorder, HPD = histrionic personality disorder, MDD = major depressive disorder, NPD = narcissistic personality disorder, OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder, PPD = paranoid personality disorder, PTSD = post-traumatic stress disorder, Soc. Ph. = social phobia/social anxiety disorder, Spec. Ph. = specific phobia, StPD = schizotypal personality disorder, SzPD = schizoid personality disorder.  |

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| Table 4. Standard errors for factor loadings of final models |
|  | **1 Factor** | **2 Factor** | **3 Factor** | **4 Factor** | **5 Factor** |
|  | *G* | *Int* | *Ext* | *Ext* | *Int* | *Psy* | *Int* | *Dis* | *Ant* | *Psy* | *Int* | *Dis* | *Ant* | *Tht* | *Det* |
| ALC | .009 | .005 | .009 | .013 | .004 | .013 | .008 | .009 | .010 | .009 | .008 | .010 | .012 | .009 | .009 |
| ARX | .009 | .012 | .012 | .014 | .013 | .013 | .012 | .010 | .012 | .013 | .013 | .011 | .013 | .013 | .016 |
| ASP | .008 | .012 | .010 | .012 | .017 | .014 | .006 | .010 | .012 | .008 | .006 | .010 | .013 | .006 | .009 |
| AVP | .007 | .009 | .011 | .006 | .012 | .012 | .012 | .009 | .008 | .012 | .016 | .008 | .009 | .015 | .015 |
| BPD | .006 | .013 | .010 | .010 | .014 | .008 | .010 | .010 | .009 | .006 | .011 | .010 | .010 | .009 | .010 |
| DRG | .009 | .013 | .011 | .017 | .017 | .012 | .009 | .009 | .006 | .006 | .012 | .009 | .005 | .007 | .008 |
| DYS | .007 | .008 | .007 | .009 | .010 | .013 | .011 | .009 | .009 | .013 | .013 | .009 | .010 | .013 | .015 |
| GAD | .008 | .009 | .012 | .012 | .010 | .012 | .009 | .009 | .009 | .009 | .014 | .008 | .008 | .013 | .016 |
| HPD | .009 | .015 | .010 | .012 | .015 | .005 | .003 | .005 | .010 | .014 | .004 | .004 | .011 | .004 | .015 |
| MDD | .007 | .009 | .012 | .011 | .011 | .013 | .009 | .008 | .007 | .012 | .011 | .008 | .008 | .013 | .014 |
| NPD | .009 | .014 | .010 | .015 | .015 | .015 | .011 | .008 | .009 | .008 | .013 | .007 | .011 | .007 | .005 |
| OCD | .008 | .011 | .012 | .013 | .012 | .013 | .012 | .011 | .011 | .013 | .014 | .011 | .012 | .011 | .015 |
| OCP | .009 | .012 | .012 | .015 | .014 | .013 | .013 | .012 | .012 | .014 | .007 | .012 | .012 | .009 | .015 |
| PNC | .008 | .010 | .012 | .012 | .011 | .008 | .010 | .010 | .010 | .009 | .011 | .009 | .010 | .010 | .011 |
| PPD | .006 | .012 | .011 | .018 | .014 | .013 | .012 | .006 | .012 | .012 | .013 | .008 | .011 | .013 | .014 |
| PSY | .008 | .011 | .012 | .017 | .014 | .013 | .012 | .010 | .013 | .012 | .013 | .010 | .010 | .013 | .013 |
| PTS | .007 | .010 | .012 | .012 | .012 | .012 | .011 | .011 | .011 | .012 | .012 | .010 | .008 | .013 | .014 |
| SCL | .007 | .009 | .012 | .009 | .010 | .013 | .011 | .009 | .010 | .013 | .014 | .009 | .009 | .009 | .015 |
| SPH | .009 | .010 | .009 | .012 | .013 | .013 | .012 | .011 | .011 | .014 | .013 | .011 | .011 | .014 | .011 |
| STP | .007 | .012 | .012 | .020 | .002 | .013 | .005 | .009 | .014 | .010 | .006 | .006 | .011 | .013 | .005 |
| SZP | .009 | .011 | .012 | .021 | .015 | .012 | .011 | .010 | .008 | .010 | .009 | .009 | .007 | .014 | .014 |
| *Note.* AUD = Alcohol use disorder, AN/BN = anorexia/bulimia, AsPD = antisocial personality disorder, AvPD = avoidant personality disorder, BPD = borderline personality disorder, Dis = Disinhibition, Det = Detachment, DUD = drug use disorder, Dys. = dysthymia, Ext = Externalizing, G = general psychopathology, GAD = generalized anxiety disorder, HPD = histrionic personality disorder, Int = Internalizing, MDD = major depressive disorder, NPD = narcissistic personality disorder, OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder, PPD = paranoid personality disorder, Psy = psychotic disorders, PTSD = post-traumatic stress disorder, Soc. Ph. = social phobia/social anxiety disorder, Spec. Ph. = specific phobia, StPD = schizotypal personality disorder, SzPD = schizoid personality disorder, Tht = Thought Disorder.  |

Table 5. Model fit indices for all levels of meta-analytic hierarchical model

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| *Model* | **CFI** | **RMSEA** | **SRMR** |
| 1 Factor | .61 | .12 | .09 |
| 2 Factor | .73 | .07 | .10 |
| 3 Factor | .82 | .09 | .05 |
| 4 Factor | .89 | .07 | .04 |
| 5 Factor | .92 | .07 | .03 |
| *Note.* CFI = comparative fit index; RMSEA = root mean square error of approximation, SRMR = standardized root mean square residual |