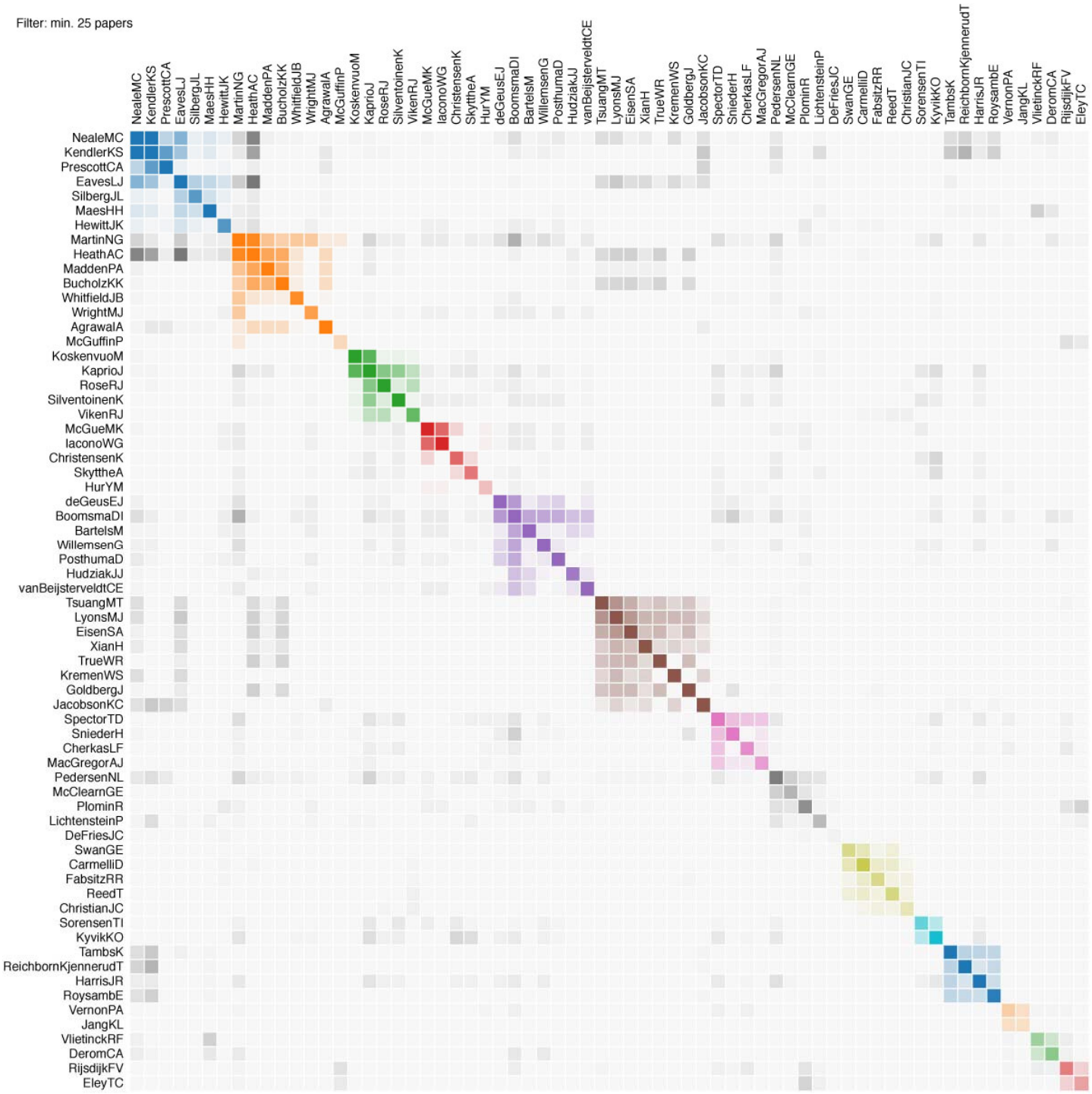
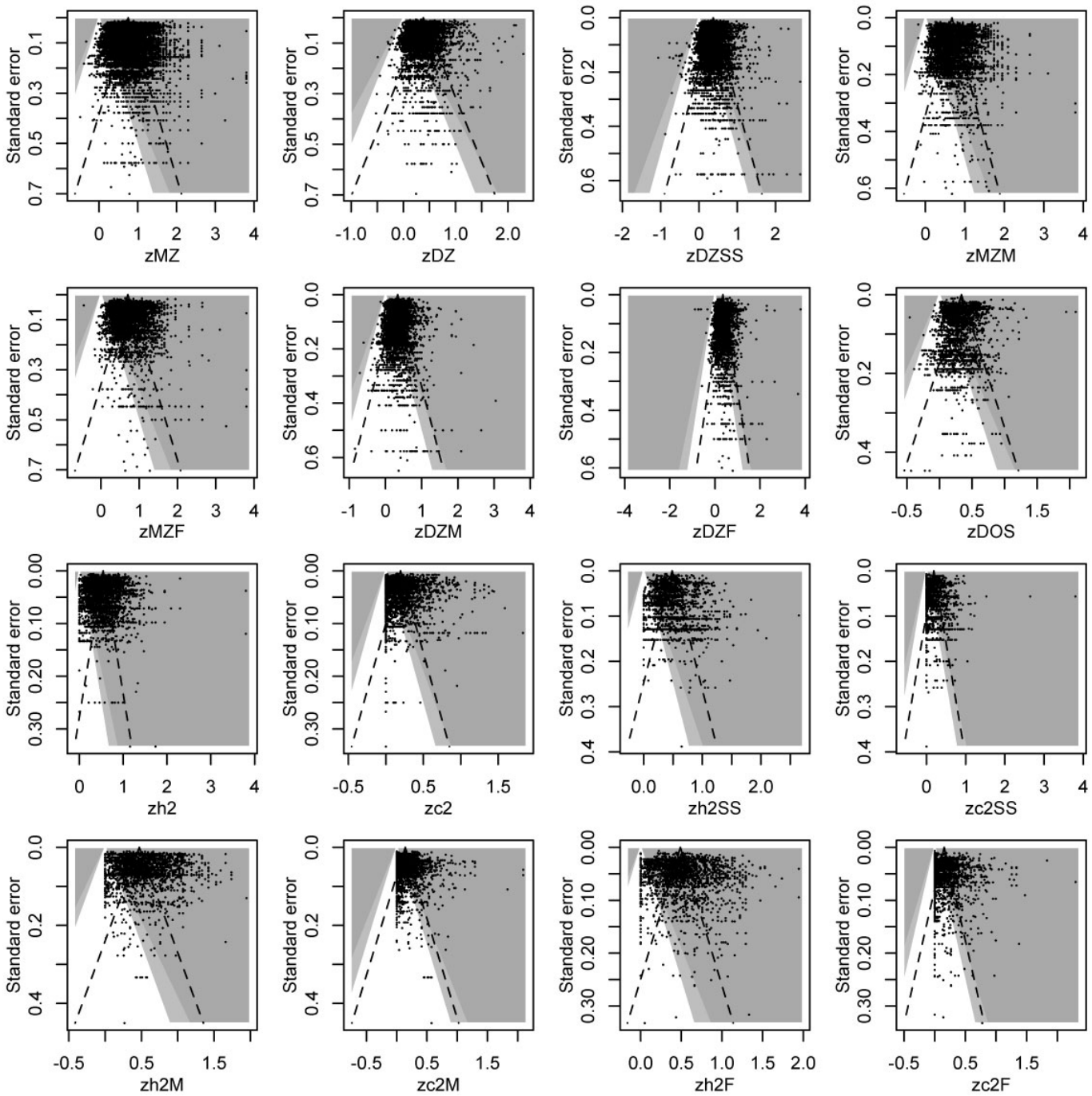


Supplementary Figure 1

Authorship co-occurrence matrix on 2,748 twin studies published between 1958 and 2012.

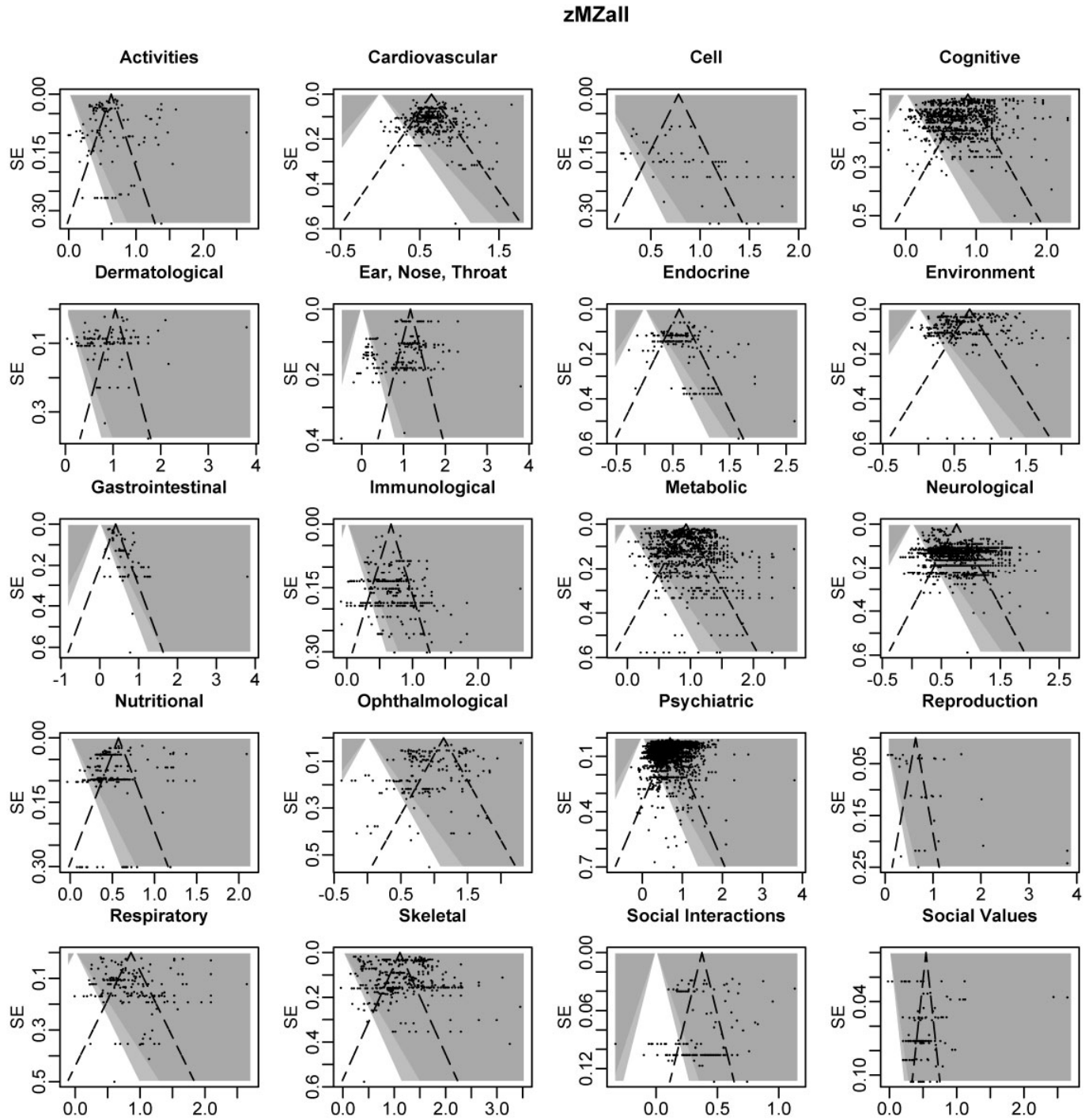
Each colored cell represents two authors who appeared on the same paper; darker cells indicate authors that co-published more frequently. The filter of at least 25 papers per author was set for readability. The web application MaTCH has an interactive version of this matrix.



Supplementary Figure 2

Funnel plots across all traits for twin correlations and variance components.

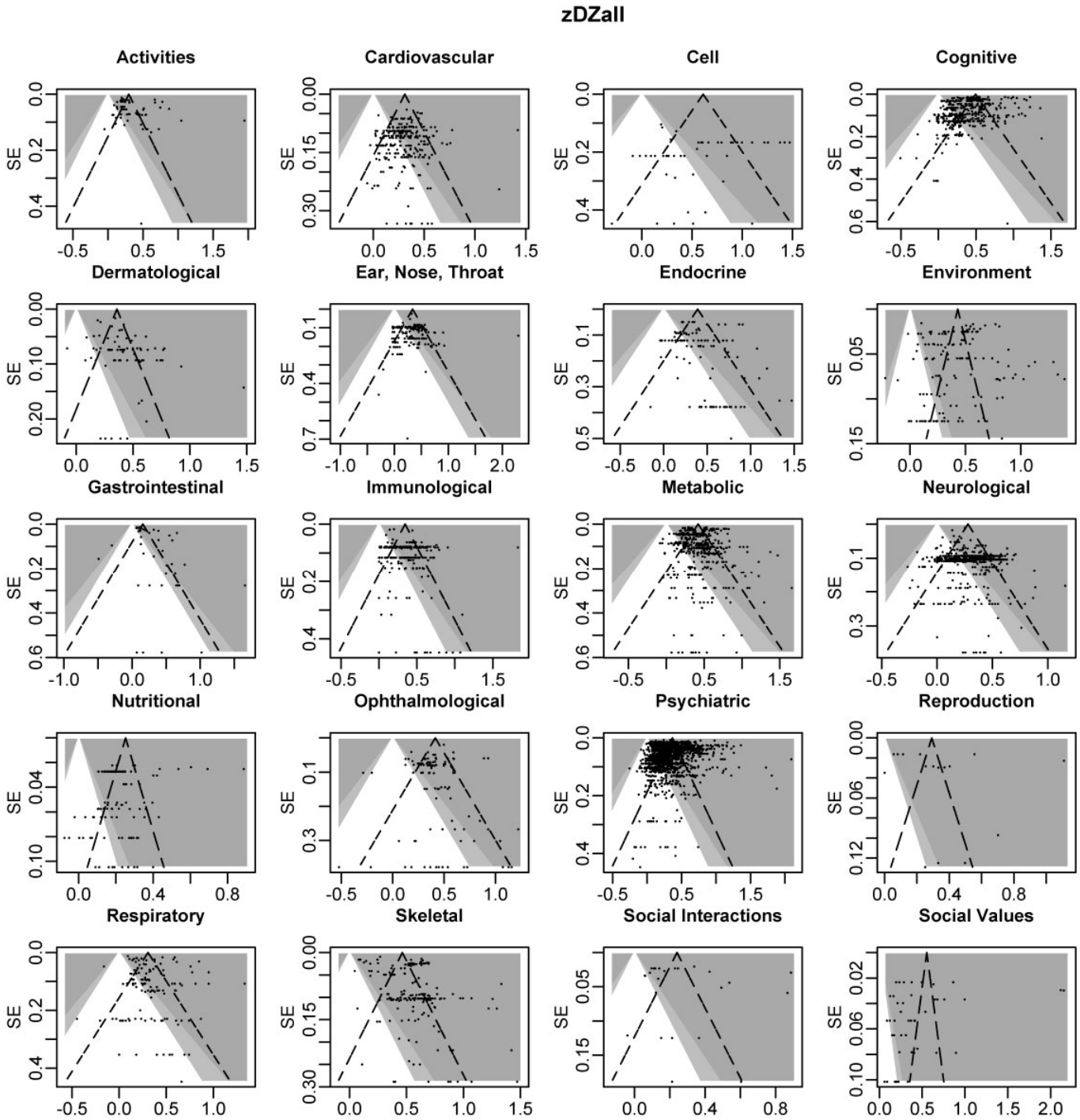
Z, *Z*-converted correlation; MZ, monozygotic twins; DZ, dizygotic twins; DZSS, DZ same-sex twins; MZM, MZ male twins; MZF, MZ female twins; DZM, DZ male twins; DZF, DZ female twins; DOS, DZ opposite-sex twins; h^2, heritability; c^2, shared environment;, h^2 same sex;, c^2 same sex;, h^2 males;, c^2 males;, h^2 female;, c^2 females.



Supplementary Figure 3

Funnel plots for r_{MZ} across the major trait domains.

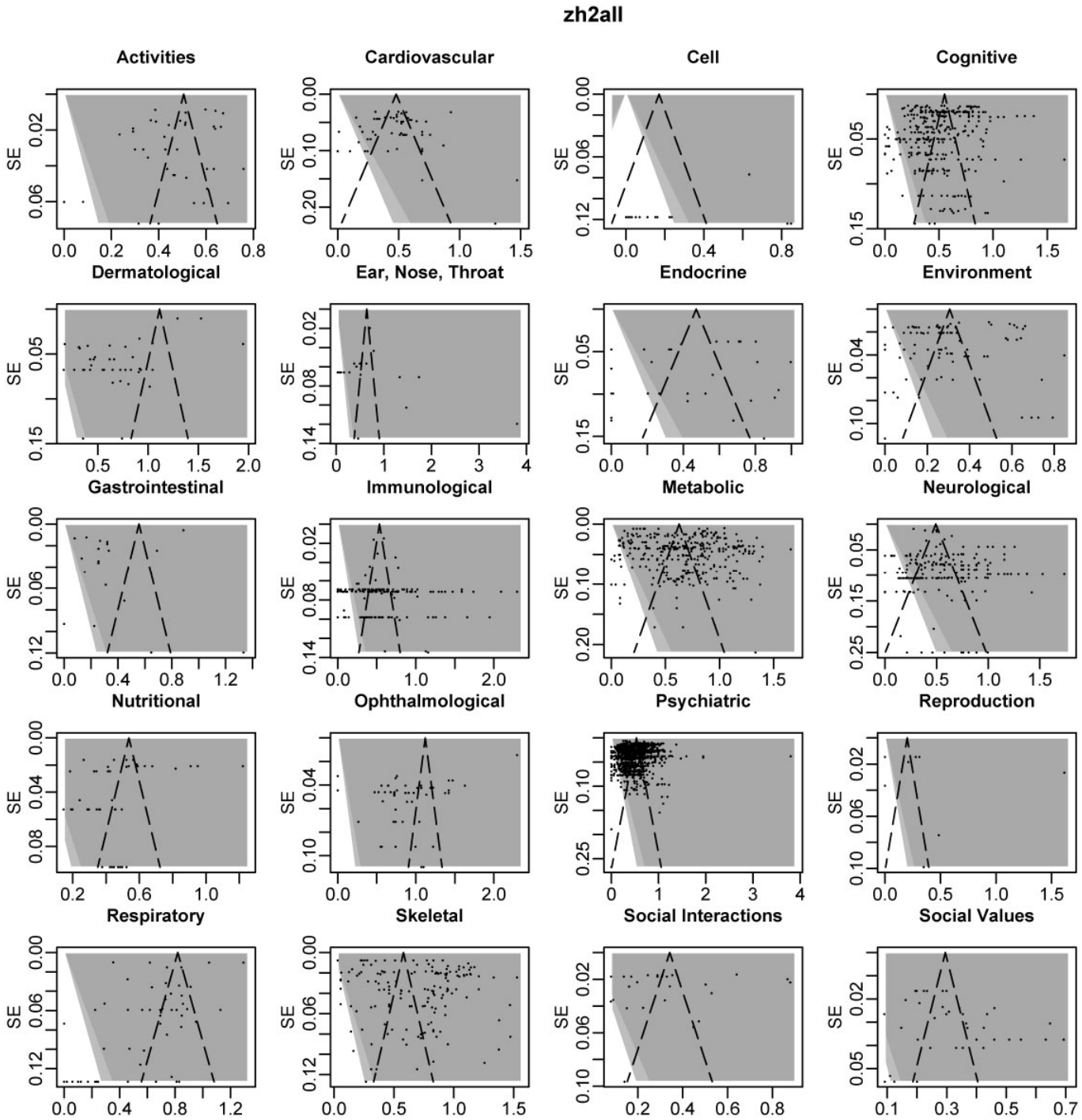
The plots denote the relationship between the *Z*-transformed r_{MZ} and its standard error. SE, standard error.



Supplementary Figure 4

Funnel plots for r_{DZ} across the major trait domains.

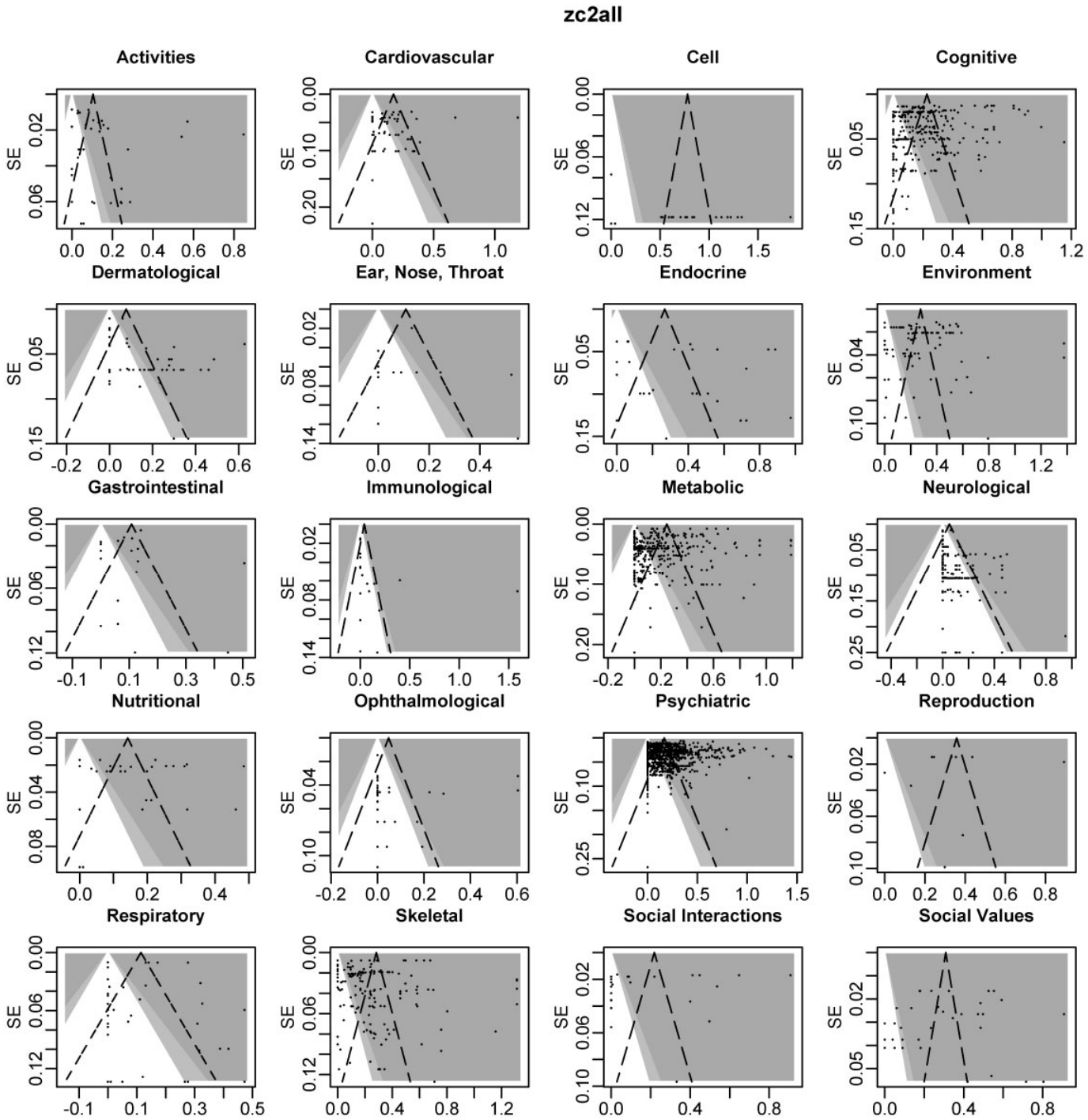
The plots denote the relationship between the *Z*-transformed r_{DZ} and its standard error. SE, standard error.



Supplementary Figure 5

Funnel plots for h^2 across the major trait domains.

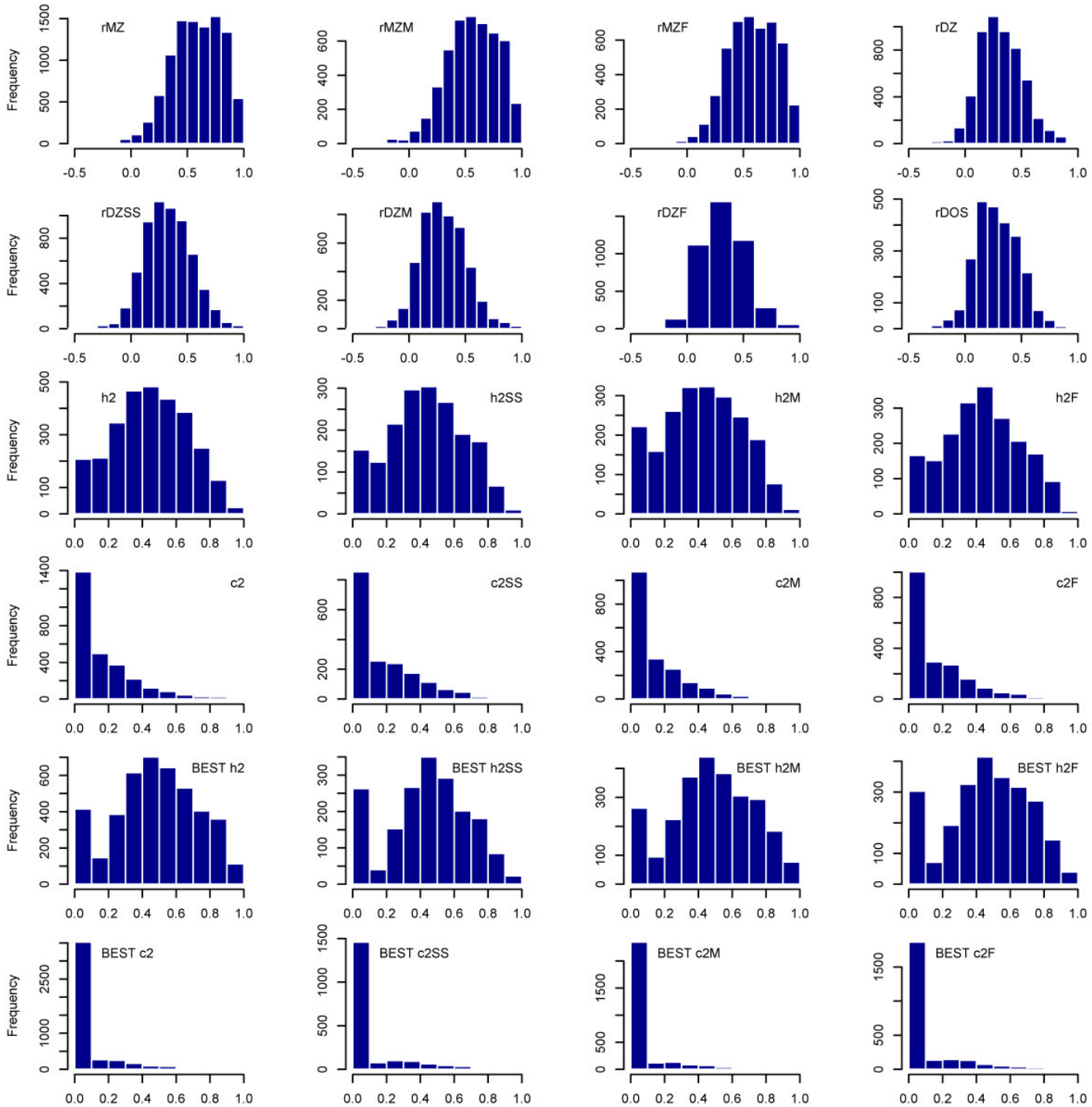
The plots denote the relationship between the *Z*-transformed h^2 and its standard error. SE, standard error.



Supplementary Figure 6

Funnel plots for c^2 across the major trait domains.

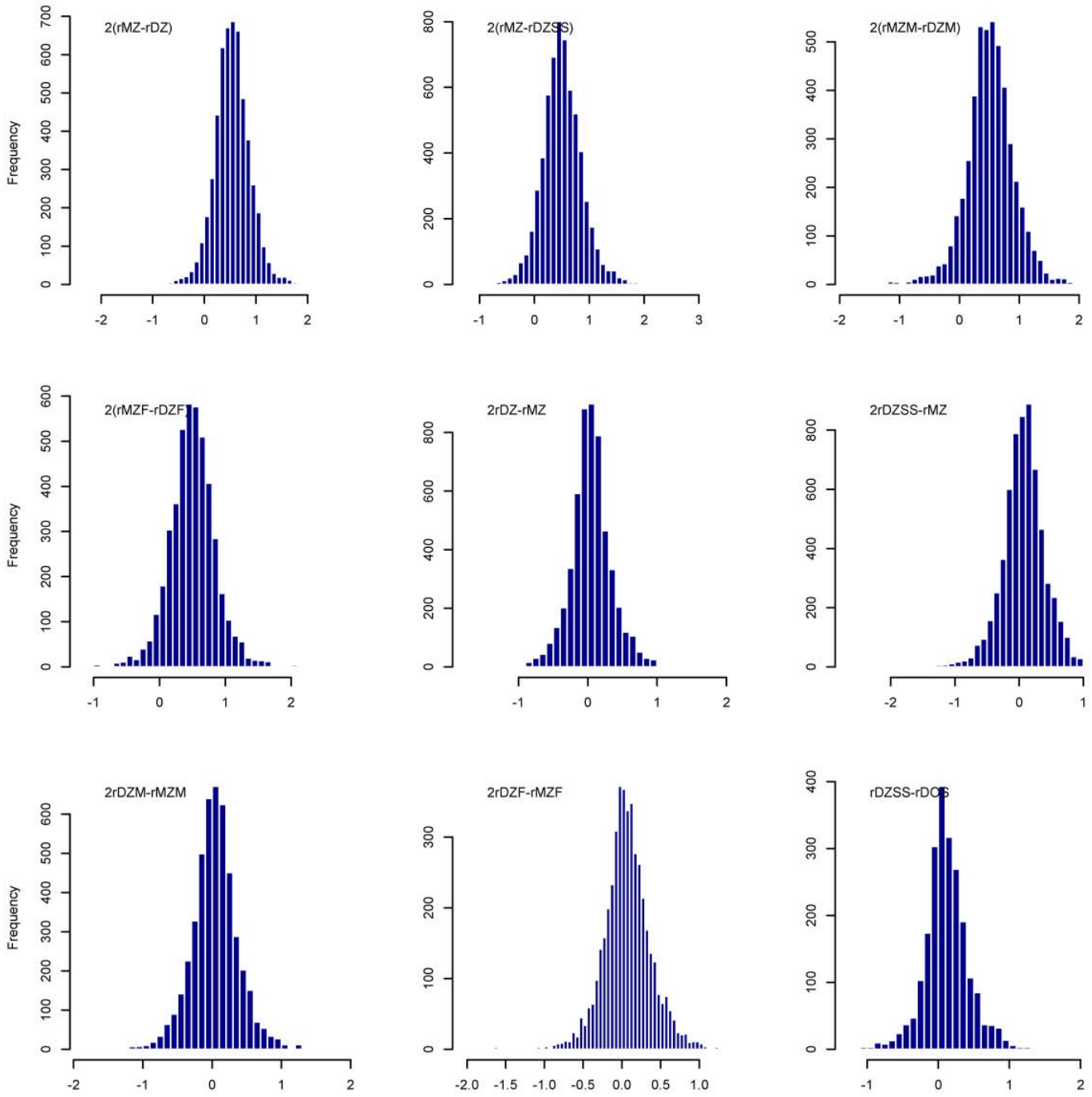
The plots denote the relationship between the *Z*-transformed c^2 and its standard error. SE, standard error.



Supplementary Figure 7

Distribution of twin correlations and variance components in full and best models across all traits from 2,748 studies.

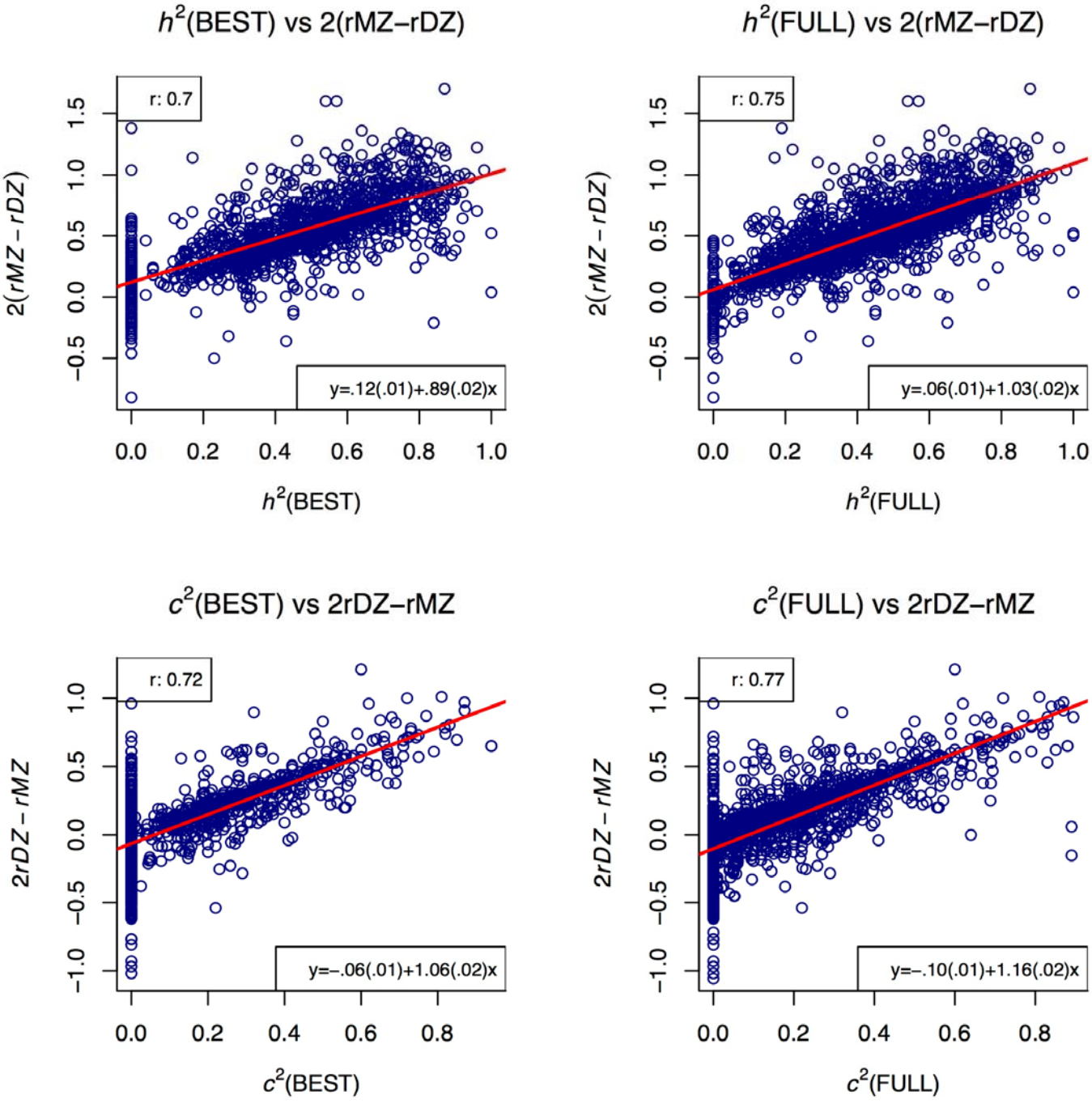
r_{MZ}, monozygotic twin correlation; r_{DZ}, dizygotic twin correlation; r_{DZSS}, DZ same-sex twin correlation; r_{MZM}, MZ male twin correlation; r_{MZF}, MZ female twin correlation; r_{DZM}, DZ male twin correlation; r_{DZF}, DZ female twin correlation; r_{DOS}, DZ opposite-sex twin correlation; h^2, heritability; c^2, shared environment;, h^2 same sex;,c^2 same sex;, h^2 males;, c^2 males;, h^2 females;, c^2 females. "BEST" denotes estimates from the most parsimonious models per study. All other estimates are from "FULL" models.



Supplementary Figure 8

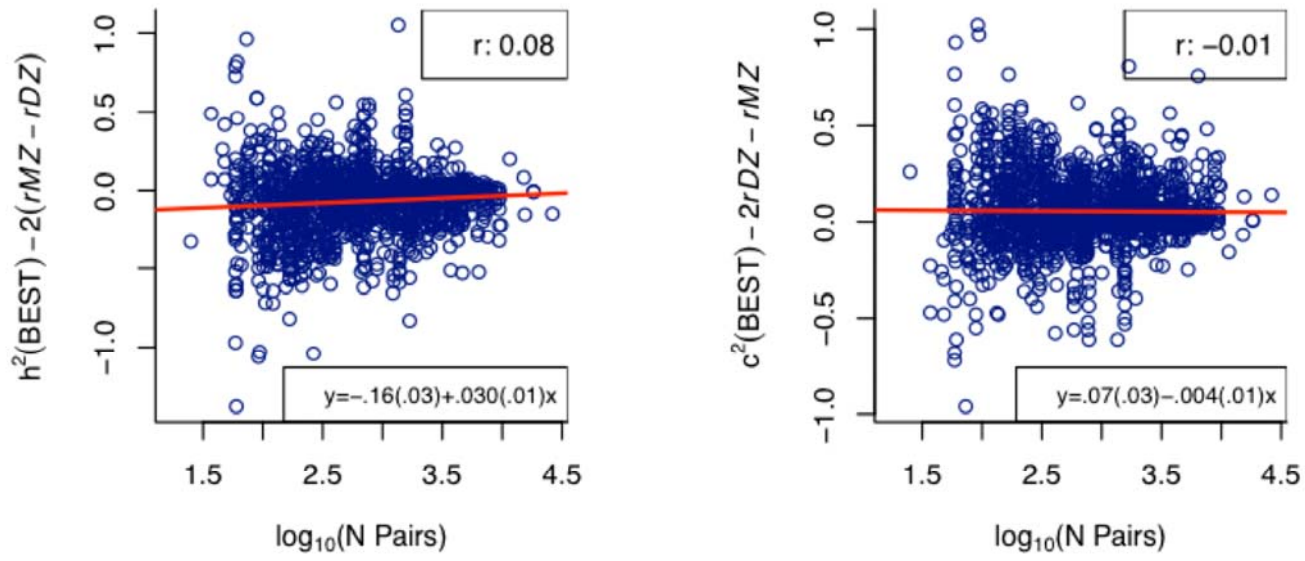
Distribution of differences between MZ and DZ correlations.

r_{MZ}, monozygotic twin correlation; r_{DZ}, dizygotic twin correlation; r_{DZSS}, DZ same-sex twin correlation; r_{MZM}, MZ male twin correlation; r_{MZF}, MZ female twin correlation; r_{DZM}, DZ male twin correlation; r_{DZF}, DZ female twin correlation; r_{DOS}, DZ opposite-sex twin correlation.



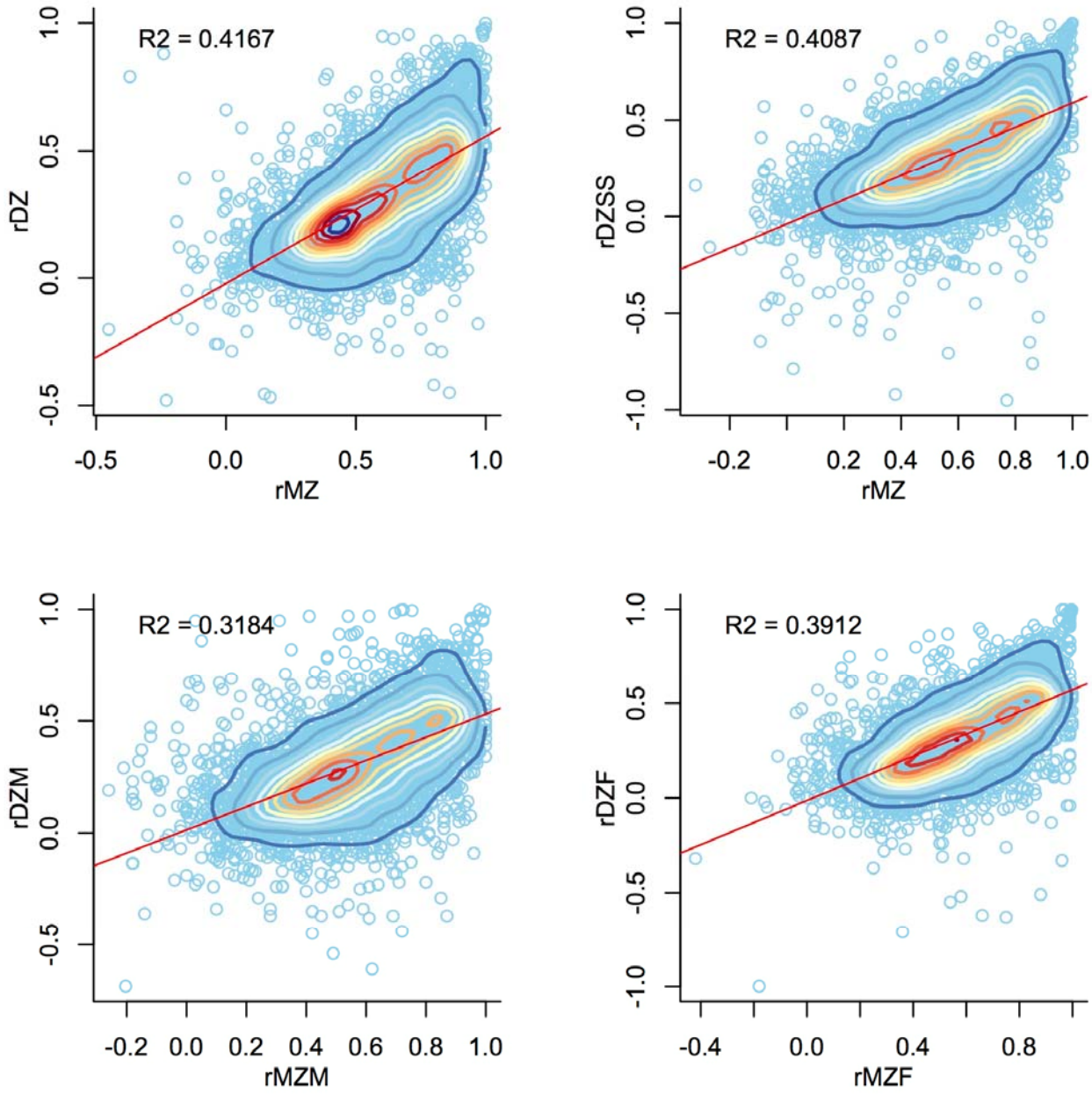
Supplementary Figure 9

The correlation between variance component estimates (h^2 or c^2) from maximum-likelihood (BEST or FULL models) (*x* axis) compared to the least-squares estimates (*y* axis).



Supplementary Figure 10

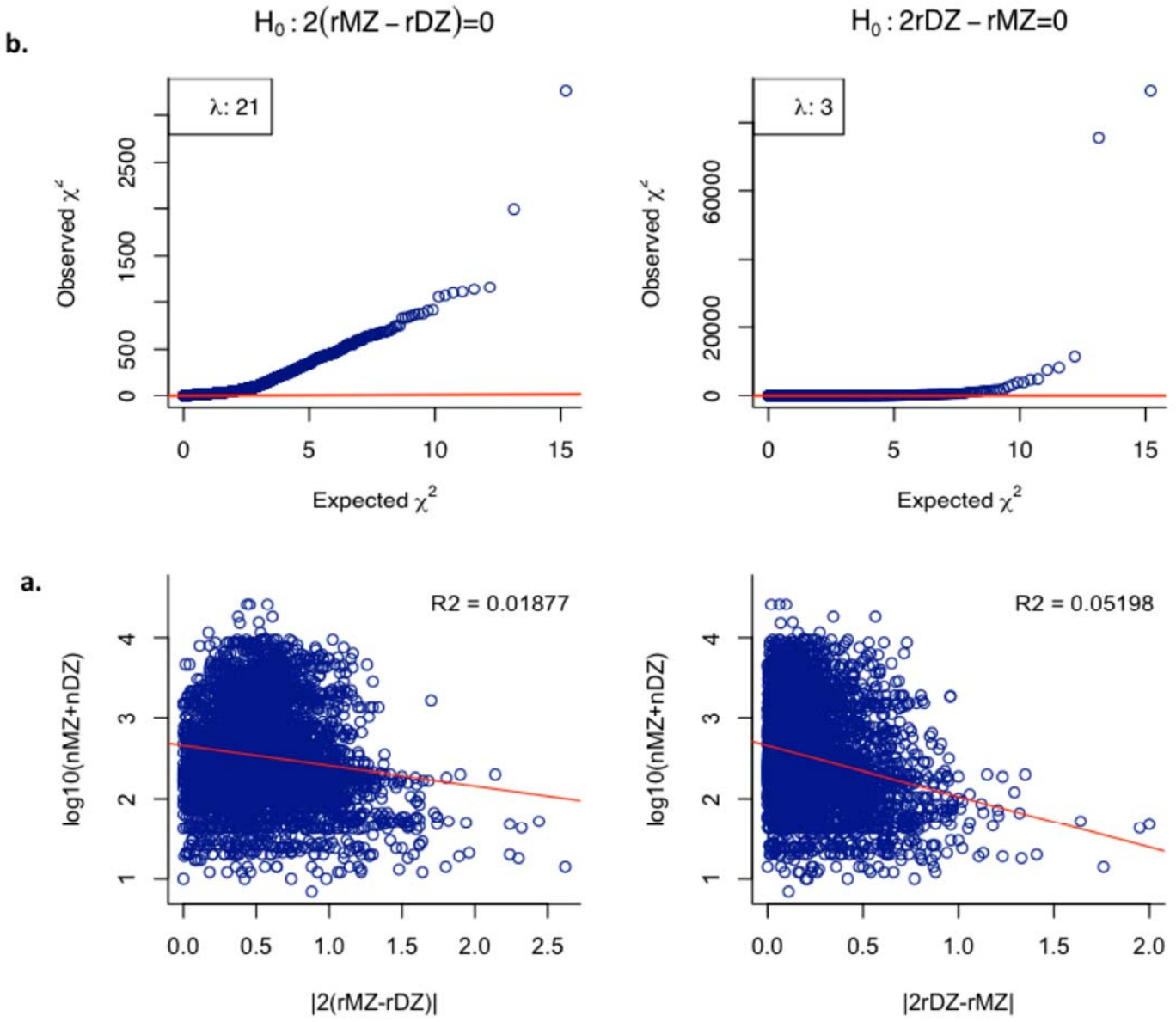
The difference between variance components estimates from maximum-likelihood (BEST model) and least-squares (h^2, left panel; c^2, right panel) for given sample size.



Supplementary Figure 11

Scatterplots of all MZ versus DZ correlations.

Contour lines indicate the density of the data in that region. The lines are 'heat' colored from blue to red, indicating increasing data density.



Supplementary Figure 12

QQ plots of the χ^2 test statistics for testing the null hypothesis that $2(r_{MZ} - r_{DZ}) = 0$ and $2r_{DZ} - r_{MZ} = 0$ and relationship with sample size.

(**a**) The deviation from the null hypotheses is quantified with the inflation λ in the QQ plots. (**b**) Effects as a function of sample size.

Supplementary Note

1 Database descriptive statistics

1.1 Publication year

The total number of relevant classical twin studies was 2,748. These studies were published between 01-01-1958 and 12-31-2012, with 50% of the studies published after 2004 (**Supplementary Table 2**).
A total number of 17,804 non-unique traits were studied, corresponding to an average of 6.5 traits per study, and a significant increase in the number of studied traits per study as a function of publication year. The total number of non-independent participating twin pairs across all studies and traits was 14,558,903, or 2,247,128, when correcting for reporting on multiple traits in one study.

1.2 Population

The twin studies were conducted using participants from 39 different countries. For one study the country of origin was unknown and 10 studies that combined different populations did not provide sufficient information to determine the sample size for each population separately. Eighty-two percent of all studies were conducted using participants from 7 countries: United States, United Kingdom, Australia, Netherlands, Sweden, Denmark and Finland (**Supplementary Table 3**). Of all 2,748 studies, 945 (34%) were based on a US twin sample. The US was also the country from which studies investigated the largest number of traits. Studies based on Swedish twins had the largest average sample size, followed by two other Scandinavian countries: Denmark and Finland.

1.3 Age cohort

Sixty percent of all studies are based on adult twins. Studies investigating the elderly population are in the minority (7%), although the average sample size per study is largest in this age cohort (**Supplementary Table 4**).

2 Trait characteristics

Of all 17,804 non-unique traits, 15,819 were measured on a continuous scale, 1,769 were dichotomous, non-ascertained for traits and 213 were dichotomous traits for which ascertainment had taken place in the study. For one entry, there was not enough information in the paper to determine the nature of the trait. Of all traits in the database, 1,395 were coded as a disease, 2,975 as symptoms of a disease and 13,432 as other, indicating healthy function.

3 Distribution of studies across trait domains

The distribution of database entries across all categories of the main trait classification level (**Supplementary Table 5**) is skewed and shows an overrepresentation of studies investigating

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Psychiatric, *Metabolic* and *Cognitive traits*. Studies investigating traits classified under *Cell*, *Infection*, *Connective tissue*, and *Developmental* are clearly underrepresented. **Supplementary Tables 6** and **7** contain the number of database entries and the number of unique studies for all categories under the ICF/ICD-10 chapter and subchapter levels.

4 Publication bias

4.1 Funnel plots

Funnel plots can graphically display possible publication bias by plotting the standard error or precision of a study against effect size. Larger studies tend to have lower standard errors, and will appear toward the top of the plot, clustering around the average effect. Smaller studies with larger standard errors are expected to show a larger range of effect sizes, symmetrically around the mean. Publication bias will show as an asymmetrical pattern, specifically at the bottom of the plot with more studies to the right of the average effect, suggesting that smaller studies have a higher probability of being published when presenting larger effect sizes, which increases the chance of meeting criteria for statistical significance.

Funnel plots were created for the FisherZ transform of the correlation and its corresponding standard error as a measure of study precision. Estimates of h^2 and c^2 were rescaled to range between between 0-1 by dividing each entry by 100, after which they were converted to their FisherZ transform and corresponding standard error. Plots were generated for all twin correlations and variance components from full ACE model fitting studies pooled across traits (**Supplementary Figure 2**). In addition, for all main trait categories, **Supplementary Figures 3-6** display funnel plots for r_{MZ}, r_{DZ}, h^2 en c^2. Entries with 5 or fewer twin pairs were not included in the plots, as these were also not included in the meta-analysis. Funnel plots for h^2 and c^2 are naturally thresholded at zero as these are (Z-transforms of) proportions of variance, which cannot be negative.

Visual inspection of the funnel plots suggests that publication bias is virtually absent. The majority of studies cluster more or less symmetric around the top of the plot. There are several studies at the bottom of the plot, which shows some asymmetry, yet this is a relatively small proportion of studies. We applied various statistical tools to quantify and test possible publication bias as a function of sample size.

4.2 Begg and Mazumdar's test for publication bias

The presence of an inverse correlation between study precision and twin correlation indicates possible publication bias. To test this, we applied Begg and Mazumdar's test for publication bias[20], which uses a rank correlation (Kendall's tau) between the standardized effects and the inverse of their standard errors. Correlations and two-tailed significances are provided in **Supplementary Table 8**. All estimates of tau are statistically different from zero. However, the point estimates are modest and low P-values are mainly a result of the large number of database entries contributing to the correlation. Kendall's tau ranges between 0.046 and 0.186, indicating an overall weak correlation between study precision and effect.

Begg and Mazumdar's test was also conducted for each of the main trait domains where at least two studies were present for r_{MZ}, r_{DZ}, h^2 and c^2 (**Supplementary Table 9**). Again weak correlations between study precision and effect were found, with some statistically different from zero especially for the MZ correlations. There was one notably high correlation of 0.62 for c^2 in the Ophthalmological trait domain indicating that smaller studies tended to report larger effects of c^2, which can also be seen in the funnel plot of this particular trait domain.

4.3 Egger's regression test

We used Egger's regression test[21] as an additional test to quantify possible publication bias. In contrast to the Begg and Mazumdar's test[20], which uses ranks, Egger's method uses the actual values and regresses the inverse of the standard error effect on the effect. In this equation, the slope of the regression line captures the size of the study effect while bias is captured by the intercept[21]. The intercepts and their corresponding standard errors and p-values are provided in **Supplementary Table 8**. Again, when including all studies, there are some intercepts that are statistically different from zero but this is largely due to the large sample size that renders small effects statistically significant. When analyzed separately per main trait domain, we see even less evidence for a deviation from zero for the intercepts (**Supplementary Table 10**).

4.4 Rosenthal's Fail-safe N test

This meta-analysis incorporates data from 2,748 studies. Rosenthal's fail-safe N test[22] calculates the number of studies with an average correlation or variance component of zero that would be needed in order for the null hypothesis not to be rejected. For example, for r_{MZ} - which is based on 9,568 entries - the fail-safe N test shows that we would need 3,097,836,048 studies with an average r_{MZ} of zero to conclude that the r_{MZ} is not statistically different from zero (**Supplementary Table 8**). It therefore seems unlikely for missing 'null' studies to greatly influence the meta-analytic results. A similar conclusion can be drawn when investigating studies separately per main trait domain (**Supplementary Table 11**).

Thus, based on inspection of funnel plots and subsequent statistical testing it is unlikely that publication bias poses a serious threat to the meta-analysis of twin correlations and variance components estimates.

5 Meta-analysis results

5.1 Across all traits

Supplementary Figure 7 provides the distribution plots for the eight twin correlations, eight variance components from the full variance components model and the eight variance components from the best fitting model.

Results of the meta-analysis across all studies and traits for each of the twin correlations and proportions of variance from 'full' ACE model and 'best' ACE models are displayed in **Supplementary Table 12**. Although estimates from best fitting models are typically not included in meta-analyses due to their dependence on the per-study sample size, we included them here because they tend to often be used when citing the heritability of a specific trait.

The meta-analysis for r_{MZ} was based on 9,568 entries in the databases, totaling 2,563,628 (partly dependent) pairs, and resulted in an estimate of 0.636 (**Supplementary Figure 8**). It was significantly different from the r_{DZ} estimate of 0.339 (Z = 76.52, 2-tailed P < 0.00) and r_{DZSS} of 0.345 (Z = 75.48, 2-tailed P < 0.00). There was no evidence for a difference in the r_{DZ} versus the r_{DZSS} (Z = -2.18, 2-tailed P = 0.0271). The r_{DOS} was significantly lower than the r_{DZSS} (Z = 8.97, 1-tailed P < 0.00). The r_{DZM} and r_{DZF} were also significantly different (Z = -3.98, 2-tailed P < 0.00) while the r_{MZM} and r_{MZF} did not differ (Z = -1.96, 2-tailed P = 0.0580). Although some of these tests showed a significant difference, the absolute differences are small and are sometimes statistically different from zero due to the large sample sizes. Based on this pattern of meta-analytic twin correlations we concluded that overall, across all traits, there is no evidence of large differential twin correlations across sex.

The meta-analysis of variance components from full variance components models resulted in an estimated h^2 of 0.488 based on 2,929 entries in the database totaling 4,341,721 (partly dependent) pairs. This estimate was statistically significant different from the h^2 based on same sex twins only (0.471; Z = 3.1730, P = 0.0025). The h^2 for males (0.465) did not differ significantly from the h^2 for females (0.472; Z = 0, P = 0.3989)
Based on all twins, the estimate for c^2 in the full model was 0.174, which differed significantly from c^2 based on same sex twins (0.189; Z = -2.94, P = 0.0053). For males only, c^2 was estimated at 0.157, and for females only at 0.169 (Z = -1.59, P = 0.1133).

While the meta-analytic estimates of heritability and common environmental variance across all traits indicate that resemblance between twin pairs is largely due to genetic factors and follows an additive model of inheritance, it does not imply that all traits follow a simple additive model. To investigate the overall distribution of studies that follow an additive model, we tested each study for the hypotheses that: 1) the difference between the MZ and DZ correlations is zero (i.e. $2 \times (r_{MZ} - r_{DZ}) = 0$); 2) twice the DZ correlation minus the MZ correlation is zero (i.e. $2 \times r_{DZ} - r_{MZ} = 0$). Testing the first hypothesis results in an estimate of $\pi_0(h)$, which is the proportion of observations consistent with H_0: $2 \times (r_{MZ} - r_{DZ}) = 0$. Testing the second hypothesis results in $\pi_0(c)$, which is the proportion of observations consistent with H_0: $2 \times r_{DZ} - r_{MZ} = 0$.

The quantile-quantile (QQ) plots showed that both tests revealed significant deviation from the expected null distribution (**Supplementary Figure 12a).** The figure on the left hand side of the panel showed that for most studies, the null hypothesis that the trait is not heritable (i.e. that $2 \times (r_{MZ} - r_{DZ}) = 0$), was rejected. On the other hand, the QQ plot for the test whether $2 \times r_{DZ} - r_{MZ} = 0$ (no common environmental variance or no non-additive genetic influences, $\pi_0(c)$) showed a deviation from the expected null distribution only for the tail of the distribution. Notably, two studies on specific religiosity traits showed an extreme deviation from the null hypothesis, as they reported a strong influence of common environment and zero heritability. We also show that there was no evidence for a correlation between sample size and the estimates of $2 \times r_{DZ} - r_{MZ}$ and $2 \times (r_{MZ} - r_{DZ})$ (**Supplementary Figure 12b**).

We then estimated the proportion of studies that are consistent with $2 \times (r_{MZ} - r_{DZ}) = 0$ using the Jiang and Doerge method[28]. We found that the overall $\pi_0(h)$ is 0.16. This showed that 84% of studies are consistent with a significant difference between MZ and DZ correlations. To estimate the proportion of studies consistent with an additive model, we calculated the proportion of

studies that is consistent with the null hypothesis that $2 \times r_{DZ} - r_{MZ} = 0$, using the same method. We found that 69% of studies are consistent with the hypothesis that the MZ twin correlation is twice the DZ twin correlation, suggesting that twin resemblance is due to additive genetic factors. A slightly larger estimate (80%) was obtained when the proportion was estimated using a *q*-value method[29].

5.2 Different classes of traits

Meta-analyses were run separately for different classes of traits, i.e. disease, symptoms of disease or healthy function (other) and for continuous, dichotomous and ascertained for traits (**Supplementary Table 14**). MZ and DZ correlations and estimates of h^2 and c^2 did not differ significantly (all $P > 0.01$) between traits measured on a continuous scale and traits measured dichotomously. We did find evidence for differential estimates for ascertained traits. For r_{MZ} the difference between the dichotomous non-ascertained for and ascertained for traits, the Z-value was -5.43, with P = 1.54E-07, for h^2 Z = 3.32 with P = 1.61E-3, and for c^2 Z = -3.03, with P = 4.0E-3. In addition, estimates for symptoms of disease differed from those of traits that measure healthy function: for r_{MZ} Z = -6.54, P = 2.03E-10, and for h^2 Z = -3.23, P = 2.17E-3. Estimates for symptoms of disease were also significantly different from estimates for diseases: for r_{MZ} Z = -4.63, P = 8.80E-06, and for h^2 Z = -3.97, P = 1.54E-4.

5.3 Across age cohort and country

Meta-analyses across four age cohorts showed a decrease in twin resemblance after adolescence **(Supplementary Table 15**). Results from meta-analyses per country are in **Supplementary Table 25 in external file.**

5.4 Meta-analyses across functional domains

Results of the meta-analyses across the major trait domains are represented in **Supplementary Tables 16-19**, with available sample sizes in **Supplementary Tables 22-24**. Except for the r_{MZM}, r_{DZSS}, and r_{DZM} correlations in the *Developmental* domain, all twin correlations were statistically different from zero. All meta-analytic estimates of MZ correlations were larger than their corresponding DZ correlations, indicating that genetic influences are present across all main trait domains The highest MZ twin correlations were found for traits that were part of the *Skeletal* domain and the lowest were found for *Aging*. Meta-analysis of variance components found the largest h^2 for the *Ophthalmological* domain and largest estimate of c^2 for Infection. **Supplementary Table 27** provides the results for testing the proportion of studies that are consistent with $2 \times (r_{MZ} - r_{DZ}) = 0$ and $2 \times r_{DZ} - r_{MZ} = 0$ across all traits in the functional domain.

5.5 Meta-analyses across ICD10/ICF chapter level

Results of the meta-analyses across the ICD10/ICF chapter level are represented in **Supplementary Table 20 in external file.** Except for *Functions of DNA* where the DZ correlation was slightly higher than the MZ correlation, all MZ correlations were higher than DZ correlations indicating that genetic influences play a role in all traits at this level. The highest MZ correlation was observed for *Congenital Malformations, Deformations and Chromosomal Abnormalities*, and the lowest for *Voice and Speech Functions*. Meta heritability estimates followed a similar pattern with the highest heritability estimate for *Congenital Malformations,*

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Deformations and Chromosomal Abnormalities, and lowest for *Voice and Speech Functions*. For *Function of DNA* and *Diseases of the circulatory system*, estimates for c^2 were relatively high, for other traits c^2 was low.
Supplementary Table 28 provides the results for testing the proportion of studies that are consistent with $2 \times (r_{MZ} - r_{DZ}) = 0$ and $2 \times r_{DZ} - r_{MZ} = 0$ across all traits in the ICD10/ICF chapter level.

5.6 Meta-analyses across ICD10/ICF subchapter level

Results of the meta-analyses across the ICD10/ICF subchapter level are represented in **Supplementary Data Table 21 in external file.** Very high MZ correlations (>0.95) were obtained for *Cleft lip*, and *Structure of Hair*. In general, MZ correlations were high (> 0.40), and again, for the majority of traits MZ correlations were higher than DZ correlations. The heritability estimates at this level were highest for structure of hair and structure of DNA. Estimates of c^2 were in general low, except for Gene expression. **Supplementary Table 29** provides the results for testing the proportion of studies that are consistent with $2 \times (r_{MZ} - r_{DZ}) = 0$ and $2 \times r_{DZ} - r_{MZ} = 0$ across all traits in the ICD10/ICF subchapter level.

5.7 Comparing reported heritability estimates versus estimates derived from twin correlations.

Falconer's formulas[18] to calculate h^2 and c^2 can be applied to the twin correlations from **Supplementary Table 12**. The estimate for h^2 using Falconer's formula is obtained via $2 \times (r_{MZ} - r_{DZ})$, and for c^2 via $2 \times r_{DZ} - r_{MZ}$. This gives an h^2 estimate of 0.594 and a c^2 estimate of 0.042. These estimates differ from those obtained from full ACE model fitting: 0.488 and 0.174 respectively (**Supplementary Table 12, Supplementary Figures 9, 10)**. In other words, the h^2 and c^2 calculated from the meta-analytic twin correlations show an increased estimate of h^2 and a decreased estimate of c^2. To investigate possible bias in traits of studies reporting only on twin correlations or only on ACE estimates, we ran the meta-analyses separately for these subsets (**Supplementary Table 13**). Results do not support the presence of such bias as the means of h^2 and c^2 based on twin correlations or model fitting remained similar across all three subsets.

A plausible explanation for this discrepancy may lie in the model selection procedures that are employed when fitting variance components models to twin data. In the classical twin design with MZ and DZ twin pairs, there are three variance components that can be estimated including a residual component, leaving only two parameters of interest. These two parameters are essentially two linear combinations of the observed MZ and DZ twin correlation coefficients. There may be many sources of variation that lead to the resemblance between relatives (including twin pairs). Clearly a model with only two estimable parameters is a simplification. It is just a model, yet it can be useful in drawing meaningful inference.

Twin researchers typically chose two kinds of models, and then perform model selection by testing, which reduced (parsimonious) model fits the data best. We term these models here ACE and ANE, with A = additive genetic influences, C = common environmental influences, N = non-additive genetic influences and E = unique environmental influences. Their respective proportions of variance are denoted as h^2 (or a^2), c^2 and n^2. Note that twin researchers tend to use ADE instead of ANE, with D = dominance. However, different sources of non-additive genetic

variation are completely confounded in the classical twin study (e.g. dominance and additive-by-additive), the usage of N is more general.

In deciding whether the ACE or ANE model is the full model, and thereby deciding which reduced models are fitted for model selection, twin researchers make a choice based upon the observed twin correlations (r_{MZ} and r_{DZ}). More specifically, if $2 \times r_{DZ} - r_{MZ} > 0$ then an ACE model is chosen, and if $2 \times r_{DZ} - r_{MZ} < 0$ and ANE model is chosen. This leads to sampling bias in the estimate of the variance of A from the full model.

Since we do not know the 'true' model we cannot quantify estimation bias due to model selection, unless making some strong assumptions. Here we discuss a few simple 'true' models, based on which we can predict biases.

True model 1: All traits are either ACE or ANE, with proportion p_c and $(1-p_c)$.

$$E(r_{MZ}) = p_c\,(h^2 + c^2) + (1 - p_c)\,(h^2 + n^2) = h^2 + p_c c^2 + n^2(1 - p_c)$$
$$E(r_{DZ}) = p_c\,(0.5h^2 + c^2) + (1 - p_c)\,(0.5h^2 + 0.25n^2) = 0.5h^2 + p_c c^2 + 0.25n^2(1 - p_c)$$

Note that the term $0.25n^2$ is an underestimate because DZ correlation may include higher-order terms for non-additive variation.

The expected value of twice the difference of the MZ and DZ twin correlations is,

$$E(2(r_{MZ} - r_{DZ})) = h^2 + 1.5n^2(1 - p_c)$$

If twin studies have very large sample sizes and always fit the true models (ACE or ANE), then the estimate of heritability from the difference between MZ and DZ twin correlations will be inflated by a factor of $1.5n^2(1 - p_c)$.

True model 2. All traits are from an AE model

$$E(r_{MZ}) = h^2 \text{ and } E(r_{DZ}) = 0.5h^2$$

In this case the estimate of heritability from the difference in twin correlation will be unbiased, but the estimate of heritability from the chosen full model will be biased downwards. It is biased downwards for any trait, because of the ACE full model the (chance) estimate of C biases the estimate of A downwards and for the ANE model the estimate of N biases A downwards. This bias depends only on the (unknown) heritability and experimental sample size and can be quantified.

There is a probability of 0.5 of choosing ACE as the full model and 0.5 of choosing ANE. The choice is made on the parameter $d = 2r_{DZ} - r_{MZ}$. The sampling variance of d is

$$\sigma_d^2 = 4\sigma_{DZ}^2 + \sigma_{MZ}^2 = 4(1 - 0.25h^4)^2 / n_{DZ} + (1 - h^4)^2 / n_{MZ},$$

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with σ^2_{DZ} and σ^2_{MZ} the variances of r_{DZ} and r_{MZ}. From truncation selection theory:

$$E(d \mid d > 0) = i\sigma_d$$

with $i \approx 0.8$, the height of the normal curve at zero divided by the truncated proportion (= 0.5). Also,

$$E(r_{MZ} \mid d > 0) = E(r_{MZ}) - i\sigma^2_{MZ}/\sigma_d$$
$$E(r_{DZ} \mid d > 0) = E(r_{DZ}) + 2i\sigma^2_{DZ}/\sigma_d$$

Hence model selection leads to a downward bias of the true (population) MZ correlation and an upward bias of the population DZ correlation, so that the estimate of heritability is too low.

$$E(2(r_{MZ} - r_{DZ}) \mid d > 0) = E(h^2 \mid \text{ACE} = \text{full}) = h^2 - i(2\sigma^2_{MZ} + 4\sigma^2_{DZ})/\sigma_d \qquad [1]$$

The expected value of C on the other hand is inflated:

$$E(2r_{DZ} - r_{MZ} \mid d > 0) = E(c^2 \mid \text{ACE} = \text{full}) = i(\sigma^2_{MZ} + 4\sigma^2_{DZ})/\sigma_d$$

Therefore, the type-I error rate for a test of C given d>0 will be inflated.

Similarly for the choice of the ANE model (d < 0),

$$E(r_{MZ} \mid d < 0) = E(r_{MZ}) + i\sigma^2_{MZ}/\sigma_d$$
$$E(r_{DZ} \mid d < 0) = E(r_{DZ}) - 2i\sigma^2_{DZ}/\sigma_d$$

Now the chosen model overestimates the true MZ correlation and underestimates the DZ correlation. From the ANE model, the estimate of heritability is $4r_{DZ} - r_{MZ}$. Hence,

$$E(4r_{DZ} - r_{MZ} \mid d < 0) = E(h^2 \mid \text{ANE} = \text{full}) = h^2 - i(\sigma^2_{MZ} + 8\sigma^2_{DZ})/\sigma_d \qquad [2]$$

which is also biased downwards. Finally, the expected estimate of heritability from all chosen full models is the average of equations [1] and [2],

$$E(h^2_{FULL} \mid \text{model selection}) = h^2 - i(1.5\sigma^2_{MZ} + 6\sigma^2_{DZ})/\sigma_d \qquad [3]$$

For small sample sizes (e.g., 100s of twin pairs), the difference between the heritability reported from the selected full model and the one calculated from the average of the twin correlations (unbiased by model selection) can be substantial.

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In practice, further model selection is performed by fitting parsimonious models. If the true model is AE, then most selected BEST models will also be AE and the average of h^2 BEST will be closer to the estimate of heritability from the average MZ and average DZ correlations.

From **Supplementary Table 12**, the average number of MZ and DZ pairs from all entries is ~270 and ~500, respectively. If we assume the scenario 2 above, i.e. that the true model is AE for all traits, with $h^2 = 0.6$ (the estimate from twice the difference in mean MZ and DZ correlations is 0.594), then the theoretical results predict h^2 from the full model = 0.492 (which is close to the observed value of 0.488). If all traits follow AE then for the 50% of fitted full ACE models, more than 5% of models will be rejected at a type-I error rate of 5% and the h^2 from best fitting model selection will be less than 0.95 * 0.6 + 0.05 * 0.492 = 0.59 (the observed value of 0.532 would be consistent with a type-I error rate of 63%).

Alternatively, if there really are ACE and ANE models (scenario 1) and h^2 BEST = 0.532 is an accurate reflection of heritability, then $0.594 - 0.532 = 0.062 = 1.5n^2(1-p_c)$, is consistent with $n^2 = 0.041/(1-p_c)$, implying a substantial proportion of non-additive variance for the ANE models.

From the data, the proportion of estimates for which $d > 0$ is 0.54. If the 46% of traits for which $d < 0$ reflect real ANE models (as opposed to sampling variance), then that implies that for those models $n^2 = 0.041 / 0.46 = 0.09$.

The bias in estimation due to selection is non-linear in sample size, so taking the values at the average sample size of 270 and 500 is not the same as averaging the estimates across all sample sizes. When we do that for $h^2 = 0.6$ and a type-I error rate of test FULL vs BEST of 0.05, then we get the average estimates (across 3160 entries) as shown in **Supplementary Table 26.**

What this extreme example shows is that applying the typically used testing strategy in twin studies would result in an inflated type-I error for common environmental and non-additive components of variance, a severe bias in the reported heritability from the full model and a nearly 10% downward bias of the estimate of narrow sense heritability.

We cannot distinguish between scenarios 1 and 2 if there is lack of power to detect either C or N. The QQ plots in **Supplementary Figure 12** and tests of $\pi_0(h)$ suggests that a majority of traits are consistent with a simple AE model, which, given the average sample sizes, implies that, on average, both C and N are small.

6 Authorship network analysis

For 2,748 twin studies, the median number of authors per paper was 5 (interquartile range, IQR, 3-7). These 2,748 twin studies appeared in 525 journals. The journals that published ≥20 twin papers are shown in **Supplementary Table 30**. In general, these journals tend to specialize on psychiatric disorders and psychological processes.

After ensuring the spelling of authors' names was consistent, there were 14,568 total authorships resulting from these 2,748 papers. There were 4,712 unique authors who had an authorship on a median of 1 paper (IQR 1-2, range 1-224 papers).
Although most authors wrote a single paper, the distribution is highly skewed with a few authors writing a large number of twin studies. Qualitative evaluation of the log-log plot of the frequencies of authorships showed a marked deviation from power law expectations suggesting that a small number of authors have dominated this literature. This is different from, for example, the pattern of authorship frequencies for genome-wide association studies that does conform to a power law[30].

We then used GEPHI to construct a network in order to understand twin study publication patterns. For clarity, we removed individuals who had published only one paper (i.e., we required authorship on ≥2 papers), which reduced the number of twin study authors to 1,777. The substructure of the network was investigated by estimating community membership modules using the Louvain method[31] implemented in GEPHI. There were 61 "communities" within the network. These communities had a median of 6 authors (IQR 1.5-33, range 1-166 authors): most were small and a few were large.

We then focused on the 11 communities containing >65 authors. For each of these, 11 communities (**Supplementary Table 31 and Supplementary Figure 1)** show the authors with the greatest number of twin study papers. These results allow reasonably confident mapping of community identity to specific research groups. For example, modularity class 7 (the arbitrary community identifier) appears to correspond to the Netherlands Twin Registry, class 15 to the Vietnam Era Twin Registry, class 19 to the University of Colorado Boulder group, class 21 to the Finnish Twin Cohort, class 25 to the Swedish Twin Registry, class 31 to the Australian Twin Registry, class 44 to TwinsUK, and class 50 to the Virginia Twin Registry.

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Supplementary Tables

Supplementary Table 1. Retrieved statistics from 2,748 twin studies

r_{MZM}	Monozygotic Male twins correlation
r_{MZF}	Monozygotic Female twins correlation
r_{DZM}	Dizygotic Male twins correlation
r_{DZF}	Dizygotic Female twins correlation
r_{DOS}	Dizygotic Opposite sex twins correlation
r_{MZ}	Monozygotic twins correlation
r_{DZSS}	Dizygotic same sex twins correlation
r_{DZ}	Dizygotic twins correlation
n_{MZM}	Number of MZM pairs
n_{DZM}	Number of DZM pairs
n_{MZF}	Number of MZF pairs
n_{DZF}	Number of MZM pairs
n_{DOS}	Number of DOS pairs
n_{MZ}	Number of MZ pairs
n_{DZSS}	Number of DZ same sex pairs
n_{DZ}	Number of all DZ (same sex + opposite sex) pairs
$h^2_{BEST\ M}$	h^2 as estimated from best fitting model, for males.
$c^2_{BEST\ M}$	c^2 as estimated from best fitting model, for males
h^2_{M}	h^2 as estimated from full ACE model, for males
$c2_{M}$	c^2 as estimated from full ACE model, for males
$h^2_{BEST\ F}$	h^2 as estimated from best fitting model, for females
$c^2_{BEST\ F}$	c^2 as estimated from best fitting model, for females
h^2_{F}	h^2 as estimated from full ACE model, for females
c^2_{F}	c^2 as estimated from full ACE model, for females
h^2_{BEST}	h^2 as estimated from best fitting model, for males+females, including same sex and opposite sex pairs
c^2_{BEST}	c^2 as estimated from best fitting model, for males+females, including same sex and opposite sex pairs
h^2	h^2 as estimated from full model, for males+females, including same sex and opposite sex pairs
c^2	c^2 as estimated from full model, for males+females, including same sex and opposite sex pairs
$h^2_{BEST\ SS}$	h^2 as estimated from best fitting model, for females+males, but only based on same sex pairs
$c^2_{BEST\ SS}$	c^2 as estimated from best fitting model, for females+males, but only based on same sex pairs
h^2_{SS}	h^2 as estimated from full model, for females+males, but only based on same sex pairs
c^2_{SS}	c^2 as estimated from full model, for females+males, but only based

	on same sex pairs
Npairs	Number of twin pairs used for full and best fitting models. (males + females, same sex + opposite sex)
$Npairs_{SS}$	Number of twin pairs used for full and best fitting models. (males + females, same sex only)
$Npairs_{M}$	Number of male twin pairs used for full and best fitting models.
$Npairs_{F}$	Number of female twin pairs used for full and best fitting models.
N_{MZM00}	Number of concordant unaffected MZM twin pairs
N_{MZM01}	Number of discordant MZM twin pairs
N_{MZM11}	Number of concordant affected MZM twin pairs
N_{MZF00}	Number of concordant unaffected MZF twin pairs
N_{MZF01}	Number of discordant MZF twin pairs
N_{MZF11}	Number of concordant affected MZF twin pairs
N_{DZM00}	Number of concordant unaffected DZM twin pairs
N_{DZM01}	Number of discordant DZM twin pairs
N_{DZM11}	Number of concordant affected DZM twin pairs
N_{DZF00}	Number of concordant unaffected DZF twin pairs
N_{DZF01}	Number of discordant DZF twin pairs
N_{DZF11}	Number of concordant affected DZF twin pairs
N_{DOS00}	Number of concordant unaffected DOS twin pairs
N_{DOS01}	Number of discordant DOS twin pairs
N_{DOS11}	Number of concordant affected DOS twin pairs
N_{MZ00}	Number of concordant unaffected MZ twin pairs
N_{MZ01}	Number of discordant MZ twin pairs
N_{MZ11}	Number of concordant affected MZ twin pairs
N_{DZSS00}	Number of concordant unaffected DZSS twin pairs
N_{DZSS01}	Number of discordant DZSS twin pairs
N_{DZSS11}	Number of concordant affected DZSS twin pairs
N_{DZ00}	Number of concordant unaffected DZ twin pairs
N_{DZ01}	Number of discordant DZ twin pairs
N_{DZ11}	Number of concordant affected DZ twin pairs
$Preval_{MZM}$	Prevalence in MZM
$Preval_{MZF}$	Prevalence in MZF
$Preval_{DZM}$	Prevalence in DZM
$Preval_{DZF}$	Prevalence in DZF
$Preval_{DOS}$	Prevalence in DOS
$Preval_{MZ}$	Prevalence in MZ
$Preval_{DZSS}$	Prevalence in DZSS
$Preval_{DZ}$	Prevalence in DZ

Supplementary Table 2. Distribution of studies per publication year.

Publication year	Nstudies	Ntraits	Average Npairs/trait	Total Npairs
1958	1	5	42.2	211
1959	1	5	38.0	190
1963	1	17	68.0	1,156
1966	2	39	102.8	4,008
1967	2	9	53.3	480
1968	2	25	112.3	2,808
1969	1	16	141.6	2,266
1970	2	40	28.9	1,156
1971	5	9	15.5	124
1972	2	3	71.7	215
1973	3	10	80.0	720
1974	2	26	158.2	4,112
1975	12	31	153.9	4,772
1976	14	122	71.7	8,749
1977	12	55	220.9	12,147
1978	7	38	154.5	5,869
1979	10	31	80.7	2,501
1980	17	120	333.9	40,073
1981	15	67	193.2	12,947
1982	8	29	550.3	15,959
1983	16	100	218.8	21,875
1984	22	155	354.2	50,296
1985	14	61	158.4	9,664
1986	17	76	1,119.5	85,085
1987	27	179	318.4	56,991
1988	20	176	200.8	35,346
1989	22	129	400.3	51,641
1990	39	236	612.2	144,471
1991	33	130	958.1	124,548
1992	44	171	782.2	133,751
1993	60	436	516.8	225,335
1994	46	288	600.2	170,442
1995	56	440	596.3	262,372
1996	58	645	403.2	260,060
1997	70	552	341.0	188,219
1998	82	621	725.8	450,737
1999	114	618	809.1	489,490
2000	94	543	1,288.5	699,645
2001	111	717	618.4	443,365
2002	80	441	810.7	355,105
2003	101	534	886.0	473,095
2004	134	821	1,153.2	939,832
2005	161	963	1,022.6	978,641
2006	149	785	1,197.7	940,177
2007	209	1,160	1,015.7	1,178,251
2008	155	798	1,195.4	941,962
2009	188	1,377	751.1	1,033,521
2010	166	1,087	905.0	981,680
2011	194	964	1,330.9	1,277,618
2012	147	1904	755.8	1,435,225

Total	**2,748**	**17,804**	**14,558,903**

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Supplementary Table 3. Distribution of studies per country of sample origin.

Country	Nstudies	Ntraits	Average Npairs/study
United States	945	6,746	579
United Kingdom	371	1,804	1,209
Australia	227	1,394	797
Netherlands	218	2,076	831
Sweden	190	968	2,104
Denmark	156	613	1,538
Finland	148	680	1,712
Norway	85	333	1,021
Canada	67	791	276
Belgium	53	413	214
China	49	294	368
Germany	42	413	268
Italy	36	171	137
Japan	28	192	306
South Korea	21	82	597
India	15	152	106
Russian Federation	13	99	71
Brazil	10	50	83
Poland	10	62	114
Hungary	9	48	107
Gambia	8	188	178
Spain	5	36	75
France	4	47	1,458
Greece	4	42	16
Israel	4	12	201
Sri Lanka	3	8	1,256
Taiwan	3	17	220
Croatia	2	9	153
Turkey	2	2	163
Austria	1	2	42
Chile	1	1	35
Czech Republic	1	6	10
Estonia	1	2	111
Iran	1	1	77
Jamaica	1	9	258
Korea	1	6	834
Malaysia	1	1	295
Portugal	1	2	411
Puerto Rico	1	3	510
Unknown	1	1	NA
Denmark/Finland/Sweden	2	12	32,114
Australia/Canada	1	2	951
Australia/United States/Norway/Sweden	1	4	994
Malaysia/Iran	1	1	77
Italy/Poland	1	2	69
Finland/Sweden	1	6	NA
Sweden/United States	1	1	200
United States/Australia	1	4	261
Netherlands/Belgium	1	2	1,981

Supplementary Table 4. Distribution of studies across age cohorts.

Age cohort	Nstudies	Ntraits	Average Npairs
0-11 years	449	3,560	959
12-17 years	460	2,919	574
18-64 years	1,647	10,565	774
65+ years	184	734	1,834
Unknown	8	26	132

Supplementary Table 5. Distribution of studied traits across functional domains

Trait domain	Ntraits	Nstudies
Psychiatric	5,178	1,044
Metabolic	1,750	386
Cognitive	1,507	292
Neurological	3,371	214
Skeletal	895	194
Cardiovascular	754	152
Environment	487	118
Endocrine	399	93
Reproduction	283	89
Ophthalmological	305	75
Respiratory	252	75
Activities	192	69
Ear, Nose, Throat	371	65
Immunological	365	65
Social Interactions	231	56
Dermatological	181	51
Nutritional	425	47
Gastrointestinal	144	44
Muscular	149	37
Social values	170	35
Cell	125	35
Hematological	110	35
Neoplasms	54	22
Mortality	41	21
Aging	37	11
Developmental	12	7
Infection	8	7
Connective tissue	8	5
Total	**17,804**	**3,344***

*Note that the total Nstudies is 2,748, however, the same study could contribute to different traits classified in different trait domains resulting in a larger total Nstudies in this Table.

Supplementary Table 6. Distribution of studied traits across ICD10/ICF chapter level

Trait	Ntraits	Nstudies
Mental and Behavioural Disorders	3,311	830
Mental Functions	3,371	579
Functions of the Digestive, Metabolic and Endocrine Systems	2,096	433
Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems	1,304	236
Structures Related to Movement	740	153
Self-Care	586	110
Major Life Areas	393	90
Functions of the Nervous System	1,366	68
Structures of the Nervous System	1,783	64
Interpersonal Interactions and Relationships	250	64
Diseases of the Nervous System	132	62
The Eye, Ear and Related Structures	191	50
Sensory Functions and Pain	214	49
Diseases of the Digestive System	186	47
Diseases of the Musculoskeletal System and Connective Tissue	159	47
Genitourinary and Reproductive Functions	115	46
Neuromusculoskeletal and Movement-Related Functions	150	37
Endocrine, Nutritional and Metabolic Diseases	102	37
Diseases of the Respiratory System	86	34
Community, Social and Civic Life	96	28
Structures Involved In Voice and Speech	217	24
Structure of DNA	80	24
Skin and Related Structures	117	22
Mortality	41	21
Diseases of the Skin and Subcutaneous Tissue	30	21
Attitudes	107	19
Diseases of the Genitourinary System	69	18
Malignant Neoplasms	41	18
Diseases of the Circulatory System	28	18
Diseases of the Eye and Adnexa	31	16
Structures Related to the Genitourinary and Reproductive Systems	27	14
Work and Employment	36	13
Structures of the Cardiovascular, Immunological and Respiratory Systems	29	13
Congenital Malformations, Deformations and Chromosomal Abnormalities	16	13
Injury, Poisoning and Certain Other Consequences of External Causes	32	12
Symptoms, Signs and Abnormal Clinical and Laboratory Findings, Not Elsewhere Classified	29	11
Certain Conditions Originating In the Perinatal Period	24	11
Functions of the Skin and Related Structures	38	10
Mobility	33	10
Pregnancy, Childbirth and the Puerperium	19	7
Products and Technology	8	7
Diseases of the Ear and Mastoid Process	30	6
Function of DNA	33	5
Certain Infectious and Parasitic Diseases	6	5
Benign Neoplasms	13	4
Factors Influencing Health Status and Contact with Health Services	7	4
Cell	6	4
Natural Environment and Human-Made Changes to Environment	5	2
Medication Effects	6	1
Voice and Speech Functions	6	1

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Communication	3	1
Diseases of the Blood and Blood-Forming Organs and Certain Disorders Involving the Immune Mechanism	2	1
Unclassified	2	1
Structures Related to the Digestive, Metabolic and Endocrine Systems	1	1
Symptoms and Signs Involving Speech and Voice	1	1
Total	**17,804**	**3,423***

*Note that the total Nstudies is 2,748, however, the same study could contribute to different traits classified in different trait domains resulting in a larger total Nstudies in this Table.

Supplementary Table 7. Distribution of studied traits across ICD10/ICF subchapter level

Trait	Ntraits	Nstudies
Temperament and Personality Functions	1,774	280
Weight Maintenance Functions	808	223
General Metabolic Functions	826	187
Depressive Episode	306	163
Higher-Level Cognitive Functions	660	162
Conduct Disorders	448	159
Mental and Behavioural Disorders Due to Use of Alcohol	405	153
Other Anxiety Disorders	305	123
Height	297	99
Mental and Behavioural Disorders Due to Use of Tobacco	260	91
Hyperkinetic Disorders	226	89
Mental Functions of Language	310	83
Blood Pressure Functions	368	82
Function of Brain	1,366	68
Looking After One's Health	161	65
Structure of Brain	1,777	62
Endocrine Gland Functions	324	62
Immunological System Functions	347	59
Heart Functions	314	59
Eating Disorders	147	50
Mental and Behavioural Disorders Due to Multiple Drug Use and Use of Other Psychoactive Substances	103	49
Memory Functions	195	48
Food	425	47
Structure of Eyeball	184	46
Mental and Behavioural Disorders Due to Use of Cannabinoids	93	44
Water, Mineral and Electrolyte Balance Functions	138	39
Structure of Trunk	137	38
Phobic Anxiety Disorders	135	38
Problems Related to Upbringing	160	37
Potential Health Hazards Related to Socioeconomic and Psychosocial Circumstances	152	35
Haematological System Functions	108	34
Informal Social Relationships	72	34
Structure of Head and Neck Region	162	32
Exercise Tolerance Functions	133	32
Sleep Functions	109	30
Structure of Upper Extremity	69	28
Asthma	71	27
Pervasive Developmental Disorders	65	26
Structure of Mouth	217	24
Specific Personality Disorders	216	24
Obsessive-Compulsive Disorder	64	24
Structure of Areas of Skin	111	20
Calculation Functions	75	19
Muscle Power Functions	98	18
Dorsalgia	77	18
Seeing Functions	85	13
Family Relationships	93	12
Diseases of Oral Cavity, Salivary Glands and Jaws*	71	7
Religion and Spirituality	63	21

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Attention Functions	62	20
Individual Attitudes of Strangers	62	7
Psychomotor Functions	62	21
Schizophrenia	54	12
Disorders of Puberty, Not Elsewhere Classified	50	12
Sleep Disorders	48	19
Dentofacial Anomalies [Including Malocclusion]	46	6
Emotionally Unstable Personality Disorder	45	12
Recurrent Depressive Disorder	45	17
Societal Attitudes	45	13
Procreation Functions	41	13
Experience of Self and Time Functions	39	8
Structure of Pelvic Region	39	16
Basic Interpersonal Interactions	38	9
All-Cause Mortality	35	17
Menstruation Functions	35	22
Intimate Relationships	34	17
Mental and Behavioural Disorders Due to Use of Cocaine	33	12
Reaction to Severe Stress, and Adjustment Disorders	33	14
Structure of DNA	33	6
Mental and Behavioural Disorders Due to Use of Sedatives Or Hypnotics	32	11
Problems Related to Negative Life Events In Childhood	32	6
Taste Function	32	8
Walking and Moving	32	10
Education	31	18
Hearing Functions	31	13
Mental and Behavioural Disorders Due to Use of Hallucinogens	31	11
Muscle Functions	31	10
Respiration Functions	31	7
Sexual Functions	31	13
Structure of Lower Extremity	31	12
Acquiring, Keeping and Terminating A Job	30	8
Dissocial Personality Disorder	30	15
Migraine	30	15
Nonsuppurative Otitis Media	30	6
Recreation and Leisure	30	5
Other Arthrosis	29	6
Structure of Cardiovascular System	29	13
Epilepsy	28	11
Smell Function	28	6
Pain and Other Conditions Associated with Female Genital Organs and Menstrual Cycle	27	7
Perceptual Functions	27	10
Schizotypal Disorder	26	6
Other Functions of the Skin	25	6
Bipolar Affective Disorder	24	10
Methylation	24	6
Specific Developmental Disorder of Motor Function	24	5
Gene Expression	22	2
Psychological and Behavioural Disorders Associated with Sexual Development and Orientation	21	12
Atopic Dermatitis	19	13
Convulsions, Not Elsewhere Classified	19	6

Disorders of Refraction and Accommodation	18	8
Intellectual Functions	18	5
Mental and Behavioural Disorders Due to Use of Opioids	18	6
Structure of Reproductive System	18	11
Allergy, Unspecified	17	8
Dental Caries	17	6
Diseases of Pulp and Periapical Tissues	17	6
Other Disorders of Bladder	17	2
Hyperplasia of Prostate	16	3
Other Behavioural and Emotional Disorders with Onset Usually Occurring In Childhood and Adolescence	16	6
Complex Interpersonal Interactions	15	1
Habit and Impulse Disorders	15	9
Mental Functions, Unspecified	15	6
Type 2 Diabetes Mellitus	14	7
Coxarthrosis [Arthrosis of Hip]	13	5
Energy and Drive Functions	13	9
Mild Mental Retardation	13	9
Leiomyoma of Uterus	12	3
Type 1 Diabetes Mellitus	12	8
Mobility of Joint Functions	11	5
School Education	11	3
Cystic Fibrosis	10	1
Dementia In Alzheimer Disease	10	8
Global Psychosocial Functions	10	6
Telomeres	10	6
Vestibular Functions	10	3
Emotional Disorders with Onset Specific to Childhood	9	7
Osteoporosis In Diseases Classified Elsewhere	9	5
Superficial Injuries Involving Multiple Body Regions	9	3
Assets	8	7
Chronic Ischaemic Heart Disease	8	6
Chronic Respiratory Disease Originating In the Perinatal Period	8	2
Cleft Lip	8	6
Essential (Primary) Hypertension	8	7
Functions of Hair	8	3
Irritable Bowel Syndrome	8	6
Malignant Neoplasms of the Breast	8	5
Mood [Affective] Disorders*	8	4
Parkinson Disease	8	4
Slow Fetal Growth and Fetal Malnutrition	8	4
Vasomotor and Allergic Rhinitis	8	4
X-Inactivation	8	3
Expression	7	1
Schizoaffective Disorders	7	1
Sensations Associated with Genital and Reproductive Functions	7	3
Urinary Bladder	7	2
Control of Voluntary Movement Functions	6	3
Diazepam Effects	6	1
Effects of Other External Causes	6	1
Gestational [Pregnancy-Induced] Hypertension Without Significant Proteinuria	6	2
Malignant Neoplasm of Prostate	6	1

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Other Peripheral Vascular Diseases	6	1
Other Rheumatoid Arthritis	6	4
Structure of the Nervous System, Unspecified	6	2
Voice Functions	6	1
Diabetes Mellitus*	5	3
Labour and Delivery Complicated By Umbilical Cord Complications	5	1
Maintaining A Job	5	4
Mortality From Heart Disease	5	4
Other Specified Behavioural and Emotional Disorders with Onset Usually Occurring In Childhood and Adolescence	5	2
Physical Appearance	5	2
Population	5	2
Protective Functions of the Skin	5	2
Psoriasis	5	4
Work and Employment	5	3
Acquired Absence of Organs, Not Elsewhere Classified	4	1
Acute and Transient Psychotic Disorders	4	3
Blood Vessel Functions	4	2
Crohn Disease [Regional Enteritis]	4	4
Gastro-Oesophageal Reflux Disease	4	3
Gout	4	1
Multiple Sclerosis	4	4
Nonorganic Sleep Disorders	4	3
Other Extrapyramidal and Movement Disorders	4	2
Other Headache Syndromes	4	4
Other Obstructed Labour	4	1
Other Strabismus	4	1
Receptor Binding	4	2
Structure of Hair	4	2
Structures Around Eye	4	3
Ulcerative Colitis	4	4
Unspecified Dementia	4	4
Unspecified Mental Disorder	4	2
Cell Cycle	3	2
Community Life	3	3
Disorders of Social Functioning with Onset Specific to Childhood and Adolescence	3	1
Dissociative [Conversion] Disorders	3	2
Dorsopathies*	3	1
Gonarthrosis [Arthrosis of Knee]	3	3
Malignant Neoplasm of Cervix Uteri	3	3
Malignant Neoplasm of Thyroid Gland	3	2
Other Malignant Neoplasms of Skin	3	1
Other Nontoxic Goitre	3	1
Other Symptoms and Signs Involving the Urinary System	3	1
Problems Related to Life-Management Difficulty	3	3
Producing Drawings and Photographs	3	1
Senile Cataract	3	2
Sister Chromatid Exchange	3	1
Somatoform Disorders	3	3
Specific Developmental Disorders of Scholastic Skills	3	2
Thyroiditis	3	2
Thyrotoxicosis	3	2

Tic Disorders	3	3
Unclassified	3	2
Unspecified Disorder of Adult Personality and Behaviour	3	3
Vascular Syndromes of Brain In Cerebrovascular Diseases	3	2
Acne	2	2
Acute Appendicitis	2	2
Additional Musculoskeletal Structures Related to Movement	2	1
Arthrosis of First Carpometacarpal Joint	2	1
Bacterial Sepsis of Newborn	2	2
Cell Growth	2	1
Chronic Diseases of Tonsils and Adenoids	2	2
Endometriosis	2	2
Findings of Drugs and Other Substances, Not Normally Found In Blood	2	1
Functions of the Joints and Bones	2	1
Gender Identity Disorders	2	1
Glaucoma	2	2
Global Mental Functions	2	1
Hepatomegaly and Splenomegaly, Not Elsewhere Classified	2	1
Hypospadias	2	2
Intestinal Malabsorption	2	1
Mailignant Neoplasms of Male Genital Organs	2	2
Malignant Neoplasm of Corpus Uteri	2	2
Malignant Neoplasms*	2	2
MtDNA	2	2
Multiple Myeloma and Malignant Plasma Cell Neoplasms	2	2
Obstructive and Reflux Uropathy	2	1
Other Chronic Obstructive Pulmonary Disease	2	1
Other Congenital Malformations of Skull and Face Bones	2	1
Other Diseases of Digestive System	2	2
Other Diseases of Oesophagus	2	2
Other Disorders of Cornea	2	1
Other Disorders of Teeth and Supporting Structures	2	2
Other Intervertebral Disc Disorders	2	1
Other Soft Tissue Disorders, Not Elsewhere Classified	2	1
Other Spirochaetal Infections	2	1
Other Symptoms and Signs Involving the Digestive System and Abdomen	2	1
Ovarian Dysfunction	2	2
Paralytic Ileus and Intestinal Obstruction Without Hernia	2	1
Preterm Labour and Delivery	2	1
Sarcoidosis	2	1
Scoliosis	2	2
Shoulder Lesions	2	1
Spinal Muscular Atrophy and Related Syndromes	2	1
Structure of External Ear	2	1
Structure of Shoulder Region	2	2
Structure of Uterus	2	1
Unspecified Chronic Bronchitis	2	2
Vascular Dementia	2	2
Acute Myocardial Infarction	1	1
Adult Respiratory Distress Syndrome	1	1
Angina Pectoris	1	1
Ankylosing Spondylitis	1	1

Aortic Aneurysm and Dissection	1	1
Atrial Fibrillation and Flutter	1	1
Birth Asphyxia	1	1
Calculus of Kidney and Ureter	1	1
Cerebrovascular Diseases*	1	1
Congenital Deformities of Feet	1	1
Cytomegaloviral Disease	1	1
Diabetes Mellitus In Pregnancy	1	1
Disorders Related to Short Gestation and Low Birth Weight, Not Elsewhere Classified	1	1
Dyspepsia	1	1
Excessive, Frequent and Irregular Menstruation	1	1
Female Genital Prolapse	1	1
Fibrosis and Cirrhosis of Liver	1	1
Formal Relationships	1	1
Haemangioma and Lymphangioma, Any Site	1	1
Household Tasks	1	1
Hypertrichosis	1	1
Infectious Mononucleosis	1	1
Inguinal Hernia	1	1
Intracranial Nontraumatic Haemorrhage of Fetus and Newborn	1	1
Kyphosis and Lordosis	1	1
Male Infertility	1	1
Malignant Melanoma of Skin	1	1
Malignant Neoplasm of Bladder	1	1
Malignant Neoplasm of Bronchus and Lung	1	1
Malignant Neoplasm of Kidney, Except Renal Pelvis	1	1
Malignant Neoplasm of Ovary	1	1
Malignant Neoplasm of Pancreas	1	1
Malignant Neoplasm of Stomach	1	1
Malignant Neoplasms of Digestive Organs	1	1
Malignant Neoplasms of Male Genital Organs	1	1
Mononeuropathies of Upper Limb	1	1
Mortality From Infections	1	1
Necrotizing Enterocolitis of Fetus and Newborn	1	1
Other Acute Skin Changes Due to Ultraviolet Radiation	1	1
Other and Unspecified Types of Non-Hodgkin Lymphoma	1	1
Other Congenital Malformations of Heart	1	1
Other Congenital Malformations of Upper Alimentary Tract	1	1
Other Disorders of Urinary System	1	1
Other Retinal Disorders	1	1
Other Specified Disorders of Skin and Subcutaneous Tissue In Diseases Classified Elsewhere	1	1
Other Specified Infectious Agents As the Cause of Diseases Classified to Other Chapters	1	1
Other Systemic Involvement of Connective Tissue	1	1
Other Venous Embolism and Thrombosis	1	1
Respiratory Distress of Newborn	1	1
Spinal Osteochondrosis	1	1
Spontaneous Abortion	1	1
Structure of Endocrine Glands	1	1
Structure of Eye Socket	1	1
Syncope and Collapse	1	1
Systemic Sclerosis	1	1

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Undescended Testicle	1	1
Unspecified Nonorganic Psychosis	1	1
Urination Functions	1	1
Urticaria	1	1
Viral Agents As the Cause of Diseases Classified to Other Chapters	1	1
Visual Disturbances	1	1
Voice Disturbances	1	1
Sensation of Pain	0	6
Total	**17,804**	**4,243***

Note that the total Nstudies is 2,748, however, the same study could contribute to different traits classified in different trait domains resulting in a larger total Nstudies in this Table.
Traits marked with a * indicate that an ICD10 disease classification could not be assigned due to insufficient specific information in the original study. In these instances the level between the ICD10 chapter level and the actual disease code was taken.

Supplementary Table 8. Results from multiple tests for publication bias

		Begg & Mazumdar		*Egger*				*Rosenthal*
	Ntraits	Tau	P-value	Intercept	SE	T value	Pr(>|t|)	Fail-safe n*
z_{MZ}	9,568	0.155	<1E-11	-0.361	0.104	-3.476	0.00051	3,098,308,137
z_{DZ}	5,220	0.108	<1E-11	-0.685	0.110	-6.210	0.00000	386,704,304
z_{DZSS}	6,108	0.108	<1E-11	-0.212	0.079	-2.678	0.00742	297,232,662
z_{MZM}	4,518	0.101	<1E-11	0.914	0.149	6.129	0.00000	556,244,302
z_{MZF}	4,360	0.139	<1E-11	0.489	0.166	2.938	0.00332	667,973,289
z_{DZM}	4,412	0.068	1.63E-11	-0.022	0.083	-0.260	0.79514	112,616,680
z_{DZF}	4,255	0.114	<1E-11	0.061	0.105	0.581	0.56142	136,934,159
z_{DOS}	2,342	0.090	7.94E-11	-0.519	0.147	-3.523	0.00043	49,222,988
zh^2	2,929	0.053	1.70E-05	-0.443	0.354	-1.250	0.21151	877,332,688
zc^2	2,771	0.167	<1E-11	-1.082	0.267	-4.049	0.00005	97,673,151
zh^2_{SS}	1,795	0.103	1.11E-10	0.491	0.223	2.200	0.02797	108,863,670
zc^2_{SS}	1,769	0.170	<1E-11	0.146	0.211	0.690	0.49028	15,947,508
zh^2_{M}	2,095	0.046	0.00181	1.518	0.346	4.386	0.00001	219,866,860
zc^2_{M}	1,988	0.139	<1E-11	0.853	0.202	4.227	0.00002	18,080,112
zh^2_{F}	1,957	0.075	5.88E-07	1.222	0.352	3.469	0.00053	207,555,295
zc^2_{F}	1,925	0.186	<1E-11	0.911	0.262	3.476	0.00052	21,605,483

*All have a P-value of < 1*E-11.

z_{MZ} = Z-transformed MZ correlations across all traits; z_{DZ} = Z-transformed DZ correlations across all traits; z_{DZSS} = Z-transformed DZ same sex correlations across all traits; z_{MZM} = Z-transformed MZM correlations across all entries; z_{MZF} = Z-transformed MZF correlations across all traits; z_{DZM} = Z-transformed DZM correlations across all traits; z_{DZF} = Z-transformed DZF correlations across all traits; z_{DOS} = Z-transformed DOS correlations across all entries; zh2all = Z-transformed h^2 estimates across all traits; zc^2 = Z-transformed c^2 estimates across all traits; zh^2 SS = Z-transformed h^2 estimates across all traits based on same sex twin pairs; zc^2 SS = Z-transformed c^2 estimates across all traits based on same sex twin pairs; zh^2 M = Z-transformed h^2 estimates across all traits based on males; zc^2 M = Z-transformed c^2 estimate across all entries based on males; zh^2F = Z-transformed h^2 estimates across all traits based on females; zc^2 F = Z-transformed c^2 estimates across all traits based on females; SE = Standard Error.

Supplementary Table 9. Begg and Mazumdar's test for publication bias across functional domains

	Statistic	Kendall's tau	P-value	Ntraits
Activities	z_{MZ}	0.166	0.00837	118
	z_{DZ}	0.291	0.00083	63
	zh^2	-0.067	0.54345	41
	zc^2	0.194	0.07905	41
Cardiovascular	z_{MZ}	0.065	0.06249	380
	z_{DZ}	0.001	0.97278	268
	zh^2	-0.022	0.80803	59
	zc^2	0.066	0.47403	59
Cell	z_{MZ}	0.475	0.00000	72
	z_{DZ}	-0.156	0.13010	54
	zh^2	0.151	0.40538	23
	zc^2	-0.144	0.41237	23
Cognitive	z_{MZ}	0.062	0.00464	931
	z_{DZ}	0.000	0.98789	454
	zh^2	0.007	0.84452	333
	zc^2	0.113	0.00184	345
Dermatological	z_{MZ}	-0.039	0.56277	109
	z_{DZ}	0.131	0.11167	75
	zh^2	0.193	0.08503	43
	zc^2	0.187	0.08878	44
Ear, Nose, Throat	z_{MZ}	-0.105	0.03001	200
	z_{DZ}	-0.038	0.46868	172
	zh^2	0.112	0.53438	18
	zc^2	0.261	0.19808	15
Endocrine	z_{MZ}	0.151	0.00601	162
	z_{DZ}	0.256	0.00016	110
	zh^2	-0.131	0.31044	32
	zc^2	0.253	0.05841	30
Environment	z_{MZ}	0.041	0.29557	295
	z_{DZ}	-0.013	0.82646	145
	zh^2	0.117	0.10007	95
	zc^2	0.043	0.54866	95
Gastrointestinal	z_{MZ}	0.232	0.00839	64
	z_{DZ}	0.080	0.48103	39
	zh^2	0.559	0.00088	19
	zc^2	0.138	0.42570	18
Immunological	z_{MZ}	0.070	0.09226	280
	z_{DZ}	-0.054	0.24479	231
	zh^2	0.123	0.02939	168
	zc^2	0.530	0.00237	18
Metabolic	z_{MZ}	0.090	0.00005	912
	z_{DZ}	0.122	0.00010	464
	zh^2	-0.015	0.67295	355
	zc^2	0.189	0.00000	355
Neurological	z_{MZ}	0.008	0.61612	1751
	z_{DZ}	-0.020	0.44529	705
	zh^2	-0.044	0.36515	200
	zc^2	0.400	0.00000	190
Nutritional	z_{MZ}	0.119	0.01421	205

	z_{DZ}	0.047	0.49197	110
	zh^2	-0.031	0.78201	43
	zc^2	-0.054	0.63728	43
Ophthalmological	z_{MZ}	0.049	0.31794	199
	z_{DZ}	0.119	0.07647	106
	zh^2	0.085	0.39191	50
	zc^2	0.622	0.00000	50
Psychiatric	z_{MZ}	0.098	0.00000	2865
	z_{DZ}	0.053	0.00086	1781
	zh^2	-0.004	0.83504	1149
	zc^2	0.142	0.00000	1149
Reproduction	z_{MZ}	0.197	0.10781	34
	z_{DZ}	0.160	0.40738	16
	zh^2	0.235	0.38066	10
	zc^2	0.076	0.77317	10
Respiratory	z_{MZ}	0.210	0.00003	184
	z_{DZ}	0.096	0.11447	127
	zh^2	-0.180	0.06892	52
	zc^2	0.242	0.01726	51
Skeletal	z_{MZ}	-0.115	0.00076	395
	z_{DZ}	-0.114	0.02098	191
	zh^2	-0.092	0.09030	156
	zc^2	0.259	0.00000	153
Social interactions	z_{MZ}	0.105	0.08170	146
	z_{DZ}	0.252	0.09315	24
	zh^2	0.032	0.82398	26
	zc^2	0.147	0.30613	26
Social Values	z_{MZ}	0.001	0.98160	120
	z_{DZ}	0.093	0.38587	45
	zh^2	0.171	0.14484	38
	zc^2	-0.079	0.50147	38

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Supplementary Table 10. Egger's test for publication bias across functional domains

		Intercept	*SE*	*T value*	*Pr(>|t|)*	*df*
Activities	z_{MZ}	0.272	0.956	0.285	0.77647	116
	z_{DZ}	1.946	1.228	1.584	0.11826	61
	zh^2	-3.929	1.950	-2.015	0.05089	39
	zc^2	3.019	2.444	1.235	0.22409	39
Cardiovascular	z_{MZ}	-0.199	0.269	-0.740	0.45950	378
	z_{DZ}	-0.333	0.262	-1.272	0.20445	266
	zh^2	-1.006	1.289	-0.781	0.43806	57
	zc^2	-1.419	1.478	-0.960	0.34092	57
Cell	z_{MZ}	4.021	0.758	5.307	0.00000	70
	z_{DZ}	-0.944	1.121	-0.842	0.40369	52
	zh^2	-10.560	4.210	-2.508	0.02040	21
	zc^2	18.924	7.512	2.519	0.01994	21
Cognitive	z_{MZ}	-2.673	0.344	-7.779	0.00000	929
	z_{DZ}	-2.559	0.441	-5.807	0.00000	452
	zh^2	-2.064	0.930	-2.220	0.02708	331
	zc^2	-2.707	0.800	-3.386	0.00079	343
Dermatological	z_{MZ}	-3.846	1.565	-2.457	0.01562	107
	z_{DZ}	2.271	0.588	3.864	0.00024	73
	zh^2	-15.048	1.987	-7.574	0.00000	41
	zc^2	3.242	0.745	4.354	0.00008	42
Ear, Nose, Throat	z_{MZ}	-2.975	0.648	-4.594	0.00001	198
	z_{DZ}	0.156	0.370	0.421	0.67459	170
	zh^2	1.630	4.937	0.330	0.74563	16
	zc^2	-0.249	1.265	-0.197	0.84702	13
Endocrine	z_{MZ}	0.529	0.470	1.127	0.26144	160
	z_{DZ}	0.461	0.419	1.101	0.27354	108
	zh^2	-2.584	2.150	-1.202	0.23878	30
	zc^2	3.106	2.322	1.337	0.19182	28
Environment	z_{MZ}	-3.297	0.713	-4.626	0.00001	293
	z_{DZ}	-0.676	0.965	-0.700	0.48481	143
	zh^2	-1.509	1.857	-0.813	0.41856	93
	zc^2	0.125	2.195	0.057	0.95481	93
Gastrointestinal	z_{MZ}	2.827	0.518	5.455	0.00000	62
	z_{DZ}	2.267	0.803	2.822	0.00763	37
	zh^2	-17.832	7.342	-2.429	0.02653	17
	zc^2	-1.137	1.585	-0.718	0.48334	16
Immunological	z_{MZ}	0.736	0.295	2.499	0.01303	278
	z_{DZ}	1.217	0.352	3.459	0.00065	229
	zh^2	0.186	1.101	0.169	0.86615	166
	zc^2	3.402	2.109	1.613	0.12626	16
Metabolic	z_{MZ}	0.307	0.251	1.223	0.22173	910
	z_{DZ}	0.071	0.257	0.275	0.78355	462
	zh^2	1.858	1.072	1.734	0.08377	353
	zc^2	-2.504	0.770	-3.251	0.00126	353
Neurological	z_{MZ}	2.545	0.160	15.879	0.00000	1749
	z_{DZ}	0.760	0.144	5.281	0.00000	703
	zh^2	1.792	0.524	3.419	0.00076	198
	zc^2	0.454	0.165	2.747	0.00659	188
Nutritional	z_{MZ}	-1.659	0.714	-2.323	0.02119	203
	z_{DZ}	-1.831	0.909	-2.015	0.04635	108

	zh^2	-3.872	2.745	-1.411	0.16592	41
	zc^2	-1.266	1.536	-0.824	0.41453	41
Ophthalmological	z_{MZ}	-3.884	0.675	-5.750	0.00000	197
	z_{DZ}	-0.164	0.391	-0.421	0.67486	104
	zh^2	-26.020	4.690	-5.548	0.00000	48
	zc^2	0.289	1.271	0.227	0.82124	48
Psychiatric	z_{MZ}	-2.391	0.226	-10.569	0.00000	2863
	z_{DZ}	-1.560	0.246	-6.355	0.00000	1779
	zh^2	-1.697	0.605	-2.805	0.00512	1147
	zc^2	-0.510	0.443	-1.152	0.24947	1147
Reproduction	z_{MZ}	5.831	3.041	1.918	0.06413	32
	z_{DZ}	3.963	6.771	0.585	0.56761	14
	zh^2	14.154	15.230	0.929	0.37990	8
	zc^2	-2.055	9.565	-0.215	0.83525	8
Respiratory	z_{MZ}	-0.139	0.762	-0.183	0.85513	182
	z_{DZ}	0.635	0.538	1.182	0.23957	125
	zh^2	-3.985	2.241	-1.779	0.08139	50
	zc^2	-0.649	0.785	-0.827	0.41207	49
Skeletal	z_{MZ}	1.720	0.653	2.633	0.00880	393
	z_{DZ}	1.982	0.532	3.723	0.00026	189
	zh^2	7.011	2.324	3.017	0.00299	154
	zc^2	-2.185	1.671	-1.308	0.19293	151
Social interactions	z_{MZ}	-0.773	0.658	-1.174	0.24214	144
	z_{DZ}	1.924	2.935	0.655	0.51897	22
	zh^2	-1.177	5.919	-0.199	0.84402	24
	zc^2	-6.923	7.538	-0.918	0.36759	24
Social Values	z_{MZ}	0.505	1.847	0.274	0.78486	118
	z_{DZ}	-5.388	4.577	-1.177	0.24565	43
	zh^2	5.025	2.126	2.364	0.02361	36
	zc^2	-5.258	3.824	-1.375	0.17766	36

Supplementary Table 11. Rosenthal's fail-safe test for publication bias across functional domains

Domain		Fail-safe n	P-value	Nentries
Activities	z_{MZ}	632,896	0	118
	z_{DZ}	90,928	0	63
	zh^2	274,396	0	41
	zc^2	18,487	3.75E-268	41
Cardiovascular	z_{MZ}	1,924,056	0	380
	z_{DZ}	198,062	0	268
	zh^2	87,404	0	59
	zc^2	10,178	2.15E-104	59
Cell	z_{MZ}	51,356	0	72
	z_{DZ}	9,653	4.48E-108	54
	zh^2	335	4.50E-11	23
	zc^2	9,435	3.15E-244	23
Cognitive	z_{MZ}	41,772,628	0	931
	z_{DZ}	5,865,336	0	454
	zh^2	11,426,761	0	333
	zc^2	1,722,139	0	345
Dermatological	z_{MZ}	566,551	0	109
	z_{DZ}	72,836	0	75
	zh^2	201,712	0	43
	zc^2	6,145	4.82E-85	44
Ear, Nose, Throat	z_{MZ}	1,587,929	0	200
	z_{DZ}	85,626	9.48E-296	172
	zh^2	15,037	0	18
	zc^2	249	2.69E-12	15
Endocrine	z_{MZ}	188,425	0	162
	z_{DZ}	43,975	4.25E-238	110
	zh^2	16,570	1.68E-307	32
	zc^2	7,089	6.18E-142	30
Environment	z_{MZ}	4,078,257	0	295
	z_{DZ}	678,297	0	145
	zh^2	490,500	0	95
	zc^2	418,326	0	95
Gastrointestinal	z_{MZ}	41,151	0	64
	z_{DZ}	9,373	2.65E-144	39
	zh^2	40,912	0	19
	zc^2	2,362	4.57E-80	18
Immunological	z_{MZ}	674,485	0	280
	z_{DZ}	316,844	0	231
	zh^2	586,750	0	168
	zc^2	503	4.45E-19	18
Metabolic	z_{MZ}	38,279,920	0	912
	z_{DZ}	3,453,465	0	464
	zh^2	17,433,722	0	355
	zc^2	1,880,222	0	355
Neurological	z_{MZ}	43,851,037	0	1,751
	z_{DZ}	1,563,509	0	705
	zh^2	793,794	0	200
	zc^2	10,771	4.08E-36	190
Nutritional	z_{MZ}	1,210,986	0	205

	z_{DZ}	147,196	0	110
	zh^2	177,580	0	43
	zc^2	12,016	2.56E-167	43
Ophthalmological	z_{MZ}	1,303,265	0	199
	z_{DZ}	72,027	0	106
	zh^2	380,065	0	50
	zc^2	955	8.36E-14	50
Psychiatric	z_{MZ}	381,940,147	0	2,865
	z_{DZ}	67,971,316	0	1,781
	zh^2	171,874,322	0	1,149
	zc^2	17,019,801	0	1,149
Reproduction	z_{MZ}	59,176	0	34
	z_{DZ}	12,603	0	16
	zh^2	5,506	0	10
	zc^2	10,622	0	10
Respiratory	z_{MZ}	968,111	0	184
	z_{DZ}	129,171	0	127
	zh^2	326,345	0	52
	zc^2	6,047	1.29E-72	51
Skeletal	z_{MZ}	12,940,636	0	395
	z_{DZ}	1,149,706	0	191
	zh^2	6,502,624	0	156
	zc^2	958,866	0	153
Social interactions	z_{MZ}	232,516	0	146
	z_{DZ}	10,297	2.74E-255	24
	zh^2	51,601	0	26
	zc^2	17,957	0	26
Social values	z_{MZ}	551,999	0	120
	z_{DZ}	96,762	0	45
	zh^2	65,509	0	38
	zc^2	56,942	0	38

Supplementary Table 12. Meta-analyses on all traits, for all twin correlations and variance components

All Traits	Estimate	SE	NTraits	Total Npairs
r_{MZ}	0.636	0.002	9,568	2,563,627
r_{MZM}	0.617	0.004	4,518	1,070,962
r_{MZF}	0.626	0.004	4,360	1,171,841
r_{DZ}	0.339	0.003	5,220	2,606,252
r_{DZSS}	0.345	0.003	6,108	1,752,952
r_{DZM}	0.321	0.003	4,412	1,039,238
r_{DZF}	0.342	0.004	4,255	1,068,562
r_{DOS}	0.302	0.005	2,342	898,610
h^2	0.488	0.004	2,929	4,341,721
h^2 BEST	0.532	0.004	4,309	4,568,998
h^2 SS	0.471	0.005	1,795	1,187,837
h^2 BEST SS	0.482	0.005	1,853	1,534,577
h^2 M	0.465	0.005	2,095	1,732,622
h^2 BEST M	0.531	0.005	2,634	1,605,780
h^2 F	0.472	0.005	1,957	1,539,582
h^2 BEST F	0.510	0.005	2,422	1,648,081
c^2	0.174	0.004	2,771	4,272,318
c^2 BEST	0.084	0.003	4,480	4,779,535
c^2 SS	0.189	0.005	1,769	1,185,116
c^2 BEST SS	0.096	0.005	1,888	1,562,431
c^2 M	0.157	0.004	1,988	1,519,148
c^2 BEST M	0.070	0.003	2,852	1,723,859
c^2 F	0.169	0.005	1,925	1,516,192
c^2 BEST F	0.109	0.005	2,491	1,716,112

SE = Standard Error

Supplementary Table 13. Meta-analyses across all trait categories for different subsets of the data.

	Subset	Estimate	SE	NTraits	Npairs
r_{MZ}	Only twin correlations available	0.648	0.004	3,159	648,610
r_{DZ}		0.326	0.004	3,159	901,680
h^2	Only h^2 and c^2 available	0.501	0.009	735	1,326,540
c^2		0.196	0.008	735	1,326,540
r_{MZ}	Both available	0.643	0.005	1,868	1,044,307
r_{DZ}		0.357	0.005	1,868	1,678,632
h^2		0.480	0.005	1,868	2,722,940
c^2		0.165	0.005	1,868	2,722,940

SE = Standard Error

Supplementary Table 14. Meta-analyses across all trait categories for different classes of traits.

	Subset	Estimate	SE	NTraits	Npairs
r_{MZ}	Disease	0.652	0.009	529	239,757
	Other	0.642	0.003	7,461	1,543,729
	Symptoms	0.602	0.005	1,578	780,142
r_{DZ}	Disease	0.363	0.010	323	312,836
	Other	0.337	0.004	3,801	1,371,095
	Symptoms	0.336	0.006	1,096	922,321
h^2	Disease	0.531	0.016	244	598,183
	Other	0.492	0.005	1,933	2,372,049
	Symptoms	0.463	0.007	752	1,371,489
c^2	Disease	0.160	0.011	237	547,428
	Other	0.180	0.005	1,782	2,353,400
	Symptoms	0.164	0.006	752	1,371,489
r_{MZ}	Continuous	0.63	0.003	8,919	2,201,622
	Dichotomous	0.65	0.009	588	355,817
	Dichotomous ascertained	0.78	0.023	62	6,188
r_{DZ}	Continuous	0.34	0.003	4,803	2,187,154
	Dichotomous	0.37	0.009	388	417,058
	Dichotomous ascertained	0.50	0.054	29	2,040
h^2	Continuous	0.49	0.005	2,566	3,377,040
	Dichotomous	0.47	0.013	350	963,302
	Dichotomous ascertained	0.73	0.076	13	1,379
c^2	Continuous	0.17	0.004	2,414	3,358,077
	Dichotomous	0.17	0.009	346	912,957
	Dichotomous ascertained	0.31	0.047	12	1,284

SE = Standard Error

Supplementary Table 15. Meta-analyses across all traits, per age cohort.

	0-11 years		12-17 years		18-64 years		65+ years	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
r_{MZ}	0.709	0.004	0.696	0.005	0.567	0.003	0.510	0.009
r_{MZM}	0.695	0.006	0.705	0.008	0.552	0.005	0.485	0.016
r_{MZF}	0.704	0.006	0.706	0.007	0.564	0.005	0.526	0.013
r_{DZ}	0.416	0.005	0.378	0.006	0.262	0.003	0.251	0.009
r_{DZSS}	0.427	0.005	0.406	0.007	0.270	0.004	0.241	0.010
r_{DZM}	0.393	0.008	0.389	0.008	0.270	0.004	0.248	0.014
r_{DZF}	0.393	0.008	0.432	0.010	0.293	0.005	0.278	0.012
r_{DOS}	0.393	0.007	0.327	0.009	0.202	0.005	0.193	0.012
h^2	0.505	0.006	0.539	0.010	0.451	0.007	0.434	0.023
c^2	0.230	0.007	0.188	0.009	0.126	0.005	0.083	0.010
h^2_{SS}	0.502	0.008	0.488	0.012	0.441	0.007	0.356	0.016
c^2_{SS}	0.236	0.010	0.243	0.013	0.122	0.006	0.086	0.011
h^2_{M}	0.536	0.010	0.538	0.014	0.428	0.007	0.406	0.018
c^2_{M}	0.253	0.012	0.209	0.011	0.115	0.005	0.120	0.015
h^2_{F}	0.496	0.011	0.515	0.012	0.455	0.006	0.392	0.016
c^2_{F}	0.271	0.013	0.239	0.013	0.113	0.005	0.090	0.009
h^2_{BEST}	0.575	0.007	0.602	0.007	0.481	0.005	0.460	0.019
c^2_{BEST}	0.156	0.007	0.087	0.007	0.048	0.003	0.025	0.005
$h^2_{BEST\ SS}$	0.532	0.012	0.523	0.013	0.468	0.006	0.393	0.013
$c^2_{BEST\ SS}$	0.156	0.015	0.182	0.014	0.060	0.004	0.035	0.008
$h^2_{BEST\ M}$	0.630	0.011	0.616	0.013	0.493	0.005	0.469	0.022
$c^2_{BEST\ M}$	0.191	0.013	0.106	0.009	0.039	0.003	0.067	0.019
$h^2_{BEST\ F}$	0.551	0.013	0.542	0.012	0.492	0.006	0.498	0.017
$c^2_{BEST\ F}$	0.234	0.015	0.165	0.013	0.070	0.006	0.038	0.007

SE = Standard Error

Supplementary Table 16. Meta-analyses across functional domains.

	r_{MZ}		r_{DZ}		h^2		c^2	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Activities	0.570	0.019	0.340	0.022	0.421	0.017	0.131	0.026
Aging	0.303	0.026	NA	NA	NA	NA	NA	NA
Cardiovascular	0.564	0.008	0.295	0.010	0.436	0.021	0.149	0.029
Cell	0.722	0.022	0.523	0.043	0.149	0.054	0.674	0.048
Cognitive	0.646	0.007	0.371	0.010	0.468	0.010	0.177	0.012
Dermatological	0.729	0.025	0.402	0.017	0.604	0.043	0.166	0.021
Developmental	0.377	0.148	NA	NA	NA	NA	NA	NA
Ear, Nose, Throat	0.760	0.013	0.332	0.015	0.637	0.064	0.107	0.035
Endocrine	0.555	0.017	0.387	0.022	0.395	0.045	0.322	0.050
Environment	0.551	0.014	0.396	0.017	0.290	0.017	0.269	0.020
Gastrointestinal	0.551	0.024	0.274	0.028	0.353	0.075	0.105	0.020
Hematological	0.764	0.023	0.560	0.032	0.505	0.049	0.324	0.090
Immunological	0.608	0.012	0.357	0.013	0.494	0.022	0.147	0.053
Infection	0.731	0.084	0.452	0.129	0.422	0.123	0.351	0.153
Metabolic	0.746	0.005	0.405	0.008	0.584	0.011	0.191	0.012
Mortality	0.391	0.036	NA	NA	NA	NA	NA	NA
Muscular	0.467	0.034	0.273	0.077	NA	NA	NA	NA
Neoplasms	0.405	0.030	NA	NA	0.458	0.029	NA	NA
Neurological	0.685	0.005	0.289	0.006	0.503	0.015	0.068	0.008
Nutritional	0.479	0.016	0.220	0.015	0.436	0.029	0.115	0.021
Ophthalmological	0.730	0.017	0.385	0.017	0.712	0.041	0.048	0.021
Psychiatric	0.552	0.004	0.306	0.005	0.463	0.006	0.158	0.005
Reproduction	0.767	0.034	0.333	0.063	0.313	0.099	0.320	0.061
Respiratory	0.697	0.018	0.325	0.019	0.545	0.031	0.094	0.018
Skeletal	0.830	0.008	0.504	0.012	0.591	0.018	0.265	0.019
Social interactions	0.338	0.017	0.267	0.041	0.319	0.038	0.182	0.053
Social values	0.489	0.030	0.414	0.062	0.313	0.019	0.271	0.032
	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs
Activities	118	58,227	63	55,864	41	113,414	41	113,414
Aging	11	1,176	0	NA	0	NA	0	NA
Cardiovascular	380	41,669	268	25,544	59	21,194	59	21,194
Cell	72	3,188	54	1,667	23	1,808	23	1,808
Cognitive	931	288,867	454	304,720	333	448,775	345	452,963
Dermatological	109	19,509	75	23,245	43	31,389	44	35,862
Developmental	4	2,408	1	2,955	1	4,545	1	4,545
Ear, Nose, Throat	200	27,882	172	14,222	18	6,574	15	5,632
Endocrine	162	10,112	110	9,140	32	8,779	30	8,595
Environment	295	120,606	145	99,137	95	195,606	95	195,606
Gastrointestinal	64	10,982	39	28,431	19	62,430	18	62,116
Hematological	50	5,541	19	3,218	7	2,025	7	2,025
Immunological	280	18,051	231	36,075	168	39,768	18	13,221
Infection	8	538	7	1,172	4	1,173	4	1,173
Metabolic	912	210,189	464	197,921	355	512,800	355	514,138
Mortality	31	25,027	1	341	2	1,200	2	1,200
Muscular	31	1,398	9	156	2	24	2	24
Neoplasms	9	969	2	124	3	6,722	2	6,602
Neurological	1,751	129,076	705	89,103	200	63,768	190	62,698
Nutritional	205	75,751	110	79,188	43	56,197	43	56,197
Ophthalmological	199	26,139	106	16,189	50	26,428	50	26,428
Psychiatric	2,865	1,232,382	1781	1,374,817	1149	2,087,497	1149	2,087,497
Reproduction	34	12,130	16	27,879	10	28,819	10	28,819
Respiratory	184	34,443	127	51,150	52	67,589	51	67,512
Skeletal	395	111,282	191	113,080	156	445,698	153	395,550
Social interactions	146	43,501	24	22,764	26	52,889	26	52,889
Social values	120	52,492	45	28,071	38	54,610	38	54,610

Connective Tissue is not included in this Table as there were no studies that reported on traits that fell into this category. SE = Standard Error

Supplementary Table 17. Meta-analyses across functional domains for males.

	r_{MZM}		r_{DZM}		h^2 males		c^2 males	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Activities	0.531	0.023	0.296	0.021	0.364	0.022	0.110	0.017
Aging	0.249	0.030	0.108	0.019	0.234	0.031	0.009	0.011
Cardiovascular	0.547	0.009	0.287	0.013	0.433	0.027	0.098	0.018
Cell	0.687	0.093	0.469	0.147	NA	NA	NA	NA
Cognitive	0.560	0.017	0.335	0.015	0.456	0.018	0.127	0.019
Dermatological	0.727	0.028	0.349	0.026	0.526	0.087	0.167	0.090
Developmental	0.248	0.222	0.314	0.187	NA	NA	NA	NA
Ear, Nose, Throat	0.729	0.031	0.382	0.029	0.582	0.037	0.134	0.055
Endocrine	0.534	0.017	0.324	0.013	0.446	0.046	0.146	0.045
Environment	0.594	0.020	0.406	0.020	0.360	0.021	0.226	0.020
Gastrointestinal	0.400	0.033	0.234	0.034	0.304	0.057	0.157	0.040
Hematological	0.675	0.038	0.393	0.032	NA	NA	0.313	0.140
Immunological	0.614	0.042	0.286	0.035	0.476	0.062	0.200	0.093
Infection	0.921	0.038	0.625	0.106	NA	NA	NA	NA
Metabolic	0.727	0.007	0.386	0.008	0.631	0.012	0.159	0.013
Mortality	0.351	0.040	0.208	0.037	0.433	0.038	0.067	0.028
Muscular	0.687	0.024	0.287	0.025	0.627	0.028	0.053	0.013
Neoplasms	0.543	0.030	0.228	0.052	NA	NA	NA	NA
Neurological	0.654	0.008	0.259	0.007	0.512	0.013	0.036	0.005
Nutritional	0.453	0.015	0.248	0.012	0.346	0.034	0.151	0.022
Ophthalmological	0.664	0.030	0.227	0.026	0.553	0.040	0.067	0.021
Psychiatric	0.555	0.007	0.316	0.006	0.409	0.008	0.173	0.006
Reproduction	0.793	0.022	0.331	0.029	0.361	0.054	0.136	0.062
Respiratory	0.604	0.019	0.283	0.020	0.511	0.044	0.126	0.033
Skeletal	0.837	0.009	0.449	0.012	0.616	0.021	0.246	0.016
Social interactions	0.345	0.028	0.205	0.023	0.263	0.032	0.108	0.023
Social values	0.654	0.054	0.479	0.072	0.255	0.027	0.374	0.037

Connective Tissue is not included in this Table as there were no studies that reported on traits that fell into this category.

Supplementary Table 18. Meta-analyses across functional domains for females.

	r_{MZF}		r_{DZF}		h^2 females		c^2 females	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Activities	0.568	0.020	0.335	0.022	0.419	0.020	0.132	0.022
Aging	0.461	0.034	0.221	0.030	0.373	0.056	0.142	0.047
Cardiovascular	0.535	0.012	0.313	0.011	0.419	0.030	0.145	0.020
Cell	0.487	0.049	0.175	0.031	0.600	0.027	0.058	0.071
Cognitive	0.548	0.016	0.331	0.016	0.428	0.021	0.218	0.027
Dermatological	0.724	0.035	0.382	0.021	0.610	0.045	0.094	0.025
Developmental	0.399	0.068	0.218	0.090	0.314	0.058	0.132	0.135
Ear, Nose, Throat	0.779	0.023	0.340	0.024	0.654	0.032	0.036	0.028
Endocrine	0.623	0.016	0.350	0.021	0.555	0.042	0.125	0.040
Environment	0.571	0.023	0.417	0.034	0.299	0.023	0.312	0.025
Gastrointestinal	0.402	0.033	0.246	0.035	0.324	0.065	0.116	0.052
Hematological	0.663	0.022	0.376	0.017	0.325	0.040	0.343	0.069
Immunological	0.524	0.028	0.263	0.027	0.310	0.055	0.042	0.027
Infection	0.764	0.053	0.529	0.159	NA	NA	NA	NA
Metabolic	0.738	0.006	0.401	0.007	0.637	0.012	0.174	0.014
Mortality	0.379	0.038	0.238	0.043	0.407	0.032	0.016	0.015
Muscular	0.819	0.028	0.387	0.044	0.276	0.080	0.290	0.081
Neoplasms	0.430	0.068	0.261	0.057	0.308	0.041	0.092	0.028
Neurological	0.685	0.008	0.333	0.008	0.391	0.027	0.096	0.022
Nutritional	0.444	0.012	0.255	0.010	0.421	0.028	0.103	0.016
Ophthalmological	0.740	0.018	0.336	0.021	0.616	0.030	0.069	0.021
Psychiatric	0.568	0.006	0.321	0.006	0.411	0.007	0.162	0.007
Reproduction	0.567	0.017	0.251	0.017	0.451	0.027	0.063	0.024
Respiratory	0.603	0.023	0.255	0.021	0.462	0.055	0.142	0.041
Skeletal	0.793	0.008	0.429	0.009	0.653	0.016	0.204	0.015
Social interactions	0.389	0.030	0.201	0.023	0.299	0.026	0.109	0.020
Social values	0.708	0.046	0.583	0.066	0.305	0.044	0.434	0.051

Connective Tissue is not included in this Table as there were no studies that reported on traits that fell into this category.

Supplementary Table 19. Meta-analyses across functional domains for same sex and opposite sex pairs.

	r_{DZSS}		r_{DOS}		h^2 same sex		c^2 same sex	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Activities	0.319	0.020	0.213	0.019	0.314	0.041	0.131	0.022
Aging	0.119	0.028	NA	NA	0.290	0.040	0.030	0.022
Cardiovascular	0.315	0.010	0.247	0.016	0.486	0.026	0.108	0.018
Cell	0.271	0.042	NA	NA	0.481	0.063	0.349	0.063
Cognitive	0.385	0.012	0.351	0.018	0.463	0.011	0.264	0.017
Connective tissue	NA	NA	NA	NA	0.510	0.027	0.000	0.010
Dermatological	0.313	0.021	0.338	0.021	0.413	0.034	0.036	0.021
Developmental	0.306	0.183	NA	NA	NA	NA	NA	NA
Ear, Nose, Throat	0.478	0.022	0.386	0.023	0.609	0.027	0.242	0.041
Endocrine	0.307	0.019	0.346	0.056	0.472	0.042	0.110	0.048
Environment	0.392	0.015	0.326	0.024	0.293	0.022	0.316	0.027
Gastrointestinal	0.255	0.024	0.153	0.038	0.481	0.057	0.036	0.035
Hematological	0.402	0.037	NA	NA	0.377	0.042	0.299	0.036
Immunological	0.309	0.025	0.205	0.062	NA	NA	NA	NA
Infection	0.494	0.141	0.509	0.158	NA	NA	NA	NA
Metabolic	0.409	0.007	0.345	0.012	0.585	0.022	0.144	0.016
Mortality	0.231	0.040	NA	NA	0.450	0.022	0.035	0.014
Muscular	0.394	0.041	NA	NA	NA	NA	NA	NA
Neoplasms	0.284	0.032	NA	NA	0.272	0.032	0.100	0.033
Neurological	0.371	0.006	0.291	0.009	0.519	0.009	0.179	0.008
Nutritional	0.269	0.010	0.148	0.011	0.411	0.031	0.128	0.020
Ophthalmological	0.316	0.017	0.328	0.022	0.717	0.027	0.052	0.025
Psychiatric	0.300	0.005	0.295	0.007	0.417	0.008	0.177	0.009
Reproduction	0.357	0.046	0.257	0.060	0.234	0.066	0.157	0.091
Respiratory	0.339	0.019	0.225	0.019	0.445	0.055	0.109	0.038
Skeletal	0.475	0.012	0.412	0.017	0.602	0.040	0.175	0.019
Social interactions	0.187	0.013	0.228	0.040	0.229	0.025	0.142	0.039
Social values	0.302	0.040	0.430	0.086	0.295	0.027	0.109	0.021

Supplementary Table 22. Available sample sizes for functional domains for males

	r_{MZM}		r_{DZM}		h^2 males		c^2 males	
	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs
Activities	81	28,008	71	26,933	58	95,347	58	95,347
Aging	24	2,811	23	3,062	17	7,906	17	7,906
Cardiovascular	248	20,621	233	19,013	48	12,975	48	12,975
Cell	16	432	16	387	1	306	1	306
Cognitive	248	54,975	228	50,647	105	57,896	105	57,896
Connective tissue	0	NA	0	NA	0	NA	0	NA
Dermatological	54	7,559	53	6,536	8	994	11	2,484
Developmental	4	954	3	984	1	1,457	1	1,457
Ear, Nose, Throat	26	5,436	26	4,523	8	3,610	8	3,610
Endocrine	131	12,083	125	11,862	11	2,824	11	2,824
Environment	107	41,458	105	40,432	64	75,368	64	75,368
Gastrointestinal	18	7,735	19	8,564	9	8,992	9	8,992
Hematological	18	806	17	713	2	137	3	220
Immunological	28	2,770	28	1,981	5	919	5	919
Infection	3	136	3	176	0	NA	0	NA
Metabolic	503	85,951	495	89,631	256	142,296	257	143,028
Mortality	31	12,641	31	21,424	9	10,492	9	10,492
Muscular	40	8,577	40	8,727	8	10,422	4	10,358
Neoplasms	3	501	3	699	2	646	2	646
Neurological	756	57,032	753	55,518	242	47,864	241	47,761
Nutritional	167	35,697	167	41,985	48	30,704	48	30,704
Ophthalmological	60	6,009	60	5,522	31	8,481	31	8,481
Psychiatric	1480	578,481	1449	542,211	885	1,020,084	803	809,431
Reproduction	72	10,983	70	15,322	25	9,377	15	7,883
Respiratory	86	14,789	86	12,948	31	5,668	25	4,903
Skeletal	230	48,607	225	50,441	149	126,888	140	124,188
Social interactions	53	18,471	52	14,455	41	35,856	41	35,856
Social values	31	7,441	31	4,543	31	15,112	31	15,112

Supplementary Table 23. Available sample sizes for functional domains for females

	r_{MZF}		r_{DZF}		h^2 females		c^2 females	
	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs
Activities	73	33,396	65	28,825	47	73,292	47	73,292
Aging	22	1,629	22	1,999	12	2,012	12	2,012
Cardiovascular	184	18,539	170	20,370	51	27,643	50	27,193
Cell	18	857	18	1,019	3	512	3	512
Cognitive	199	38,941	186	28,930	54	35,236	54	35,236
Connective tissue	0	NA	0	NA	0	NA	0	NA
Dermatological	63	9,100	61	8,595	23	6,371	26	8,763
Developmental	8	3,302	7	3,636	5	5,972	5	5,972
Ear, Nose, Throat	22	3,010	23	2,511	10	5,021	10	5,021
Endocrine	52	8,825	51	7,220	15	8,846	15	8,846
Environment	152	70,790	150	58,407	69	65,164	69	65,164
Gastrointestinal	17	5,157	16	6,647	7	10,279	7	10,279
Hematological	35	3,046	35	5,390	8	5,039	8	5,039
Immunological	27	7,651	27	7,913	5	2,669	5	2,669
Infection	3	147	3	132	0	NA	0	NA
Metabolic	523	105,445	513	110,326	279	136,043	267	131,373
Mortality	29	11,403	29	21,899	9	11,616	9	11,616
Muscular	25	1,126	25	1,078	7	1,567	5	861
Neoplasms	27	7,473	23	11,496	13	26,012	13	26,012
Neurological	507	40,582	510	41,528	35	18,164	35	18,164
Nutritional	195	54,944	193	76,799	58	51,195	58	51,195
Ophthalmological	64	9,224	67	8,273	34	10,610	34	10,610
Psychiatric	1446	572,733	1,406	461,710	871	763,739	857	745,941
Reproduction	179	50,512	165	40,142	64	50,266	64	50,266
Respiratory	66	11,692	67	10,854	18	5,773	14	4,515
Skeletal	345	66,425	345	74,934	175	139,347	173	138,447
Social interactions	42	18,719	41	16,979	45	41,011	45	41,011
Social values	37	17,174	37	10,949	40	36,184	40	36,184

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Supplementary Table 24. Available sample sizes for functional domains for same sex and opposite sex pairs

	r_{DZSS}		r_{DOS}		h^2 same sex		c^2 same sex	
	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs	Nstudies	Npairs
Activities	94	57,337	46	23,237	18	41,707	18	41,707
Aging	11	1,612	0	NA	5	2,064	5	2,064
Cardiovascular	190	21,526	97	4,468	36	15,354	36	15,354
Cell	14	793	0	NA	7	196	7	196
Cognitive	545	116,058	155	37,646	259	268,356	259	268,356
Connective tissue	0	NA	0	NA	3	10,742	3	10,742
Dermatological	75	11,418	37	5,858	14	5,882	14	5,882
Developmental	3	2,156	1	1,445	0	NA	0	NA
Ear, Nose, Throat	68	17,844	36	4,878	24	30,928	23	30,735
Endocrine	66	4,566	12	771	14	1,757	14	1,757
Environment	208	91,293	80	36,050	73	47,597	73	47,597
Gastrointestinal	46	13,514	15	13,390	9	2,840	9	2,840
Hematological	31	6,031	1	11	8	4,816	8	4,816
Immunological	43	6,586	7	4,482	2	153	1	57
Infection	5	428	4	420	0	NA	1	28
Metabolic	618	168,091	236	73,930	87	36,849	87	36,849
Mortality	29	44,705	0	NA	8	22,338	8	22,338
Muscular	20	657	0	NA	0	NA	0	NA
Neoplasms	7	1,487	0	NA	7	2,382	7	2,382
Neurological	1228	95,061	417	24,593	575	86,796	576	86,822
Nutritional	188	81,483	95	34,895	36	59,404	36	59,404
Ophthalmological	114	10,311	26	2,475	47	5,195	29	4,403
Psychiatric	1851	798,664	858	528,662	458	422,761	460	423,727
Reproduction	31	21,200	17	11,015	3	1,930	3	1,930
Respiratory	101	21,791	61	15,268	14	9,532	10	7,541
Skeletal	289	97,431	99	54,245	37	75,638	31	74,969
Social interactions	132	31,437	17	11,501	24	22,372	24	22,372
Social values	100	29,377	25	9,371	27	10,248	27	10,248

Supplementary Table 26. Simulation results showing effects of model selection

	ACE = FULL	ANE = FULL	Average
r_{MZ}	0.579	0.621	0.600
r_{DZ}	0.374	0.226	0.300
h^2 (FULL)	0.410	0.283	0.347
c^2 / n^2 (FULL)	0.169	0.338	0.254
h^2 (BEST)	0.574	0.562	0.568
c^2 / n^2 (BEST)	0.023	0.041	0.032
Type-I error rate C/N	0.133	0.121	0.127

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Supplementary Table 27. Proportions of studies consistent with $2(r_{MZ}-r_{DZ})=0$ and $2r_{DZ}-r_{MZ}=0$ for functional domains

	All			Same sex			Males			Females		
	π_0(h)	π_0(c)	Ntraits	π_0(h)	π_0(c)	Ntraits	π_0(h)	π_0(c)	Ntraits	π_0(h)	π_0(c)	Ntraits
Activities	0.17	0.35	62	0.43	0.78	93	0.35	0.97	71	0.30	0.78	65
Aging	N.A.	N.A.	0	0.17	1	11	1	1	23	0.02	1	22
Cardiovascular	0.22	0.95	267	0.21	0.94	190	0.29	1	233	0.29	0.88	170
Cell	0.44	0.59	54	1	1	14	0.78	1	16	0.69	0.98	18
Cognitive	0.15	0.57	450	0.18	0.56	542	0.27	0.76	227	0.29	0.87	183
Dermatological	0.02	0.45	74	0.11	0.43	72	0.01	0.79	53	0.27	0.64	60
Ear, Nose, Throat	0.36	0.97	165	0.15	0.79	68	0.06	1	26	0.01	1	22
Endocrine	0.58	0.69	108	0.50	0.67	66	0.63	0.83	125	0.28	1	51
Environment	0.20	0.50	145	0.57	0.44	208	0.17	0.44	104	0.36	0.44	150
Gastrointestinal	0.45	0.59	32	0.20	0.83	46	0.28	0.5	18	0.10	0.63	16
Hematological	0.01	0.65	19	0.01	0.91	31	0.40	1	17	0.02	0.93	35
Immunological	0.42	0.67	230	0.27	0.74	43	0.44	0.88	28	0.41	0.65	27
Metabolic	0.05	0.60	464	0.15	0.7	618	0.23	0.69	495	0.12	0.73	513
Mortality	NA	NA	1	0.06	0.47	29	0.02	0.67	31	0.13	0.51	29
Muscular	NA	NA	7	1	0.84	20	0.19	0.75	40	0.23	0.97	25
Neoplasms	NA	NA	2	NA	NA	7	NA	NA	3	0.50	1	23
Neurological	0.11	1	702	0.24	0.81	1226	0.19	0.89	749	0.14	1	504
Nutritional	0.19	0.72	110	0.24	0.66	188	0.38	1	167	0.39	0.68	193
Ophthalmological	0.42	0.87	106	0.17	0.98	110	0.14	0.84	59	0.11	0.89	64
Psychiatric	0.14	0.62	1778	0.21	0.64	1841	0.21	0.63	1439	0.21	0.67	1399
Reproduction	0.19	0.44	16	0.19	0.83	31	0.37	0.90	69	0.26	0.88	163
Respiratory	0.18	0.74	125	0.23	0.77	100	0.51	0.74	85	0.07	0.93	66
Skeletal	0.01	0.51	190	0.28	0.59	287	0.14	0.58	225	0.08	0.75	341
Social Interactions	0.20	0.63	24	0.53	0.57	132	0.68	0.78	52	0.15	0.54	41
Social Values	0.04	0.69	45	0.31	0.73	100	0.22	0.57	31	0.45	0.41	37

π_0(h) is the proportion of observations consistent with H0: 2 (r_{MZ}-r_{DZ}) = 0; π_0(c), is the proportion of observations consistent with H0: 2 r_{DZ} - r_{MZ} = 0. A π_0(c) of 0.95 can be interpreted as '*95% of all studies for this trait are consistent with a simple and parsimonious model where all trait resemblance between twins is due to additive genetic influences*'.

Note that π0(h) and π0(c) are calculated only when at least 10 studies (Ntraits=10) that report on both r_{MZ} and r_{DZ} are available. Disease and trait codes for which all cells were 'NA' are omitted from the Table.

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Supplementary Table 28. Proportions of studies consistent with 2 (r_{MZ} - r_{DZ}) = 0 and 2 r_{DZ} - r_{MZ} = 0 for ICD10/ICF chapter level

	All			*Same sex*			*Males*			*Females*		
Trait	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N
Attitudes	0.05	0.92	24	0.33	0.77	81	0.12	0.5	10	0.11	0.31	10
Certain Conditions Originating In the Perinatal Period	0.7	0.02	11	NA	NA	4	NA	NA	3	NA	NA	7
Community, Social and Civic Life	0.03	0.39	29	0.51	0.65	41	0.28	0.64	21	0.59	0.43	28
Diseases of the Circulatory System	NA	NA	4	NA	NA	6	0.01	0.77	11	NA	NA	8
Diseases of the Digestive System	0.54	0.74	39	0.21	0.85	45	0.3	0.53	17	0.11	0.63	15
Diseases of the Ear and Mastoid Process	NA	NA	2	0.11	0.25	24	NA	NA	3	NA	NA	3
Diseases of the Eye and Adnexa	0.74	0.78	19	NA	NA	6	NA	NA	1	NA	NA	4
Diseases of the Genitourinary System	NA	NA	0	NA	NA	0	N.A.	N.A.	8	0.37	0.82	44
Diseases of the Musculoskeletal System and Connective Tissue	0.18	0.56	18	0.41	0.88	62	0.47	0.79	34	0.3	0.82	57
Diseases of the Nervous System	0.08	0.77	28	0.01	0.87	39	0.25	1	34	0.22	0.98	43
Diseases of the Respiratory System	0.21	0.66	54	0.46	0.56	41	0.36	0.55	29	0.01	0.81	27
Diseases of the Skin and Subcutaneous Tissue	0.09	0.11	13	0.21	0.2	11	NA	NA	9	0.3	0.63	10
Endocrine, Nutritional and Metabolic Diseases	0.5	0.52	23	0.18	0.89	30	0.11	1	37	0.19	1	33
Function of Dna	1	0.11	19	NA	NA	0	NA	NA	2	NA	NA	0
Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems	0.28	0.83	556	0.13	0.91	305	0.33	1	313	0.23	0.89	245
Functions of the Digestive, Metabolic and Endocrine Systems	0.15	0.63	556	0.18	0.7	675	0.31	0.72	614	0.13	0.78	556
Functions of the Nervous System	0.11	0.99	594	0.17	0.87	592	0.19	0.98	455	0.14	1	426
Functions of the Skin and Related Structures	0.02	1	12	0.13	0.99	15	0.02	1	12	0.17	0.82	13
Genitourinary and Reproductive Functions	NA	NA	4	NA	NA	3	0.76	0.98	21	0.19	0.85	58
Injury, Poisoning and Certain Other Consequences of External Causes	0.41	0.88	13	NA	NA	2	NA	NA	2	0.53	0.79	11
Interpersonal Interactions and Relationships	0.19	0.64	25	0.53	0.56	144	0.59	0.7	60	0.15	0.53	42
Major Life Areas	0.18	0.48	127	0.62	0.42	162	0.33	0.41	80	0.41	0.39	129
Malignant Neoplasms	NA	NA	2	NA	NA	7	NA	NA	3	0.58	0.85	15
Mental Functions	0.14	0.74	1077	0.25	0.75	1287	0.25	0.82	538	0.24	0.95	508
Mental and Behavioural Disorders	0.13	0.45	1151	0.15	0.48	1093	0.21	0.56	1128	0.21	0.53	1074
Mobility	NA	NA	0	0.17	1	11	1	1	23	0.02	1	18
Mortality	NA	NA	1	0.06	0.47	29	0.02	0.67	31	0.13	0.51	29
Neuromusculoskeletal and Movement-Related	NA	NA	7	1	0.84	20	0.19	0.75	40	0.22	0.91	27

Functions												
Pregnancy, Childbirth and the Puerperium	NA	NA	5	NA	NA	5	NA	NA	5	0.55	0.53	16
Self-Care	0.19	0.65	164	0.26	0.69	259	0.38	0.99	238	0.37	0.71	258
Sensory Functions and Pain	0.76	1	41	0.17	0.89	68	0.13	0.82	48	0.27	0.83	33
Skin and Related Structures	0.01	0.28	49	0.09	0.43	46	0.04	0.67	32	0.29	0.53	41
Structure of Dna	0.02	0.79	31	1	1	14	0.87	1	14	0.72	1	17
Structures Involved In Voice and Speech	0.16	0.89	117	0.27	1	38	NA	NA	9	0.11	1	10
Structures Related to Movement	0.01	0.53	173	0.23	0.45	226	0.11	0.54	191	0.04	0.74	282
Structures Related to the Genitourinary and Reproductive Systems	NA	NA	0	NA	NA	0	NA	NA	2	0.45	0.86	18
Structures of the Cardiovascular, Immunological and Respiratory Systems	0.18	0.91	12	NA	NA	7	NA	NA	6	NA	NA	8
Structures of the Nervous System	0.08	1	62	0.32	0.75	577	0.18	0.63	256	0.06	0.74	13
The Eye, Ear and Related Structures	0.35	0.91	86	0.23	1	54	0.06	0.93	24	0.09	0.97	52
Work and Employment	NA	NA	4	0.66	0.89	22	NA	NA	9	NA	NA	9

Results of the tests for multiple traits for π_0(h), which is the proportion of observations consistent with H0: 2 (r_{MZ} - r_{DZ}) = 0 and $_{\pi 0}$(c), which is the proportion of observations consistent with H0: 2 r_{DZ} - r_{MZ} = 0. A π_0(c) of 0.95 can be interpreted as '*95% of all studies for this trait are consistent with a simple and parsimonious model where all trait resemblance between twins is due to additive genetic influences*'. N=Ntraits.

Note that π0(h) and π0(c) are calculated only when at least 10 studies (Ntraits=10) that report on both r_{MZ} and r_{DZ} are available. Disease and trait codes for which all cells were 'NA' are omitted from the Table.

Supplementary Table 29. Proportions of studies consistent with 2 (r_{MZ} - r_{DZ}) = 0 and 2 r_{DZ} - r_{MZ} = 0 for ICD10/ICF subchapter level

	All			Same sex			Males			Females		
Trait	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N	π_0(h)	π_0(c)	N
Acquiring, Keeping and Terminating A Job	NA	NA	2	0.72	0.93	20	NA	NA	6	NA	NA	7
All-Cause Mortality	NA	NA	1	0.01	0.49	25	0.02	0.72	27	0.15	0.54	25
Asthma	0.23	0.55	45	0.5	0.59	38	0.4	0.62	25	0.02	0.83	24
Attention Functions	0.32	1	35	0.44	1	30	0.7	1	14	0.74	1	16
Basic Interpersonal Interactions	NA	NA	4	0.64	0.48	24	NA	NA	9	NA	NA	3
Blood Pressure Functions	0.27	0.93	110	0.32	0.95	110	0.31	1	137	0.09	0.78	72
Calculation Functions	0.01	0.09	24	0.38	0.27	41	NA	NA	2	NA	NA	2
Complex Interpersonal Interactions	NA	NA	0	0.03	0.5	13	0.92	1	14	0.19	0.08	14
Conduct Disorders	0.2	0.41	216	0.22	0.31	213	0.23	0.39	234	0.13	0.56	187
Depressive Episode	0.18	0.6	115	0.07	0.64	103	0.37	0.53	91	0.22	0.66	98
Diseases of Oral Cavity, Salivary Glands and Jaws	NA	NA	9	0.44	0.7	14	NA	NA	2	NA	NA	2
Diseases of Pulp and Periapical Tissues	NA	NA	2	0.08	0.93	14	NA	NA	2	NA	NA	2
Disorders of Puberty, Not Elsewhere Classified	NA	NA	7	0.14	0.89	21	0	1	31	0.18	1	26
Disorders of Refraction and Accommodation	0.74	0.58	15	NA	NA	2	NA	NA	1	NA	NA	1
Dissocial Personality Disorder	NA	NA	2	NA	NA	8	0.16	0.37	16	NA	NA	6
Dorsalgia	NA	NA	9	0.44	0.8	47	0.49	0.8	28	0.34	0.56	25
Eating Disorders	NA	NA	8	0.49	0.53	21	0.44	0.65	22	0.37	0.91	87
Education	NA	NA	7	0.11	0.17	16	0.23	0.02	15	0.11	0.31	14
Emotionally Unstable Personality Disorder	NA	NA	7	0.18	0.82	30	0.31	0.45	16	N.A.	N.A.	7
Endocrine Gland Functions	0.56	0.72	92	0.53	0.64	57	0.63	0.82	118	0.54	1	22
Exercise Tolerance Functions	0.2	0.86	44	0.11	0.94	41	0.59	0.69	37	0.35	1	20
Experience of Self and Time Functions	NA	NA	9	0.01	0.44	20	0.02	0.55	23	0.01	0.95	23
Family Relationships	NA	NA	5	0.86	0.61	62	1	0.46	14	NA	NA	2
Food	0.19	0.72	110	0.24	0.66	188	0.38	1	167	0.39	0.68	193
Function of Brain	0.11	0.99	594	0.17	0.87	592	0.19	0.98	455	0.14	1	426
Gene Expression	1	0.11	19	NA	NA	0	NA	NA	0	NA	NA	0
General Metabolic Functions	0.14	0.69	219	0.14	0.86	293	0.34	0.77	222	0.19	0.73	212
Haematological System Functions	0.01	0.65	19	0.01	0.9	29	0.3	1	15	0.02	0.82	33
Heart Functions	0.2	1	140	0.22	0.94	66	0.31	0.89	78	0.43	1	79
Height	0.01	0.29	87	0.15	0.2	101	0.06	0.4	102	0.01	0.41	91
Higher-Level Cognitive Functions	0.12	0.44	188	0.1	0.56	244	0.32	0.68	114	0.23	0.84	73
Hyperkinetic Disorders	0.08	0.37	100	0.11	0.32	82	0.02	0.39	80	0.01	0.14	79
Immunological System Functions	0.43	0.67	223	0.29	0.72	40	0.47	0.92	26	0.58	0.64	19
Individual Attitudes of Strangers	0.01	0.68	10	0.48	0.82	51	NA	NA	3	NA	NA	3
Informal Social Relationships	0.23	0.9	11	0.17	0.6	31	NA	NA	9	0.12	0.73	15

Intellectual Functions	NA	NA	3	0.01	0.34	12	NA	NA	3	NA	NA	3
Intimate Relationships	NA	NA	8	0.17	0.65	13	0.32	0.49	14	NA	NA	8
Looking After One's Health	0.19	0.38	54	0.31	0.8	71	0.35	0.97	71	0.3	0.78	65
Memory Functions	0.1	0.99	63	0.19	0.97	60	0.33	0.91	27	0.46	0.96	17
Menstruation Functions	NA	NA	0	NA	NA	0	NA	NA	0	0.33	0.8	26
Mental Functions of Language	0.04	0.16	66	0.2	0.53	87	0.18	0.74	21	0.12	0.67	16
Mental and Behavioural Disorders Due to Multiple Drug Use and Use of Other Psychoactive Substances	0.21	0.06	22	0.57	0.36	21	0.28	0.68	37	0.77	0.32	22
Mental and Behavioural Disorders Due to Use of Alcohol	0.02	0.36	100	0.21	0.43	132	0.15	0.55	178	0.25	0.35	137
Mental and Behavioural Disorders Due to Use of Cannabinoids	0.12	0.2	17	0.32	0.02	11	0.1	0.6	19	0.38	0.37	14
Mental and Behavioural Disorders Due to Use of Tobacco	0.27	0.47	70	0.11	0.42	85	0.24	0.56	98	0.17	0.56	81
Methylation	NA	NA	0	0.88	1	11	NA	NA	3	NA	NA	5
Migraine	NA	NA	7	0.16	1	12	NA	NA	5	0.14	0.68	16
Muscle Functions	NA	NA	3	1	0.97	17	NA	NA	1	NA	NA	1
Muscle Power Functions	NA	NA	4	NA	NA	3	0.21	0.67	36	0.21	0.9	17
Nonsuppurative Otitis Media	NA	NA	2	0.11	0.25	24	NA	NA	3	NA	NA	3
Obsessive-Compulsive Disorder	0.01	0.52	27	0.14	0.93	23	0.11	0.71	23	0.23	0.75	37
Other Anxiety Disorders	0.17	0.29	145	0.29	0.52	125	0.31	0.56	115	0.34	0.59	142
Other Arthrosis	NA	NA	2	NA	NA	6	NA	NA	2	0.46	1	23
Other Behavioural and Emotional Disorders with Onset Usually Occurring In Childhood and Adolescence	NA	NA	7	0.02	0.58	15	NA	NA	8	NA	NA	7
Other Disorders of Bladder	NA	NA	0	NA	NA	0	NA	NA	0	0.57	1	16
Other Functions of the Skin	0.02	1	11	0.13	0.99	15	NA	NA	8	NA	NA	6
Pain and Other Conditions Associated with Female Genital Organs and Menstrual Cycle	NA	NA	0	NA	NA	0	NA	NA	0	0.05	0.71	25
Pervasive Developmental Disorders	0.14	0.49	36	0.14	0.59	29	0.12	0.43	28	0.11	0.53	23
Phobic Anxiety Disorders	0.13	0.47	31	0.07	0.62	37	0.38	0.6	31	0.17	0.76	40
Potential Health Hazards Related to Socioeconomic and Psychosocial Circumstances	0.12	0.68	43	0.62	0.38	37	0.41	0.56	32	0.41	0.38	71
Problems Related to Negative Life Events In Childhood	0.02	0.92	12	0.9	0.17	12	NA	NA	1	NA	NA	1

Problems Related to Upbringing	0.28	0.16	57	0.65	0.44	83	0.15	0.46	28	0.45	0.27	39
Procreation Functions	NA	NA	3	NA	NA	2	NA	NA	9	0.14	0.83	17
Psychological and Behavioural Disorders Associated with Sexual Development and Orientation	NA	NA	4	NA	NA	7	0.48	0.71	14	NA	NA	9
Psychomotor Functions	0.31	0.97	31	0.56	0.62	20	1	0.92	11	0.51	1	19
Reaction to Severe Stress, and Adjustment Disorders	NA	NA	5	NA	NA	0	0.11	0.74	24	NA	NA	0
Recreation and Leisure	NA	NA	8	0.8	0.74	22	NA	NA	0	NA	NA	0
Recurrent Depressive Disorder	0.11	0.57	20	0.23	0.48	20	0.57	1	20	0.17	0.92	29
Religion and Spirituality	0.04	0.41	21	0.22	0.59	19	0.28	0.64	21	0.61	0.4	27
Respiration Functions	0.01	1	19	0.01	0.89	19	0.39	1	20	0.12	0.85	19
Schizophrenia	NA	NA	2	0.12	0.4	39	NA	NA	8	NA	NA	6
Schizotypal Disorder	0.24	0.94	10	N.A.	N.A.	4	NA	NA	0	NA	NA	2
School Education	NA	NA	2	1	1	11	NA	NA	1	NA	NA	1
Seeing Functions	NA	NA	1	0.12	0.88	50	0.21	0.81	34	NA	NA	8
Sensation of Pain	NA	NA	5	NA	NA	0	NA	NA	0	0.24	0.9	10
Sexual Functions	NA	NA	0	NA	NA	0	0.83	1	11	0.13	0.95	12
Sleep Disorders	0.15	0.29	14	0.14	0.79	18	0.02	0.79	18	0.05	1	18
Sleep Functions	0.33	0.96	68	0.4	0.82	45	0.08	0.83	24	0.19	0.78	15
Smell Function	1	1	21	NA	NA	0	NA	NA	3	NA	NA	0
Societal Attitudes	0.17	1	14	0.08	0.67	30	NA	NA	7	NA	NA	7
Specific Developmental Disorder of Motor Function	0.58	0.26	19	NA	NA	2	NA	NA	2	NA	NA	2
Specific Personality Disorders	0.05	0.93	140	0.21	0.93	37	0.27	1	20	0.04	1	24
Structure of Areas of Skin	0.01	0.3	45	0.1	0.45	43	0.05	0.74	29	0.33	0.53	36
Structure of Brain	0.09	1	56	0.32	0.74	571	0.18	0.62	250	NA	NA	7
Structure of Cardiovascular System	0.18	0.91	12	NA	NA	7	NA	NA	6	NA	NA	8
Structure of Dna	0.09	0.69	25	NA	NA	0	N.A.	N.A.	7	NA	NA	1
Structure of Eyeball	0.35	0.91	86	0.24	1	52	0.06	0.93	24	0.09	0.97	52
Structure of Head and Neck Region	0.03	0.85	42	0.02	0.89	56	0.06	0.87	37	0.11	0.79	57
Structure of Lower Extremity	NA	NA	9	NA	NA	6	NA	NA	6	0.11	0.53	15
Structure of Mouth	0.16	0.89	117	0.27	1	38	NA	NA	9	0.11	1	10
Structure of Pelvic Region	NA	NA	5	NA	NA	3	NA	NA	3	0.03	0.6	26
Structure of Reproductive System	NA	NA	0	NA	NA	0	NA	NA	2	0.17	0.96	10
Structure of Trunk	0.11	1	14	0.69	0.67	42	0.41	0.27	24	0.01	1	72
Structure of Upper Extremity	0.11	0.59	15	0.14	0.7	15	0.25	0.68	19	0.08	0.95	21
Temperament and Personality Functions	0.13	0.84	568	0.3	0.87	711	0.24	0.87	292	0.29	0.99	314
Walking and Moving	NA	NA	0	0.17	1	11	1	1	22	0.02	1	18
Water, Mineral and Electrolyte Balance Functions	0.22	0.84	30	0.55	0.72	32	NA	NA	7	0.12	0.71	38
Weight Maintenance	0.01	0.48	215	0.12	0.52	293	0.14	0.66	267	0.07	0.77	284

Functions

Results of the tests for multiple traits for $\pi 0(h)$, which is the proportion of observations consistent with H0: 2 (r_{MZ} - r_{DZ}) = 0 and $\pi 0(c)$, which is the proportion of observations consistent with H0: 2 r_{DZ} - r_{MZ} = 0. A $\pi 0(c)$ of 0.95 can be interpreted as '*95% of all studies for this trait are consistent with a simple and parsimonious model where all trait resemblance between twins is due to additive genetic influences*'. N = Ntraits.

Note that $\pi 0(h)$ and $\pi 0(c)$ are calculated only when at least 10 studies (Ntraits=10) that report on both r_{MZ} and r_{DZ} are available. Disease and trait codes for which all cells were 'NA' are omitted from the Table.

Supplementary Table 30. Number of published twin studies per journal

Journal	N Papers
Behavior Genetics	216
Twin Research and Human Genetics (*formerly Twin Research*)	163
Psychological Medicine	117
Twin Research (*formerly Acta Genetica Medica Gemollo*)	82
Archives of General Psychiatry	73
Journal of Child Psychology and Psychiatry	71
Acta Genetica Medica Gemollo (roma)	54
Journal of Clinical Endocrinological Metabolism	38
American Journal of Psychiatry	37
Journal of Abnormal Psychology	35
Child Development	34
Investigations in Ophthalmological Visual Science	33
Genetic Epidemiology	32
Journal of Personality and Social Psychology	32
Alcohol and Clinical Experimental Research	31
Addiction	26
Journal of the American Academy of Child and Adolescent Psychiatry	26
Plos One	24
American Journal of Medical Genetics B: Neuropsychiatric Genetics	23
British Journal of Psychiatry	23
American Journal of Medical Genetics	22
Psychosomatic Medicine	22
American Journal of Clinical Nutrition	21
American Journal of Human Genetics	20
Developmental Psychology	20

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Supplementary Table 31. The top 3 authors with the most papers in the 11 largest communities

Class	Author	Npapers
7	DI Boomsma	224
7	EJ de Geus	53
7	D Posthuma	47
15	MJ Lyons	71
15	J Goldberg	52
15	MT Tsuang	50
19	JK Hewitt	45
19	JC DeFries	26
19	RC Corley	24
21	J Kaprio	163
21	M Koskenvuo	64
21	K Silvertoinen	46
25	NL Pedersen	113
25	P Lichtenstein	64
25	GE McClearn	28
31	NG Martin	206
31	AC Heath	154
31	PA Madden	55
33	R Plomin	113
33	FV Rijsdijk	58
33	TC Eley	41
44	T Spector	124
44	H Snieder	69
44	LF Cherkans	36
47	D Carmelli	39
47	GE Swan	33
47	RR Fabsitz	28
50	KS Kendler	168
50	MC Neale	133
50	LJ Eaves	90
52	MK McGue	92
52	KO Kyvik	81
52	K Christensen	65

7 Supplementary Data Tables 20, 21, 25, 32, 33 (separate file)

Supplementary Table 20: Meta-analysis results for ICD10/ICF chapter level.
Supplementary Table 21: Meta-analysis results for ICD10/ICF subchapter level.
Supplementary Table 25: Meta-analyses results across all traits, per country
Supplementary Table 32: Reference list of the 2,748 publications included in the meta-analyses.
Supplementary Table 33: Structure of assigned trait classifications.