***eLife’s* transparent reporting form**

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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
* You should state the statistical method of sample size computation and any required assumptions
* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

Our study is on meta-analyses: each sample is a publication. We used the largest possible sample size: 13459, well above the field’s standards for meta-analyses. Our contribution can be used to answer many questions: it is a tool. On most question, the sample size will be sufficient, but on some the answer will be unreliable. We give a clearly-visible report when the tool is unreliable. The information on the data is briefly mentioned in section 2.5 of the manuscript, and covered in details in appendix A.

**Replicates**

* You should report how often each experiment was performed
* You should include a definition of biological versus technical replication
* The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
* If you encountered any outliers, you should describe how these were handled
* Criteria for exclusion/inclusion of data should be clearly stated
* High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

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All the experiments performed are listed in the manuscript. We did not remove any outlier nor did we special-case any aspects of the analysis. The analysis is fully automated, and implemented according to the mathematical details given in the manuscript and the appendices.

**Statistical reporting**

* Statistical analysis methods should be described and justified
* Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
* For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's r, Cohen's d)
* Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

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The manuscript is about a predictive model. For this type of modeling, accuracy must be estimated via cross-validation and not classical in-sample statistical test. We perform thorough cross-validation as described in section 2.4 of the manuscript. The cross-validation is performed in the most rigorous way, keeping the test set fully independent from the train set.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
* Indicate if masking was used during group allocation, data collection and/or data analysis

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There is no notion of group in our work.

**Additional data files (“source data”)**

* We encourage you to upload relevant additional data files, such as numerical data that are represented as a graph in a figure, or as a summary table
* Where provided, these should be in the most useful format, and they can be uploaded as “Source data” files linked to a main figure or table
* Include model definition files including the full list of parameters used
* Include code used for data analysis (e.g., R, MatLab)
* Avoid stating that data files are “available upon request”

Please indicate the figures or tables for which source data files have been provided:

We did not provide data for the figures, but we do provide all the materials (data and code) required to replicate or work, readily and freely available on <https://github.com/neuroquery>. We believe that these resources are of great value to the community.