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Supplementary Table S1 Plasma BDNF levels (pg/ml) over time (ECT and MST)

	Baseline	6 sessions	12 sessions	18 sessions	1 month	3 months	6 months
N	31	3	23	8	13	13	9
Mean (pg/mL)	1552.10	1951.67	1132.17	2406.97	780.17	1148.68	1353.25
SD (pg/mL)	1166.35	1606.17	860.19	1203.13	763.23	1421.91	1798.08
Minimum (pg/mL)	137.86	470.00	210.71	312.86	110.00	143.57	158.57
Maximum (pg/mL)	4721.43	3658.57	3577.14	3795.00	2966.43	4589.29	4847.86

BDNF = brain-derived neurotrophic factor; ECT = Electroconvulsive therapy; MST = Magnetic seizure therapy.

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Supplementary Table S2 General results (ECT and MST)

Variable	Description
Sample	N = 31 (Pilot study: 5 (16.13%), Randomized clinical trial: 26 (83.87%))
Age (years)	Mean (SD): 38.4 (11.88), Range: 21 - 64
Sex	Female: 20 (64.52%), Male: 11 (35.48%)
Race	Asian: 2 (6.45%), White: 24 (77.42%), Black/mixed: 5 (16.13%)
Occupation	Employed: 7 (22.58%), Unemployed: 10 (32.26%), Retired: 2 (6.45%), On leave: 5 (16.13%), Student: 1 (3.23%), Housekeeper: 2 (6.45%), Other: 4 (12.90%)
Education	Elementary: 4 (12.90%), High School: 6 (19.35%), Higher Education: 18 (58.06%), Postgraduate (Master's/Ph.D.): 3 (9.68%)
Treatment modality	ECT: 14 (45.16%), MST: 17 (54.84%)
Diagnosis	Unipolar: 22 (70.97%), Bipolar: 9 (29.03%)
Previous depressive episodes	Yes: 25 (80.65%), No: 6 (19.35%); First episode mean age: 22.04 years (SD: 8.01), Range: 7 - 40 years
Current episode duration (in months)	Mean: 39.61 (SD: 44.52), Range: 4 - 200
Hospitalization history	No: 27 (87.10%), Yes: 4 (12.90%)
Suicide attempt history	No: 13 (43.33%), Yes: 17 (56.67%)
Pre-treatment HDRS-17 score	Mean (SD): 23.39 (3.66), Range: 18 - 35
Post-treatment HDRS-17 score	Mean (SD): 11.9 (8.05), Range: 1 - 30
Pre-treatment MADRS score	Mean (SD): 32.17 (4.60), Range: 24 – 42
Post-treatment MADRS score	Mean (SD): 17.78 (11.30), Range: 3 – 41
Pre-treatment BDI score	Mean (SD): 37.75 (8.06), Range: 23 – 55
Post-treatment BDI score	Mean (SD): 23.15 (14.19), Range: 2 – 53
Pre-treatment plasma BDNF (baseline) (pg/ml)	Mean (SD): 1552.097 (1166.351), Range: 137.86 - 4721.43, N=31
Post-treatment plasma BDNF (pg/ml)	Mean (SD): 1446.199 (1128.176), Range: 210.71 - 3795, N=28

BDI = Beck Depression Inventory; BDNF = brain-derived neurotrophic factor; ECT = Electroconvulsive therapy; HDRS-17 = 17-item Hamilton Depression Rating Scale; MADRS = Montgomery-Åsberg Depression Rating Scale; MST = Magnetic seizure therapy

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Supplementary Table S3 Results and comparative analysis between ECT and MST groups

Variable	ECT	MST	Comparative analysis
Sex	Male: 6, Female: 8	Male: 5, Female: 12	Pearson $\chi^2(1) = 0.6063$, p = 0.436
Age at admission	Mean: 40.21429, SD: 14.24067	Mean: 36.8125, SD: 9.551396	t = 0.7772, p = 0.4435
Marital status	Single: 9, Married: 3, Divorced: 2	Single: 4, Married: 10, Divorced: 3	Pearson $\chi^2(2) = 5.6549$, p = 0.059
Unipolar or bipolar	Unipolar: 12, Bipolar: 2	Unipolar: 10, Bipolar: 7	Pearson $\chi^2(1) = 2.6945$, p = 0.101
Race	Yellow: 1, White: 11, Brown: 2	Yellow: 1, White: 13, Brown: 3	Pearson $\chi^2(2) = 0.0771$, p = 0.962
Education level	Elementary: 2, High School: 2, Higher Education: 9, Post-grad: 1	Elementary: 2, High School: 4, Higher Education: 9, Post-grad: 2	Pearson $\chi^2(3) = 0.7164$, p = 0.869
Religion	Catholic: 2, Evangelical: 3, Spiritist: 2, No Religion: 4, Agnostic: 1, Other: 2	Catholic: 2, Evangelical: 11, Spiritist: 0, No Religion: 2, Agnostic: 2, Other: 0	Pearson $\chi^2(5) = 9.3688$, p = 0.095
Age at first episode	Mean: 22.63636, SD: 9.594506	Mean: 21.57143, SD: 6.869266	t = 0.3236, p = 0.7491
Previous hospitalizations	No: 14, Yes: 0	No: 13, Yes: 4	Pearson $\chi^2(1) = 3.7821$, p = 0.052
Suicide attempt	No: 7, Yes: 7	No: 6, Yes: 10	Pearson $\chi^2(1) = 0.4751$, p = 0.491
HDRS baseline	Mean: 23.85714, SD: 4.537996	Mean: 23, SD: 2.828427	t = 0.6429, p = 0.5253
MADRS baseline	Mean: 33.69231, SD: 5.437288	Mean: 31, SD: 3.588175	t = 1.6329, p = 0.1137
BDI baseline	Mean: 36.92857, SD: 9.067815	Mean: 38.57143, SD: 7.154496	t = -0.5322, p = 0.5991
BDNF baseline	Mean: 1512.5, SD: 1278.875	Mean: 1584.706, SD: 1104.237	t = -0.1687, p = 0.8672
BDNF post-treatment	Mean: 1476.045, SD: 1226.47	Mean: 1420.333, SD: 1078.78	t = 0.1279, p = 0.8992

BDI = Beck Depression Inventory; BDNF = brain-derived neurotrophic factor; ECT = Electroconvulsive therapy; HDRS-17 = 17-item Hamilton Depression Rating Scale; MADRS = Montgomery-Åsberg Depression Rating Scale; MST = Magnetic seizure therapy.