**sTable 1 Demographic Data**

**A. Samples Sizes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cases N (% of the sample)** | **Siblings of Cases** | **Controls** | **Siblings of Controls** |
| ASD | 2567 (0.28) | 3380 | 20,350 | 35,459 |
| ID | 7658 (0.85) | 9596 | 64,640 | 98,885 |
| ADHD | 3272 (0.36) | 2796 | 22,630 | 28,337 |
| Psychosis | 7902 (0.87) | 9028 | 60,770 | 121,318 |
| Mood | 9704 (1.07) | 12,639 | 81,170 | 157,812 |
| Anxiety | 10,606 (1.17) | 16,394 | 91,070 | 170,177 |
| Personality | 24,815 (2.75) | 25,211 | 159,610 | 328,216 |
| SUD | 791 (0.09) | 1266 | 7720 | 14,001 |
| Low IQ | 31,186 (3.45) | 23,226 | 199,590 | 272,540 |
| Any | 57,898 (6.41) | 31,552 | 260,690 | 311,464 |
| Diabetes | 2770 (0.31) | 2624 | 26,860 | 26,409 |
| Hernia | 29,558 (3.27) | 36806 | 208,750 | 326,883 |
| Hematological Malignancies | 931 (0.10) | 1476 | 9170 | 15,056 |

**S1B. Samples Characteristics- Percent of Males**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cases | Siblings of Cases | Controls | Siblings of Controls |
| ASD | 85.9% | 65.6% | 58.6% | 59.7% |
| ID | 72.9% | 70.5% | 59.8% | 59.9% |
| ADHD | 66.8 | 54.3 | 55.6 | 58.5 |
| Psychosis | 91.8% | 83.1% | 61.7 | 62.3 |
| Mood | 72.2 | 66.3 | 59.2 | 59.8 |
| Anxiety | 75.2 | 65.4 | 59.0 | 59.4 |
| Personality | 77.6 | 64.7 | 58.1 | 58.9 |
| SUD | 87.8% | 67.1% | 59.8% | 60.5% |
| Low IQ | 79.8 | 65.4 | 57.9 | 57.2 |
| Any | 77.7 | 68.6 | 56.4 | 57.9 |
| Diabetes | 60.0% | 58.4% | 57.8% | 58.5% |
| Hernia | 79.5 | 59.0 | 57.0 | 58.2 |
| Hematological Malignancies | 63.9% | 60.6% | 58.0% | 59.3% |

**S1C. Samples Characteristics- Mean (SD) Age of Subjects**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cases | Siblings of Cases | Controls | Siblings of Controls |
| ASD | 17.98 (1.10) | 17.67 (1.40) | 17.41 (0.97) | 17.47 (1.11) |
| ID | 17.78 (1.08) | 17.69 (1.54) | 17.51 (1.12) | 17.51 (1.17) |
| ADHD | 17.19 (0.95) | 17.43 (0.90) | 17.48 (1.10) | 17.43 (1.02) |
| Psychosis | 19.02 (2.44) | 18.46 (2.31) | 17.68 (1.56) | 17.55 (1.29) |
| Mood | 19.06 (2.29) | 18.01 (1.88) | 17.61 (1.34) | 17.55 (1.26) |
| Anxiety | 18.79 (2.02) | 17.57 (1.34) | 17.80 (1.55) | 17.49 (1.15) |
| Personality | 18.68 (1.61) | 17.50 (1.15) | 17.52 (1.17) | 17.84 (1.55) |
| SUD | 19.33 (1.83) | 18.10 (1.90) | 17.75 (1.68) | 17.61 (1.39) |
| Low IQ | 18.11 (1.76) | 17.91 (1.73) | 17.50 (1.16) | 17.47 (1.10) |
| Any | 18.59 (1.89) | 17.84 (1.63) | 17.39 (0.91) | 17.45 (1.02) |
| Diabetes | 17.91 (1.59) | 17.58 (1.34) | 17.51 (1.29) | 17.52 (1.23) |
| Hernia | 17.53 (1.19) | 17.49 (1.15) | 17.48 (1.10) | 17.50 (1.13) |
| Hematological Malignancies | 18.01 (1.36) | 17.56 (1.28) | 17.49 (1.19) | 17.48 (1.14) |

**sTables 2-14: Rates of disorders in siblings of probands and matched controls**

In the tables below: ^ Adjusted for year of birth, sex and socioeconomic status (SES); ASD=autism spectrum disorder; SUD=substance use disorder; ANY=any psychiatric disorder.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with ASD** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 2128 (0.2) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 79 (0.9) | 382 (0.3) | **2.79 [2.19-3.56]** | **1.99 [1.54-2.55]** |
| Mood disorders | 83 (0.7) | 415 (0.3) | **2.50 [1.97-3.17]** | **2.31 [1.82-2.93]** |
| Anxiety disorders | 112 (0.7) | 445 (0.3) | **2.62 [2.13-3.23]** | **2.50 [2.03-3.08]** |
| Personality disorders | 129 (0.5) | 708 (0.2) | **2.37 [1.97-2.87]** | **2.28 [1.88-2.75]** |
| Intellectual disability | 221 (2.2) | 326 (0.3) | **8.24 [6.94-9.79]** | **7.53 [6.33-8.97]** |
| ASD | 173 (5.1%) | 143 (0.4%) | **13.22 (10.64-16.67)** | **12.35 (9.89-15.49)** |
| Low cognitive ability | 43 (0.2) | 440 (0.2) | 1.14 [0.83-1.56] | 1.18 [0.86-1.62] |
| ADHD | 12 (0.4) | 85 (0.3) | 1.43 [0.78-2.62] | 1.49 [0.81-2.73] |
| SUD | 4 (0.3) | 39 (0.3) | 1.13 [0.40-3.18] | 1.08 [0.38-3.05] |
| Any | 514 (0.9) | 933 (0.2) | **5.00 [4.49-5.58]** | **4.81 [4.31-5.37]** |
| Hernia | 64 (0.2) | 733 (0.2) | 0.77 [0.60-1.00] | 0.76 [0.59-0.98] |
| Type-1 diabetes | 24 (0.3) | 210 (0.3) | 1.20 [0.78-1.83] | 1.15 [0.75-1.76] |
| Hematological malignancies | 2 (0.1) | 33 (0.2) | 0.62 [0.15-2.61] | 0.62 [0.15-2.61] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Intellectual Disability** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 9572 (0.9) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 462 (5.1) | 2017 (1.7) | **3.19 [2.87-3.53]** | **1.91 [1.72-2.13]** |
| Mood disorders | 267 (2.1) | 1841 (1.2) | **1.82 [1.60-2.08]** | **1.56 [1.37-1.78]** |
| Anxiety disorders | 420 (2.6) | 1823 (1.1) | **2.42 [2.18-2.70]** | **2.14 [1.92-2.38]** |
| Personality disorders | 617 (2.4) | 3245 (1.0) | **2.51 [2.30-2.74]** | **2.21 [2.02-2.41]** |
| Intellectual disability | 1258 (12.4) | 1564 (1.3) | **10.81 [10.01-11.6]** | **9.53 [8.81-10.31]** |
| ASD | 355 (10.4) | 549 (1.5) | **7.45 [6.48-8.55]** | **6.87 [5.97-7.92]** |
| ADHD | 22 (0.8) | 245 (0.9) | 0.90 [0.58-1.40] | 0.99 [0.64-1.54] |
| SUD | 21 (1.7) | 212 (1.5) | 1.09 [0.69-1.72] | 0.94 [0.59-1.48] |
| Any | 2571 (4.7) | 3244 (0.7) | **7.45 [7.07-7.85]** | **6.36 [6.03-6.72]** |
| Low cognitive ability | 346 (1.5) | 1497 (0.5) | **2.73 [2.43-3.08]** | **2.52 [2.23-2.84]** |
| Hernia | 192 (0.5) | 2933 (0.9) | 0.57 [0.50-0.67] | 0.58 [0.50-0.68] |
| Type-1 diabetes | 104 (1.3) | 695 (0.8) | **1.57 [1.28-1.94]** | **1.51 [1.23-1.87]** |
| Hematological malignancies | 10 (0.7) | 140 (0.9) | 0.73 [0.38-1.40] | 0.73 [0.38-1.40] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) ADHD** | | **OR [95% CI]** | **OR [95% CI]** |
| Entire Sample | 3272 (0.4) | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorder | 7 (0.1) | 228 (0.3) | 0.39 [0.18-0.84] | 0.44 [0.21-0.95] |
| Mood disorders | 19 (0.2) | 246 (0.2) | 0.95 [0.59-1.52] | 0.94 [0.59-1.51] |
| Anxiety disorders | 33 (0.3) | 262 (0.2) | 1.28 [0.90-1.84] | 1.26 [0.88-1.18] |
| Personality disorders | 62 (0.4) | 576 (0.3) | **1.43 [1.10-1.86]** | **1.42 [1.09-1.85]** |
| Intellectual disability | 17 (0.2) | 203 (0.2) | 0.99 [0.60-1.63] | 1.02 [0.62-1.67] |
| ASD | 23 (0.2) | 463 (0.2) | 1.70 [0.87-3.33] | 1.70 [0.86-3.32] |
| Low cognitive ability | 463 (0.2) | 33(0.2) | 0.84 [0.59-1.20] | 0.88 [0.61-1.25] |
| ADHD | 37 (1.3) | 69 (0.2) | **5.59 [3.67-8.20]** | **5.46 [3.64-8.18]** |
| SUD | 3 (0.3) | 23 (0.2) | 1.43 [0.43-4.78] | 1.50 [0.45-5.50] |
| Any | 120 (0.3) | 842 (0.3) | **1.33 [1.10-1.60]** | **1.35 [1.12-1.63]** |
| Hernia | 75 (0.3) | 600 (0.3) | 1.10 [0.86-1.40] | 1.09 [0.86-1.39] |
| Type-1 diabetes | 18 (0.3) | 201(0.4) | 0.86 [0.53-1.39] | 0.85 [0.53-1.38] |
| Hematological malignancies | 2 (0.2) | 25 (0.2) | 0.82 [0.19-3.48] | 0.81 [0.19-3.46] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Psychotic Disorder** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 7902 (0.9) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 2239 (24.8) | 2283 (1.9) | **17.19 [16.14-18.31]** | **9.27 [8.66-9.92]** |
| Mood disorders | 623 (4.9) | 2380 (1.5) | **3.38 [3.09-3.70]** | **2.47 [2.25-2.72]** |
| Anxiety disorders | 770 (4.7) | 2184 (1.3) | **3.79 [3.48-4.12]** | **2.86 [2.62-3.12]** |
| Personality disorders | 961 (3.8) | 3824 (1.2) | **3.36 [3.12-3.61]** | **2.51 [2.33-2.71]** |
| Intellectual disability | 573 (5.6) | 2162 (1.8) | **3.29 [2.99-3.61]** | **2.41 [2.19-2.66]** |
| ASD | 211 (6.2) | 573 (1.6) | **4.04 [3.44-4.76]** | **3.38 [2.84-4.02]** |
| Low cognitive ability | 555 (2.4) | 1269 (0.5) | **5.23 [4.73-5.78]** | **3.62 [3.26-4.02]** |
| ADHD | 9 (0.3) | 275 (1.0) | 0.33 [0.16-0.64] | 0.41 [0.21-0.81] |
| SUD | 23 (1.8) | 230 (1.6) | 1.10 [0.71-1.70] | 0.79 [0.51-1.24] |
| Any | 4277 (7.8) | 2550 (0.5) | **16.33 [15.53-17.16]** | **10.98 [10.34-11.7]** |
| Hernia | 168 (0.5) | 3222 (1.0) | 0.46 [0.39-0.53] | 0.46 [0.39-0.54] |
| Type-1 diabetes | 84 (1.1) | 758 (0.9) | 1.16 [0.92-1.46] | 1.10 [0.87-1.38] |
| Hematological malignancies | 14 (0.9) | 422 (1.4) | 0.65 [0.37-1.11] | 0.60 [0.34-1.04] |

**Bold** notationindicates significant result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Mood Disorders** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 9704 (1.1) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 526 (5.8) | 1821 (1.5) | **4.06 [3.67-4.48]** | **2.64 [2.38-2.94]** |
| Mood disorders | 723 (5.7) | 2030 (1.3) | **4.65 [4.26-5.07]** | **4.22 [3.86-4.61]** |
| Anxiety disorders | 773 (4.7) | 1932 (1.1) | **4.30 [3.95-4.69]** | **3.86 [3.54-4.21]** |
| Personality disorders | 788 (3.1) | 3757 (1.1) | **2.78 [2.57-3.01]** | **2.52 [2.33-2.73]** |
| Intellectual disability | 254 (2.5) | 1468 (1.2) | **2.09 [1.82-2.39]** | **1.80 [1.57-2.06]** |
| ASD | 100 (3.0) | 407 (1.1) | **2.62 [2.10-3.27]** | **2.43 [1.94-3.04]** |
| Low cognitive ability | 371 (1.6) | 2456 (0.9) | **1.78 [1.59-1.99]** | **1.59 [1.42-1.78]** |
| ADHD | 24 (0.9) | 251 (0.9) | 0.96 [0.63-1.47] | 1.01 [0.66-1.54] |
| SUD | 31 (2.4) | 158 (1.1) | **2.19 [1.49-3.24]** | **1.98 [1.34-2.93]** |
| Any | 2243 (4.1) | 4694 (0.9) | **4.45 [4.23-4.68]** | **3.85 [3.65-4.05]** |
| Hernia | 363 (1.0) | 3434 (1.1) | 0.93 [0.84-1.04] | 0.94 [0.85-1.05] |
| Type-1 diabetes | 93 (1.2) | 846 (1.0) | 1.15 [0.93-1.43] | 1.16 [0.93-1.44] |
| Hematological malignancies | 20 (1.3) | 195 (1.3) | 1.06 [0.67-1.69] | 1.05 [0.66-1.67] |

**Bold** notationindicates significant result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Anxiety Disorders** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 10,606 (1.2) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 432 (4.8) | 1799 (1.5) | **3.33 [2.99-3.71]** | **2.48 [2.22-2.78]** |
| Mood disorders | 619 (4.9) | 1998 (1.3) | **4.01 [3.66-4.40]** | **3.77 [3.44-4.14]** |
| Anxiety disorders | 854 (5.2) | 2081 (1.2) | **4.43 [4.09-4.81]** | **4.19 [3.86-4.55]** |
| Personality disorders | 763 (3.0) | 3824 (1.2) | **2.64 [2.44-2.86]** | **2.50 [2.31-2.71]** |
| Intellectual disability | 269 (2.6) | 1428 (1.2) | **2.28 [2.00-2.60]** | **2.03 [1.77-2.32]** |
| ASD | 120 (3.5) | 407 (1.1) | **3.16 [2.57-3.89]** | **2.90 [2.36-3.58]** |
| Low cognitive ability | 351 (1.5) | 2619 (1.0) | **1.58 [1.41-1.76]** | **1.50 [1.34-1.68]** |
| ADHD | 46 (1.6) | 329 (1.2) | **1.42 [1.04-1.94]** | **1.45 [1.06-1.98]** |
| SUD | 20 (1.6) | 143 (1.0) | 1.55 [0.97-2.49] | 1.41 [0.87-2.26] |
| ANY | 2157 (3.9) | 5082 (1.0) | **3.94 [3.74-4.15]** | **3.65 [3.47-3.85]** |
| Hernia | 416 (1.1) | 3704 (1.1) | 0.99 [0.90-1.10] | 0.99 [0.89-1.09] |
| Type-1 diabetes | 86 (1.1) | 984 (1.2) | 0.91 [0.73-1.14] | 0.91 [0.73-1.13] |
| Hematological malignancies | 16 (1.1) | 182 (1.2) | 0.91 [0.54-1.52] | 0.90 [0.54-1.51] |

**Bold** notationindicates significant result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Personality Disorders** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 24,815 (2.7) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 1211 (13.4) | 4541 (3.7) | **3.98 [3.72-4.26]** | **2.55 [2.37-2.74]** |
| Mood disorders | 1099 (8.7) | 3881 (3.1) | **2.74 [2.56-2.93]** | **2.44 [2.28-2.62]** |
| Anxiety disorders | 1352 (8.2) | 5295 (3.4) | **2.90 [2.73-3.09]** | **2.57 [2.41-2.74]** |
| Personality disorders | 2396 (9.5) | 5103 (3.0) | **3.26 [3.11-3.41]** | **2.93 [2.80-3.07]** |
| Intellectual disability | 874 (8.6) | 3881 (3.2) | **2.84 [2.63-3.07]** | **2.43 [2.25-2.63]** |
| ASD | 270 (7.9) | 1074 (3.0) | **2.77 [2.41-3.18]** | **2.61 [2.26-3.01]** |
| ADHD | 67 (2.4) | 535 (1.9) | **1.27 [0.98-1.65]** | **1.43 [1.10-1.85]** |
| SUD | 106 (8.4) | 486 (3.5) | **2.54 [2.04-3.16]** | **2.29 [1.83-2.87]** |
| Any | 5382 (9.8) | 12358 (2.5) | **4.24 [4.11-4.39]** | **3.53 [3.41-3.66]** |
| Low cognitive ability | 1286 (5.5) | 6231 (2.3) | **2.49 [2.34-2.65]** | **2.15 [2.02-2.29]** |
| Hernia | 881 (2.4) | 9220 (2.8) | 0.84 [0.78-0.90] | 0.85 [0.79-0.91] |
| Type-1 diabetes | 202 (2.6) | 2294 (2.8) | 0.92 [0.79-1.06] | 0.92 [0.79-1.06] |
| Hematological malignancies | 49 (3.3) | 461 (3.0) | 1.10 [0.81-1.49] | 1.07 [0.78-1.45] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with SUD** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 791 (0.1) | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorder | 17 (0.2) | 127 (0.1) | **1.77 [1.069-2.941]** | 1.17 [0.69-1.97] |
| Mood disorders | 24 (0.2) | 149 (0.1) | **1.99 [1.298-3.076]** | **1.69 [1.09-2.61]** |
| Anxiety disorders | 17 (0.1) | 156 (0.1) | 1.19 [0.732-1.944] | 0.97 [0.59-1.59] |
| Personality disorders | 71 (0.3) | 301 (0.1) | **3.12 [2.4113-4.051]** | **2.73 [2.10-3.54]** |
| Intellectual disability | 15 (0.2) | 118 (0.1) | 1.51 [0.883-2.589] | 1.31 [0.76-2.25] |
| ASD | 41 (0.2) | 216 (0.1) | 1.20 [0.429-3.409] | 1.13 [0.40-3.21] |
| Low cognitive ability | 41 (0.2) | 216 (0.1) | **2.24 [1.609-3.139]** | **1.87 [1.33-2.63]** |
| ADHD | 3 (0.1) | 20 (0.1) | 1.52 [0.452-5.121] | 1.65 [0.48-5.58] |
| SUD | 26 (2.4) | 31 (0.3) | **9.49 [5.615-16.046]** | **8.34 [4.91-14.1]** |
| Any | 121 (0.3) | 398 (0.1) | **2.77 [2.266-3.396]** | **2.21 [1.80-2.71]** |
| Hernia | 26 (0.1) | 253 (0.1) | 0.91 [0.607-1.362] | 0.92 [0.61-1.38] |
| Type-1 diabetes | 3 (0) | 79 (0.1) | 0.38 [0.122-1.221] | 0.38 [0.12-1.21] |
| Hematological malignancies | 0 (0) | 11 (0.1) | - | - |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Low Cognitive Ability** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 31,186 (3.5) | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorder | 859 (9.5) | 5196 (4.3) | **2.35 [2.17-2.53]** | **1.49 [1.38-1.61]** |
| Mood disorders | 696 (5.5) | 6120 (3.9) | **1.44 [1.33-1.56]** | **1.26 [1.16-1.37]** |
| Anxiety disorders | 825 (5.0) | 6453 (3.8) | **1.34 [1.24-1.44]** | **1.17 [1.09-1.27]** |
| Personality disorders | 1664 (6.6) | 12,183 (3.7) | **1.83 [1.73-1.93]** | **1.63 [1.54-1.72]** |
| Intellectual disability | 666 (6.5) | 4736 (3.9) | **1.72 [1.58-1.87]** | **1.48 [1.36-1.61]** |
| ASD | 109 (3.2) | 1273 (3.6) | 0.89 [0.73-1.09] | 0.80 [0.65-0.97] |
| Low cognitive ability | 3444 (14.8) | 9280 (3.4) | **4.93 [4.73-5.14]** | **4.25 [4.07-4.43]** |
| ADHD | 78 (2.8) | 943 (3.3) | 0.83 [0.66-1.05] | 0.93 [0.73-1.17] |
| SUD | 106 (8.4) | 571 (4.1) | **2.14 [1.73-2.66]** | **1.98 [1.59-2.47]** |
| Any | 3546 (6.5) | 17289(3.5) | **1.91 [1.84-1.98]** | **1.51 [1.45-1.57]** |
| Hernia | 1131 (3.1) | 11,675 (3.6) | 0.85 [0.80-0.91] | 0.86 [0.81-0.92] |
| Type-1 diabetes | 241 (3.1) | 2924 (3.5) | 0.86 [0.75-0.98] | 0.83 [0.73-0.95] |
| Hematological malignancies | 51 (3.4) | 584 (3.8) | 0.90 [0.67-1.20] | 0.89 [0.66-1.20] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Any Psychiatric Disorder** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 57,898 (6.4) | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorder | 4614 (51.1) | 11634 (9.6) | **9.85 [9.41-10.31]** | **6.81 [6.48-7.16]** |
| Mood disorders | 2921 (23.1) | 12503 (7.9) | **3.49 [3.33-3.65]** | **3.27 [3.113.43]** |
| Anxiety disorders | 3693 (22.5) | 12212 (7.2) | **3.76 [3.61-3.91]** | **3.53 [3.38-3.69]** |
| Personality disorders | 5075 (20.1) | 23029 (7.0) | **3.34 [3.23-3.45]** | **3.06 [2.96-3.17]** |
| Intellectual disability | 3099 (30.5) | 9858 (8.1) | **4.95 [4.73-5.19]** | **4.56 [4.34-4.79]** |
| ASD | 1029 (30.3) | 2882 (8.1) | **4.93 [4.54-5.35]** | **5.12 [4.68-5.60]** |
| Low cognitive ability | 2717 (11.7) | 12948 (4.8) | **2.65 [2.54-2.77]** | **2.35 [2.24-2.45]** |
| ADHD | 199 (7.1) | 1616 (5.7) | **1.26 [1.08-1.47]** | **1.40 [1.20-1.63]** |
| SUD | 210 (16.6) | 1179 (8.4) | **2.16 [1.84-2.53]** | **1.94 [1.64-2.29]** |
| Any | 15468 (28.2) | 25791 (5.2) | **7.14 [6.98-7.30]** | **6.21 [6.06-6.35]** |
| Hernia | 1861 (5.1) | 20952 (6.4) | 0.77 [0.74-0.81] | 0.78 [0.74-0.82] |
| Type-1 diabetes | 544 (6.9) | 5232 (6.3) | 1.09 [1.00-1.20] | 1.09 [0.99-1.20] |
| Hematological malignancies | 101 (6.7) | 1106 (7.1) | 0.94 [0.76-1.16] | 0.92 [0.74-1.14] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Type-1 Diabetes** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 2427 (0.3) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 32 (0.4) | 305 (0.3) | 1.34 [0.93-1.94] | 1.27 [0.88-1.85] |
| Mood disorders | 39 (0.3) | 406 (0.3) | 1.20 [0.86-1.66] | 1.19 [0.86-1.66] |
| Anxiety disorders | 51 (0.3) | 443 (0.3) | 1.19 [0.89-1.59] | 1.21 [0.90-1.62] |
| Personality disorders | 63 (0.2) | 942 (0.3) | 0.92 [0.70-1.19] | 0.93 [0.71-1.22] |
| Intellectual disability | 37 (0.4) | 305 (0.3) | 1.44 [1.03-2.04] | 1.34 [0.94-1.91] |
| ASD | 10 (0.3) | 104 (0.3) | 1.17 [0.61-2.26] | 1.04 [0.52-2.07] |
| Low cognitive ability | 54 (0.2) | 671 (0.2) | 0.94 [0.71-1.24] | 0.96 [0.73-1.28] |
| ADHD | 7 (0.3) | 74 (0.3) | 0.95 [0.44-2.08] | 0.95 [0.43-2.06] |
| SUD | 1 (0.1) | 41 (0.3) | 0.26 [0.03-1.95] | 0.27 [0.03-1.98] |
| Any | 176 (0.3) | 1480 (0.3) | 1.07 [0.91-1.25] | 1.05 [0.90-1.23] |
| Hernia | 81 (0.2) | 838 (0.3) | 0.85 [0.68-1.07] | 0.85 [0.68-1.07] |
| Type-1 diabetes | 373 (4.7) | 192 (0.2) | **21.36 [17.91-25.46]** | **21.23 [17.80-25.31]** |
| Hematological malignancies | 7 (0.5) | 63 (0.4) | 1.15 [0.52-2.52] | 1.16 [0.53-2.54] |

**Bold** notationindicates significant result.

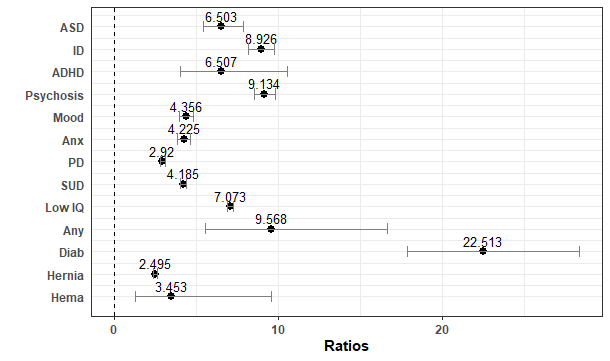
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Hernia** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 29,558 (3.3) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 168 (1.9) | 3821 (3.1) | 0.58 [0.49-0.68] | 0.55 [0.47-0.65] |
| Mood disorders | 414 (3.3) | 4899 (3.1) | 1.05 [0.95-1.17] | 1.01 [0.91-1.12] |
| Anxiety disorders | 533 (3.3) | 5419 (3.2) | 1.02 [0.93-1.11] | 0.98 [0.89-1.07] |
| Personality disorders | 765 (3.0) | 10,547 (3.2) | 0.94 [0.87-1.01] | 0.91 [0.84-0.98] |
| Intellectual disability | 227 (2.2) | 3790 (3.1) | 0.70 [0.61-0.88] | 0.68 [0.59-0.78] |
| ASD | 85 (2.5) | 1132 (3.2) | 0.78 [0.62-0.97] | 0.75 [0.60-0.94] |
| Low cognitive ability | 639 (2.8) | 8319 (3.3) | 0.81 [0.74-0.88] | 0.83 [0.71-0.90] |
| ADHD | 100 (3.6) | 896 (3.2) | 1.13 [0.92-1.40] | 1.14 [0.92-1.41] |
| SUD | 31 (2.4) | 397 (2.8) | 0.86 [0.59-1.25] | 0.84 [0.58-1.21] |
| Any | 1535 (2.8) | 16376 (3.3) | 0.84 [0.79-0.88] | 0.80 [0.75-0.84] |
| Hernia | 2854 (7.8) | 10,206 (3.1) | **2.60 [2.49-2.72]** | **2.61 [2.49-2.72]** |
| Type-1 diabetes | 246 (3.1) | 2711 (3.3) | 0.95 [0.83-1.08] | 0.94 [0.82-1.08] |
| Hematological malignancies | 52 (3.5) | 476 (3.1) | 1.13 [0.85-1.52] | 1.12 [0.84-1.50] |

**Bold** notationindicates significant result.

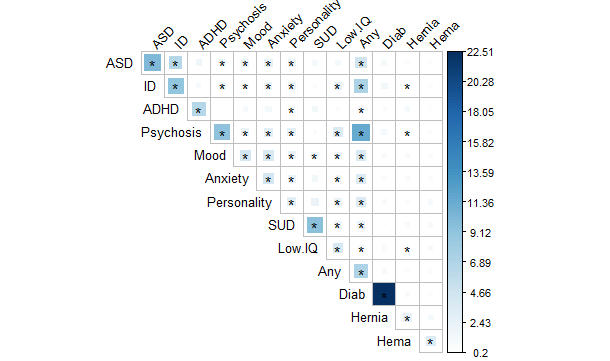
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Hematological Malignancies** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample | 931 (0.1) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorder | 10 (0.1) | 129 (0.1) | 1.04 [0.54-1.98] | 1.00 [0.52-1.93] |
| Mood disorders | 15 (0.1) | 149 (0.1) | 1.25 [0.73-2.13] | 1.22 [0.72-2.09] |
| Anxiety disorders | 15 (0.1) | 166 (0.1) | 0.93 [0.55-1.59] | 0.91 [0.54-1.56] |
| Personality disorders | 26 (0.1) | 302 (0.1) | 1.12 [0.75-1.67] | 1.12 [0.75-1.67] |
| Intellectual disability | 7 (0.1) | 125 (0.1) | 0.66 [0.31-1.43] | 0.63 [0.29-1.35] |
| ASD | 2 (0.1) | 28 (0.1) | 0.74 [0.17-3.14] | 0.69 [0.16-2.91] |
| Low cognitive ability | 54 (0.1) | 671 (0.1) | 1.16 [0.78-1.73] | 1.19 [0.80-1.77] |
| ADHD | 2 (0.1) | 32 (0.1) | 0.63 [0.15-2.64] | 0.62 [0.14-2.60] |
| SUD | 0 (0) | 11 (0.1) | - | - |
| Any | 53 (0.1) | 471 (0.1) | 1.01 [0.76-1.34] | 1.00 [0.75-1.33] |
| Hernia | 32 (0.1) | 324 (0.1) | 0.87 [0.61-1.26] | 0.87 [0.60-1.25] |
| Type-1 diabetes | 14 (0.2) | 98 (0.1) | 1.50 [0.85-2.62] | 1.49 [0.85-2.61] |
| Hematological malignancies | 6 (0.4) | 28 (0.2) | 2.22 [0.92-5.38] | 2.21 [0.91-5.35] |

**Bold** notationindicates significant result.

**Figure S1 .** Familial clustering of psychiatric disorders, low IQ and non-CNS control conditions in the males sample. Within-disorder, adjusted Relative Recurrence Risk (RRR) for full siblings and associated 95% Confidence Intervals are presented.



**Figure S2.** Familial clustering across psychiatric disorders, low IQ and non-CNS control conditions. The color of each box indicates the magnitude of the relationship (log RRR) (see figure legend), and the size of the box indicates statistical significance. Asterisks indicate RRRs 95% Confidence interval excluding 1 after a Bonferroni correction for multiple comparisons.



ID, moderate or severe intellectual disability; ASD, autism spectrum disorder; Psychosis: Psychotic Disorders SUD, substance use disorder; ADHD, attention deficit hyperactive disorder; Any, any psychiatric diagnosis; Diab, diabetes; Hema, Hematological Malignancies.

**sTable 15 Samples Sizes-Male Population**

|  |  |  |
| --- | --- | --- |
| Diagnostic group | Number of siblings of cases | Number of siblings of matched controls |
| Psychotic disorders | 7500 | 75571 |
| Mood disorders | 8375 | 94,373 |
| Anxiety disorders | 10726 | 101,082 |
| Personality disorders | 16,323 | 193,316 |
| Intellectual disability | 7112 | 73,476 |
| Autism spectrum disorders | 2246 | 21198 |
| Substance/Alcohol abuse | 850 | 8464 |
| ADHD | 1519 | 16575 |
| Any psychiatric disorder | 37644 | 286791 |
| Low cognitive ability | 15181 | 155795 |
| Type-1 diabetes | 4655 | 47,886 |
| Hernia | 21,702 | 190,155 |
| Hematological malignancies | 906 | 9213 |

**sTable 16-29: Rates of disorders in siblings of probands and matched controls**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with ASD** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 75 (1.0%) | 348 (0.5%) | **2.18 [1.69-2.80]** | **1.92 [1.48-2.49]** |
| Mood disorders | 78 (0.9%) | 374 (0.4%) | **2.36 [1.84-3.01]** | **2.34 [1.83-2.99]** |
| Anxiety disorders | 99 (0.9%) | 386 (0.4%) | **2.43 [1.94-3.03]** | **2.49 [1.99-3.11]** |
| Personality disorders | 120 (0.7%) | 621 (0.3%) | **2.29 [1.88-2.79]** | **2.35 [1.93-2.86]** |
| Intellectual disability | 183 (2.6%) | 296 (0.4%) | **6.53 [5.42-7.86]** | **6.50 [5.39-7.84]** |
| ASD | 138 (6.1%) | 135 (0.6%) | **10.20 [8.01-12.99]** | **9.97 [7.82-12.71]** |
| Low cognitive ability | 42(0.3%) | 382 (0.2%) | 1.12 [0.82-1.55] | 1.29 [0.94-1.78] |
| ADHD | 11 (0.7%) | 75 (0.5%) | 1.60 [0.85-3.02] | 1.57 [0.83-2.98] |
| SUD | 4 (0.5%) | 34 (0.4%) | 1.17 [0.41-3.31] | 1.22 [0.43-3.46] |
| Any psychiatric disorder | 455 (1.2%) | 806 (0.3%) | **4.34 [3.86-4.87]** | **4.70 [4.18-5.29]** |
| Hernia | 52 (0.2%) | 637 (0.3%) | 0.71 [0.53-0.94] | 0.70 [0.53-0.94] |
| Type-1 diabetes | 22 (0.5%) | 173 (0.4%) | 1.31 [0.84-2.04] | 1.27 [0.81-1.98] |
| Hematological Melignancies | 2 (0.2%) | 30 (0.3%) | 0.67 [0.16-2.83] | 0.68 [0.16-2.88] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Intellectual Disability** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample |  | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 421 (5.6) | 1696 (2.2) | **2.59 [2.32-2.89]** | **1.81 [1.62-2.03]** |
| Mood disorders | 228 (2.7) | 1488 (1.6) | **1.74 [1.51-2.01]** | **1.52 [1.32-1.76]** |
| Anxiety disorders | 368 (3.4) | 1421 (1.4) | **2.49 [2.21-2.79]** | **2.22 [1.97-2.49]** |
| Personality disorders | 515 (3.2) | 2472 (1.3) | **2.51 [2.28-2.76]** | **2.23 [2.02-2.46]** |
| Intellectual disability | 1033 (14.5) | 1251 (1.7) | **9.81 [8.99-10.67]** | **8.92 [8.17-9.74]** |
| ASD | 309 (13.7) | 459 (2.2) | **7.19 [6.18-8.37]** | **6.80 [5.83-7.93]** |
| ADHD | 14 (0.9) | 189 (1.1) | 0.80 [0.46-1.39] | 0.87 [0.50-1.50] |
| SUD | 15 (1.8) | 182 (2.2) | 0.81 [0.48-1.39] | 0.73 [0.43-1.26] |
| Any psychiatric disorder | 2211 (5.9) | 2171 (0.8) | **8.18 [7.70-8.68]** | **7.19 [6.76-7.65]** |
| Low cognitive ability | 242 (1.6) | 950 (0.6) | **2.64 [2.29-3.04]** | **2.48 [2.15-2.87]** |
| Hernia | 122 (0.6) | 2191 (1.2) | 0.48 [0.40-0.58] | 0.49 [0.41-0.59] |
| Type-1 diabetes | 63 (1.4) | 510 (1.1) | 1.27 [0.97-1.65] | 1.26 [0.96-1.64] |
| Hematological Melignancies | 7 (0.8) | 104 (1.1) | 0.68 [0.31-1.47] | 0.68 [0.31-1.47] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) ADHD** | | OR [95% CI] | OR [95% CI] |
| Entire Sample |  | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 3 (0.1) | 164 (0.3) | 0.17 [0.05-0.55] | 0.23 [0.07-0.74] |
| Mood disorders | 16 (0.3) | 176 (0.3) | 1.00 [0.60-1.67] | 1.06 [0.64-1.77] |
| Anxiety disorders | 27 (0.3) | 203 (0.3) | 1.25 [0.83-1.87] | 1.31 [0.88-1.97] |
| Personality disorders | 51 (0.5) | 426 (0.3) | **1.43 [1.07-1.92]** | **1.51 [1.13-2.02]** |
| Intellectual disability | 12 (0.2) | 153 (0.3) | 0.81 [0.45-1.46] | 0.89 [0.49-1.61] |
| ASD | 6 (0.3) | 42 (0.2) | 1.32 [0.56-3.11] | 1.39 [0.59-3.29] |
| Low cognitive ability | 22 (0.2) | 325(0.3) | 0.69 [0.45-1.03] | 0.78 [0.50-1.21] |
| ADHD | 27 (1.8) | 44 (0.3) | **6.79 [4.19-11.0]** | **6.50 [4.00-10.56]** |
| SUD | 2 (0.3) | 15 (0.2) | 1.28 [0.29-5.65] | 1.43 [0.32-6.33] |
| Any psychiatric disorder | 98 (0.4) | 631 (0.3) | **1.19 [0.96-1.47]** | **1.35 [1.09-1.67]** |
| Hernia | 56 (0.4) | 425 (0.3) | 1.15 [0.87-1.52] | 1.14 [0.86-1.50] |
| Type-1 diabetes | 10 (0.3) | 144 (0.4) | 0.69 [0.36-1.31] | 0.69 [0.36-1.32] |
| Hematological Melignancies | 1 (0.2) | 20 (0.3) | 0.51 [0.06-3.81] | 0.51 [0.06-3.90] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Psychotic Disorders** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample |  | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 2206 (29.4) | 2196 (2.9) | **13.92 [13.04-14.86]** | **9.13 [8.53-9.78]** |
| Mood disorders | 599 (7.2) | 2263 (2.4) | **3.13 [2.85-3.44]** | **2.41 [2.19-2.66]** |
| Anxiety disorders | 743 (6.9) | 2073 (2.1) | **3.55 [3.26-3.87]** | **2.82 [2.58-3.09]** |
| Personality disorders | 922 (5.6) | 3616 (1.9) | **3.14 [2.91-3.38]** | **2.47 [2.28-2.66]** |
| Intellectual disability | 544 (7.6) | 2087 (2.8) | **2.83 [2.57-3.12]** | **2.31 [2.08-2.55]** |
| ASD | 202 (8.9) | 548 (2.6) | **3.72 [3.14-4.39]** | **3.30 [2.76-3.94]** |
| Low cognitive ability | 531 (3.5) | 1090 (0.7) | **5.14 [4.63-5.71]** | **3.76 [3.37-4.19]** |
| ADHD | 6 (0.4) | 254 (1.5) | 0.25 [0.11-0.57] | 0.31 [0.13-0.70] |
| SUD | 21 (2.5) | 218 (2.6) | 0.95 [0.60-1.50] | 0.73 [0.45-1.16] |
| Any | 4157 (11.0) | 2238 (0.8) | **15.78 [14.97-16.63]** | **11.38 [10.78-12.07]** |
| Hernia | 145 (0.7) | 3012 (1.6) | **0.41 [0.35-0.49]** | **0.42 [0.35-0.50]** |
| Type-1 diabetes | 83 (1.8) | 699 (1.5) | 1.22 [0.97-1.54] | 1.16 [0.92-1.46] |
| Hematological Melignancies | 14 (1.5) | 211 (2.3) | 0.67 [0.38-1.15] | 0.62 [0.36-1.09] |

**Bold** notationindicates significant result.

| **Sample** | **N (%) with Mood Disorders** | | OR [95% CI] | ^OR [95% CI] |
| --- | --- | --- | --- | --- |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 499 (6.7) | 1501 (2.0) | **3.51 [3.16-3.90]** | **2.53 [2.26-2.82]** |
| Mood disorders | 617 (7.4) | 1534 (1.6) | **4.81 [4.37-5.30]** | **4.35 [3.94-4.80]** |
| Anxiety disorders | 647 (6.0) | 1472 (1.5) | **4.34 [3.95-4.77]** | **3.87 [3.52-4.27]** |
| Personality disorders | 595 (3.6) | 2823 (1.5) | **2.55 [2.33-2.79]** | **2.30 [2.10-2.52]** |
| Intellectual disability | 225 (3.2) | 1172 (1.6) | **2.01 [1.74-2.33]** | **1.79 [1.55-2.07]** |
| ASD | 79 (3.5) | 331 (1.6) | **2.29 [1.79-2.94]** | **2.14 [1.66-2.75]** |
| Low cognitive ability | 317 (2.1) | 1704 (1.1) | **1.92 [1.70-2.17]** | **1.70 [1.50-1.92]** |
| ADHD | 11 (0.7) | 171 (1.0) | 0.70 [0.37-1.29] | 0.75 [0.40-1.38] |
| SUD | 25 (2.9) | 122 (1.4) | **2.07 [1.34-3.20]** | **1.90 [1.23-2.96]** |
| Any psychiatric disorder | 1902 (5.1) | 3314 (1.2) | **4.55 [4.29-4.82]** | **3.94 [3.71-4.18]** |
| Hernia | 258 (1.2) | 2530 (1.3) | 0.89 [0.78-1.01] | 0.90 [0.79-1.03] |
| Type-1 diabetes | 57 (1.2) | 611 (1.3) | 0.95 [0.73-1.26] | 0.96 [0.73-1.26] |
| Hematological Melignancies | 11 (1.2) | 151 (1.6) | 0.73 [0.39-1.36] | 0.71 [0.38-1.32] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Anxiety Disorders** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 413 (5.5) | 1501 (2.0) | **2.87 [2.57-3.21]** | **2.44 [2.17-2.74]** |
| Mood disorders | 523 (6.2) | 1538 (1.6) | **4.02 [3.63-4.45]** | **3.87 [3.49-4.29]** |
| Anxiety disorders | 711 (6.6) | 1616 (1.6) | **4.37 [3.99-4.78]** | **4.22 [3.85-4.62]** |
| Personality disorders | 586 (3.6) | 2955 (1.5) | **2.39 [2.19-2.62]** | **2.32 [2.12-2.54]** |
| Intellectual disability | 240 (3.4) | 1156 (1.6) | **2.18 [1.89-2.51]** | **2.05 [1.78-2.37]** |
| ASD | 101 (4.5) | 330 (1.5) | **2.97 [2.37-3.73]** | **2.82 [2.24-3.55]** |
| Low cognitive ability | 295 (1.9) | 1918 (1.2) | **1.59 [1.40-1.79]** | **1.57 [1.39-1.78]** |
| ADHD | 30 (2.0) | 250 (1.5) | 1.36 [0.89-1.92] | 1.30 [0.88-1.91] |
| SUD | 17 (2.0) | 116 (1.4) | 1.46 [0.87-2.45] | 1.36 [0.81-2.28] |
| ANY | 1806 (4.8) | 3767 (1.3) | **3.78 [3.57-4.00]** | **3.68 [3.48-3.91]** |
| Hernia | 330 (1.4) | 2832 (1.5) | 0.92 [0.82-1.04] | 0.92 [0.82-1.04] |
| Type-1 diabetes | 50 (1.1) | 738 (1.5) | 0.69 [0.52-0.92] | 0.69 [0.52-0.92] |
| Hematological Melignancies | 10 (1.1) | 140 (1.5) | 0.72 [0.37-1.37] | 0.71 [0.37-1.36] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Personality Disorders** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 1152 (15.4) | 3877 (5.1) | **3.35 [3.12-3.60]** | **2.44 [2.27-2.63]** |
| Mood disorders | 910 (10.8) | 4273 (4.5) | **2.54 [2.35-2.74]** | **2.29 [2.12-2.48]** |
| Anxiety disorders | 1155 (10.8) | 4121 (4.1) | **2.83 [2.65-3.04]** | **2.57 [2.38-2.74]** |
| Personality disorders | 1989 (12.2) | 8123 (4.2) | **3.16 [3.00-3.33]** | **2.92 [2.77-3.07]** |
| Intellectual disability | 786 (11.1) | 3258 (4.4) | **2.67 [2.46-2.90]** | **2.42 [2.23-2.63]** |
| ASD | 227 (10.0) | 884 (4.1) | **2.58 [2.21-3.00]** | **2.47 [2.11-2.88]** |
| ADHD | 47 (3.1) | 414 (2.5) | **1.24 [0.91-1.69]** | **1.39 [1.02-1.90]** |
| SUD | 87 (10.2) | 398 (4.7) | **2.31 [1.81-2.94]** | **2.17 [1.69-2.78]** |
| Any | 4681 (12.4) | 9417 (3.3) | **4.18 [4.03-4.34]** | **3.62 [3.49-3.76]** |
| Low cognitive ability | 1129 (7.4) | 4671 (3.0) | **2.59 [2.43-2.78]** | **2.33 [2.18-2.50]** |
| Hernia | 685 (3.2) | 7328 (3.9) | 0.81 [0.75-0.88] | 0.82 [0.76-0.89] |
| Type-1 diabetes | 177 (3.8) | 1777 (3.7) | 1.02 [0.87-1.20] | 1.02 [0.87-1.20] |
| Hematological Melignancies | 43 (3.7) | 388 (4.2) | 1.13 [0.82-1.56] | 1.09 [0.79-1.52] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with SUD** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample |  | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 13 (0.2) | 118 (0.2) | 1.09 [0.61-1.94] | 0.88 [0.49-1.59] |
| Mood disorders | 23 (0.3) | 134 (0.2) | **1.91 [1.23-2.98]** | **1.75 [1.12-2.74]** |
| Anxiety disorders | 17 (0.2) | 141 (0.2) | 1.13 [0.68-1.87] | 0.98 [0.59-1.63] |
| Personality disorders | 65 (0.5) | 274 (0.2) | **2.84 [2.16-3.72]** | **2.67 [2.04-3.51]** |
| Intellectual disability | 13 (0.2) | 102 (0.2) | 1.31 [0.73-2.34] | 1.23 [0.69-2.20] |
| ASD | 3 (0.1) | 27 (0.1) | 1.03 [0.31-3.40] | 0.98 [0.29-3.24] |
| Low cognitive ability | 38 (0.3) | 186 (0.1) | 2.11 [1.49-3.00] | **1.96 [1.37-2.79]** |
| ADHD | 3 (0.2) | 19 (0.1) | 1.72 [0.51-5.83] | 1.73 [0.51-5.88] |
| SUD | 26 (3.6) | 26 (0.4) | **10.12 [5.84-17.53]** | **9.56 [5.50-16.61]** |
| Any psychiatric disorder | 112 (0.4) | 359 (0.1) | **2.38 [1.92-2.95]** | **2.12 [1.71-2.64]** |
| Hernia | 22 (0.1) | 221 (0.1) | 0.87 [0.56-1.35] | 0.89 [0.57-1.38] |
| Type-1 diabetes | 3 (0.1) | 67 (0.2) | 0.45 [0.14-1.45] | 0.45 [0.14-1.44] |
| Hematological Melignancies | 0 (0) | 9 (0.1) | .. | 0 |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Low Cognitive Ability** | | **OR [95% CI]** | **^OR [95% CI]** |
| Entire Sample |  | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 810 (10.8) | 4412 (5.8) | **1.95 [1.80-2.11]** | **1.46 [1.34-1.58]** |
| Mood disorders | 630 (7.5) | 4958 (5.3) | **1.46 [1.34-1.59]** | **1.32 [1.21-1.44]** |
| Anxiety disorders | 740 (6.9) | 5223 (5.2) | **1.36 [1.25-1.47]** | **1.22 [1.13-1.33]** |
| Personality disorders | 1404 (8.6) | 9736 (5.0) | **1.77 [1.67-1.88]** | **1.63 [1.53-1.73]** |
| Intellectual disability | 545 (7.7) | 3830 (5.2) | **1.50 [1.37-1.65]** | **1.37 [1.24-1.50]** |
| ASD | 92 (4.1) | 1025 (4.8) | 0.84 [0.67-1.04] | 0.77 [0.62-0.96] |
| Low cognitive ability | 2764 (18.2) | 7065 (4.5) | **4.68 [4.46-4.91]** | **4.18 [3.98-4.39]** |
| ADHD | 64 (4.2) | 757 (4.6) | 0.91 [0.70-1.19] | 1.00 [0.76-1.30] |
| SUD | 90 (10.6) | 443 (5.2) | 2.14 [1.68-2.72] | **2.05 [1.61-2.61]** |
| Any psychiatric disorder | 3122 (8.3) | 13671 (4.8) | **1.80 [1.73-1.88]** | **1.51 [1.45-1.58]** |
| Hernia | 940 (4.3) | 9323 (4.9) | **0.87 [0.82-0.94]** | **0.89 [0.83-0.95]** |
| Type-1 diabetes | 216 (4.6) | 2342 (4.9) | 0.94 [0.82-1.09] | 0.96 [0.79-1.95] |
| Hematological Melignancies | 45 (5.0) | 473 (5.1) | 0.96 [0.70-1.32] | 0.96 [0.70-1.32] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Any Psychiatric Disorder** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample |  | |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 4445 (59.3) | 10089 (13.4) | **9.44 [8.97-9.93]** | **7.25 [6.87-7.65]** |
| Mood disorders | 2534 (30.3) | 10344 (11.0) | **3.52 [3.34-3.70]** | **3.32 [3.15-3.51]** |
| Anxiety disorders | 3238 (30.2) | 10029 (9.9) | **3.92 [3.74-4.11]** | **3.71 [3.53-3.89]** |
| Personality disorders | 4306 (26.4) | 18,630 (9.6) | **3.36 [3.23-3.49]** | **3.12 [3.00-3.24]** |
| Intellectual disability | 2715 (38.2) | 8422 (11.5) | **4.76 [4.52-5.02]** | **4.52 [4.28-4.78]** |
| ASD | 890 (39.3) | 2441 (11.4) | **5.02 [4.56-5.51]** | **5.52 [4.75-5.81]** |
| Low cognitive ability | 2356 (15.5) | 9562 (6.1) | **2.80 [2.67-2.94]** | **2.56 [2.44-2.69]** |
| ADHD | 132 (8.7) | 1275 (7.7) | **1.14 [0.94-1.37]** | **1.25 [1.03-1.51]** |
| SUD | 13817 (36.7) | 19463 (6.8) | **1.94 [1.62-2.32]** | **1.79 [1.49-2.16]** |
| Any psychiatric disorder | 15,468 (28.2) | 25,791 (5.2) | **7.96 [7.76-8.17]** | **7.07 [6.89-7.26]** |
| Hernia | 1392 (6.4) | 16783 (8.8) | 0.70 [0.66-0.74] | 0.71 [0.67-0.75] |
| Type-1 diabetes | 418 (9.0) | 4087 (8.5) | 1.05 [0.95-1.17] | 1.06 [0.95-1.18] |
| Hematological Melignancies | 80 (8.8) | 921 (10.0) | 0.87 [0.68-1.10] | 0.84 [0.66-1.08] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Type-1 Diabetes** | | **OR [95% CI[** | **^OR [95% CI]** |
| Entire Sample |  | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 22 (0.4) | 177 (0.3) | 1.34 [0.90-1.99] | 1.28 [0.85-1.92] |
| Mood disorders | 22 (0.3) | 261 (0.3) | 0.95 [0.61-1.46] | 0.94 [0.60-1.45] |
| Anxiety disorders | 33 (0.3) | 265 (0.3) | 1.17 [0.81-1.68] | 1.18 [0.82-1.70] |
| Personality disorders | 39 (0.2) | 508 (0.3) | 0.90 [0.65-1.25] | 0.92 [0.66-1.28] |
| Intellectual disability | 23 (0.3) | 200 (0.3) | 1.18 [0.77-1.83] | 1.12 [0.72-1.74] |
| ASD | 6 (0.3) | 67 (0.3) | 0.84 [0.36-1.94] | 0.81 [0.35-1.88] |
| Low cognitive ability | 44 (0.3) | 438 (0.3) | 1.03 [0.75-1.40] | 1.03 [0.75-1.41] |
| ADHD | 4 (0.3) | 37 (0.2) | 1.18 [0.42-3.31] | 1.19 [0.42-3.36] |
| SUD | 0 (0) | 30 (0.4) | .. | .. |
| Any psychiatric disorder | 123 (0.3) | 910 (0.3) | 1.03 [0.85-1.24] | 1.01 [0.83-1.22] |
| Hernia | 68 (0.3) | 591 (0.3) | 0.94 [0.78-1.29] | 1.01 [0.79-1.30] |
| Type-1 diabetes | 230 (4.9) | 109 (0.2) | **22.78 [18.10-28.67]** | **22.51 [17.87-28.34]** |
| Hematological Melignancies | 3 (0.3) | 38 (0.4) | 0.80 [0.24-2.60] | 0.81 [0.25-2.64] |

**Bold** notationindicates significant result.

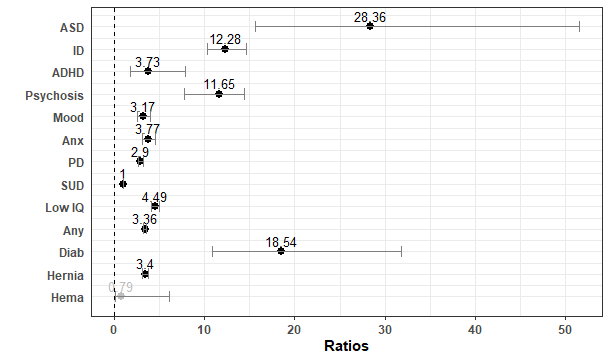
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Hernia** | | **OR [95% CI]** | **^OR [95% CI]** |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorderss | 104 (1.8) | 2234 (4.0) | 0.45 [0.38-0.54] | 0.52 [0.44-0.62] |
| Mood disorders | 329 (3.9) | 3973 (4.2) | 0.93 [0.83-1.04] | 0.95 [0.85-1.07] |
| Anxiety disorders | 413 (3.9) | 4385 (4.3) | 0.88 [0.79-0.97] | 0.90 [0.81-1.00] |
| Personality disorders | 635 (3.9) | 8400 (4.3) | 0.89 [0.82-0.96] | 0.91 [0.84-0.99] |
| Intellectual disability | 183 (2.6) | 3059 (4.2) | 0.60 [0.52-0.70] | 0.63 [0.54-0.74] |
| ASD | 63 (2.8) | 927 (4.3) | 0.63 [0.48-0.81] | 0.65 [0.50-0.85] |
| Low cognitive ability | 537 (3.5) | 7016 (4.5) | 0.77 [0.71-0.85] | 0.81 [0.74-0.89] |
| ADHD | 80 (5.3) | 699 (4.2) | 1.26 [0.99-1.60] | 1.22 [0.96-1.55] |
| SUD | 26 (3.1) | 312 (3.7) | 0.82 [0.54-1.23] | 0.85 [0.56-1.27] |
| Any psychiatric disorder | 1250 (3.3) | 13058 (4.6) | 0.72 [0.67-0.76] | 0.76 [0.71-0.80] |
| Hernia | 2182 (10.1) | 8142 (4.3) | **2.49 [2.47-2.62**] | **2.49 [2.37-2.62]** |
| Type-1 diabetes | 201 (4.3) | 2142 (4.5) | 0.96 [0.83-1.11] | 0.97 [0.83-1.12] |
| Hematological Melignancies | 42 (4.6) | 375 (4.1) | 1.14 [0.82-1.58] | 1.14 [0.82-1.59] |

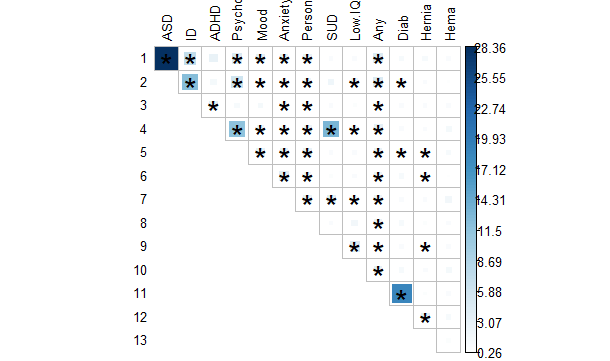
**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Blood Cancer** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample |  | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 11 (0.1) | 104 (0.1) | 0.91 [0.44-1.89] | 0.89 [0.42-1.86] |
| Mood disorders | 15 (0.1) | 149 (0.1) | 1.19 [0.64-2.22] | 1.20 [0.64-2.23] |
| Anxiety disorders | 13 (0.1) | 108 (0.1) | 1.13 [0.63-2.01] | 1.11 [0.62-1.98] |
| Personality disorders | 14 (0.1) | 200 (0.1) | 0.82 [0.48-1.42] | 0.84 [0.49-1.45] |
| Intellectual disability | 6 (0.1) | 90 (0.1) | 0.68 [0.30-1.57] | 0.67 [0.29-1.54] |
| ASD | 2 (0.1) | 21 (0.1) | 0.89 [0.21-3.83] | 0.85 [0.20-3.65] |
| Low cognitive ability | 19 (0.1) | 158 (0.1) | 1.23 [0.76-1.98] | 1.26 [0.78-2.04] |
| ADHD | 1 (0.1) | 23 (0.1) | 0.47 [0.06-3.51] | 0.45 [0.06-3.39] |
| SUD | 0 (0) | 7 (0.1) | .. | .. |
| Any | 34 (0.1) | 316 (0.1) | 0.82 [0.57-1.16] | 0.84 [0.59-1.21] |
| Hernia | 18 (0.1) | 212 (0.1) | 0.74 [0.46-1.20] | 0.74 [0.45-1.19] |
| Type-1 diabetes | 12 (0.3) | 62 (0.1) | **1.99 [1.07-3.70]** | **1.98 [1.07-3.68]** |
| Hematological Melignancies | 5 (0.6) | 15 (0.2) | **3.40 [1.23-9.38]** | **3.45 [1.25-9.53]** |

**Bold** notationindicates significant result.

**Figure S3 .** Familial clustering of psychiatric and non-CNS disorders in the females sample. Within-disorder, adjusted Relative Recurrence Risk (RRR) for full siblings and associated 95% Confidence Intervals are presented.





**Figure S4.** Familial clustering across psychiatric disorders, low IQ and non-CNS disorders, females only. The color of each box indicates the magnitude of the relationship (log RRR) (see figure legend), and the size of the box indicates statistical significance. Asterisks indicate RRRs 95% Confidence interval excluding 1 after a Bonferroni correction for multiple comparisons.

**sTable 30 Sample Sizes- Female Population**

|  |  |  |
| --- | --- | --- |
| Diagnostic group | Number of siblings of cases | Number of siblings of matched controls |
| Psychotic disorders | 1528 | 45747 |
| Mood disorders | 4264 | 63,438 |
| Anxiety disorders | 5668 | 69,095 |
| Personality disorders | 8888 | 134,898 |
| Intellectual disability | 3057 | 47,890 |
| Autism spectrum disorders | 1134 | 14,261 |
| Low cognitive ability | 8045 | 116,745 |
| ADHD | 1277 | 11,762 |
| Substance/Alcohol abuse | 416 | 5537 |
| Any psychiatric disorder | 17,203 | 208,160 |
| Hernia | 24,426 | 247,701 |
| Type-1 diabetes | 1663 | 16657 |
| Hematological malignancies | 591 | 6308 |

**sTables 31-44: Rates of disorders in siblings of probands and matched controls**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with ASD** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 4 (0.3) | 34 (0.1) | **3.52 [1.25-9.95]** | **3.50 [1.24-9.89]** |
| Mood disorders | 5 (0.1) | 41 (0.1) | 1.81 [0.71-4.59] | 1.79 [0.70-4.54] |
| Anxiety disorders | 13 (0.2) | 59 (0.1) | **2.69 [1.47-4.90]** | **2.50 [1.34-4.66]** |
| Personality disorders | 9 (0.1) | 87 (0.1) | 1.57 [0.79-3.12] | 1.67 [0.84-3.33] |
| Intellectual disability | 38 (1.2) | 30 (0.1) | 20.80 [12.42-32.45] | **20.12 [12.43-32.53]** |
| ASD | 34 (3.8) | 14 (0.1) | **28.35 [15.63-51.38]** | **28.36 [15.60-51.57]** |
| Low cognitive ability | 1(0.01) | 58 (0.04) | 0.25 [0.03-1.80] | 0.26 [0.03-1.92] |
| ADHD | 1 (0.1) | 10 (0.1) | 0.92 [0.11-7.20] | 0.91 [0.11-7.18] |
| SUD | 0 (0) | 5 (0.1) | .. | 0 |
| Any psychiatric disorder | 59 (0.3) | 127 (0.1) | **5.63 [4.13-7.68]** | **5.93 [4.35-8.09]** |
| Hernia | 8 (0.1) | 157 (0.1) | 0.71 [0.53-1.46] | 0.71 [0.35-1.45] |
| Type-1 diabetes | 0 | 7(0.1) | .. | .. |
| Blood cancer | 0 (0) | 3 (0.04) | .. | .. |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Intellectual Disability** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 41 (2.7) | 321 (0.7) | **3**.**90** [**2.80-5.42**] | **3.82 [2.74-5.31]** |
| Mood disorders | 39 (0.9) | 253 (0.6) | **1.65 [1.18-2.30]** | **1.75 [1.25-2.44]** |
| Anxiety disorders | 52 (0.9) | 402 (0.6) | **1.58[1.18-2.11]** | **1.66 [1.24-2.22]** |
| Personality disorders | 102 (1.1) | 773 (0.6) | **2.01 [1.63-2.47]** | **2.03 [1.65-2.50]** |
| Intellectual disability | 225 (7.4) | 313 (0.7) | **12.07 [10.13-14.39]** | **12.28[10.30-14.65]** |
| ASD | 39 (4.3) | 68 (0.6) | **6.80 [4.74-9.77]** | **7.28 [5.06-10.49]** |
| Low cognitive ability | 104 (1.3) | 547 (0.5) | **2.78 [2.25-3.43]** | **2.63 [2.13-3.26]** |
| ADHD | 8 (0.6) | 56 (0.5) | 1.31 [0.62-2.77] | 1.34 [0.63-2.82] |
| SUD | 6 (1.4) | 30 (0.5) | **2.68 [1.11-6.49]** | **2.79 [1.15-6.77]** |
| Any psychiatric disorder | 360 (2.1) | 1073 (0.5) | **4.12 [3.65-4.65]** | **4.22 [3.74-4.76]** |
| Hernia | 63 (0.4) | 1091 (0.5) | 0.81 [0.63-1.04] | 0.82 [0.64-1.06] |
| Type-1 diabetes | 10 (1.0) | 55 (0.6) | 1.84 [0.93-3.63] | 1.67 [0.82-3.39] |
| Cancer | 3 (0.5) | 36 (0.6) | 0.88 [0.27-2.89] | 0.90 [0.27-2.93] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) ADHD** | | OR [95% CI] | OR [95% CI] |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 4 (0.4) | 64 (0.2) | 1.85 [0.67-5.10] | 1.85 [0.67-5.11] |
| Mood disorders | 3 (0.1) | 70 (0.2) | 0.64 [0.20-2.04] | 0.63 [0.19-2.00] |
| Anxiety disorders | 7 (0.2) | 72 (0.1) | 1.20 [0.55-2.63] | 1.20 [0.55-2.63] |
| Personality disorders | 11 (0.2) | 150 (0.2) | 1.16 [0.63-2.15] | 1.17 [0.63-2.16] |
| Intellectual disability | 5 (0.2) | 50 (0.1) | 1.56 [0.62-3.92] | 1.56 [0.62-3.93] |
| ASD | 4 (0.4) | 18 (0.2) | 2.71 [0.91-8.05] | 2.83 [0.95-8.42] |
| Low cognitive ability | 11 (0.2) | 138 (0.2) | 1.18 [0.64-2.19] | 1.19 [0.64-2.20] |
| ADHD | 10 (0.8) | 25 (0.2) | **3.70 [1.77-7.73]** | **3.73 [1.78-7.83]** |
| SUD | 1 (0.3) | 8 (0.2) | 1.74 [0.21-13.97] | 1.73 [0.21-13.94] |
| Any psychiatric disorder | 29 (0.2) | 240 (0.2) | **1.50 [1.02-2.21]** | **1.49 [1.01-2.20]** |
| Hernia | 26 (0.3) | 369 (0.3) | 0.98 [0.66-1.46] | 0.98 [0.66-1.46] |
| Type-1 diabetes | 1 (0.2) | 5 (0.1) | 0.92 [0.21-3.94] | 0.92 [0.22-3.97] |
| Blood cancer | 1 (0.2%) | 20 (0.3%) | 2.08 [0.24-17.90] | 2.08 [0.24-17.95] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Psychotic Disorders** | | OR [95% CI] | ^OR [95% CI] |
| Entire Sample | 9397 (1.5%) | |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 33 (2.2%) | 87 (0.2%) | **11.58 [7.73-17.35]** | **11.65 [7.77-14.45]** |
| Mood disorders | 24 (0.6%) | 117 (0.2%) | **3.06 [1.97-4.75]** | **3.13 [2.01-4.87]** |
| Anxiety disorders | 27 (0.5%) | 111 (0.2%) | **2.97 [1.95-4.53]** | **3.04 [1.99-4.63]** |
| Personality disorders | 39 (0.4%) | 208 (0.2%) | **2.85 [2.02-4.02]** | **2.82 [2.00-3.97]** |
| Intellectual disability | 29 (0.9) | 75 (0.2) | **6.10 [3.97-9.38]** | **6.09 [3.97-9.37]** |
| ASD | 8 (0.9) | 17 (0.2) | **4.55 [2.12-9.78]** | **4.59 [2.13-9.88]** |
| Low cognitive ability | 24 (0.3) | 179 (02) | **1.94 [1.27-2.98]** | **1.90 [1.23-2.91]** |
| ADHD | 3 (0.2) | 21 (0.2) | 1.31 [0.39-4.42] | 1.28 [0. 38-4.33] |
| SUD | 2 (0.5) | 12 (0.2) | 2.22 [0.49-9.97] | 2.15 [0.47-9.65] |
| Any | 120 (0.7) | 312 (0.1) | **4.68 [3.78-5.78]** | **4.67 [3.78-5.77]** |
| Hernia | 19 (0.2) | 313 (0.2) | 0.85 [0.53-1.36] | 0.86 [0.54-1.36] |
| Type-1 diabetes | 0 (0) | 16 (0.2) | .. | .. |
| Cancer | 0 (0) | 11 (0.2) | .. | .. |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Mood Disorders** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 27 (1.8%) | 320 (0.7%) | **2.55 [1.71-3.79]** | **2.57 [1.73-3.82]** |
| Mood disorders | 106 (2.5%) | 496 (0.8%) | **3.23 [2.61-3.99]** | **3.17 [2.56-3.92]** |
| Anxiety disorders | 126 (2.2%) | 460 (0.7%) | **3.39 [2.78-4.13]** | **3.32 [2.72-4.05]** |
| Personality disorders | 193 (2.2%) | 934 (0.7%) | **3.18 [2.72-3.72]** | **3.16 [2.70-3.70]** |
| Intellectual disability | 29(0.9) | 296 (0.6) | **1.54 [1.05-2.25]** | **1.53 [1.04-2.25]** |
| ASD | 19 (2.1) | 72 (0.7) | **3.46 [2.15-5.57]** | **3.42 [2.12-5.51]** |
| Low cognitive ability | 54 (0.7) | 752 (0.6) | 1.04 [0.79-1.37] | **1.07 [0.81-1.41]** |
| ADHD | 13 (1.0) | 80 (0.7) | 1.50 [0.83-2.70] | 1.47 [0.81-2.65] |
| SUD | 6 (1.4) | 36 (0.7) | 2.23 [0.93-5.33] | 2.21 [0.92-5.28] |
| Any psychiatric disorder | 341 (2.0) | 1380 (0.7) | **3.03 [2.68-3.41]** | **2.99 [2.65-3.37]** |
| Hernia | 104 (0.7) | 1399 (0.7) | 1.04 [0.85-1.28] | 1.04 [0.85-1.27] |
| Type-1 diabetes | 14 (1.5) | 62 (0.6) | **2.01 [1.12-3.58]** | **2.06 [1.15-3.68]** |
| Blood Cancer | 9 (1.5) | 44 (0.7) | 2.20 [1.06-4.53] | 2.25 [1.09-4.69] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Anxiety Disorders** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 19 (1.2) | 298 (0.7) | **1.92 [1.20-3.06]** | **1.93 [1.21-3.08]** |
| Mood disorders | 96 (2.3) | 460 (0.7) | **3.15 [2.52-3.93]** | **3.11 [2.49-3.88]** |
| Anxiety disorders | 143 (2.5) | 465 (0.7) | **3.82 [3.16-4.61]** | **3.77[3.12-4.56]** |
| Personality disorders | 177 (2.0) | 869 (0.6) | **3.13 [2.66-3.68]** | **3.14 [2.67-3.70]** |
| Intellectual disability | 29 (2.9) | 272 (0.6) | **1.67 [1.14-2.46]** | **1.67 [1.13-2.45]** |
| ASD | 16 (1.8) | 69 (0.6) | **3.18 [1.91-5.27]** | **3.12 [1.88-5.19]** |
| Low cognitive ability | 56 (0.7) | 101 (0.6) | 1.16 [0.88-1.52] | 1.19 [0.91-1.57] |
| ADHD | 16 (1.3) | 79 (0.7) | **1.87 [1.09-3.22]** | **1.86 [1.08-3.20]** |
| SUD | 3 (0.7) | 27 (0.5) | 1.48 [0.44-4.90] | 1.47 [0.44-4.88] |
| ANY | 351 (2.0) | 1315 (0.6) | **3.27 [2.90-3.68]** | **3.26 [2.89-3.67]** |
| Hernia | 106 (0.7) | 1353 (0.7) | 1.10 [0.90-1.34] | 1.10 [0.90-1.34] |
| Type-1 diabetes | 15 (1.6) | 62(0.6) | **2.47 [1.40-4.36]** | **2.51 [1.42-4.43]** |
| Blood cancer | 6 (1.0) | 42 (0.7) | 1.53 [0.64-3.61] | 1.55 [0.65-3.68] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with personality disorders** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 59 (3.9) | 664 (1.5) | **2.72 [2.07-3.57**] | **2.76 [2.10-3.62]** |
| Mood disorders | 198 (4.6) | 1022 (1.6) | **2.97 [2.54-3.47]** | **2.96 [2.53-3.46]** |
| Anxiety disorders | 197 (3.5) | 983 (1.4) | **2.49 [2.13-2.91]** | **2.47 [2.11-2.89]** |
| Personality disorders | 407 (4.6) | 2113 (1.6) | **3.01 [2.70-3.36]** | **2.90 [2.60-3.23]** |
| Intellectual disability | 88 (2.9) | 623 (1.3) | **2.24 [1.79-2.82]** | **2.25 [1.80-2.83]** |
| ASD | 31 (3.4) | 135 (1.2) | **2.87 [2.04-4.04]** | **3.00 [2.13-4.23]** |
| Low CA | 157 (2.0) | 1582 (1.4) | **1.44 [1.22-1.71]** | **1.40 [1.19-1.66]** |
| ADHD | 20 (1.6) | 121 (1.0) | 1.53 [0.95-2.46] | **1.54 [0.95-2.49]** |
| SUD | 19 (4.6) | 88 (1.6) | **2.96 [1.78-4.91]** | **2.85 [1.71-4.74]** |
| Any | 701 (4.1) | 2941 (1.4) | **2.96 [2.72-3.22]** | **2.88 [2.64-3.14]** |
| Hernia | 188 (1.3) | 2901 (1.4) | 0.91 [0.87-1.05] | 0.91 [0.79-1.06] |
| Type-1 diabetes | 7 (0.7) | 147 (1.5) | 0.47 [0.22-1.02] | 0.47 [0.22-1.01] |
| Blood cancer | 6 (1.0) | 73 (1.2) | 0.87 [0.37-2.02] | 0.87 [0.37-2.02] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with SUD** | | OR [95% CI] | ^OR [95% CI] |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 4 (0.3) | 9 (~0) | **13.35 [4.10-43.43]** | **13.04 [4.00-42.43]** |
| Mood disorders | 1 (~0.0) | 15 (~0) | 0.99 [0.13-7.52] | 0.98 [0.13-7.44] |
| Anxiety disorders | 1 (~0.0) | 15 (0.0) | 0.81 [0.10-6.15] | 0.80 [0.10-6.11] |
| Personality disorders | 6 (0.1) | 27 (0.02) | **3.48 [1.43-8.43]** | **3.46 [1.42-8.38]** |
| Intellectual disability | 2 (0.1) | 16 (0.03) | 1.95 [0.44-8.51] | 1.95 [0.44-8.49] |
| ASD | 1 (0.1%) | 7 (0.1) | 1.752 [0.21-14.25] | 0.85 [0.20-13.78] |
| Low cognitive ability | 3 (0.04) | 30 (0.03) | 1.46 [0.44-4.80] | 1.30 [0.39-4.27] |
| ADHD | 0 (0) | 1 (0.008) | .. | .. |
| SUD | 0 (0) | 5 (0.1) | .. | .. |
| Any psychiatric disorder | 11 (0.1) | 44 (0.02) | **3.07 [1.59-5.96]** | **3.05 [1.57-5.92]** |
| Hernia | 4 (0.02) | 41 (0.03) | 1.36 [0.48-3.80] | 1.36 [0.49-3.81] |
| Type-1 diabetes | 0 (0) | 2 (0.02) | 0.457 [0.144-1.452] | 0.455 [0.143-1.446] |
| Cancer | 0 (0%) | 2 (0.04) | .. | .. |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with low cognitive ability** | | OR [95% CI] | ^OR [95% CI] |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 49 (3.2) | 784 (1.7) | **1.90 [1.41-2.54]** | **1.89 [1.41-2.53]** |
| Mood disorders | 66 (1.5) | 1162 (1.8) | 0.84 [0.65-1.08] | 0.89 [0.69-1.14] |
| Anxiety disorders | 85 (1.5) | 1230 (1.8) | 0.84 [0.67-1.04] | 0.88 [0.71-1.10] |
| Personality disorders | 260 (2.9) | 2447 (1.8) | **1.63 [1.43-1.85]** | **1.63 [1.43-1.86]** |
| Intellectual disability | 121 (4.0) | 906 (1.9) | 2.13 [1.76-2.69] | **2.15 [1.77-2.62]** |
| ASD | 13 (1.4) | 215 (2.0) | 0.86 [0.52-1.41] | 0.89 [0.54-1.46] |
| Low cognitive ability | 680 (8.5) | 2215 (1.9) | **4.77 [4.36-5.21]** | **4.49 [4.11-4.91]** |
| ADHD | 14 (1.1) | 186 (1.6) | 0.69 [0.40-1.19] | 0.71 [0.41-1.23] |
| SUD | 16 (3.8) | 128 (2.3) | 1.69 [0.99-2.87] | **1.73 [1.01-2.94]** |
| Any psychiatric disorder | 424 (2.5) | 3618 (1.7) | **1.42 [1.29-1.58]** | **1.45 [1.31-1.60]** |
| Hernia | 124 (1.2) | 3239 (1.6) | **0.75 [0.64-0.88]** | **0.77 [0.66-0.90]** |
| Type-1 diabetes | 8 (0.8) | 160 (1.7) | 0.50 [0.24-1.02] | 0.50 [0.24-1.02] |
| Blood cancer | 6 (1.0) | 111 (1.8) | 0.57 [0.25-1.30] | 0.57 [0.25-1.32] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with any psychiatric disorder** | | OR [95% CI] | ^OR [95% CI] |
|  | Sibings of probands | Siblings of controls |
| Psychotic disorders | 169 (11.1) | 1545 (3.4) | **3.55 [3.00-4.20]** | **3.56 [3.01-4.21]** |
| Mood disorders | 387 (9.1) | 2159 (3.4) | **2.83 [2.53-3.17]** | **2.84 [2.54-3.18]** |
| Anxiety disorders | 455 (8.0) | 2183 (3.2) | **2.67 [2.40-2.97]** | **2.67 [2.40-2.96]** |
| Personality disorders | 769 (8.7) | 4339 (3.3) | **2.81 [2.59-3.04]** | **2.78 [2.56-3.01]** |
| Intellectual disability | 384 (12.6) | 1436 (3.0) | **4.64 [4.12-5.23]** | **4.66 [4.13-4.525]** |
| ASD | 138 (12.2) | 435 (3.1) | **4.40 [3.59-5.39]** | **4.48 [3.65-5.48]** |
| Low cognitive ability | 361 (4.5) | 3386 (2.9) | **1.57 [1.40-1.75]** | **1.56 [1.40-1.75]** |
| ADHD | 67 (5.2) | 341 (2.9) | **1.85 [1.41-2.42]** | **1.85 [1.41-2.42]** |
| SUD | 35 (8.4) | 182(3.3) | **2.70 [1.85-3.93]** | **2.67 [1.83-3.90]** |
| Any psychiatric disorder | 1651 (9.6) | 6328 (3.0) | **3.38 [3.20-3.58]** | **3.36 [3.17-3.56]** |
| Hernia | 449 (3.2) | 6467 (3.2) | 0.97 [0.88-1.07] | 0.98 [0.89-1.08] |
| Type-1 diabetes | 39 (4.1) | 329 (3.4) | 1.20 [0.86-1.69] | 1.18 [0.83-1.66] |
| Blood cancer | 21 (3.6) | 85 (2.9) | 1.21 [0.77-1.93] | 1.22 [0.77-1.94] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with type-1 diabetes** | | **OR [95% CI[** | **^OR [95% CI]** |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 4 (0.3) | 109 (0.2) | 1.09 [0.40-2.98] | 1.09 [0.40-2.98] |
| Mood disorders | 17 (0.4) | 145 (0.2) | **1.74 [1.05-2.89]** | **1.72 [1.04-2.85]** |
| Anxiety disorders | 18 (0.3) | 178 (0.3) | 1.23 [0.75-2.00] | 1.23 [0.76-2.01] |
| Personality disorders | 20 (0.2) | 327 (0.2) | 0.92 [0.59-1.45] | 0.95 [0.60-1.49] |
| Intellectual disability | 14 (0.5) | 105 (0.2) | **2.09 [1.19-3.66]** | **1.94 [1.09-3.45]** |
| ASD | 4 (0.4) | 33 (0.2) | 1.52 [0.54-4.31] | 1.16 [0.35-3.80] |
| Low cognitive ability | 19 (0.2) | 330 (0.3) | 0.83 [0.52-1.32] | 0.84 [0.53-1.34] |
| ADHD | 0 (0%) | 30 (0.4%) | .. | .. |
| SUD | 1 (0.2) | 11 (0.2) | 1.21 [0.15-9.39] | 1.20 [0.15-9.38] |
| Any psychiatric disorder | 50 (0.3) | 520 (0.2) | 1.16 [0.87-1.55] | 1.15 [0.86-1.55] |
| Hernia | 29 (0.2) | 579 (0.3) | 0.70 [0.48-1.02] | 0.70 [0.48-1.02**]** |
| Type-1 diabetes | 37 (3.9) | 21 (0.2) | **18.50 [10.78-31.75]** | **18.54 [10.81-31.82]** |
| Blood cancer | 4 (0.7) | 25 (0.4) | 1.71 [0.59-4.93] | 1.73 [0.60-4.99] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with hernia** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorderss | 22 (1.4) | 682 (1.5) | 0.96 [0.62-1.48] | 0.97 [0.63-1.49] |
| Mood disorders | 85 (2.0) | 926 (1.5) | **1.37 [1.09-1.71]** | **1.34 [1.07-1.68]** |
| Anxiety disorders | 120 (2.1) | 1034 (1.5) | **1.42 [1.17-1.72]** | **1.38 [1.14-1.67]** |
| Personality disorders | 130 (1.5) | 2147 (1.6) | 0.91 [0.76-1.09] | 0.90 [0.76-1.08] |
| Intellectual disability | 44 (1.4) | 731 (1.5) | 0.94 [0.69-1.28] | 0.94 [0.69-1.28] |
| ASD | 22 (1.9) | 205 (1.4) | 1.35 [0. 87-2.11] | 1.33 [0.85-2.07] |
| Low cognitive ability | 102 (1.3) | 1903 (1.6) | **0.77 [0.63-0.94]** | **0.79 [0.65-0.97]** |
| ADHD | 20 (1.6) | 197 (1.7) | 0.93 [0.58-1.48] | 0.91 [0.57-1.46] |
| SUD | 5 (1.2) | 85 (1.5) | 0.78 [0.31-1.93] | 0.77 [0.31-1.90] |
| Any psychiatric disorder | 285 (1.7) | 3318 (1.6) | 1.04 [0.92-1.17] | 1.02 [0.90-1.15] |
| Hernia | 631 (4.4) | 2689 (1.3) | **3.41 [3.12-3.73** | **3.40 [3.11-3.72]** |
| Type-1 diabetes | 11 (1.2) | 166 (1.7) | 0.66 [0.36-1.23] | 0.66 [0.36-1.22] |
| Blood cancer | 10 (1.6) | 101 (1.7) | 1.05 [0.54-2.03] | 1.04 [0.54-2.01] |

**Bold** notationindicates significant result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample** | **N (%) with Blood cancer** | | OR [95% CI] | ^OR [95% CI] |
|  | Siblings of probands | Siblings of controls |
| Psychotic disorders | 2 (~0) | 58 (0.1) | 1.46 [0.35-6.04] | 1.47 [0.35-6.09] |
| Mood disorders | 4 (0.1) | 45 (0.1) | 1.32 [0.47-3.68] | 1.34 [0.48-3.73] |
| Anxiety disorders | 13 (0.1) | 108 (0.1) | 0.42 [0.10-1.72] | 0.41 [0.10-1.69] |
| Personality disorders | 12 (0.1) | 102 (0.1) | 1.78 [0.98-3.25] | 1.79 [0.98-3.26] |
| Intellectual disability | 1 (0.03) | 35 (0.1) | 0.44 [0.61-3.26] | 0.44 [0.06-3.26] |
| ASD | 0 (0) | 7 (0.04) | .. | .. |
| Low cognitive ability | 8 (0.1) | 114 (0.1) | 1.01 [0.49-2.08] | 1.04 [0.50-2.14] |
| ADHD | 1 (0.1) | 9 (0.1) | 1.02 [0.13-8.08] | 0.98 [0.12-7.82] |
| SUD | 0 (0) | 4 (0.1) | .. | .. |
| Any | 19 (0.1) | 155 (0.1) | 1.48 [0.92-2.39] | 1.48 [0.92-2.39] |
| Hernia | 15 (0.1) | 170 (0.1) | 1.24 [0.73-2.11] | 1.23 [0.72-2.09] |
| Type-1 diabetes | 0 (0) | 7 (0.1) | .. | .. |
| Cancer | 1 (0.2) | 13 (0.2) | 0.82 [0.10-6.28] | 0.79 [0.10 -6.10] |

**Bold** notationindicates significant result.