| Study | Primary disorder | Treatment | Definition treatment outcome | N | Responders/ nonresponders | Estimating FCs | Input features | Algorithm(s) of the final classifier(s) | Validation method | Best Acc | Information on models tested |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Drysdale, 2017 | MDD | rTMS at dorsomedial cortex | response: ≥ 25% ↓ HDRS-17 | 124 | 70/54 | Pearson correlation controlled for age | whole-brain between-ROI FCs | linear SVM | LOOCV | 78 | no other models tested |
| Harris, 2022 | MDD | SSRI | response: ≥ 50% ↓ MADRS | 144 | 67/77 | Pearson correlation, partial correlation, tangent | whole-brain between-ROI FCs | logistic regression, linear SVM, radial kernel SVM, random forest | 10-fold CV | 58 | total number: 240;  varying: parcellation, connectivity estimation, dimensionality reduction and classifiers;  accuracies: 39% - 61% |
| Hopman, 2021 | MDD | rTMS at left DLPFC | response: ≥ 50% ↓ MADRS | 61 | 33/28 | Pearson correlation | 4 specific ROI-to-cluster FCs:  subgenual anterior cingulate cortex (sgACC) - frontal pole (l), sgACC - superior parietal lobule (l), sgACC - lateral occipital cortex (l), dorsolateral PFC (l) - central opercular cortex (l) | linear SVM | 1-fold V | 85 | total number: 14;  varying: features;  accuracies: ca. 38% - 89% |
| Kong, 2021 | MDD | antidepressants | response: ≥ 50% ↓ HDRS-24 | 82 | 40/42 | Pearson correlation per sliding window | whole-brain between-ROI FCs | spatio-temporal GCN, GCN, deep-auto encoder, random forest, SVM | 10-fold CV | 89 | total number: 5;  varying: classifiers;  accuracies: ca. 50% - 90% |
| Moreno-Ortega, 2019 | MDD | ECT | remission: HDRS-24 ≤ 7 | 18 | 9/9 | no information | 5 specific between- & within-ROI FCs:  dorsolateral PFC (p9-46v) - Fundal area of the superior temporal sulcus within MT+ Complex, dorsolateral PFC (p9-46v) - MT+ Complex, dorsolateral PFC (46) - subgenual anterior cingulate cortex, connectivity within the ventral stream visual cortex, connectivity within 10r (part of medial prefrontal cortex) | logistic regression | LOOCV | 89 | total number: 9;  varying: combination of features;  accuracies: 72% - 89% (mean: 83%) |
| Pei, 2020 | MDD | SSRI/SNRI | response: ≥ 50% ↓ HDRS-6 | 98 | 54/44 | Pearson correlation | seed-based whole-brain connectivity of 14 ROIs (all l/r):  orbital part of superior frontal gyrus, triangular part inferior frontal gyrus, insula, anterior cingulate gyrus, paracingulate gyrus, posterior cingulate gyrus, hippocampus, amygdala | linear SVM with RFE | LOOCV | 81 | total number: 2;  varying: subset vs. whole-brain analysis;  accuracies: 81% |
| Schultz, 2018 | MDD | SSRI/Alpha2-receptor-antagonists/AAP/CBT | response: ≥ 50% ↓ BDI | 21 | 7/14 | Pearson correlation | between-ROI FCs between 13 ROIs:  subgenual anterior cingulate cortex (l/r), amygdala (l/r), intraparietal sulcus (l/r), dorsolateral PFC (l/r), anterior insula (l/r), dorsal anterior cingulate cortex, medial PFC, precuneus | polynomial kernel SVM | LOOCV | 72 | total number: 13;  varying: features;  accuracies: 44% - 89% |
| Sun, 2020 | MDD & BPD | ECT | remission: HDRS-17 <7;  response: > 50% ↓ HDRS-17; | 122 | 47/75;  71/51 | Pearson correlation | whole-brain between-ROI FCs | (multiple) linear regression, applying binarization afterwards | LOOCV, 10-fold-CV | 67 | total number: 9  varying: binary outcome, validation technique and features;  accuracies: 58% - 75% (mean: 67%) |
| Tian, 2020 | MDD | SSRI | response: ≥ 50% ↓ HDRS-17 after 8 weeks; nonresponse: less than 20% ↓ after 2 weeks OR less than 50% ↓ after 8 weeks | 106 | 56/50 | Pearson correlation per sliding window | node flexibilities per ROI | linear SVM | LOOCV, leave-one-site-out | 68 | total number: 4;  varying: validation technique;  accuracies: 69% - 79% (mean: 73%) |
| van Waarde, 2015 | MDD | ECT | remission: MADRS ⩽10 | 45 | 25/20 | Dual regression | subject-specific spatial maps | linear SVM | LOOCV | 85 | total number: 25;  varying: features;  2 of 25 models got significant |
| Wu, 2022 | MDD | SSRI | remission: HDRS-17 scores ≤ 7 | 67 | 28/39 | Pearson correlation | between-ROI FCs between 36 emotion regulation regions of 4 networks:  network 1: medial superior frontal gyrus (l, BA 8), middle frontal gyrus (r, BA 8), inferior parietal lobule (l/r, BA 40), medial PFC (l, BA 10), middle frontal gyrus (l, BA 6), middle frontal gyrus (r, BA 11), insula (r), cingulate gyrus (r, BA 23), precuneus (r);  network 2: inferior frontal gyrus (l/r, BA 47), superior frontal gyrus (l, BA 6), superior temporal gyrus (l, BA 39), middle temporal gyrus (l, no BA), middle frontal gyrus (l, BA 6), superior frontal gyrus (l, BA 9), caudate (l), tuber (r);  network 3: amygdala (l/r), fusiform gyrus (l/r, BA 37), thalamus (r), parahippocampal gyrus (l), medial PFC (bilateral, BA 10), inferior occipital gyrus (l, BA 19);  network 4: postcentral gyrus (l/r, BA 2), insula (l, BA 13), superior parietal lobule (l, BA 7), cuneus (l, BA 18), middle occipital gyrus (l, BA 19), thalamus (r), precuneus (r, BA 19), posterior cingulate (r, BA 30) | linear SVM | LOOCV | 81 | no other models tested |
| Zhutovsky, 2019 | PTSD | CBT/EMDR | response: ≥ 30% ↓ CAPS | 44 | 24/20 | Dual regression | subject-specific spatial maps | Gaussian process classifier | 10 × 10-fold CV | 81 | total number: 48;  varying: features;  1 of 48 models got significant |
| Zhutovsky, 2021 | (partial) PTSD | CBT/EMDR | response: ≥ 30% ↓ CAPS-CA | 40 | 21/19 | Gig ICA, Pearson correlation, partial correlation | subject-specific spatial maps, connectivity between independent components | linear SVM | 50 x 5-fold CV | 76 | total number: 50;  varying: features and types of features (within- and between-network connectivity);  1 of 50 models got significant |