eTable 1: Normality Test Results

Variable	Sample	Mean	Std Dev	Skewness	Kurtosis	Kolmogorov-Smirnov		Shapiro-Wilk	
						Test Statistic D	*p-value*	*Test Statistic W*	*p-value*
Age	30	43.133	12.283	0.235	-0.728	0.086	0.827	0.969	0.504
Height (cm)	30	163.267	8.296	1.376	1.649	0.220	0.001**	0.861	0.001**
Weight (kg)	30	55.843	7.924	0.597	-0.088	0.109	0.482	0.962	0.346
BMI	30	20.931	2.356	-0.030	-0.860	0.089	0.794	0.970	0.550
Actigraphy TST-Baseline	30	328.259	71.276	0.340	-0.601	0.126	0.263	0.973	0.630
Actigraphy TST-Post	30	372.444	44.863	0.376	-1.054	0.124	0.277	0.936	0.070
Actigraphy SL-Baseline	30	6.138	4.341	1.798	4.606	0.162	0.043*	0.855	0.001**
Actigraphy SL-Post	30	4.884	2.663	0.393	0.576	0.118	0.357	0.958	0.282
Actigraphy SE-Baseline	30	86.341	6.391	-1.222	1.701	0.138	0.155	0.909	0.014*
Actigraphy SE-Post	30	85.620	5.697	-0.747	-0.001	0.181	0.014*	0.931	0.053
Actigraphy TIB-Baseline	30	383.064	92.744	0.270	-1.048	0.128	0.235	0.947	0.142
Actigraphy TIB-Post	30	436.054	51.003	0.310	-1.088	0.123	0.296	0.947	0.144
Actigraphy WASO-Baseline	30	48.570	33.503	1.415	2.119	0.231	0.000**	0.859	0.001**
Actigraphy WASO-Post	30	58.733	27.241	0.620	-0.225	0.151	0.077	0.939	0.084
Actigraphy awakenings-Baseline	30	16.914	8.662	0.857	0.767	0.150	0.083	0.939	0.083
Actigraphy awakenings-Post	30	20.334	6.441	-0.436	-0.062	0.116	0.388	0.981	0.848
Actigraphy Avg.Awakening-Baseline	30	2.812	0.950	1.027	0.445	0.201	0.003**	0.899	0.008**
Actigraphy Avg.Awakening-Post	30	2.899	0.992	1.166	1.640	0.123	0.293	0.904	0.011*
PSQI Global-Baseline	30	16.667	2.123	-0.225	-0.0.042	0.162	0.042*	0.965	0.406
PSQI Global-Post	30	14.167	3.374	-0.645	-0.748	0.198	0.004**	0.902	0.009**
PSQI_Subjective sleep quality - Baseline	30	2.767	0.430	-1.328	-0.257	0.473	0.000**	0.526	0.000**
PSQI_Subjective sleep quality - Post	30	1.933	1.081	-0.563	-0.974	0.238	0.000**	0.829	0.000**
PSQI_Sleep latency-Baseline	30	2.733	0.450	-1.112	-0.824	0.457	0.000**	0.554	0.000**
PSQI_Sleep latency - Post	30	2.333	0.758	-1.168	1.657	0.277	0.000**	0.762	0.000**
PSQI_Sleep duration - Baseline	30	2.467	0.629	-0.758	-0.321	0.335	0.000**	0.732	0.000**
PSQI_Sleep duration - Post	30	1.967	1.033	-0.332	-1.348	0.275	0.000**	0.805	0.000**

Variable	Sample	Mean	Std Dev	Skewness	Kurtosis	Kolmogorov-Smirnov		Shapiro-Wilk	
						Test Statistic D	*p-value*	*Test Statistic W*	*p-value*
PSQI_Habitual sleep efficiency - Baseline	30	1.867	1.224	-0.575	-1.296	0.256	0.000**	0.782	0.000**
PSQI_Habitual sleep efficiency - Post	30	1.367	1.129	0.125	-1.366	0.187	0.009**	0.856	0.001**
PSQI_Sleep disturbance -Baseline	30	1.833	0.699	0.240	-0.831	0.261	0.000**	0.800	0.000**
PSQI_Sleep disturbance -Post	30	1.567	0.817	0.583	-0.573	0.323	0.000**	0.804	0.000**
PSQI_Use of sleep medication - Baseline	30	2.867	0.346	-2.273	3.386	0.517	0.000**	0.404	0.000**
PSQI_Use of sleep medication - Post	30	2.600	0.855	-2.284	4.525	0.447	0.000**	0.534	0.000**
PSQI_Daytime dysfunction - Baseline	30	2.133	0.681	-0.871	2.275	0.322	0.000**	0.754	0.000**
PSQI_Daytime dysfunction - Post	30	1.733	0.868	-0.109	-0.618	0.221	0.001**	0.874	0.002**
SAS-Baseline	30	55.575	11.824	0.301	-0.394	0.111	0.459	0.963	0.379
SAS-Post	30	51.458	13.767	0.238	-0.793	0.104	0.557	0.971	0.576
SDS-Baseline	30	57.708	14.021	0.511	-0.494	0.104	0.563	0.940	0.089
SDS-Post	30	54.958	17.155	0.424	-0.935	0.143	0.120	0.938	0.078

* $p<0.05$ ** $p<0.01$

eTable 2a: Complete List of Adverse Events across all participants

Mild Adverse Events	Week 1		Week 2	
	Active-hf-tPCS (n=15)	Sham-hf-tPCS (n=15)	Active-hf-tPCS (n=15)	Sham-hf-tPCS (n=15)
Skin redness/itchiness	3	0	0	0
Mild Headache	1	1	1	0
Scalp Pain	nil	nil	nil	nil
Neck Pain	nil	nil	nil	nil
Moderate Adverse Events	Week 1		Week 2	
	Active-hf-tPCS (n=15)	Sham-hf-tPCS (n=15)	Active-hf-tPCS (n=15)	Sham-hf-tPCS (n=15)
Nausea / Vomitting	nil	nil	nil	nil
Scalp burns	nil	nil	nil	nil
Seizures	nil	nil	nil	nil
Dizziness	nil	nil	nil	nil
Severe Headache	nil	nil	nil	nil

Adverse Events (AE) were collated across all participants who were recruited and entered the trial.

Subjects that experienced adverse events were only recorded as "1" if they had not been recorded in the previous week to avoid duplication

An AE is classified as:

- "Mild" , if they self-resolved and/or did not require further medical action.
- "Moderate" , if they require medical intervention.
- "Serious", if it results in death, is life-threatening, requires inpatient hospitalization or prolongation of existing hospitalization or results in persistent or significant disability/incapacity.

eTable 2b: Occurrence of Adverse Events on a Per-Participant Level

Subject	group	Week1-skin	Week2-skin	Week1-Mild Headache	Week2-Mild Headache
CW0001	Active-tPCS				1
CW0004	Active-tPCS				
CW0006	Active-tPCS	1	1	1	
CW0011	Active-tPCS				
CW0013	Active-tPCS				
CW0014	Active-tPCS				
CW0016	Active-tPCS				
CW0019	Active-tPCS				
CW0022	Active-tPCS				
CW0024	Active-tPCS				
CW0031	Active-tPCS	1	1		
CW0033	Active-tPCS				
CW0038	Active-tPCS				
CW0040	Active-tPCS	1			
CW0042	Active-tPCS				
CW0003	Sham				
CW0005	Sham				
CW0008	Sham				
CW0010	Sham				
CW0015	Sham				
CW0018	Sham				
CW0021	Sham				
CW0025	Sham				
CW0026	Sham			1	
CW0028	Sham				
CW0034	Sham				
CW0035	Sham				
CW0037	Sham				
CW0044	Sham				
CW0046	Sham				

eTable 3. Bonferroni corrected p-values of post-treatment outcomes

Outcome variable	Raw p	Bonferroni p-value[a]	Significant after correction
Actigraphy TST – Post	0.022	Pre-specified	Yes
Actigraphy SL – Post	0.995	1.000	No
Actigraphy SE – Post	0.030	0.180	No
Actigraphy TIB – Post	0.432	1.000	No
Actigraphy WASO – Post	0.083	0.496	No
Actigraphy No. of Awakenings – Post	0.520	1.000	No
Actigraphy Avg. awakening – Post	0.017	0.102	No
PSQI global – Post	<0.001	<0.008	Yes
PSQI Subjective Sleep Quality – Post	<0.001	<0.008	Yes
PSQI Sleep Latency – Post	0.016	0.128	No
PSQI Sleep Duration – Post	<0.001	<0.008	Yes
PSQI Habitual Sleep Efficiency – Post	0.216	1.000	No
PSQI Sleep Disturbances – Post	0.007	0.056	No
PSQI Sleep Medication – Post	0.422	1.000	No
PSQI Daytime Dysfunction – Post	0.021	0.168	No

[a]To account for multiple testing, raw p-values are reported alongside Bonferroni–adjusted *p*-values ($p = 0.05$) at post-treatment, except for the pre-specified primary outcome of actigraphy TST. For six secondary actigraphy outcomes, Bonferroni correction ($\alpha = 0.05$) indicated no outcomes remained significant after correction . For PSQI global score and seven subcomponents, Bonferroni correction ($\alpha = 0.05$) identified PSQI global score, subjective sleep quality, sleep duration and sleep disturbances as statistically significant after adjustment; remaining subcomponents were not significant.