

Supplementary Table 4: Secondary polysomnography outcomes

Variable	Melatonin			Placebo			Test value	P value
	Baseline	End Treatment	Delta (V.4 - V.2)	Baseline	End Treatment	Delta (V.4 - V.2)		
RSWAI	N=12 Median=0.32 IQR=0.01 – 0.79	N=9 Median=0.51 IQR=0.17 – 0.71	N=8 Median=-0.056 IQR=-0.22 – 0.43	N=11 Median=0.50 IQR=0.02 – 0.73	N=8 Median=0.68 IQR=0.30 – 0.85	N=6 Median=-0.025 IQR=-0.17 – 0.15	U=23.0 Z=-0.13	0.897 ^a
Time in Bed (min)	N=15 Mean=426.7 SD=48.4	N=15 Mean=422.2 SD=74.5	N=15 Mean=-4.49 SD=75.8	N=14 Mean=432.1 SD=45.0	N=13 Mean=447.6 SD=50.5	N=13 Mean=13.72 SD=56.8	T=-0.710	0.484
Sleep onset Latency (min)	N=15 Median=12.0 IQR=2.50 – 33.7	N=15 Median=7.80 IQR=1.60 – 51.6	N=15 Median=0.00 IQR=-10.4 – 10.4	N=14 Median=11.9 IQR=2.85 – 31.3	N=13 Median=9.0 IQR=1.50 – 17.6	N=13 Median=-3.80 IQR=-24.6 – 2.75	U=71.5 Z=-1.20	0.231 ^a
REM sleep latency (min)	N=15 Median=186.0 IQR=109 – 232	N=15 Median=122.1 IQR=77.4 – 245	N=15 Median=-9.10 IQR=-50.5 – 28.1	N=14 Median=183.5 IQR=141 - 261	N=13 Median=145.6 IQR=74.9 - 330	N=13 Median=-44.6 IQR=-100 – 53.2	U=83.0 Z=-0.39	0.698 ^a
Sleep Efficiency (%)	N=15 Median=80.7 IQR=71.3 – 88.9	N=15 Median=82.6 IQR=68.8 – 88.2	N=15 Median=2.80 IQR=-2.80 – 4.30	N=14 Median=80.1 IQR=68.4 – 87.1	N=13 Median=79.4 IQR=73.4 – 88.7	N=13 Median=3.50 IQR=-10.2 – 9.25	U=90.0 Z=-0.346	0.730 ^a
Time awake after sleep onset (min)	N=15 Median=60.5 IQR=30.5 – 99.5	N=15 Median=57.5 IQR=31.7 – 81.1	N=15 Median=-6.5 IQR=-25.4 – 12.0	N=14 Median=73.5 IQR=39.4 – 110	N=13 Median=90.3 IQR=32.4 - 106	N=13 Median=-13.1 IQR=-24.0 – 42.3	U=94.0 Z=-0.161	0.872 ^a
Total Sleep Time (min)	N=15 Mean=360.6 SD=72.4	N=15 Mean=353.3 SD=69.0	N=15 Mean=-7.25 SD=88.0	N=14 Mean=344.8 SD=68.5	N=13 Mean=365.2 SD=65.6	N=13 Mean=17.0 SD=73.4	T=-0.784	0.440
Time in NREM sleep (min)	N=15 Mean=310.0 SD=71.9	N=15 Mean=291.5 SD=54.1	N=15 Mean=-18.5 SD=75.3	N=14 Mean=282.5 SD=54.4	N=13 Mean=316.7 SD=74.0	N=13 Mean=31.7 SD=58.3	T=-1.95	0.062
%NREM of total sleep	N=15 Mean=85.9 SD=8.0	N=15 Mean=85.7 SD=9.40	N=15 Mean=-0.02 SD=12.9	N=14 Mean=82.5 SD=8.60	N=13 Mean=86.2 SD=9.50	N=13 Mean=3.72 SD=8.98	T=-0.917	0.368
Time in REM sleep (min)	N=15 Mean=50.6 SD=29.2	N=15 Mean=51.8 SD=36.9	N=15 Mean=1.17 SD=52.5	N=14 Mean=62.3 SD=36.3	N=13 Mean=48.5 SD=32.4	N=13 Mean=-14.7 SD=35.6	T=0.921	0.366
%REM of total sleep	N=15 Mean=14.1 SD=8.0	N=15 Mean=14.3 SD=9.40	N=15 Mean=0.19 SD=12.9	N=14 Mean=17.5 SD=8.60	N=13 Mean=13.8 SD=9.50	N=13 Mean=-3.72 SD=8.98	T=0.917	0.368

NOTE: SD=Standard Deviation; IQR=Interquartile Range; ^a=Mann-Whitney U test used to compare the deltas (End of Treatment (V.4) -Baseline (V.2)) between groups due to non-normal data distribution.

Supplementary Table 5: Secondary actigraphy outcomes

Variable	Melatonin			Placebo			Test Value	P Value
	Baseline	End Treatment	Delta (V.4 - V.2)	Baseline	End Treatment	Delta (V.4 - V.2)		
Sleep onset Latency (min)	N=12 Median=8.67 IQR=3.80 – 14.7	N=12 Median=7.50 IQR=1.52 – 13.5	N=12 Median=-2.08 IQR=-9.28 – 1.25	N=10 Median=2.47 IQR=1.86 – 17.4	N=10 Median=8.01 IQR=4.02 – 32.4	N=10 Median=5.66 IQR=1.44 – 15.0	U=12.0 Z=-3.165	0.002
Total sleep time (min)	N=12 Median=375.6 IQR=324 - 448	N=12 Median=376.1 IQR=354 - 452	N=12 Median=20.5 IQR=-27.4 – 43.2	N=10 Median=405.3 IQR=332 - 444	N=10 Median=369.2 IQR=330 - 404	N=10 Median=-11.3 IQR=-47.8 – 15.0	U=41 Z=-1.25	0.210
Sleep efficiency	N=12 Median=87.6 IQR=80.7 – 91.5	N=12 Median=88.3 IQR=81.4 – 93.3	N=12 Median=1.43 IQR=-3.42 – 4.81	N=10 Median=86.8 IQR=78.5 – 90.6	N=10 Median=86.58 IQR=77.5 – 90.2	N=10 Median=-0.696 IQR=-3.04 – 3.65	U=57.0 Z=-0.198	0.843
Wake after sleep onset	N=12 Median=34.0 IQR=21.2 – 46.3	N=12 Median=34.5 IQR=21.2 – 39.4	N=12 Median=-1.46 IQR=-12.0 – 7.72	N=10 Median=39.1 IQR=19.4 – 67.0	N=10 Median=33.83 IQR=21.6 – 51.8	N=10 Median=-2.59 IQR=-14.0 – 0.18	U=48.0 Z=-0.791	0.429
Sleep activity count	N=12 Median=4150 IQR=3063 - 6206	N=12 Median=4104 IQR=2643 - 4851	N=12 Median=-186 IQR=-1591 - 910	N=10 Median=4778 IQR=3012 - 8514	N=10 Median=4281 IQR=2751 - 6611	N=10 Median=-528 IQR=-1917 -- 90.3	U=47.0 Z=-0.857	0.391
# Naps divided by days of data	N=12 Median=0.32 IQR=0.04 – 0.95	N=12 Median=0.58 IQR=0.02 – 1.45	N=12 Median=0.063 IQR=-0.11 – 0.61	N=10 Median=0.43 IQR=0.14 – 1.2	N=10 Median=0.46 IQR=0.25 – 1.1	N=10 Median=0.00 IQR=-0.04 – 0.19	U=52.5 Z=-0.507	0.612
Nap duration (min)	N=12 Median=40.6 IQR=37.0 – 55.2	N=12 Median=45.3 IQR=26.4 – 57.8	N=12 Median=-3.89 IQR=-24.8 – 7.41	N=10 Median=34.2 IQR=27.4 – 70.2	N=10 Median=40.2 IQR=25.1 – 44.9	N=10 Median=-3.70 IQR=-38.7 – 9.39	U=36.0 Z<0.001	0.999
# Sleep bouts	N=12 Median=28.5 IQR=19.0 – 34.5	N=12 Median=29.8 IQR=20.6 – 31.5	N=12 Median=0.025 IQR=-10.7 – 3.46	N=10 Median=26.25 IQR=14.8 – 46.7	N=10 Median=29.2 IQR=22.9 – 35.3	N=10 Median=-0.560 IQR=-2.73 – 2.96	U=59.0 Z=-0.066	0.947
# Wake bouts	N=12 Median=29.1 IQR=22.9 – 33.6	N=12 Median=28.7 IQR=22.7 – 32.4	N=12 Median=-0.06 IQR=-8.07 – 1.51	N=10 Median=25.8 IQR=15.6 – 46.4	N=10 Median=29.55 IQR=26.5 – 36.9	N=10 Median=1.06 IQR=-3.73 – 6.53	U=50.0 Z=-0.659	0.510
Wake activity count	N=12 Median=138631 IQR=109684 - 167374	N=12 Median=142762 IQR=104799 - 195075	N=12 Median=-2963 IQR=-22949 – 32057	N=10 Median=162393 IQR=112480 - 185453	N=10 Median=185309 IQR=152189 - 247495	N=10 Median=22915 IQR=4642 - 56730	U=31 Z=-1.91	0.056
Fragmen-tation Index (FI)	N=12 Median=28.5 IQR=25.2 – 35.6	N=12 Median=32.6 IQR=22.4 – 37.4	N=12 Median=0.08 IQR=-4.63 – 6.04	N=10 Median=29.5 IQR=23.0 – 46.1	N=10 Median=28.9 IQR=24.8 – 41.9	N=10 Median=-0.40 IQR=-10.3 – 1.63	U=46 Z=-0.923	0.356

NOTE: Mann-Whitney U test used to compare the deltas (End of Treatment (V.4) - Baseline (V.2)) between groups due to non-normal data distribution. IQR=Interquartile Range

Supplementary Table 6: Secondary questionnaire outcomes.

Variable	Melatonin			Placebo			Test Value	P Value
	Baseline	End Treatment	Delta (V.4 - V.2)	Baseline	End Treatment	Delta (V.4 - V.2)		
RBDSQ	N=15 Median=10.0 IQR=8.0 - 11.0	N=15 Median=9.00 IQR=7.0 - 10.0	N=15 Median=0.00 IQR=-2.0 - 1.0	N=15 Median=11.0 IQR=10.0 - 12.0	N=14 Median=9.50 IQR=6.75 - 12.0	N=14 Median=0.00 IQR=-3.0 - 0.25	U=86.0 Z=-0.842	0.400
RBD-I	N=15 Median=1.00 IQR=0.75 - 1.0	N=15 Median=0.800 IQR=0.40 - 1.0	N=15 Median=0.00 IQR=-0.20 - 0.0	N=15 Median=0.80 IQR=0.60 - 1.0	N=14 Median=0.78 IQR=0.67 - 1.0	N=14 Median=0.00 IQR=-0.25 - 0.25	U=81.0 Z=-1.08	0.281
RBD-HK	N=15 Median=40.0 IQR=20.0 - 48.0	N=15 Median=34.0 IQR=19.0 - 44.0	N=15 Median=-4.00 IQR=-12.0 - 7.0	N=15 Median=45.0 IQR=33.0 - 50.0	N=13 Median=34.0 IQR=25.5 - 42.5	N=13 Median=-10.0 IQR=-16.0 - -0.50	U=73.0 Z=-1.13	0.258
PSQI	N=15 Median=6.00 IQR=5.0 - 7.0	N=15 Median=7.00 IQR=4.0 - 8.0	N=15 Median=0.00 IQR=-1.0 - 2.0	N=15 Median=6.00 IQR=4.0 - 11.0	N=14 Median=6.50 IQR=4.0 - 8.0	N=14 Median=-0.5 IQR=-3.25 - 1.0	U=74.0 Z=-1.37	0.171
LEEDS	N=14 Median=45.8 IQR=37.3 - 52.1	N=15 Median=46.0 IQR=38.3 - 50.1	N=14 Median=2.94 IQR=-5.5 - 8.41	N=14 Median=41.5 IQR=32.5 - 51.3	N=14 Median=55.1 IQR=50.2 - 59.5	N=14 Median=9.75 IQR=-0.44 - 20.9	U=59.0 Z=-1.55	0.120
ESS	N=14 Median=9.00 IQR=3.75 - 12.8	N=13 Median=11.0 IQR=6.0 - 12.5	N=12 Median=0.00 IQR=-1.0 - 0.75	N=15 Median=8.0 IQR=3.0 - 11.0	N=14 Median=6.50 IQR=2.0 - 12.5	N=14 Median=-0.5 IQR=-2.25 - 2.25	U=76.0 Z=-0.418	0.676
DASS	N=15 Median=17.0 IQR=6.0 - 27.0	N=15 Median=22.0 IQR=17.0 - 32.0	N=15 Median=3.00 IQR=-2.0 - 9.0	N=15 Median=15.0 IQR=8.0 - 32.0	N=14 Median=20.0 IQR=5.0 - 35.8	N=14 Median=0.50 IQR=-6.0 - 6.75	U=85.0 Z=-0.874	0.382
PDQ-39	N=14 Median=32.0 IQR=20.8 - 66.3	N=14 Median=36.0 IQR=28.5 - 63.0	N=13 Median=4.00 IQR=-4.5 - 12.0	N=15 Median=27.0 IQR=19.0 - 50.0	N=14 Median=32.0 IQR=14.5 - 48.5	N=14 Median=-0.50 IQR=-10.0 - 4.50	U=61.5 Z=-1.43	0.152
SF-36: 1. Physical functioning	N=14 Median=72.5 IQR=53.8 - 81.3	N=15 Median=70.0 IQR=45.0 - 75.0	N=14 Median=-5.00 IQR=-21.3 - 10.0	N=15 Median=70.0 IQR=60.0 - 80.0	N=14 Median=60.0 IQR=45.0 - 76.3	N=14 Median=0.00 IQR=-16.3 - 10.0	U=87 Z=-0.509	0.611
SF-36: 2. Limitations physical health	N=14 Median=37.5 IQR=0.00 - 100.0	N=15 Median=25.0 IQR=25.0 - 100.0	N=14 Median=0.00 IQR=-6.25 - 25.0	N=15 Median=25.0 IQR=0.00 - 100.0	N=14 Median=50.0 IQR=0.00 - 100.0	N=14 Median=0.00 IQR=0.00 - 50.0	U=85.5 Z=-0.615	0.538

SF-36: 3. Limitations emotional problems	N=14 Median=100.0 IQR=0.00 – 100.0	N=15 Median=100.0 IQR=33.3 – 100.0	N=14 Median=0.00 IQR=-33.3 – 0.00	N=15 Median=100.0 IQR=33.3 – 100.0	N=14 Median=83.3 IQR=33.3 – 100.0	N=14 Median=0.00 IQR=-33.3 – 33.3	U=94.5 Z=-0.173	0.863
SF-36: 4. Energy Fatigue	N=14 Median=45.0 IQR=30.0 – 55.0	N=15 Median=50.0 IQR=25.0 – 60.0	N=14 Median=7.50 IQR=-6.25 – 12.5	N=15 Median=60.0 IQR=45.0 – 75.0	N=14 Median=52.5 IQR=33.8 – 65.0	N=14 Median=-10.0 IQR=-15.0 – 0.00	U=53.5 Z=-2.06	0.040¹
SF-36: 5. Emotional Wellbeing	N=14 Median=80.0 IQR=64.0 – 88.0	N=15 Median=68.0 IQR=52.0 – 84.0	N=14 Median=-8.00 IQR=-17.0 – 0.00	N=15 Median=80.0 IQR=72.0 – 88.0	N=14 Median=70.0 IQR=56.0 – 83.0	N=14 Median=-8.00 IQR=-20.0 – 3.0	U=93.5 Z=-0.208	0.835
SF-36: 6. Social Functioning	N=14 Median=81.3 IQR=50.0 – 100.0	N=15 Median=87.5 IQR=50.0 – 87.5	N=14 Median=0.00 IQR=-15.6 – 12.5	N=15 Median=75.0 IQR=75.0 – 87.5	N=14 Median=75.0 IQR=59.4 – 78.1	N=14 Median=-6.25 IQR=-15.6 – 0.00	U=87.0 Z=-0.521	0.602
SF-36: 7. Pain	N=14 Median=67.5 IQR=45.0 – 90.0	N=15 Median=67.5 IQR=45.0 – 77.5	N=14 Median=0.00 IQR=-3.13 – 13.1	N=15 Median=67.5 IQR=55.0 – 80.0	N=14 Median=57.5 IQR=45.0 – 90.0	N=14 Median=0.00 IQR=-10.0 – 10.6	U=95.0 Z=-0.141	0.888
SF-36: 8. General Health	N=14 Median=45.0 IQR=30.0 – 66.3	N=15 Median=60.0 IQR=35.0 – 75.0	N=14 Median=7.50 IQR=-5.0 – 15.0	N=15 Median=55.0 IQR=40.0 – 65.0	N=14 Median=45.0 IQR=30.0 – 65.0	N=14 Median=-2.50 IQR=-17.5 – 6.30	U=67.5 Z=-1.41	0.159

NOTE: Group comparison performed on the delta's (End of Treatment (V.4) - Baseline (V.2)) using a Mann-Whitney U test due to non-normal data distribution; IQR=Interquartile Range; The group comparisons on the delta's could only be performed on the subjects that had no missing data for both V.2 and V.4, the median delta values may therefore not match the medians as shown for V.2 and V.4 separately; ¹=Higher scores on the SF-36 indicate a more favorable health state.

List of abbreviations: V.2=Visit 2 at baseline prior to randomisation; V.4=Visit 4 at end of treatment period; RSWAI = REM Sleep Without Atonia Index; (N)REM= (Non) Rapid Eye Movement sleep; %REM=percentage of time spent in REM sleep compared to total sleep duration; IQR=Interquartile range; SD=Standard Deviation; RBDSQ=REM sleep Behavior Disorder Screening Questionnaire; RBD-I=Innsbruck RBD Inventory; RBD-HK=RBD questionnaire Hong Kong; PSQI=Pittsburgh Sleep Quality Index; LEEDS=Leeds Sleep Evaluation Questionnaire; ESS=Epworth Sleepiness Scale; DASS=Depression and Anxiety Stress Scale; PDQ-39=39-item Parkinson's Disease Questionnaire; SF-36=36-item Short Form Survey.