

Supplementary Table 3. Genetic correlations between AUDIT Total Score and other relevant traits using LDSC (traits with FDR &lt; 0.05 are highlighted in bold)

| Trait                            | Sample Size | Pubmed ID   | Genetic correlation ( $r_g$ ) | Standard error | Zscore  | Pvalue    | FDR < 0.05 | h2_obs | h2_obs_ | h2_int | h2_int_se | gcov_int | gcov_int_se |
|----------------------------------|-------------|---|-------------------------------|----------------|---------|-----------|------------|--------|---------|--------|-----------|----------|-------------|
| <b>AUDIT Consumption UKBB</b>    | 141,958     | Current ms  | 0.983                         | 0.005          | 213.320 | 0.00E+00  | Yes        | 0.085  | 0.005   | 0.997  | 0.007     | 0.891    | 0.007       |
| <b>Alcohol consumption UKBB</b>  | 112,117     | 28937693  | 0.961                         | 0.034          | 28.448  | 5.11E-178 | Yes        | 0.080  | 0.006   | 1.011  | 0.008     | 0.164    | 0.006       |
| <b>AUDIT Problematic UKBB</b>    | 141,958     | Current ms  | 0.805                         | 0.029          | 28.191  | 7.80E-175 | Yes        | 0.059  | 0.005   | 1.006  | 0.007     | 0.550    | 0.006       |
| <b>AUDIT 2sandMe</b>             | 20,328      | 29058377  | 0.824                         | 0.088          | 9.314   | 1.23E-20  | Yes        | 0.086  | 0.026   | 1.005  | 0.007     | 0.387    | 0.006       |
| <b>Alcohol consumption</b>       | 70,460      | 27911795  | 0.847                         | 0.115          | 7.386   | 1.52E-13  | Yes        | 0.047  | 0.012   | 1.014  | 0.012     | -0.003   | 0.008       |
| <b>Smoking Lifetime Use</b>      | 74,035      | 20418890  | 0.334                         | 0.050          | 6.646   | 3.02E-11  | Yes        | 0.075  | 0.007   | 0.997  | 0.006     | -0.002   | 0.005       |
| <b>Years of Education</b>        | 293,723     | 27225129  | 0.193                         | 0.030          | 6.427   | 1.30E-10  | Yes        | 0.126  | 0.005   | 0.931  | 0.010     | 0.018    | 0.006       |
| <b>Cannabis Lifetime Use</b>     | 32,330      | 27023175  | 0.314                         | 0.062          | 5.098   | 3.44E-07  | Yes        | 0.092  | 0.016   | 0.998  | 0.006     | 0.004    | 0.005       |
| <b>College attainment</b>        | 95,427      | 23722424  | 0.234                         | 0.048          | 4.934   | 8.06E-07  | Yes        | 0.105  | 0.007   | 1.022  | 0.008     | 0.007    | 0.006       |
| <b>Cognitive performance</b>     | 106,736     | 25201988  | 0.221                         | 0.047          | 4.671   | 3.00E-06  | Yes        | 0.106  | 0.008   | 1.028  | 0.009     | 0.008    | 0.006       |
| <b>Alcohol dependence PGC</b>    | 52,848      | bioRxiv   | 0.394                         | 0.085          | 4.641   | 3.47E-06  | Yes        | 0.057  | 0.012   | 1.019  | 0.006     | 0.006    | 0.005       |
| <b>HDL cholesterol</b>           | 100,184     | 20686565  | 0.215                         | 0.046          | 4.639   | 3.50E-06  | Yes        | 0.126  | 0.023   | 1.060  | 0.051     | 0.007    | 0.007       |
| <b>Obesity</b>                   | 98,897      | 23563607  | -0.160                        | 0.036          | -4.399  | 1.09E-05  | Yes        | 0.171  | 0.010   | 0.798  | 0.009     | -0.004   | 0.006       |
| <b>Triglycerides</b>             | 95,598      | 20686565  | -0.160                        | 0.042          | -3.813  | 1.00E-04  | Yes        | 0.168  | 0.029   | 0.968  | 0.017     | 0.000    | 0.006       |
| <b>LDL cholesterol</b>           | 95,454      | 20686565  | -0.160                        | 0.042          | -3.813  | 1.00E-04  | No         | 0.168  | 0.029   | 0.968  | 0.017     | 0.000    | 0.006       |
| <b>Intracranial brain volume</b> | 13,171      | 25607358  | 0.229                         | 0.077          | 2.981   | 2.87E-03  | No         | 0.181  | 0.044   | 1.001  | 0.007     | 0.001    | 0.005       |
| <b>BMI</b>                       | 339,224     | 25673413  | -0.138                        | 0.050          | -2.728  | 6.38E-03  | No         | 0.607  | 0.047   | 0.893  | 0.010     | 0.006    | 0.008       |
| <b>Childhood IQ</b>              | 12,441      | 23358156  | 0.148                         | 0.066          | 2.234   | 2.55E-02  | No         | 0.277  | 0.043   | 1.001  | 0.009     | 0.005    | 0.007       |
| <b>Bipolar Disorder</b>          | 16,731      | 21926972  | 0.135                         | 0.061          | 2.200   | 2.79E-02  | No         | 0.507  | 0.050   | 1.003  | 0.009     | -0.003   | 0.007       |
| <b>Caudate Volume</b>            | 13,171      | 25607358  | 0.136                         | 0.065          | 2.095   | 3.62E-02  | No         | 0.253  | 0.039   | 0.968  | 0.006     | -0.009   | 0.005       |
| <b>Alcohol Dependence</b>        | 7,280       | 24166409  | 0.483                         | 0.235          | 2.050   | 4.03E-02  | No         | 0.079  | 0.065   | 1.049  | 0.007     | -0.005   | 0.005       |
| <b>ADHD2 PGC</b>                 | 53,293      | <a href="https://doi.org/10.1101/144581">https://doi.org/10.1101/144581</a> | -0.081                        | 0.040          | -1.999  | 4.57E-02  | No         | 0.234  | 0.015   | 1.037  | 0.010     | 0.001    | 0.006       |
| <b>Childhood Obesity</b>         | 13,848      | 22484627  | -0.097                        | 0.050          | -1.948  | 5.14E-02  | No         | 0.419  | 0.046   | 0.920  | 0.008     | 0.002    | 0.005       |
| <b>Schizophrenia</b>             | 77,096      | 25056061  | 0.052                         | 0.028          | 1.872   | 6.12E-02  | No         | 0.473  | 0.019   | 1.038  | 0.013     | -0.010   | 0.007       |
| <b>Neuroticism</b>               | 106,716     | 27067015  | -0.064                        | 0.035          | -1.824  | 6.82E-02  | No         | 0.126  | 0.010   | 0.990  | 0.010     | -0.003   | 0.006       |
| <b>Height</b>                    | 253,288     | 25282103  | 0.041                         | 0.023          | 1.806   | 7.10E-02  | No         | 0.343  | 0.018   | 1.227  | 0.032     | -0.004   | 0.008       |
| <b>Depressive Symptoms</b>       | 161,460     | 27089181  | -0.077                        | 0.046          | -1.678  | 9.33E-02  | No         | 0.047  | 0.004   | 1.001  | 0.007     | -0.012   | 0.006       |
| <b>Major Depressive Disorder</b> | 18,759      | 22472876  | -0.114                        | 0.073          | -1.561  | 1.19E-01  | No         | 0.153  | 0.029   | 1.014  | 0.008     | 0.001    | 0.006       |
| <b>Subjective Wellbeing</b>      | 298,420     | 27089181  | -0.070                        | 0.049          | -1.421  | 1.55E-01  | No         | 0.025  | 0.002   | 1.002  | 0.007     | 0.010    | 0.006       |
| <b>Anorexia Nervosa</b>          | 17,767      | 24514567  | 0.083                         | 0.067          | 1.244   | 2.13E-01  | No         | 0.189  | 0.031   | 1.011  | 0.008     | -0.007   | 0.006       |
| <b>Former smoker</b>             | 70,675      | 20418890  | -0.064                        | 0.070          | -0.909  | 3.84E-01  | No         | 0.036  | 0.006   | 1.001  | 0.006     | 0.002    | 0.004       |
| <b>Total Cholesterol</b>         | 99,500      | 20686565  | 0.025                         | 0.039          | 0.651   | 5.15E-01  | No         | 0.132  | 0.023   | 1.024  | 0.036     | -0.006   | 0.006       |
| <b>Loneliness HRS</b>            | 10,760      | 27629369  | 0.087                         | 0.135          | 0.647   | 5.18E-01  | No         | 0.144  | 0.089   | 1.005  | 0.007     | -0.001   | 0.005       |
| <b>Hippocampus Volume</b>        | 13,171      | 25607358  | -0.045                        | 0.085          | -0.525  | 6.00E-01  | No         | 0.140  | 0.039   | 0.988  | 0.007     | 0.001    | 0.005       |
| <b>Nucleus Accumbens Volume</b>  | 13,171      | 25607358  | 0.050                         | 0.099          | 0.503   | 6.15E-01  | No         | 0.086  | 0.036   | 0.981  | 0.007     | -0.001   | 0.004       |
| <b>Extraversion</b>              | 63,030      | 26362575  | -0.027                        | 0.070          | -0.381  | 7.04E-01  | No         | 0.020  | 0.003   | 1.003  | 0.007     | 0.010    | 0.005       |
| <b>Daily cigarettes</b>          | 68,028      | 20418890  | 0.030                         | 0.081          | 0.371   | 7.11E-01  | No         | 0.033  | 0.009   | 1.006  | 0.006     | -0.005   | 0.005       |
| <b>Neuroticism</b>               | 170,911     | 27089181  | -0.009                        | 0.040          | -0.232  | 8.17E-01  | No         | 0.090  | 0.008   | 0.986  | 0.013     | -0.008   | 0.006       |
| <b>Smoking Age Onset</b>         | 47,961      | 20418890  | 0.004                         | 0.098          | 0.036   | 9.72E-01  | No         | 0.029  | 0.009   | 1.001  | 0.006     | 0.004    | 0.004       |