**Online Supplementary Material**

**Do DSM-5 Section II Personality Disorders and Section III Personality Trait Domains Reflect the Same Genetic and Environmental Risk Factors?**

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**Table S1**. Model fit for the AE model, and the AE model **Page 3** for which the specific genetic effect for a given PD was set to 0 at wave 1 and wave 2.

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**Figure S1a**. The proportion of genetic and individual specific **Page 5** environmental variance for each DSM-PD that is shared with the PID-5-NBF factors, and unique to each PD at wave 1in the best-fitting models

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**Attrition analyses**

Detailed previous analyses have, shown that cooperation in the first interview was strongly predicted by female sex, monozygosity and higher educational status, but not by symptoms of psychiatric disorders or substance abuse (Tambs *et al.*, 2009). Participation in wave 2 was predicted by high education (p<0.001 adjusted for sex and age), female sex (p=0.003) and monozygosity (p=0.001). Non-participants in wave 2 had on average 0.82 more sub-threshold PD criteria than participants (p<0.001). Of the 10 PDs assessed at wave 1, criteria were significantly higher in non-participants in wave 2 only for ASPD (0.09 criteria difference, p<0.001) and narcissistic PD (0.09 p=0.002). Neither the total number of axis I disorders nor any specific disorder was significantly higher in the non-participation group (Reichborn-Kjennerud *et al.*, 2015).

**Table S1**. Model fit for the AE model, and the AE model with specific genetic effect for a given PD criteri counts set to 0.

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | **AIC for AE model** | **AIC for AE model with no specific A for PD** |
| **Wave 1\*** | | |
| Schitzotypal | -2554.885 | **-2555.339** |
| Schizoid | **-2618.04** | -2617.458 |
| Paranoid | -891.5554 | -891.7443 |
| Histrionic | -263.2433 | -261.0847 |
| Narcissitic | **-592.4801** | -590.4186 |
| Antisocial | **-2715.883** | -2715.403 |
| Borderline | -632.7333 | **-633.2535** |
| Avoidant | **-831.3306** | -827.9182 |
| Dependent | **-1025.229** | -1023.176 |
| Obsessive-Compulsve | **485.0138** | 487.6148 |
| **Wave 2\*\*** | | |
| Schitzotypal | -3187.798 | **-3189.114** |
| Paranoid | -2570.762 | **-2572.724** |
| Antisocial | -3471.62 | **-3473.62** |
| Borderline | -1749.344 | **-1751.344** |
| Avoidant | -2163.242 | **-2164.185** |
| Obsessive-Compulsve | **-67.90163** | -66.16574 |

\*PID-5-NBF domains measured 10 years after the DSM-IV PD criteria counts

\*\* PID-5-NBF domains and DSM-IV PD criteria counts measured concurrently

Lowest AIC indicated in bold.

**Table S2.** Genetic and environmental variance for DSM-PDs and proportion shared with PID-5 domains at wave 1 and 2 from the full AE model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Genetic Effects** | | | **Individual Environmental Effects** | | |
|  | **a2** | **% Shared**  **with PID-5** | **% Unique** | **e2** | **% Shared**  **with PID-5** | **% Unique** |
| **Wave 1\*** | | | | | | |
| Paranoid | 0,19 | 60,85 | 39,15 | 0,81 | 2,10 | 97,90 |
| Schizoid | 0,27 | 54,74 | 45,26 | 0,73 | 1,10 | 98,90 |
| Schitzotypal | 0,26 | 58,75 | 41,25 | 0,74 | 3,90 | 96,10 |
| Antisocial | 0,41 | 52,08 | 47,92 | 0,59 | 4,40 | 95,60 |
| Borderline | 0,36 | 67,13 | 32,87 | 0,64 | 3,88 | 96,12 |
| Histrionic | 0,33 | 42,25 | 57,75 | 0,67 | 2,98 | 97,02 |
| Narcissitic | 0,25 | 38,55 | 61,45 | 0,75 | 1,60 | 98,40 |
| Avoidant | 0,35 | 57,23 | 42,77 | 0,65 | 7,65 | 92,35 |
| Dependent | 0,30 | 54,64 | 45,36 | 0,70 | 3,72 | 96,28 |
| Obsessive-Compulsve | 0,27 | 27,72 | 72,28 | 0,73 | 4,77 | 95,23 |
| **Wave 2\*\*** | | | | | | |
| Paranoid | 0,18 | 91,85 | 8,15 | 0,82 | 9,69 | 90,31 |
| Schitzotypal | 0,31 | 75,08 | 24,92 | 0,69 | 6,34 | 93,66 |
| Antisocial | 0,38 | **100,00** | 0,00 | 0,62 | 3,25 | 96,75 |
| Borderline | 0,30 | **100,00** | 0,00 | 0,70 | 9,10 | 90,90 |
| Avoidant | 0,30 | 76,27 | 23,73 | 0,71 | 20,54 | 79,46 |
| Obsessive-Compulsve | 0,22 | 43,26 | 56,74 | 0,79 | 7,52 | 92,48 |

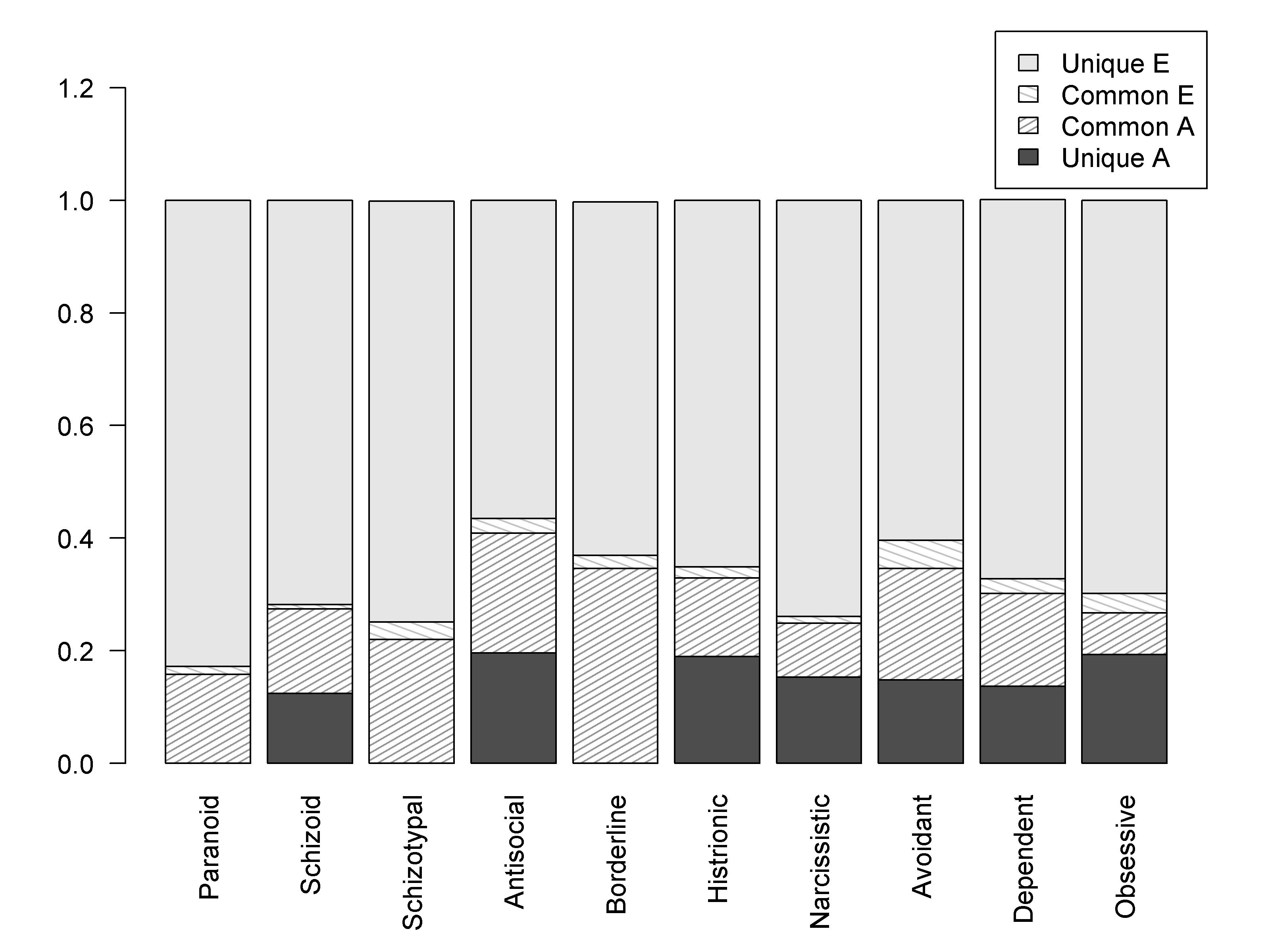
a2, Total genetic variance (heritability) for DSM PDs

e2, Total environmental variance for DSM PDs

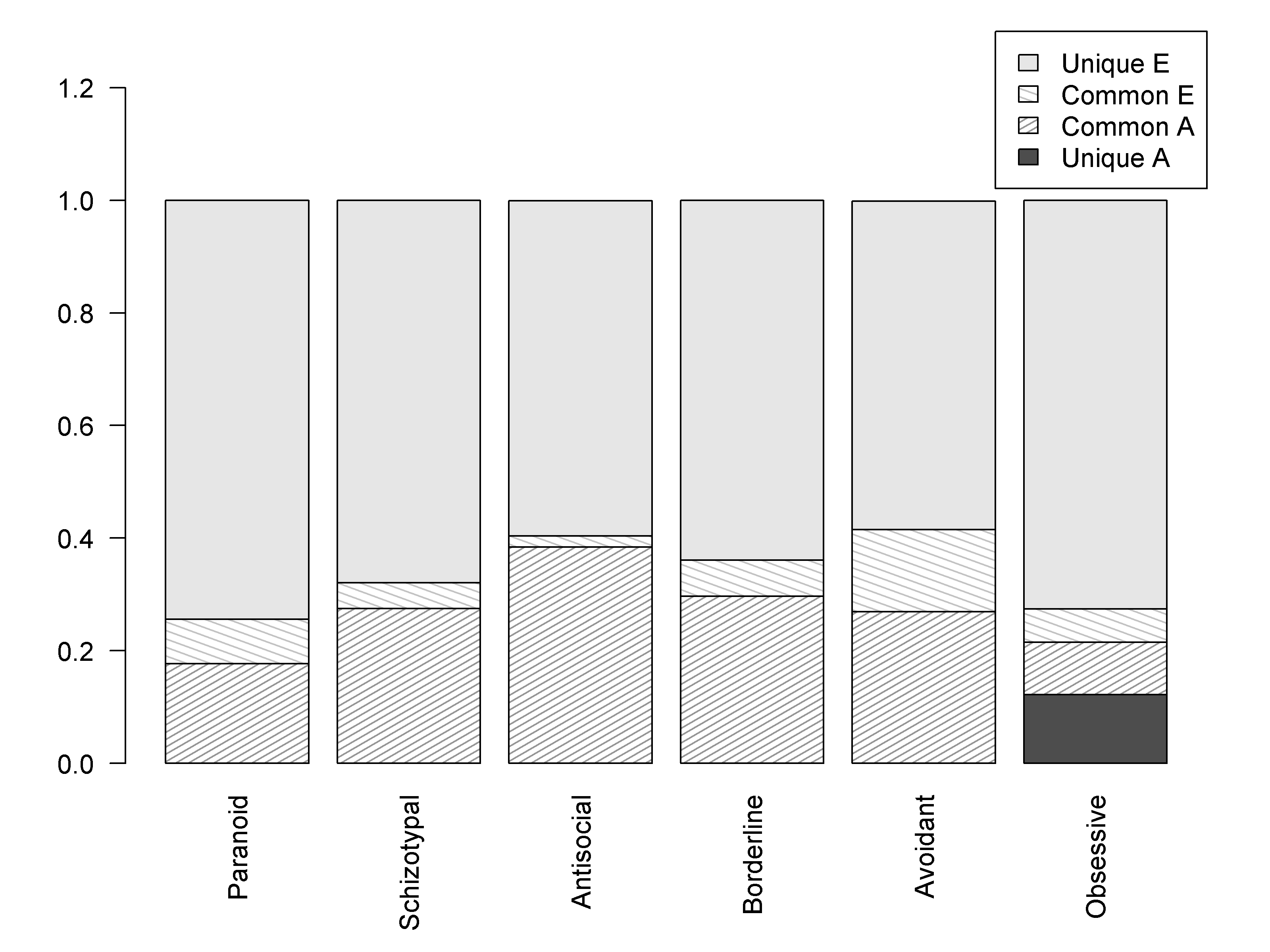
\*PID-5-NBF domains measured 10 years after the DSM-IV PD criteria counts

\*\* PID-5-NBF domains and DSM-IV PD criteria counts measured concurrently

**Figure S1a**. The proportion of genetic and individual specific environmental variance for each DSM-PD that is shared with the PID-5-NBF factors, and unique to each PD at wave 1in the best-fitting models



**Figure S1b**. The proportion of genetic and individual specific environmental variance for each DSM-PD that is shared with the PID-5-NBF factors, and unique to each PD at wave 2in the best-fitting model



**Table S3**. Environmental correlations between PID-5 and the DSM-IV PD criteria counts at wave 1 and wave 2 based on best-fitting model.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Negative  affectivity** | **Detachment** | **Antagonism** | **Disinhibition** | **Compulsivity** | **Psychotisism** |
| **Wave 1\*** |  |  |  |  |  |  |
| Paranoid | 0.09  ( 0.01 , 0.17 ) | 0.11  ( 0.02 , 0.2 ) | 0.06  ( -0.03 , 0.14 ) | 0.01  ( -0.08 , 0.1 ) | 0.04  ( -0.06 , 0.12 ) | 0.07  ( -0.02 , 0.15 ) |
| Schizotypal | 0.17  ( 0.06 , 0.27 ) | 0.17  ( 0.06 , 0.27 ) | 0.07  ( -0.04 , 0.17 ) | 0.07  ( -0.03 , 0.17 ) | 0.06  ( -0.04 , 0.16 ) | 0.08  ( -0.01 , 0.17 ) |
| Schizoid | 0.03  ( -0.07 , 0.13 ) | 0.06  ( -0.04 , 0.16 ) | -0.01  ( -0.11 , 0.09 ) | 0.04  ( -0.06 , 0.14 ) | 0.01  ( -0.09 , 0.11 ) | 0.08  ( -0.01 , 0.18 ) |
| Antisocial | 0.1  ( -0.01 , 0.21 ) | 0.08  ( -0.03 , 0.19 ) | 0.2  ( 0.09 , 0.3 ) | 0.05  ( -0.06 , 0.15 ) | 0.09  ( -0.02 , 0.19 ) | 0.11  ( 0.01 , 0.21 ) |
| Histrionic | 0.11  ( 0.02 , 0.19 ) | 0.01  ( -0.07 , 0.1 ) | 0.1  ( 0.02 , 0.19 ) | 0.09  ( 0 , 0.17 ) | 0.02  ( -0.06 , 0.11 ) | 0.13  ( 0.05 , 0.22 ) |
| Narcissistic | 0.03  ( -0.05 , 0.12 ) | 0.01  ( -0.07 , 0.1 ) | 0.06  ( -0.03 , 0.14 ) | 0.08  ( -0.01 , 0.16 ) | 0.06  ( -0.02 , 0.15 ) | 0.1  ( 0.02 , 0.18 ) |
| Borderline | 0.14  ( 0.05 , 0.22 ) | 0.11  ( 0.02 , 0.2 ) | 0.04  ( -0.05 , 0.13 ) | 0.11  ( 0.03 , 0.2 ) | 0.12  ( 0.04 , 0.21 ) | 0.16  ( 0.07 , 0.24 ) |
| Avoidant | 0.22  ( 0.13 , 0.3 ) | 0.22  ( 0.13 , 0.3 ) | 0  ( -0.09 , 0.09 ) | 0.03  ( -0.06 , 0.11 ) | 0.12  ( 0.03 , 0.2 ) | 0.15  ( 0.07 , 0.23 ) |
| Dependent | 0.15  ( 0.06 , 0.23 ) | 0.11  ( 0.02 , 0.2 ) | 0.06  ( -0.03 , 0.14 ) | 0.11  ( 0.02 , 0.19 ) | 0.1  ( 0.02 , 0.18 ) | 0.16  ( 0.08 , 0.25 ) |
| Obsessive-Compulsive  Compulsive | 0.12  ( 0.04 , 0.19 ) | 0.11  ( 0.03 , 0.19 ) | 0.09  ( 0.01 , 0.17 ) | 0.03  ( -0.05 , 0.11 ) | 0.2  ( 0.13 , 0.28 ) | 0.11  ( 0.02 , 0.19 ) |
| **Wave 2\*\*** |  |  |  |  |  |  |
| Paranoid | 0.22  ( 0.13 , 0.31 ) | 0.23  ( 0.13 , 0.32 ) | 0.19  ( 0.09 , 0.29 ) | 0.05  ( -0.05 , 0.15 ) | 0.1  ( 0 , 0.2 ) | 0.18  ( 0.08 , 0.27 ) |
| Schizotypal | 0.12  ( 0.01 , 0.23 ) | 0.19  ( 0.07 , 0.29 ) | 0.2  ( 0.09 , 0.31 ) | 0.06  ( -0.05 , 0.17 ) | 0.07  ( -0.04 , 0.18 ) | 0.09  ( -0.01 , 0.18 ) |
| Antisocial | -0.01  ( -0.13 , 0.11 ) | 0.02  ( -0.11 , 0.14 ) | 0.16  ( 0.04 , 0.28 ) | 0.06  ( -0.06 , 0.18 ) | 0  ( -0.12 , 0.12 ) | 0.04  ( -0.08 , 0.15 ) |
| Borderline | 0.24  ( 0.16 , 0.31 ) | 0.17  ( 0.08 , 0.26 ) | 0.1  ( 0.01 , 0.19 ) | 0.16  ( 0.07 , 0.25 ) | 0.05  ( -0.04 , 0.14 ) | 0.24  ( 0.16 , 0.33 ) |
| Avoidant | 0.34  ( 0.25 , 0.42 ) | 0.36  ( 0.27 , 0.45 ) | 0.04  ( -0.06 , 0.14 ) | 0.07  ( -0.02 , 0.17 ) | 0.27  ( 0.19 , 0.36 ) | 0.24  ( 0.15 , 0.33 ) |
| Obsessive-Compulsive | 0.17  ( 0.09 , 0.25 ) | 0.1  ( 0.01 , 0.18 ) | 0.13  ( 0.05 , 0.22 ) | 0.04  ( -0.04 , 0.13 ) | 0.24  ( 0.16 , 0.32 ) | 0.16  ( 0.08 , 0.25 ) |

95% confidence intervals are given in parentheses

\*PID-5-NBF domains measured 10 years after the DSM-IV PD criteria counts

\*\* PID-5-NBF domains and DSM-IV PD criteria counts measured concurrently

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**References**

**Reichborn-Kjennerud T, Czajkowski N, Ystrom E, Orstavik R, Aggen SH, Tambs K, Torgersen S, Neale MC, Roysamb E, Krueger RF, Knudsen GP, Kendler KS** (2015). A longitudinal twin study of borderline and antisocial personality disorder traits in early to middle adulthood. *Psychological Medicine* **45**, 3121-31.

**Tambs K, Ronning T, Prescott CA, Kendler KS, Reichborn-Kjennerud T, Neale MC, Torgersen S, Harris JR** (2009). The Norwegian Institute of Public Health twin study of mental health: examining recruitment and attrition bias. *Twin Research and Human Genetics* **12**, 158-68.