

Table SI. *Baseline demographic, cognitive and psychological characteristics by treatment condition for traumatic brain injury cohort (TBI)*

	CBT-SF (<i>n</i> =36) M (SD) or %	HE (<i>n</i> =15) M (SD) or %	Range
Demographics			
Age at study entry	42.00 (14.97)	42.51 (14.77)	19 – 71
Sex (% male)	56%	47%	-
Years of Education	13.44 (1.83)	12.79 (1.53) [§]	10– 17
Mode (%telehealth)	61%	73%	-
Cognitive characteristics			
NART IQ	108.47 (7.03) [†]	109.90 (9.28) [§]	89 – 121
CVLT-II T-score (trials 1-5)	45.46 (11.71) [§]	44.15 (12.81) [‡]	23 – 69
Psychological measures			
Ho-NOS ABI score	7.69 (4.63)	7.79 (3.62) [§]	0 – 19
Baseline HADS-D	6.61 (3.47)	5.43 (4.20) [§]	0 – 17
Baseline HADS-A	8.67 (4.85)	7.64 (4.13) [§]	0 – 20
Baseline BPI	4.63 (1.36)	2.90 (1.09)	0 – 7
<i>Note.</i> BPI, Brief Pain Inventory; CBT-SF, cognitive behavioural therapy for sleep disturbance and fatigue; CVLT-II, California Verbal Learning Test – second edition; HADS-A, Hospital Anxiety and Depression Scale – Anxiety subscale; HADS-D, Hospital Anxiety and Depression Scale – Depression subscale; HE, health education; Ho-NOS-ABI, Health of the Nation Outcome Scale – Acquired Brain Injury; M, mean; NART IQ, National Adult Reading Test Intelligence Quotient; SD, standard deviation			
[†] Missing data from between four to eight participants			
[‡] Missing data from two participants			
[§] Missing data from one participant			

Table SII. *Baseline demographic, cognitive and psychological characteristics by treatment condition for stroke cohort*

	CBT-SF (<i>n</i> =50) M (SD) or %	HE (<i>n</i> =25) M (SD) or %	Range
Demographics			
Age at study entry	50.71 (13.35)	53.65 (11.46)	23 – 71
Sex (% male)	52%	52%	-
Years of Education	13.66 (1.91)	13.84 (2.61)	9 – 18
Mode (%telehealth)	86%	80%	-
Cognitive characteristics			
NART IQ	111.85 (5.93) [‡]	112.71 (5.87) [§]	98 – 121
CVLT-II T-score (trials 1-5)	50.59 (12.75) [§]	49.40 (11.81)	12 – 77
Psychological measures			
Ho-NOS ABI score	7.04 (3.61)	6.38 (4.64) [§]	0 – 19
Baseline HADS-D	6.52 (3.63)	6.42 (3.45) [§]	0 – 17
Baseline HADS-A	8.22 (3.47)	5.92 (3.76) [§]	0 – 16
Baseline BPI	3.95 (1.73)	3.48 (2.25)	1 – 7
<i>Note.</i> BPI, Brief Pain Inventory; CBT-SF, cognitive behavioural therapy for sleep disturbance and fatigue; CVLT-II, California Verbal Learning Test – second edition; HADS-A, Hospital Anxiety and Depression Scale – Anxiety subscale; HADS-D, Hospital Anxiety and Depression Scale – Depression subscale; HE, health education; Ho-NOS-ABI, Health of the Nation Outcome Scale – Acquired Brain Injury; M, mean; NART IQ, National Adult Reading Test Intelligence Quotient; SD, standard deviation [‡] Missing data from between four participants [§] Missing data from one participant			

Table SIII. *Mixed multilevel modelling results for primary and secondary outcome measures*

Measure	Coeff	95% CI	p-value
PSQI			
Group	0.38	-1.07 – 1.82	.610
Time***	0.79	0.36 – 1.22	<.001
Baseline HADS-A* [†]	0.19	0.03 – 0.35	.025
Group x Time***	-1.50	-2.35 – -0.64	<.001
ISI			
Group	0.31	-1.83 – 2.45	.776
Time***	2.02	1.28 – 2.75	<.001
Group x Time**	-2.11	-3.58 – -0.65	.005
FSS			
Group	0.36	-0.04 – 0.81	.075
Time**	0.24	0.10 – 0.38	.001
Baseline HADS-A**	0.07	0.03 – 0.12	.002
Group x Time*	-0.29	-0.58 – -0.01	.047
BFI			
Group	-0.07	-1.12 – 1.08	.912
Time*	-0.55	-0.98 – -0.12	.013
Baseline HADS-A	0.02	-0.10 – 0.14	.764
Baseline BPI*	0.35	0.06 – 0.65	.023
Group x Time	0.25	-0.62 – 1.11	.578
ESS			
Group	0.01	-1.37 – 1.38	.993
Time***	-1.30	-1.76 – -0.85	<.001
Group x Time	-0.07	-0.98 – 0.84	.885
Sleep efficiency [‡]			
Group*	3.22E+07	1.67E+06 - 6.27E+07	.041
Time**	1.40E+07	3.93E+06 - 2.40E+07	.006
Mode	3.07E+07	-2.73E+06 - 6.41E+07	.075
Injury Type**	4.31E+07	1.39E+07 - 7.22E+07	.005
Group x Time	9.89E+06	-1.02E+07 - 3.00E+07	.334
Sleep onset latency [§]			
Group	0.07	-0.04 - 0.18	.224
Time	-0.04	-0.09 – 0.01	.083
Baseline HADS-A	0.02	0.00 – 0.03	.012

Group x Time	-0.01	-0.10 – 0.08	.883
HADS-D			
Group	-0.51	-2.68 – 1.66	.646
Time	0.17	-0.56 – 0.89	.653
Baseline HADS-A	0.15	-0.07 – 0.38	.194
Baseline BPI*	0.62	0.07 – 1.18	.033
Group x Time**	2.22	0.77 – 3.66	.003
HADS-A			
Group*	-1.87	-3.29 – -0.45	.011
Time***	-1.71	-2.16 – -1.27	<.001
Group x Time	-0.54	-1.43 – 0.35	.238
SF36 Mental Component			
Summary			
Group	1.55	-4.49 – 7.60	.617
Time	-0.71	-2.78 – 1.36	.502
Baseline HADS-A**	-1.08	-1.71 – -0.45	.002
Baseline BPI	-1.55	-3.10 – 0.01	.057
Group x Time*	5.41	1.28 – 9.54	.012
SF36 Physical Component			
Summary			
Group	-1.12	-4.36 – 2.22	.491
Time***	2.42	1.28 – 3.56	<.001
Group x Time	0.85	-1.43 – 3.13	.464
Self-efficacy			
Group	-0.32	-0.92 – 0.28	.302
Time**	-0.31	-0.55 – -0.08	.009
Baseline HADS-A***	-0.13	-0.19 – -0.06	<.001
Group x Time*	0.60	0.13 – 1.07	.012
% Productive Activity			
Group	-1.16	-7.88 – 5.56	.736
Time***	4.09	1.71 – 6.47	<.001
Group x Time	-0.77	-5.52 – 3.99	.752

PSQI, Pittsburgh Sleep Quality Index; ISI, Insomnia Severity Index; FSS, Fatigue Severity Scale; BFI, Brief Fatigue Inventory; ESS, Epworth Sleepiness Scale; HADS-D, Hospital Anxiety and Depression Scale – Depression subscale; HADS-A, Hospital Anxiety and Depression Scale – Anxiety subscale; SF36, Short Form Health Survey; BPI, Brief Pain Inventory

***Significant at $p < .001$

****Significant at $p < .01$**

***Significant at $p < .05$**

†Covariates on which groups differed at baseline were included in analysis if significantly impacting the analysis outcome

‡BOXCOX transformation applied

§Logarithm transformation applied

Table SIV. Means, standard deviations and effect sizes for each group across time

	Group	Timepoint	Mean	SD	Cohen's <i>d</i>
PSQI	CBT	Baseline	9.80	4.26	
		Post-therapy	6.41	3.66	0.80
		2-months	6.85	3.71	0.69
		4-months	6.67	3.57	0.73
	HE	Baseline	8.89	4.99	
		Post-therapy	7.59	4.22	0.26
		2-months	6.19	3.89	0.54
		4-months	5.18	3.08	0.74
ISI	CBT	Baseline	14.59	6.30	
		Post-therapy	8.62	5.63	0.95
		2-months	8.27	5.76	1.00
		4-months	8.46	5.51	0.97
	HE	Baseline	13.32	7.71	
		Post-therapy	9.97	7.10	0.43
		2-months	8.26	6.67	0.66
		4-months	7.07	6.42	0.81
FSS	CBT	Baseline	5.54	1.04	
		Post-therapy	4.81	1.33	0.70
		2-months	4.74	1.34	0.77
		4-months	4.79	1.37	0.72
	HE	Baseline	5.63	1.05	
		Post-therapy	5.12	1.29	0.49
		2-months	5.11	1.30	0.50
		4-months	4.81	1.38	0.78
BFI	CBT	Baseline	5.72	1.74	
		Post-therapy	4.42	2.24	0.75
		2-months	4.62	2.16	0.63
		4-months	4.61	2.31	0.64
	HE	Baseline	5.44	2.01	
		Post-therapy	4.88	2.17	0.28
		2-months	4.69	2.30	0.37
		4-months	4.44	2.07	0.50
ESS	CBT	Baseline	6.94	4.23	
		Post-therapy	6.14	4.04	0.19
		2-months	5.41	3.50	0.36

		4-months	5.34	3.67	0.38
	HE	Baseline	7.05	4.44	
		Post-therapy	6.00	3.80	0.24
		2-months	5.81	4.09	0.28
		4-months	5.00	3.94	0.46
Sleep Efficiency	CBT	Baseline	82.02	6.45	
		Post-therapy	82.77	6.5	-0.12
		2-months	84.05	5.62	-0.31
		4-months	82.7	7.07	-0.11
	HE	Baseline	83.81	6.74	
		Post-therapy	85.74	4.48	-0.29
		2-months	86.06	4.84	-0.33
		4-months	86.06	3.43	-0.33
Sleep Onset Latency	CBT	Baseline	22.67	18.94	
		Post-therapy	20.69	15.93	0.10
		2-months	20.6	21.79	0.11
		4-months	22.17	22.35	0.03
	HE	Baseline	24.52	19.73	
		Post-therapy	21.03	11.3	0.18
		2-months	19.66	14.93	0.25
		4-months	19.02	10.31	0.28
HADS-A	CBT	Baseline	8.41	4.08	
		Post-therapy	6.62	4.22	0.44
		2-months	6.72	4.68	0.41
		4-months	6.16	4.23	0.55
	HE	Baseline	6.55	3.94	
		Post-therapy	5.42	3.89	0.29
		2-months	3.90	3.56	0.67
		4-months	3.50	2.86	0.77
HADS-D	CBT	Baseline	6.56	3.54	
		Post-therapy	4.87	3.23	0.48
		2-months	5.48	4.13	0.31
		4-months	5.10	3.86	0.41
	HE	Baseline	6.05	3.72	
		Post-therapy	5.12	3.67	0.25
		2-months	4.10	3.43	0.52
		4-months	3.18	2.98	0.77

SF-36 Mental	CBT	Baseline	39.88	11.57	
Component Summary		Post-therapy	45.65	11.03	-0.50
		2-months	44.65	13.09	-0.41
		4-months	44.47	12.50	-0.40
	HE	Baseline	43.98	10.29	
		Post-therapy	43.99	11.19	0.00
		2-months	47.88	10.79	-0.38
		4-months	50.64	7.98	-0.65
SF-36 Physical	CBT	Baseline	41.28	9.87	
Component Summary		Post-therapy	43.18	10.01	-0.19
		2-months	43.15	10.24	-0.19
		4-months	44.49	10.35	-0.33
	HE	Baseline	38.74	9.85	
		Post-therapy	42.85	8.81	-0.42
		2-months	42.44	9.60	-0.38
		4-months	44.28	9.57	-0.56
Self-Efficacy	CBT	Baseline	5.72	1.88	
		Post-therapy	6.78	2.01	-0.56
		2-months	6.92	1.80	-0.64
		4-months	6.82	1.83	-0.59
	HE	HE	5.99	1.54	
		Post-therapy	6.56	2.03	-0.37
		2-months	6.56	1.73	-0.37
		4-months	7.10	1.81	-0.72
% Productive Activity	CBT	Baseline	70.28	19.43	
		Post-therapy	74.21	19.13	-0.20
		2-months	76.09	17.66	-0.30
		4-months	75.56	19.96	-0.27
	HE	HE	68.69	18.17	
		Post-therapy	72.78	16.87	-0.23
		2-months	76.16	21.03	-0.41
		4-months	75.37	19.59	-0.37

CBT, Cognitive Behavioural Therapy; HE, Health Education; PSQI, Pittsburgh Sleep Quality Index; ISI, Insomnia Severity Index; FSS, Fatigue Severity Scale; BFI, Brief Fatigue Inventory; ESS, Epworth Sleepiness Scale; HADS-D, Hospital Anxiety and Depression Scale – Depression subscale; HADS-A, Hospital Anxiety and Depression Scale – Anxiety subscale; SF36, Short Form Health Survey

Table SV. Means and standard deviations on the PSQI and FSS for separate TBI and stroke groups

			TBI		Stroke	
	Group	Timepoint	Mean	SD	Mean	SD
PSQI	CBT	Baseline	10.36	4.55	9.40	4.04
		Post-therapy	6.30	3.91	6.48	3.53
		2-months	6.37	4.06	7.14	3.49
		4-months	6.31	3.13	6.89	3.13
	HE	Baseline	10.64	4.52	7.88	5.05
		Post-therapy	9.17	4.02	6.65	4.15
		2-months	7.18	3.16	5.65	4.22
		4-months	5.90	3.03	4.78	3.12
FSS	CBT	Baseline	5.30	1.22	5.72	0.86
		Post-therapy	4.62	1.46	4.95	1.24
		2-months	4.50	1.36	4.88	1.33
		4-months	4.70	1.46	4.85	1.33
	HE	Baseline	5.56	0.99	5.67	1.10
		Post-therapy	4.82	1.42	5.30	1.22
		2-months	4.80	1.10	5.29	1.39
		4-months	4.52	1.20	4.98	1.48

TBI, traumatic brain injury; CBT, Cognitive Behavioural Therapy; HE, Health Education; PSQI, Pittsburgh Sleep Quality Index; FSS, Fatigue Severity Scale

Table SVI. *Mixed multilevel modelling results for PSQI and FSS within separate TBI and stroke groups*

Measure	TBI			Stroke		
	Coeff	95% CI	<i>p</i> -value	Coeff	95% CI	<i>p</i> -value
PSQI						
Group	1.78	-0.50 – 4.05	.133	-0.81	-2.56 – 0.95	.371
Time	-2.51	-3.23 – -1.78	<.001	-1.59	-2.13 – -1.05	<.001
Baseline HADS-A	0.27	0.05 – 0.49	.020	-	-	-
Group x Time	-2.07	-3.49 – -0.65	.005	-1.12	-2.19 – -0.05	.041
FSS						
Group	0.26	-0.42 – 0.94	.451	0.25	-0.26 – 0.77	.340
Time	-0.57	-0.83 – -0.32	<.001	0.20	0.03 – 0.38	.023
Baseline HADS-A	0.11	0.04 – 0.17	.003	-	-	-
Group x Time	-0.23	-0.74 – -0.28	.383	-0.35	-0.70 – -0.01	.048

TBI, traumatic brain injury; PSQI, Pittsburgh Sleep Quality Index; FSS, Fatigue Severity Scale; HADS-A, Hospital Anxiety and Depression Scale – Anxiety

Significant at $p < .05$