Supplemental Online Content

Borrione L, Cavendish BA, Aparicio LVM, et al. Home-use transcranial direct current stimulation for the treatment of a major depressive episode: a randomized clinical trial. *JAMA Psychiatry*. Published online January 3, 2024. doi:10.1001/jamapsychiatry.2023.4948

This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure 1. Transcranial direct current stimulation (tDCS) headset used in the Psylect trial.

Note. Photograph depicting the Flow tDCS headset (Flow Neuroscience, Malmo, Sweden), frontal and right lateral view, on a member of our research team. The device is placed by the participants themselves, covering the entire forehead, with two circular electrodes, 10.5 cm apart and equally distant from the midline. For a more in-depth analysis of the electrical field distribution elicited by the equipment, please refer to Borrione, Suen [...] and Brunoni, 2020[1].

eList 1. Usability VAS-Scales [0 (completely disagree) to 100 (completely agree)]

1. VAS 1: “Placing the stimulation device on my head is easy and hassle-free” (*Device placement*).
2. VAS 2: “Turning on the Mobile tDCS device and connecting it to the smartphone app is quick and easy” (*Connectivity*).
3. VAS 3: “The smartphone app works well, with clear and objective explanations” (*DI app*).
4. VAS 4: “It's easy to complete the stimulation session in 30 minutes” (*Session completion*).
5. VAS 5: “It is easy to handle and store the stimulation device until the next session” (*Storage*).

eList2. Secondary scales

a. Montgomery-Asberg Depression Rating Scale (MADRS)[2] (range: 0-60; sign: positive; minimally significant score: 0-6, normal).

b. Beck Depression Inventory-II (BDI-II) [3], (range: 0-63; sign: positive; minimally significant score: 0-13, normal).

c. Hamilton Anxiety Rating Scale [4], (range: 0-56; sign: positive; minimally significant score: < 17, mild severity).

d. Clinical Global Impression – Global Improvement (CGI-I) scale [5], (range: 1-7; sign: positive; minimally significant score: 1-3 denotes improvement).

e. Clinical Global Impression – Severity of Illness (CGI-S) scale [5], (range: 1-7; sign: positive; minimally significant score: 1, normal).

f. Positive and Negative Affect Rating Scale (PANAS)[6], (range: 10-50; sign: positive; minimally significant score: NA).

g. State-Trait Anxiety Inventory (STAI-T and STAI-S)[7], (range: 20-80; sign: positive; minimally significant score: >39).

eMethods. Power calculations used for the Psylect trial.

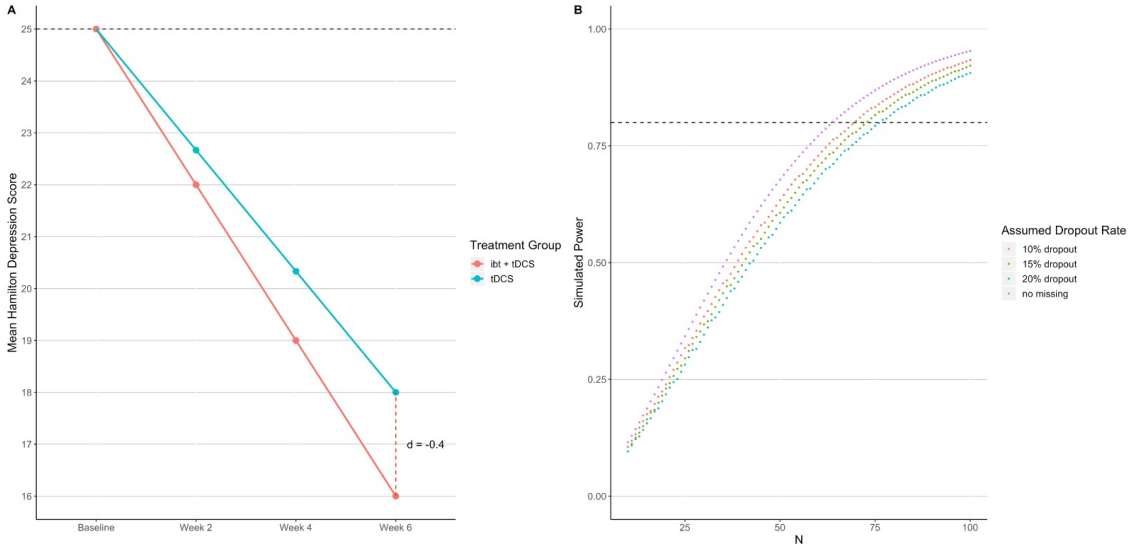
1.1 R code used in power calculations

```
pl <- study_parameters(n1 = 4,
                       n2 = 90,
                       sigma_subject_intercept = 5,
                       fixed_slope_T = 0.2,
                       sigma_error = 3,
                       dropout = dropout_weibull(proportion = 0.10, rate = 1/2),
                       effect_size = cohenD(-0.4, standardizer = "pretest_SD"))

x <- get_power_table(pl,
                     n2 = seq(10, 100, by = 1),
                     alpha = 0.05/3)
```

Note. Power calculations using the R lmmpackage [8].

1.2 Power analysis graphs



1.3 Power simulation for LMM difference in change over 4 measurements

No Missings			10% Dropout			15% Dropout			20% Dropout		
N per arm	Power	N	N per arm	Power	N	N per arm	Power	N	N per arm	Power	N

60	0.7707597	120	60	0.7284625	120	60	0.7065739	120	60	0.6799924	120
61	0.7787619	122	61	0.7376030	122	61	0.7137958	122	61	0.6903468	122
62	0.7865369	124	62	0.7465027	124	62	0.7228745	124	62	0.7004514	124
63	0.7940883	126	63	0.7551642	126	63	0.7321604	126	63	0.7041013	126
64	0.8014197	128	64	0.7635903	128	64	0.7359779	128	64	0.7113371	128
65	0.8085349	130	65	0.7670782	130	65	0.7449205	130	65	0.7209223	130
66	0.8154377	132	66	0.7751739	132	66	0.7536244	132	66	0.7302624	132
67	0.8221322	134	67	0.781051 oi 3	134	67	0.7620924	134	67	0.7393595	134
68	0.8286222	136	68	0.7887519	136	68	0.7703274	136	68	0.7430653	136
69	0.8349120	138	69	0.7962308	138	69	0.7762844	138	69	0.7518228	138
70	0.8410056	140	70	0.8034914	140	70	0.7795864	140	70	0.7581359	140
71	0.8469072	142	71	0.8105376	142	71	0.7873295	142	71	0.7660811	142
72	0.8526211	144	72	0.8173733	144	72	0.7948501	144	72	0.7742099	144
73	0.8581514	146	73	0.8240023	146	73	0.8018142	146	73	0.7775101	146
74	0.8635024	148	74	0.8304287	148	74	0.8089111	148	74	0.7853167	148
75	0.8686784	150	75	0.8330723	150	75	0.8157965	150	75	0.7928994	150
76	0.8736835	152	76	0.8392174	152	76	0.8224742	152	76	0.7983533	152
77	0.8785219	154	77	0.8449066	154	77	0.8235078	154	77	0.8055563	154

78	0.8831980	156	78	0.8506792	156	78	0.8299505	156	78	0.8084733	156
79	0.8877158	158	79	0.8548513	158	79	0.8361942	158	79	0.8150417	158
80	0.8920794	160	80	0.8603050	160	80	0.8422430	160	80	0.8217465	160

Note: Power simulation for LMM difference in change over 4 measurements (continuous linear change) between treatment arms with an assumed ES of d = -0.4 at endpoint and monotonically increasing drop-out rates following the Weibull distribution. Dropouts were assumed to be equally distributed over treatment arms. Measurements are considered as nested within subjects. To adequately power all possible combinations of the 3-arm trial, obtained N per arm for the smallest detectable group differences ($d_{tdcs\ vs.\ combination}$ = -0.4, $d_{placebo\ vs.\ tdcs}$ = -0.4) are multiplied by 3. Significance levels were Bonferroni corrected for 3-way pairwise comparisons (α = 0.05/3).

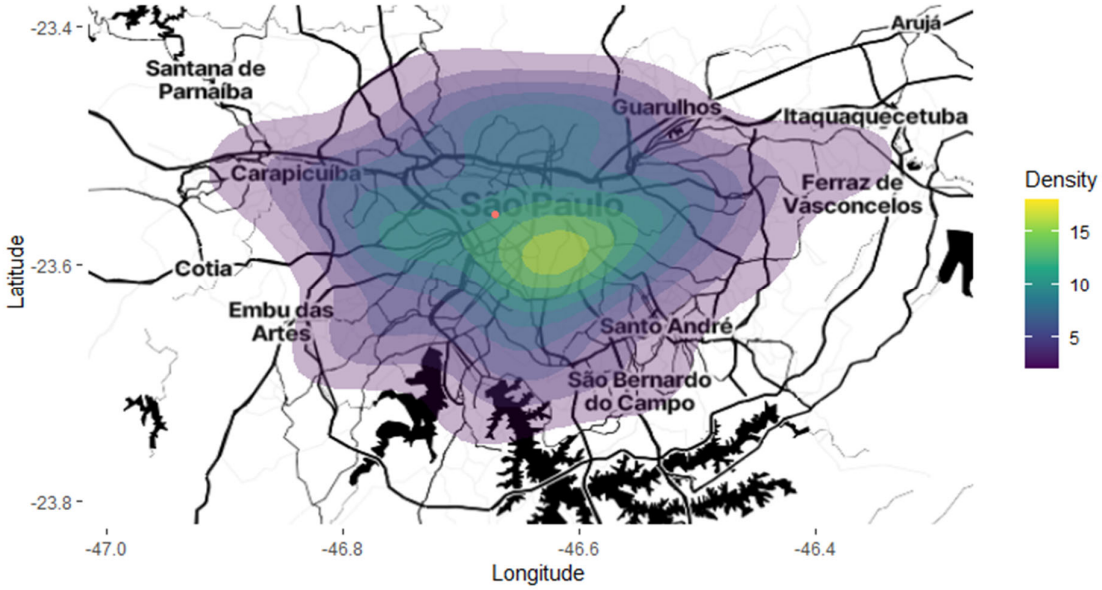
eTable 1. Baseline characteristics of the sample (complementary material).

	Double-Active (N=64)	tDCS-only (N=73)	Double-Sham (N=73)	Total (N=210)
Demographic characteristics				
Sex (% female)	54 (84)	68 (93)	58 (79)	180 (86)
Age, y	38.7 ± 10.1	38.8 ± 9.1	39.2 ± 8.8	38.9 ± 9.3
Marital status (% not married)	39 (61)	49 (67)	51 (70)	139 (66)
Completed graduate school (%)	40 (63)	57 (78)	51 (70)	148 (70)
Ethnicity (% white)	48 (75)	54 (74)	50 (68)	152 (72)
Income (% ≤ 5 minimum wages)	33 (52)	43 (59)	43 (59)	119 (57)
Currently working - no. (%)	36 (56)	47 (64)	58 (79)	141 (67)
Religion (% no religion)	21 (33)	26 (36)	32 (44)	79 (38)
Clinical characteristics				
Body mass index (kg/m^2)	27.6 ± 5.7	28.1 ± 6.5	27.3 ± 5.7	27.6 ± 6.0
Head circumference, cm	55.4 ± 3.8	55.9 ± 1.6	56.2 ± 1.9	55.8 ± 2.5
Right-handedness (%)	59 (92)	66 (90)	66 (90)	191 (91)
Physical activity (% sedentary)	44 (69)	51 (70)	54 (74)	149 (71)
Smoking status (% smokers)	11 (17)	10 (14)	8 (11)	29 (14)
Alcohol use (% social use)	28 (44)	45 (62)	51 (70)	124 (59)
Systemic hypertension (%)	8 (12)	9 (12)	4 (5)	21 (10)
Hypothyroidism (%)	8 (13)	12 (16)	7 (10)	27 (13)
Diabetes mellitus (%)	5 (8)	4 (5)	0 (0)	9 (4)
Other secondary scales				
CGI-S, mean (SD)	4.5 ± 0.6	4.3 ± 0.7	4.5 ± 0.7	4.4 ± 0.7

HAM-A, mean (SD)	32.7 ± 8.9	32.9 ± 8.5	31.5 ± 8.1	32.4 ± 8.5
PANAS negative	32.1 ± 6.2	32.8 ± 7.8 (n=72)	31.8 ± 7.6	32.3 ± 7.3
PANAS positive	16.7 ± 4.5	16.6 ± 4.4 (n=72)	17.8 ± 5.6	17.1 ± 4.9
STAI-S	60.8 ± 8.2	61.3 ± 10.0	61.0 ± 9.6	61.0 ± 9.3
STAI-T	64.4 ± 5.5	64.6 ± 7.2	64.5 ± 7.8	64.5 ± 6.9

Plus–minus values are means ± SD. Clinical Global Impression-S (severity)[5], (range: 1-7; sign: positive; minimally significant score: 1, normal). HAM-A: Hamilton Anxiety Scale [4], (range: 0-56; sign: positive; minimally significant score: < 17, mild severity). PANAS: Positive and Negative Affect Scale[6] , (range: 10-50; sign: positive; minimally significant score: NA). STAI: State-Trait Anxiety Scale [7], (range: 20-80; sign: positive; minimally significant score: >39). tDCS: transcranial direct current stimulation.

eFigure 2. Participant distribution density heat map



Note. Heat map showing participant distribution density over the greater area of São Paulo, Brazil. The red dot represents the study center (Instituto de Psiquiatria - HC/FMUSP, Rua Dr. Ovídio Pires de Campos, 785 CEP 05403-903, São Paulo - SP, Brazil).

eTable 2. Response and remission rates at endpoint.

	N (%)			Double-Active vs. tDCS-only		Double-Active vs. Double-Sham		tDCS-only vs. Double-Sham	
	Double-Active	tDCS-only	Double-Sham	OR	P-value	OR	P-value	OR	P-value
Response	20 (31.3)	26 (35.6)	28 (38.4)	0.81	0.56	0.71	0.34	0.89	0.73
Remission	9 (14.1)	13 (17.8)	15 (20.6)	0.75	0.54	0.62	0.31	0.84	0.67

Note: Logistic regression model. OR Odds-ratio.

eTable 3. Secondary outcomes

	Change until week 6		
Characteristic	**Double- Active**	**tDCS-only**	**Double- Sham**
BDI	-13.38 (-16.29 to -10.46)	-14.5 (-17.28 to -11.72)	-12.73 (-15.48 to -9.99)
MADRS	-9.82 (-12.27 to -7.36)	-10.71 (-13.04 to -8.38)	-8.79 (-11.09 to -6.48)
CGI-S	-1.12 (-1.41 to -0.83)	-1.18 (-1.45 to -0.9)	-1.2 (-1.48 to -0.93)
HAM-A	-15.84 (-18.07 to -13.62)	-17.11 (-19.2 to -15.01)	-14.78 (-16.87 to -12.69)
PANAS negative	-8.64 (-10.53 to -6.76)	-11.31 (-13.1 to -9.52)	-9.16 (-10.93 to -7.39)
PANAS positive	5.37 (3.45 to 7.29)	3.62 (1.79 to 5.45)	3.93 (2.12 to 5.73)
STAI-S	-8.6 (-11.84 to -5.37)	-10.77 (-13.83 to -7.7)	-9.2 (-12.25 to -6.16)
STAI-T	-10.46 (-13.04 to -7.88)	-10.49 (-12.94 to -8.04)	-10.67 (-13.1 to -8.24)

Note. HDRS-17 Hamilton Depression Rating Scale; BDI Beck Depression Inventory; MADRS Montgomery-Åsberg Depression Rating Scale; CGI Clinical Global Impression; HAM-A Hamilton Anxiety Rating Scale; PANAS Positive and Negative Affect Scale; STAI State-Trait Anxiety Inventory; tDCS: mobile transcranial direct current stimulation. Values are mean changes in scores with 95% confidence intervals in parentheses.

eTable 4. MADRS at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	29.9 ± 5.7	21.4 ± 6.9	19.9 ± 8.0	20.1 ± 8.6	19.8 ± 9.2
tDCS-only	30.3 ± 6.1	22.2 ± 8.5	20.1 ± 9.1	20.4 ± 8.3	18.6 ± 10.0
Double-Sham	29.9 ± 5.7	21.3 ± 9.0	20.9 ± 9.0	20.5 ± 10.3	20.3 ± 11.0
Contrasts					
Double-Active vs Double-Sham	-0.02 (-1.99 to 1.95)	-0.36 (-2.41 to 1.69)	-0.53 (-2.84 to 1.78)	-0.7 (-3.36 to 1.95)	-1.05 (-4.57 to 2.47)
Double-Active vs tDCS-only	-0.82 (-2.79 to 1.15)	-0.52 (-2.58 to 1.54)	-0.37 (-2.69 to 1.94)	-0.23 (-2.89 to 2.44)	0.07 (-3.46 to 3.6)
tDCS-only vs Double-Sham	0.8 (-1.1 to 2.71)	0.16 (-1.83 to 2.15)	-0.16 (-2.4 to 2.08)	-0.48 (-3.06 to 2.1)	-1.12 (-4.54 to 2.3)

Note. MADRS: Montgomery-Åsberg Depression Rating Scale (range: 0-60; sign: positive; minimally significant score: 0-6, normal) [2]. The upper half shows mean ± SD across weeks. The lower half shows group contrasts (differences in estimated marginal means) with their respective 95% confidence interval based on a linear mixed-effects regression.

eTable 5. BDI-II at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	36.5 ± 7.4	26.1 ± 10.2	25.0 ± 11.2	23.7 ± 11.1	23.0 ± 11.6
tDCS-only	36.1 ± 8.7	26.9 ± 11.5	26.4 ± 11.7	24.2 ± 11.6	20.4 ± 11.4
Double-Sham	36.1 ± 8.8	26.6 ± 12.8	26.4 ± 12.6	23.9 ± 14.0	22.6 ± 14.0
Contrasts					
Double-Active vs Double-Sham	-0.03 (-3.01 to 2.96)	-0.24 (-3.29 to 2.8)	-0.35 (-3.63 to 2.93)	-0.46 (-4.08 to 3.17)	-0.67 (-5.2 to 3.86)
Double-Active vs tDCS-only	-0.74 (-3.72 to 2.24)	-0.37 (-3.41 to 2.68)	-0.18 (-3.47 to 3.11)	0.01 (-3.63 to 3.64)	0.38 (-4.17 to 4.93)
tDCS-only vs Double-Sham	0.71 (-2.17 to 3.6)	0.12 (-2.82 to 3.07)	-0.17 (-3.35 to 3.01)	-0.46 (-3.99 to 3.06)	-1.05 (-5.46 to 3.36)

Note. BDI-II: Beck Depression Inventory-Second Edition [3] (range: 0-63; sign: positive; minimally significant score: 0-13, normal). The upper half shows mean ± SD across weeks. The lower half shows group contrasts (differences in estimated marginal means) with their respective 95% confidence interval based on a linear mixed-effects regression.

eTable 6. CGI-S at baseline and endpoint.

Group	Baseline	Week 6
Double-Active	4.5 ± 0.6	3.4 ± 1.1
tDCS-only	4.3 ± 0.7	3.1 ± 1.2
Double-Sham	4.5 ± 0.7	3.3 ± 1.4

Note. CGI-S: Clinical Global Impression scale - Severity of illness (range: 1-7; sign: positive; minimally significant score: 1, normal) [5] . Values are means ± SD.

eTable 7. CGI-I at endpoint.

Group	Week 6
Double-Active	2.70 ± 1.13
tDCS-only	2.65 ± 1.08
Double-Sham	2.75 ± 1.42

Note. CGI-I: Clinical Global Impression scale - Global Improvement (range: 1-7; sign: positive; minimally significant score: 1-3 denotes improvement) [5] . Values are means ± SD.

eTable 8. HAM-A at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	32.7 ± 8.9	-	20.8 ± 10.6	-	16.9 ± 8.5
tDCS-only	33.0 ± 8.5	-	22.0 ± 9.9	-	15.8 ± 8.8
Double-Sham	31.5 ± 8.1	-	20.7 ± 9.8	-	16.8 ± 9.0

Note. HAM-A: Hamilton Anxiety Rating Scale (range: 0-56; sign: positive; minimally significant score: < 17, mild severity) [4] . Values are means ± SD.

eTable 9. YMRS at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	-	1.5 ± 2.0	1.5 ± 1.8	1.3 ± 1.6	1.0 ± 1.7
tDCS-only	-	1.3 ± 1.7	1.6 ± 1.8	1.2 ± 1.6	0.4 ± 1.0
Double-Sham	-	1.4 ± 1.6	1.6 ± 1.3	1.4 ± 1.8	0.8 ± 1.3

Note. YMRS: Young Mania Rating Scale (range: 0-58; sign: positive; minimally significant score: < 13, normal) [9] . Values are means ± SD.

eTable 10. PANAS negative at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	32.1 ± 6.2	-	24.7 ± 7.9	-	23.5 ± 8.6
tDCS-only	32.9 ± 7.8	-	25.2 ± 8.6	-	21.5 ± 7.5
Double-Sham	31.8 ± 7.6	-	24.8 ± 7.4	-	22.5 ± 8.4

Note. PANAS: Positive and Negative Affect Schedule (range: 10-50; sign: positive; minimally significant score: NA) [6] . Values are means ± SD.

eTable 11. PANAS positive at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	16.7 ± 4.5	-	19.9 ± 6.0	-	22.1 ± 7.2
tDCS-only	16.6 ± 4.4	-	18.6 ± 5.8	-	20.2 ± 7.0
Double-Sham	17.8 ± 5.6	-	20.1 ± 6.8	-	21.8 ± 8.1

Note. PANAS: Positive and Negative Affect Schedule [6] (range: 10-50; sign: positive; minimally significant score: NA). Values are means ± SD.

eTable 12. STAI-S at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	60.8 ± 8.2	-	55.2 ± 10.8	-	52.2 ± 12.3
tDCS-only	61.3 ± 10.0	-	56.0 ± 12.1	-	50.5 ± 12.0
Double-Sham	61.0 ± 9.6	-	55.7 ± 10.2	-	51.4 ± 13.5

Note. STAI-S: State-Trait Anxiety Inventory – State [7] (range: 20-80; sign: positive; minimally significant score: >39). Values are means ± SD.

eTable 13. STAI-T at various timepoints.

Group	Baseline	Week 2	Week 3	Week 4	Week 6
Double-Active	67.7 ± 5.9	-	60.4 ± 8.4	-	56.9 ± 10.6
tDCS-only	68.0 ± 7.6	-	62.0 ± 11.0	-	57.0 ± 11.6
Double-Sham	67.9 ± 8.3	-	60.1 ± 10.2	-	56.2 ± 12.6

Note. STAI-T: State-Trait Anxiety Inventory – Trait [7] (range: 20-80; sign: positive; minimally significant score: >39). Values are means ± SD.

eTable 14. Average usability scores at various time-points.

Average score/week	Double-Active (N=63)	tDCS-only (N=72)	Double-Sham (N=70)
Week 1	79.4 ± 19.3	85.8 ± 18.9	85.3 ± 18.5
Week 2	90.5 ± 13.1	93.2 ± 12.4	93.5 ± 11.6
Week 3	90.4 ± 14.4	93.9 ± 11.8	93.0 ± 11.8
Week 4	92.1 ± 11.6	95.5 ± 9.4	93.6 ± 12.6
Week 5	84.9 ± 18.2	77.7 ± 22.7	77.7 ± 22.3
Week 6	94.6 ± 7.0	93.8 ± 14.0	94.6 ± 7.6

Note. Usability scores based on a visual analog scale (VAS) created for this study (range: 0-100; sign positive). Values are means ± SD.

eTable 15. Adverse events and serious adverse events at week 6.

Event	Double-Active (N=61)	tDCS-only (N=69)	Double-Sham (N=69)
Severity of reported adverse events at week 6 — no. (%)			
No adverse event reported	< 10 (*)	15 (22)	15 (22)
≥ 1 mild adverse event	46 (75)	50 (72)	47 (68)
≥ 1 moderate adverse event	19 (31)	24 (35)	14 (20)
≥ 1 severe adverse event	< 10 (*)	< 10 (*)	< 10 (*)
Median no. of reported adverse events at week 6 (interquartile range)			
Mild adverse events	1 (1-3)	2 (0-3)	1 (0-2)
Moderate adverse events	0 (0-1)	0 (0-1)	0 (0-0)
Severe adverse events	0 (0-0)	0 (0-0)	0 (0-0)
Serious adverse events during the trial – no. (%)			
New-onset mania	0 (0)	0 (0)	0 (0)

or hypomania			
Suicidal ideation	0 (0)	< 10 (*)	< 10 (*)
Suicide attempt	0 (0)	< 10 (*)	< 10 (*)
Hospitalization for psychiatric cause	0 (0)	0 (0)	0 (0)
Total serious adverse events	0 (0)	< 10 (*)	< 10 (*)

Note. All adverse events that were at least remotely associated with the intervention were included. Values for the groups represent absolute numbers and percentages in parentheses. (*) Due to data identifiability requirements, < 10 is reported where N <10.

eTable 16. Individual adverse events at week 6.

Event	Double-Active	tDCS-only	Double-Sham
Tingling			
Mild	21 (34)	20 (29)	28 (41)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	0 (0)	0 (0)	0 (0)
Local redness			
Mild	29 (48)	26 (38)	11 (16)
Moderate	< 10 (*)	< 10 (*)	0 (0)
Severe	< 10 (*)	0 (0)	0 (0)
Heat/Burning			
Mild	14 (23)	21 (30)	11 (16)

Event	Double-Active	tDCS-only	Double-Sham
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	< 10 (*)	0 (0)	0 (0)
Somnolence			
Mild	11 (18)	19 (28)	12 (17)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	< 10 (*)	< 10 (*)	0 (0)
Itching			
Mild	11 (18)	13 (19)	18 (26)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	0 (0)	0 (0)	0 (0)
Headache			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	0 (0)	0 (0)	0 (0)
Concentration difficulties			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	0 (0)	0 (0)	0 (0)
Fatigue			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	0 (0)	< 10 (*)	< 10 (*)
Severe	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	< 10 (*)	< 10 (*)	0 (0)
Severe	0 (0)	0 (0)	0 (0)

Event	Double-Active	tDCS-only	Double-Sham
Pain on the left side			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	0 (0)	2 (3)	0 (0)
Severe	0 (0)	0 (0)	0 (0)
Pain on the right side			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	0 (0)	0 (0)	0 (0)
Severe	0 (0)	0 (0)	0 (0)
Dizziness			
Mild	< 10 (*)	< 10 (*)	< 10 (*)
Moderate	< 10 (*)	< 10 (*)	0 (0)
Severe	0 (0)	0 (0)	< 10 (*)
Mood worsening			
Mild	0 (0)	< 10 (*)	< 10 (*)
Moderate	< 10 (*)	< 10 (*)	< 10 (*)
Severe	0 (0)	0 (0)	0 (0)
Nausea			
Mild	0 (0)	< 10 (*)	< 10 (*)
Moderate	0 (0)	< 10 (*)	0 (0)
Severe	0 (0)	0 (0)	0 (0)
Neck ache			
Mild	< 10 (*)	0 (0)	< 10 (*)
Moderate	< 10 (*)	0 (0)	0 (0)
Severe	0 (0	0 (0)	0 (0)

Note. All adverse events that were at least remotely associated with the intervention are shown, ordered from most to least common. Values for the groups represent absolute numbers and percentages in parentheses. (*) Due to data identifiability requirements, < 10 is reported where N <10.

eTable 17. Adverse events per week

Event	Double-Active	tDCS-only	Double-Sham
Week 1			
Local redness	39 (62)	34 (47)	10 (14)
Tingling	30 (48)	29 (40)	30 (43)
Heat/Burning	25 (40)	21 (29)	< 10 (*)
Somnolence	21 (33)	21 (29)	22 (31)
Headache	21 (33)	20 (28)	22 (31)
Concentration difficulties	< 10 (*)	10 (14)	< 10 (*)
Fatigue	< 10 (*)	< 10 (*)	< 10 (*)
Pain at the left side	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)
Nausea	< 10 (*)	< 10 (*)	< 10 (*)
Neck ache	0 (0)	< 10 (*)	< 10 (*)
Week 2			
Local redness	40 (63)	43 (60)	11 (16)

Event	Double-Active	tDCS-only	Double-Sham
Tingling	22 (35)	36 (50)	32 (46)
Heat/Burning	30 (48)	27 (38)	10 (14)
Somnolence	19 (30)	22 (31)	21 (30)
Itching	22 (35)	22 (31)	22 (31)
Headache	14 (22)	16 (22)	18 (26)
Concentration difficulties	< 10 (*)	10 (14)	10 (14)
Fatigue	< 10 (*)	< 10 (*)	10 (14)
Pain at the left side	11 (17)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)
Nausea	< 10 (*)	< 10 (*)	< 10 (*)
Neck ache	< 10 (*)	< 10 (*)	< 10 (*)
Week 3			
Local redness	35 (56)	38 (55)	11 (15)
Tingling	21 (33)	29 (42)	28 (39)
Heat/Burning	24 (38)	25 (36)	< 10 (*)
Somnolence	21 (33)	24 (35)	20 (28)

Event	Double-Active	tDCS-only	Double-Sham
Itching	19 (30)	18 (26)	24 (33)
Headache	14 (22)	14 (20)	14 (19)
Concentration difficulties	< 10 (*)	< 10 (*)	< 10 (*)
Fatigue	< 10 (*)	< 10 (*)	< 10 (*)
Pain at the left side	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)
Nausea	0 (0)	< 10 (*)	< 10 (*)
Neck ache	< 10 (*)	0 (0)	< 10 (*)
Week 4			
Local redness	36 (58)	32 (47)	< 10 (*)
Tingling	25 (40)	24 (35)	26 (37)
Heat/Burning	24 (39)	25 (37)	14 (20)
Somnolence	17 (27)	23 (34)	15 (21)
Itching	20 (32)	15 (22)	25 (36)
Headache	11 (18)	9 (13)	8 (11)
Concentration difficulties	8 (13)	7 (10)	< 10 (*)

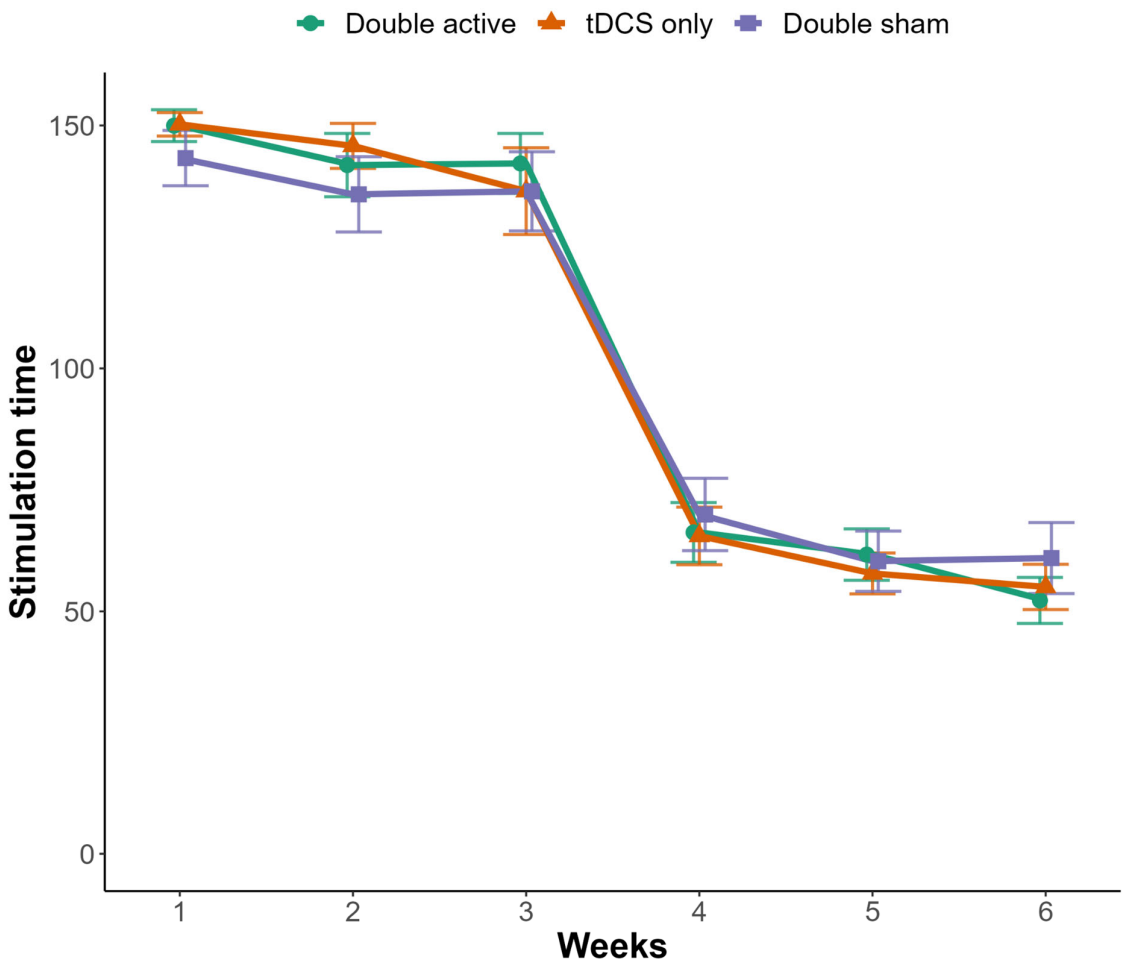
Event	Double-Active	tDCS-only	Double-Sham
Fatigue	< 10 (*)	10 (15)	10 (14)
Pain at the left side	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)
Nausea	0 (0)	< 10 (*)	< 10 (*)
Neck ache	< 10 (*)	< 10 (*)	< 10 (*)
Week 5			
Local redness	31 (51)	31 (47)	9 (14)
Tingling	18 (30)	20 (30)	25 (38)
Heat/Burning	23 (38)	18 (27)	12 (18)
Somnolence	15 (25)	20 (30)	12 (18)
Itching	18 (30)	15 (23)	19 (29)
Headache	< 10 (*)	< 10 (*)	< 10 (*)
Concentration difficulties	< 10 (*)	< 10 (*)	< 10 (*)
Fatigue	< 10 (*)	< 10 (*)	< 10 (*)
Pain at the left side	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)

Event	Double-Active	tDCS-only	Double-Sham
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)
Nausea	0 (0)	0 (0)	< 10 (*)
Neck ache	< 10 (*)	< 10 (*)	< 10 (*)
Week 6			
Local redness	34 (56)	33 (48)	11 (16)
Tingling	23 (38)	24 (35)	33 (48)
Heat/Burning	23 (38)	24 (35)	13 (19)
Somnolence	19 (31)	25 (36)	16 (23)
Itching	14 (23)	17 (25)	21 (30)
Headache	< 10 (*)	13 (19)	< 10 (*)
Concentration difficulties	< 10 (*)	< 10 (*)	< 10 (*)
Fatigue	< 10 (*)	< 10 (*)	< 10 (*)
Pain at the left side	< 10 (*)	< 10 (*)	< 10 (*)
Buzzing	< 10 (*)	< 10 (*)	< 10 (*)
Pain on the right side	< 10 (*)	< 10 (*)	< 10 (*)
Dizziness	< 10 (*)	< 10 (*)	< 10 (*)
Mood worsening	< 10 (*)	< 10 (*)	< 10 (*)

Event	Double-Active	tDCS-only	Double-Sham
Nausea	0 (0)	< 10 (*)	< 10 (*)
Neck ache	< 10 (*)	0 (0)	< 10 (*)

Note. All adverse events that were at least remotely associated with the intervention are shown. Values for the groups represent absolute numbers and percentages in parentheses. (*) Due to data identifiability requirements, < 10 is reported where N <10.

eFigure 3. tDCS stimulation time (average minutes per week per participant).



Note. During the first 3 weeks, participants were instructed to apply 5 stimulation sessions per week, and from week 4 onwards, 2 sessions per week. This is reflected in a drop of stimulation times between weeks 3 and 4. Error bars represent 95% confidence intervals.

eTable 18. Reasons for dropout.

Dropouts	Double-Active (N=64)	tDCS-only (N=73)	Double-Sham (N=73)
	< 10 (*)	< 10 (*)	< 10 (*)
Mobile tDCS-related	< 10 (*)	0 (0)	(0)
Suicidal ideation	0 (0)	< 10 (*)	< 10 (*)
Suicide attempt	0 (0)	< 10 (*)	0 (0)
Psychotic symptoms	0 (0)	0 (0)	0 (0)
Hypo(manic) switch	0 (0)	0 (0)	0 (0)
Serious clinical adverse events	0 (0)	0 (0)	0 (0)
Non-adherence to study protocol	0 (0)	0 (0)	0 (0)
Missed consecutive evaluations	0 (0)	0 (0)	1 (1.4)
Other non-specific reasons	< 10 (*)	< 10 (*)	< 10 (*)

Note. Values are absolute numbers with percentages in parentheses. (*) Due to data identifiability requirements, < 10 is reported where N <10.

eReferences

1. Borrione L, Suen PJC, Razza LB, Santos LAD, Sudbrack-Oliveira P, Brunoni AR. The Flow brain stimulation headset for the treatment of depression: overview of its safety, efficacy and portable design. *Expert Rev Med Devices*. 2020;17(9):867-878.

2. Montgomery SA, Asberg M. A new depression scale designed to be sensitive to change. *Br J Psychiatry*. 1979;134:382-389.

3. Beck AT, Steer RA, Brown GK. *BDI-II, Beck Depression Inventory: Manual*. Psychological Corporation; 1996.

4. Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol*. 1959;32(1):50-55.

5. Kadouri A, Corruble E, Falissard B. The improved Clinical Global Impression Scale (iCGI): development and validation in depression. *BMC Psychiatry*. 2007;7:7.

6. Pires P, Filgueiras A, Ribas R, Santana C. Positive and negative affect schedule: psychometric properties for the Brazilian Portuguese version. *Span J Psychol*. 2013;16:E58.

7. Andrade L, Gorenstein C, Vieira Filho AH. Psychometric properties of the Portuguese version of the State-Trait Anxiety Inventory applied to college students: factor analysis and relation to the Beck …. *Brazilian Journal of*. Published online 2001. https://www.scielo.br/scielo.php?pid=S0100-879X2001000300011&script=sci_arttext

8. Magnusson K. *Powerlmm: Powerlmm R Package for Power Calculations for Two- and Three-Level Longitudinal Multilevel/linear Mixed Models*. Github Accessed October 27, 2023. https://github.com/rpsychologist/powerlmm

9. Young RC, Biggs JT, Ziegler VE, Meyer DA. A rating scale for mania: reliability, validity and sensitivity. *Br J Psychiatry*. 1978;133:429-435.