Table S1. Comparison of PSQI Global score, Epworth sleepiness scale, FSS, STOP-Bang scale, AIS, according to participants' characteristics

Variables	PSQI Global score		p
	<5	≥5	
Gender			0.110[b]
Male	14(77.8%)	56(57.7%)	
Female	4(22.2%)	41(42.3%)	
Age, Mean (SD)	54.4(12.89)	56.3(11.64)	0.528[c]
BMI, Median (IQR)	29(25.7-31-7)	29(26-32.5)	0.816[a]
Smoking status			0.489[b]
Never smoked	7(38.9%)	52(54.7%)	
Former smoker	9(50%)	33(34.7%)	
Current smoker	2(11.1%)	10(10.5%)	
Arterial Hypertension			0.427[b]
Yes	4(22.2%)	30(31.6%)	
No	14(77.8%)	65(68.4%)	
Severity			0.224[d]
Group 1	0(0%)	10(11.1%)	
Group 2	8(50%)	55(61.1%)	
Group 3	5(31.3%)	15(16.7%)	
Group 4	3(18.8%)	10(11.1%)	
Charlson Comorbidity Index, Median(IQR)	1(1-2.3)	2(1-3)	0.827[a]
Length of hospital stay (days), Median(IQR)	12(8-18)	10(6-16)	0.162[a]

a; Mann-Whitney test, b; Chi-square test, c; Independent samples t-test, d; Fischer's exact test

Variables	Epworth sleepiness scale		p
	No EDS (≤10)	EDS (>10)	
Gender			0.997[b]
Male	63(61.2%)	11(61.1%)	
Female	40(38.8%)	7(38.9%)	
Age, Median(IQR)	57(51-66)	48(42.5-56.5)	**0.002**[a]
BMI, Median(IQR)	29(26-32)	29(26-34)	0.741[a]
Smoking status			0.102[b]
Never smoked	54(52.9%)	14(77.8%)	
Former smoker	36(35.3%)	4(22.2%)	
Current smoker	12(11.8%)	0(0%)	
Arterial Hypertension			0.823[b]

Yes	31(30.4%)	5(27.8%)	
No	71(69.6%)	13(72.2%)	
Severity			<0.999[c]
Group 1	9(9.4%)	1(6.3%)	
Group 2	58(60.4%)	10(62.5%)	
Group 3	18(18.8%)	3(18.8%)	
Group 4	11(11.5%)	2(12.5%)	
Charlson Comorbidity Index, Median(IQR)	2(1-3)	0(0-2)	**0.001[a]**
Length of hospital stay (days), Median(IQR)	11(7-17)	8(5.5-14)	0.168[a]

a; Mann-Whitney test, b; Chi-square test, c; Fischer's exact test

	Epworth sleepiness scale				
Variables	**Normal Sleepiness (0-10)**	**Mild sleepiness (11-14)**	**Moderate Sleepiness (15-17)**	**Severe Sleepiness (18-24)**	**p**
Gender					0.098[b]
Male	63(61.2%)	9(69.2%)	0(0%)	2(100%)	
Female	40(38.8%)	4(30.8%)	3(100%)	0(0%)	
Age, Median(IQR)	57(51-66)	47(37.5-49.5)	58	62	**<0.001[a]**
BMI, Median(IQR)	29(26-32)	29(25.2-34)	31	28.5	0.892[a]
Smoking status					0.502[b]
Never smoked	54(52.9%)	10(76.9%)	3(100%)	1(50%)	
Former smoker	36(35.3%)	3(23.1%)	0(0%)	1(50%)	
Current smoker	12(11.8%)	0(0%)	0(0%)	0(0%)	
Arterial Hypertension					0.015[b]
Yes	31(30.4%)	1(7.7%)	2(66.7%)	2(100%)	
No	71(69.6%)	12(92.3%)	1(33.3%)	0(0%)	
Severity					0.953[c]
Group 1	9(9.4%)	1(7.7%)	0(0%)	0(0%)	
Group 2	58(60.4%)	8(61.5%)	1(100%)	1(50%)	
Group 3	18(18.8%)	2(15.4%)	0(0%)	1(50%)	
Group 4	11(11.5%)	2(15.4%)	0(0%)	0(0%)	
Charlson Comorbidity Index, Median(IQR)	2(1-3)	0(0-0.5)	2(0-0)	2(2-2)	**<0.001[a]**
Length of hospital stay (days), Median(IQR)	11(7-17)	8(5.5-14)	6.5(4-0)	19.5(6-0)	0.196[a]

a; Mann-Whitney test, b; Chi-square test, c; Fischer's exact test

Variables	FSS		p
	<4	≥4	
Gender			0.474[b]
Male	38(64.4%)	36(58.1%)	
Female	21(35.6%)	26(41.9%)	
Age, Mean(SD)	59.1(10.41)	53(12.03)	**0.004**[a]
BMI, Mean(SD)	28.6(4.58)	30.5(5.50)	**0.043**[a]
Smoking status			0.705[b]
Never smoked	34(57.6%)	34(55.7%)	
Former smoker	18(30.5%)	22(36.1%)	
Current smoker	7(11.9%)	5(8.2%)	
Arterial Hypertension			0.604[b]
Yes	19(32.2%)	17(27.9%)	
No	40(67.8%)	44(72.1%)	
Severity			0.928[b]
Group 1	5(9.1%)	5(8.8%)	
Group 2	35(63.6%)	33(57.9%)	
Group 3	9(16.4%)	12(21.1%)	
Group 4	6(10.9%)	7(12.3%)	
Charlson Comorbidity Index, Median(IQR)	2(1-3)	1(0-2)	**0.042**[c]
Length of hospital stay (days), Median(IQR)	11(7-16.5)	9(6-16.8)	0.509[c]

a; Independent samples t-test, b; Chi-square test, c; Mann-Whitney test

Variables	STOP-Bang			p
	Low risk (≤2)	Intermediate risk (3-4)	High risk (≥5)	
Gender				**<0.001**[b]
Male	22(40.7%)	38(74.5%)	14(87.5%)	
Female	32(59.3%)	13(25.5%)	2(12.5%)	
Age, Mean(SD)	54.5(11.80)	58.2(11.55)	53.9(10.78)	0.202[a]
BMI, Median(IQR)	27(25-31)	30(26-32)	33(29-35)	**0.004**[c]
Smoking status				0.391[b]
Never smoked	35(64.8%)	25(50%)	8(50%)	
Former smoker	13(24.1%)	21(42%)	6(37.5%)	
Current smoker	6(11.1%)	4(8%)	2(12.5%)	
Arterial Hypertension				**<0.001**[b]
Yes	7(13%)	20(40%)	9(56.3%)	
No	47(87%)	30(60%)	7(43.8%)	
Severity				0.707[d]
Group 1	3(6.1%)	6(12.5%)	1(6.7%)	
Group 2	30(61.2%)	28(58.3%)	10(66.7%)	

Group 3	9(18.4%)	8(16.7%)	4(26.7%)	
Group 4	7(14.3%)	6(12.5%)	0(0%)	
Charlson Comorbidity Index, Median(IQR)	1(0-2)	2(1-3.3)	1.5(1-2)	0.113[c]
Length of hospital stay (days), Median(IQR)	9(6-16.8)	12(6.5-16)	8.5(7-24)	0.780[c]

a; One-way ANOVA, b; Chi-square test, c; Kruskal Wallis test, d; Fischer's exact test

	Athens Insomnia Scale		
Variables	**<6**	**≥6**	**p**
Gender			**<0.001[b]**
Male	43(79.6%)	31(44.3%)	
Female	11(20.4%)	39(55.7%)	
Age, Mean(SD)	57.8(11.71)	54.7(11.53)	0.138[a]
BMI, Mean(SD)	28.5(3.72)	30.6(6.02)	**0.018[a]**
Smoking status			0.852[b]
Never smoked	28(52.8%)	40(58%)	
Former smoker	19(35.8%)	22(31.9%)	
Current smoker	6(11.3%)	7(10.1%)	
Arterial Hypertension			0.846[b]
Yes	17(32.1%)	21(30.4%)	
No	36(67.9%)	48(69.6%)	
Severity			0.512[b]
Group 1	3(6%)	7(10.9%)	
Group 2	30(60%)	40(62.5%)	
Group 3	12(24%)	9(14.1%)	
Group 4	5(10%)	8(12.5%)	
Charlson Comorbidity Index, Median(IQR)	2(1-3)	1(0.8-3)	0.204[c]
Length of hospital stay (days), Median(IQR)	12(8-18)	8(5.3-15.8)	**0.014[c]**

a; Independent samples t-test, b; Chi-square test, c; Mann-Whitney test

	Athens Insomnia Scale				
Variables	**Absence of insomnia (0–5)**	**Mild (6-9)**	**Moderate (10-15)**	**Severe (16-24)**	**p**
Gender					**<0.001[b]**
Male	43(79.6%)	11(36.7%)	16(53.3%)	4(40%)	
Female	11(20.4%)	19(63.3%)	14(46.7%)	6(60%)	
Age, Mean(SD)	57.81(11.71)	56.20(10.52)	52.86(11.23)	55.3(15.41)	0.331[a]
BMI, Mean(SD)	28.49(3.72)	29.86(6.15)	30.93(5.6)	32(7.12)	0.092[a]
Smoking status					0.778[c]
Never smoked	28(52.8%)	15(50%)	19(65.5%)	6(60%)	

Former smoker	19(35.8%)	10(33.3%)	8(27.6%)	4(40%)	
Current smoker	6(11.3%)	5(16.7%)	2(6.9%)	0(0%)	
Arterial Hypertension					0.773[b]
Yes	17(32.1%)	10(33.3%)	7(24.1%)	4(40%)	
No	36(67.9%)	20(66.7%)	22(75.9%)	6(60%)	
Severity					0.824[c]
Group 1	3(6%)	4(13.3%)	3(11.5%)	0(0%)	
Group2	30(60%)	17(56.7%)	16(61.5%)	7(87.5%)	
Group 3	12(24%)	5(16.7%)	4(15.4%)	0(0%)	
Group 4	5(10%)	4(13.3%)	3(11.5%)	1(12.5%)	
Charlson Comorbidity Index, Median(IQR)	2(1-3)	2(1-2.3)	1(0-3)	1.5(0-3)	0.471[d]
Length of hospital stay (days), Median(IQR)	12(8-18)	8(5-15.5)	8(6-16.5)	8(4.8-13)	0.091[d]

a; One-way ANOVA, b; Chi-square test, c; Fischer's exact test, d; Kruskal-Wallis test

Table S2. Normality tests for Charlson comorbidity index and Length of hospital stay according to PSQI Global score, Epworth sleepiness scale, FSS, STOP-Bang scale, AIS

		Tests of Normality		
		Kolmogorov-Smirnov/ Shapiro-Wilk		
	PSQI Global score	Statistic	df	p
Charlson comorbidity index	<5	0.875	18	0.021
	≥5	0.181	96	<0.001
Length of hospital stay (days)	<5	0.845	17	0.009
	≥5	0.188	95	<0.001

		Tests of Normality		
		Kolmogorov-Smirnov/ Shapiro-Wilk		
	Epworth sleepiness scale	Statistic	df	p
Charlson comorbidity index	No EDS (≤10)	0.201	102	<0.001
	EDS (>10)	0.717	18	<0.001
Length of hospital stay (days)	No EDS (≤10)	0.146	100	<0.001
	EDS (>10)	0.813	17	0.003

	Tests of Normality
	Kolmogorov-Smirnov/ Shapiro-Wilk

	Epworth sleepiness scale	Statistic	df	p
Charlson comorbidity index	Normal Sleepiness (0-10)	0.201	102	<0.001
	Mild sleepiness (11-14)	0.456	13	<0.001
	Moderate Sleepiness (15-17)	0.964	3	0.637
	Severe Sleepiness (18-24)		2	
Length of hospital stay (days)	Normal Sleepiness (0-10)	0.146	100	<0.001
	Mild sleepiness (11-14)	0.146	13	.200[*]
	Moderate Sleepiness (15-17)	0.260	2	
	Severe Sleepiness (18-24)	0.260	2	

		Tests of Normality		
		Kolmogorov-Smirnov/ Shapiro-Wilk		
	FSS	Statistic	df	p
Charlson comorbidity index	<4	0.213	59	<0.001
	≥4	0.197	61	<0.001
Length of hospital stay (days)	<4	0.163	57	0.001
	≥4	0.172	60	<0.001

		Tests of Normality		
		Kolmogorov-Smirnov/ Shapiro-Wilk		
	STOP-Bang	Statistic	df	p
Charlson comorbidity index	Low risk (≤2)	0.191	54	<0.001
	Intermediate risk (3-4)	0.201	50	<0.001
	High risk (≥5)	0.897	16	0.071
Length of hospital stay (days)	Low risk (≤2)	0.192	52	<0.001
	Intermediate risk (3-4)	0.112	49	0.169
	High risk (≥5)	0.787	16	0.002

		Tests of Normality		
		Kolmogorov-Smirnov/ Shapiro-Wilk		
	Athens Insomnia Scale	Statistic	df	p
Charlson comorbidity index	<6	0.217	53	<0.001
	≥6	0.193	70	<0.001
Length of hospital stay (days)	<6	0.177	52	<0.001
	≥6	0.179	68	<0.001

		Tests of Normality

	Athens Insomnia Scale	Kolmogorov-Smirnov/ Shapiro-Wilk		
		Statistic	df	p
Charlson comorbidity index	Absence of insomnia (0–5)	0.217	53	<0.001
	Mild (6-9)	0.197	30	0.004
	Moderate (10-15)	0.227	30	<0.001
	Severe (16-24)	0.852	10	0.061
Length of hospital stay (days)	Absence of insomnia (0–5)	0.177	52	<0.001
	Mild (6-9)	0.162	29	0.049
	Moderate (10-15)	0.244	29	<0.001
	Severe (16-24)	0.869	10	0.096

Table S3. Mixed effects model for assessment tools

	b	SE	t	p	95% CI
Epworth Sleepiness Scale					
Time	-0.138	0.183	-0.75	0.452	(-0.497,0.222)
Gender					
Male	1.092	0.691	1.58	0.114	(-0.264,2.447)
Female	Ref. category				
Age	-0.065	0.047	-1.37	0.171	(-0.157,0.028)
BMI	0.084	0.065	1.28	0.199	(-0.044,0.211)
Severity					
Group 1	Ref. category				
Group 2	-1.19	1.173	-1.01	0.310	(-3.490,1.110)
Group 3	-2.165	1.33	-1.63	0.103	(-4.771,0.441)
Group 4	-2.264	1.447	-1.56	0.118	(-5.100,0.572)
Charlson Comorbidity Index	-0.398	0.34	-1.17	0.242	(-1.064,0.268)
FSS Scale					
Time	-0.376	0.086	-4.37	**<0.001**	(-0.544,-0.207)
Gender					
Male	-0.398	0.289	-1.38	0.169	(-0.965,0.169)

Female	Ref. category				
Age	-0.04	0.02	-2.02	0.043	(-0.079,-0.001)
BMI	0.067	0.027	2.46	0.014	(0.014,0.121)
Severity					
Group 1	Ref. category				
Group 2	-0.152	0.49	-0.31	0.757	(-1.112,0.808)
Group 3	-0.118	0.555	-0.21	0.832	(-1.206,0.970)
Group 4	-0.355	0.604	-0.59	0.557	(-1.539,0.830)
Charlson Comorbidity Index	0.167	0.142	1.18	0.240	(-0.111,0.445)
STOP-Bang					
Time	0.022	0.058	0.38	0.704	(-0.092,0.136)
Gender					
Male	1.268	0.224	5.67	<0.001	(0.830,1.706)
Female	Ref. category				
Age	0.02	0.015	1.28	0.200	(-0.010,0.050)
BMI	0.097	0.021	4.59	<0.001	(0.055,0.138)
Severity					
Group 1	Ref. category				
Group 2	-0.155	0.379	-0.41	0.683	(-0.899,0.589)
Group 3	-0.163	0.43	-0.38	0.704	(-1.006,0.679)
Group 4	-0.684	0.468	-1.46	0.144	(-1.601,0.233)
Charlson Comorbidity Index	0.032	0.11	0.29	0.770	(-0.183,0.248)
Athens Insomnia Scale					
Time	-0.487	0.244	-2	**0.046**	(-0.964,-0.009)
Gender					
Male	-2.775	0.919	-3.02	0.003	(-4.577,-0.973)
Female	Ref. category				
Age	-0.034	0.063	-0.55	0.585	(-0.157,0.089)
BMI	0.178	0.087	2.05	0.040	(0.008,0.348)

	b	SE	t	p	95% CI
Severity					
Group 1	Ref. category				
Group 2	-0.991	1.592	-0.62	0.534	(-4.111,2.129)
Group 3	-0.685	1.79	-0.38	0.702	(-4.194,2.824)
Group 4	-0.926	1.952	-0.47	0.635	(-4.752,2.900)
Charlson Comorbidity Index	0.002	0.454	0	0.997	(-0.888,0.892)

Table S4. Mixed effects model for PSQI components and Global score

	b	SE	t	p	95% CI
PSQI C1—Subjective sleep quality					
Time	-0.028	0.04	-0.7	0.460	(-0.105,0.048)
Gender					
Male	0.017	0.13	0.13	0.900	(-0.235,0.269)
Female	Ref. category				
Age	-0.004	0.01	-0.4	0.670	(-0.021,0.014)
BMI	0.024	0.01	1.96	0.050	(0,0.048)
Severity					
Group 1	Ref. category				
Group 2	-0.315	0.22	-1.4	0.150	(-0.748,0.118)
Group 3	-0.44	0.25	-1.8	0.070	(-0.924,0.044)
Group 4	-0.065	0.27	-0.2	0.810	(-0.590,0.460)
Charlson Comorbidity Index	-0.015	0.06	-0.2	0.810	(-0.138,0.108)
PSQI C2—Sleep latency	b	SE	t	P	95% CI
Time	-0.083	0.05	-1.8	0.070	(-0.172,0.006)
Gender					
Male	-0.381	0.14	-2.7	0.010	(-0.654,-0.109)
Female	Ref. category				
Age	0	0.01	-0.1	0.960	(-0.019,0.018)
BMI	0.007	0.01	0.54	0.590	(-0.019,0.033)
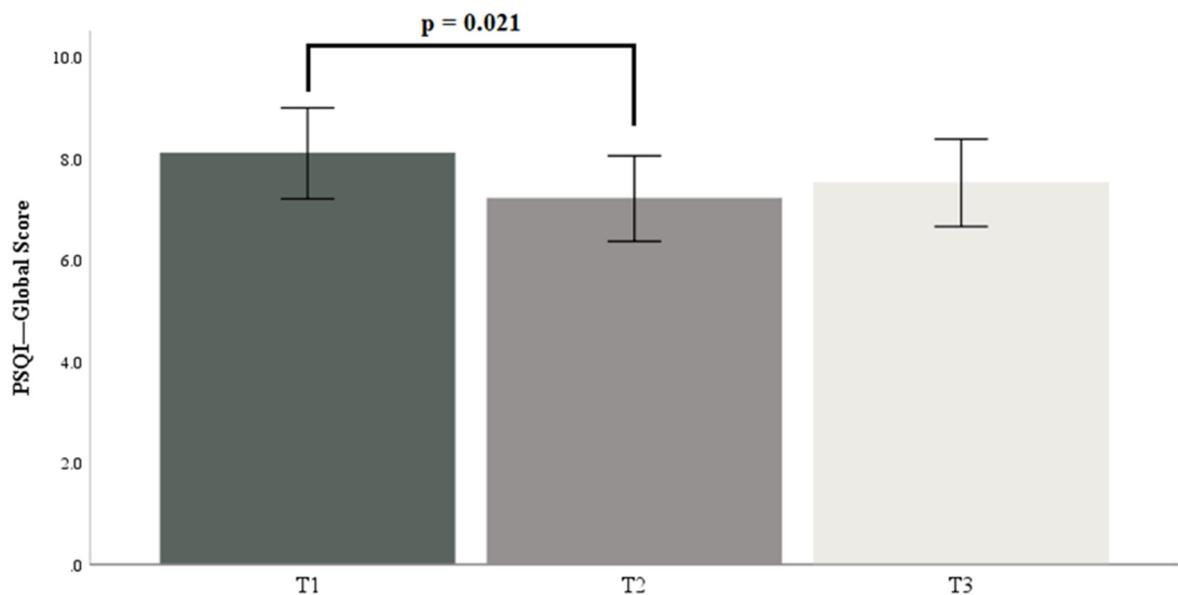
Severity					
Group 1	Ref. category				
Group 2	-0.189	0.24	-0.8	0.430	(-0.655,0.277)
Group 3	-0.387	0.27	-1.5	0.150	(-0.908,0.134)
Group 4	0.03	0.29	0.1	0.920	(-0.535,0.596)
Charlson Comorbidity Index	0.036	0.07	0.53	0.600	(-0.097,0.168)
PSQI C3—Sleep duration	b	SE	t	p	95% CI
Time	0.035	0.05	0.69	0.490	(-0.064,0.133)
Gender					
Male	0.104	0.16	0.64	0.530	(-0.216,0.424)
Female	Ref. category				
Age	0.014	0.01	1.27	0.210	(-0.008,0.036)
BMI	0.012	0.02	0.81	0.420	(-0.018,0.043)
Severity					
Group 1	Ref. category				
Group 2	-0.341	0.28	-1.2	0.220	(-0.889,0.208)
Group 3	-0.423	0.31	-1.4	0.180	(-1.036,0.190)
Group 4	-0.395	0.34	-1.2	0.240	(-1.061,0.270)
Charlson Comorbidity Index	-0.102	0.08	-1.3	0.200	(-0.258,0.053)
PSQI C4—Habitual sleep efficiency	b	SE	t	p	95% CI
Time	-0.038	0.08	-0.5	0.630	(-0.191,0.115)
Gender					
Male	-0.385	0.18	-2.2	0.030	(-0.731,-0.038)
Female	Ref. category				
Age	0.01	0.01	0.81	0.420	(-0.014,0.033)
BMI	0.011	0.02	0.66	0.510	(-0.022,0.044)
Severity					
Group 1	Ref. category				
Group 2	-0.418	0.3	-1.4	0.160	(-1.001,0.165)

	b	SE	t	p	95% CI
Group 3	-0.768	0.33	-2.3	0.020	(-1.422,-0.113)
Group 4	-0.722	0.36	-2	0.050	(-1.430,-0.013)
Charlson Comorbidity Index	0.021	0.09	0.24	0.810	(-0.146,0.187)
PSQI C5—Sleep disturbance	b	SE	t	p	95% CI
Time	-0.122	0.04	-3.3	**<0.001**	(-0.194,-0.05)
Gender					
Male	-0.283	0.1	-2.9	<0.001	(-0.477,-0.089)
Female	Ref. category				
Age	-0.008	0.01	-1.2	0.230	(-0.021,0.005)
BMI	0.018	0.01	1.88	0.060	(-0.001,0.036)
Severity					
Group 1	Ref. category				
Group 2	-0.056	0.17	-0.3	0.740	(-0.386,0.273)
Group 3	-0.176	0.19	-0.9	0.350	(-0.546,0.193)
Group 4	-0.045	0.2	-0.2	0.830	(-0.446,0.355)
Charlson Comorbidity Index	0.035	0.05	0.73	0.470	(-0.059,0.129)
PSQI C6—Use of sleep medication	b	SE	t	p	95% CI
Time	-0.033	0.04	-0.8	0.410	(-0.113,0.046)
Gender					
Male	-0.214	0.16	-1.4	0.170	(-0.517,0.090)
Female	Ref. category				
Age	-0.017	0.01	-1.6	0.110	(-0.038,0.004)
BMI	-0.017	0.02	-1.2	0.240	(-0.046,0.011)
Severity					
Group 1	Ref. category				
Group 2	-0.409	0.27	-1.5	0.130	(-0.931,0.113)
Group 3	-0.418	0.3	-1.4	0.160	(-1.001,0.165)
Group 4	-0.493	0.32	-1.5	0.130	(-1.127,0.140)
Charlson Comorbidity Index	0.177	0.08	2.34	0.020	(0.029,0.325)
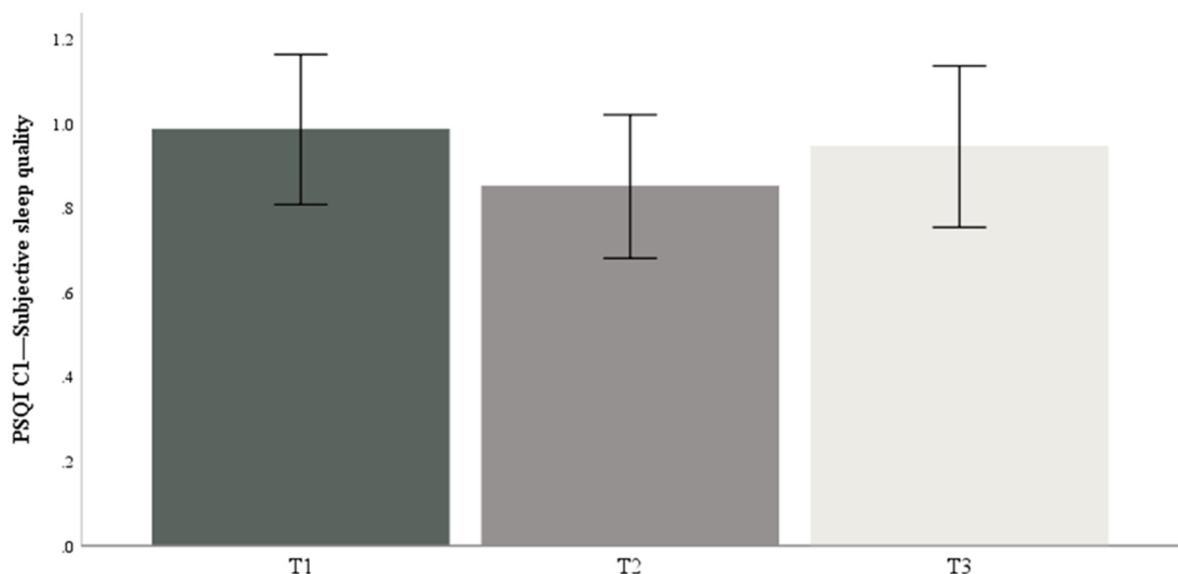
PSQI C7—Day Time dysfunctions	b	SE	t	p	95% CI
Time	-0.16	0.04	-3.6	**<0.001**	(-0.247,-0.073)
Gender					
Male	-0.213	0.11	-1.9	0.050	(-0.429,0.004)
Female	Ref. category				
Age	-0.01	0.01	-1.4	0.170	(-0.025,0.004)
BMI	0.012	0.01	1.17	0.240	(-0.008,0.033)
Severity					
Group 1	Ref. category				
Group 2	-0.005	0.19	-0	0.980	(-0.371,0.361)
Group 3	0.082	0.21	0.39	0.70	(-0.329,0.493)
Group 4	-0.296	0.23	-1.3	0.190	(-0.741,0.149)
Charlson Comorbidity Index	-0.002	0.05	-0	0.970	(-0.106,0.102)
PSQI—Global score	b	SE	t	p	95% CI
Time	-0.427	0.17	-2.57	**0.010**	(-0.754,-0.101)
Gender					
Male	-1.28	0.65	-1.98	0.048	(-2.547,-0.014)
Female	Ref. category				
Age	-0.02	0.05	-0.45	0.653	(-0.108,0.067)
BMI	0.07	0.06	1.16	0.247	(-0.049,0.190)
Severity					
Group 1	Ref. category				
Group 2	-1.618	1.11	-1.45	0.146	(-3.800,0.564)
Group 3	-2.579	1.24	-2.07	0.038	(-5.016,-0.142)
Group 4	-1.92	1.35	-1.42	0.155	(-4.567,0.728)

Charlson Comorbidity Index	0.163	0.32	0.52	0.605	(-0.456,0.782)
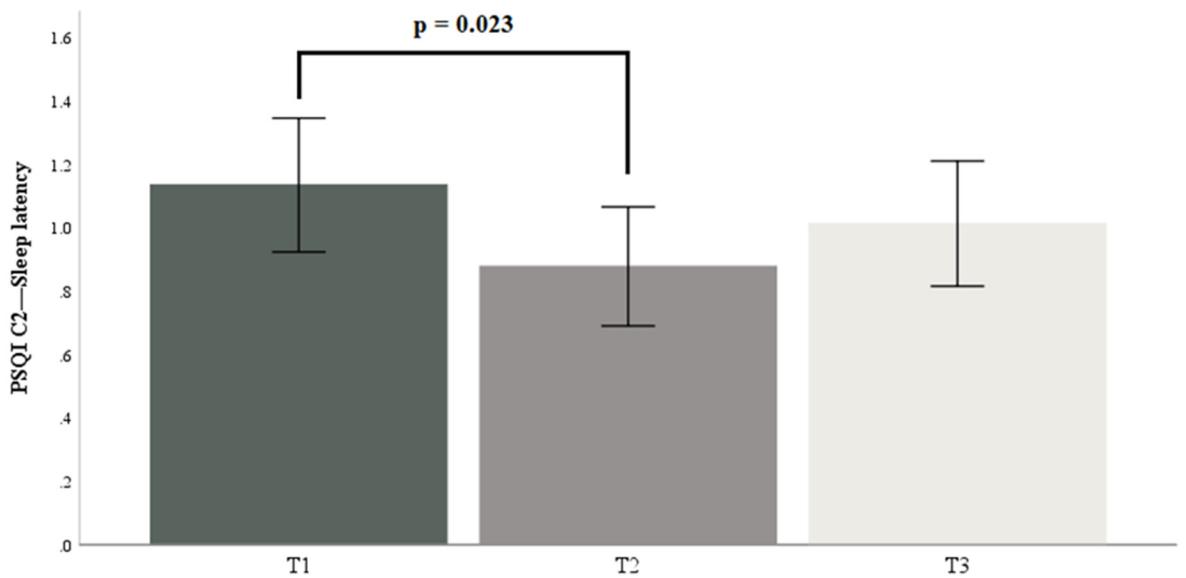
Figures S1-S12 (ANOVA illustrated results)
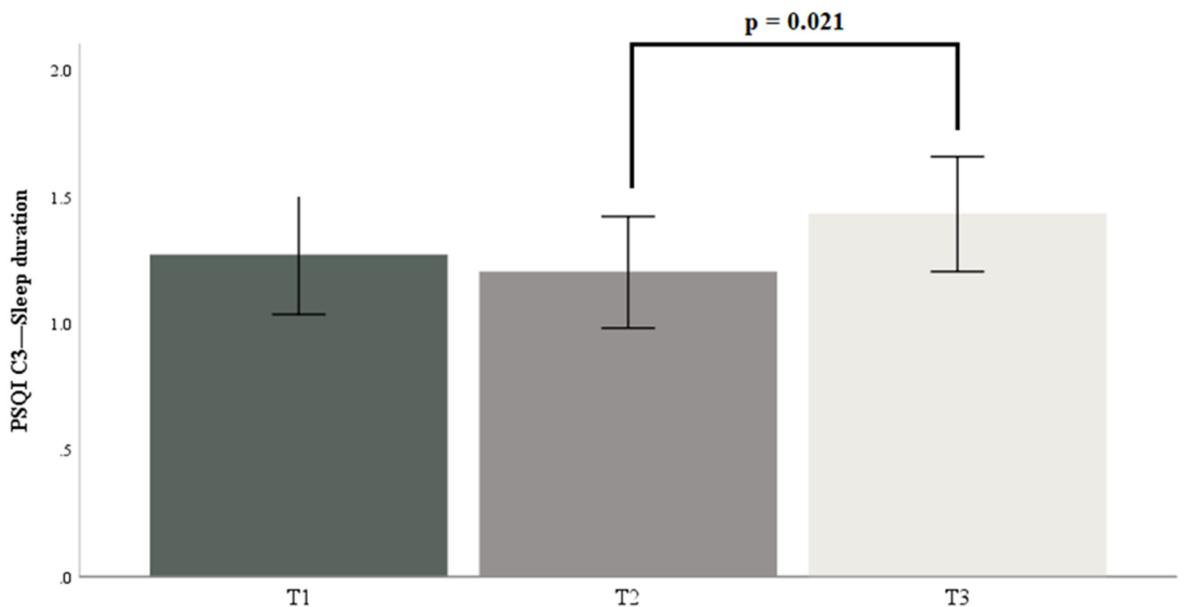
Figure S1. Mean PSQI—Global score for the three time points
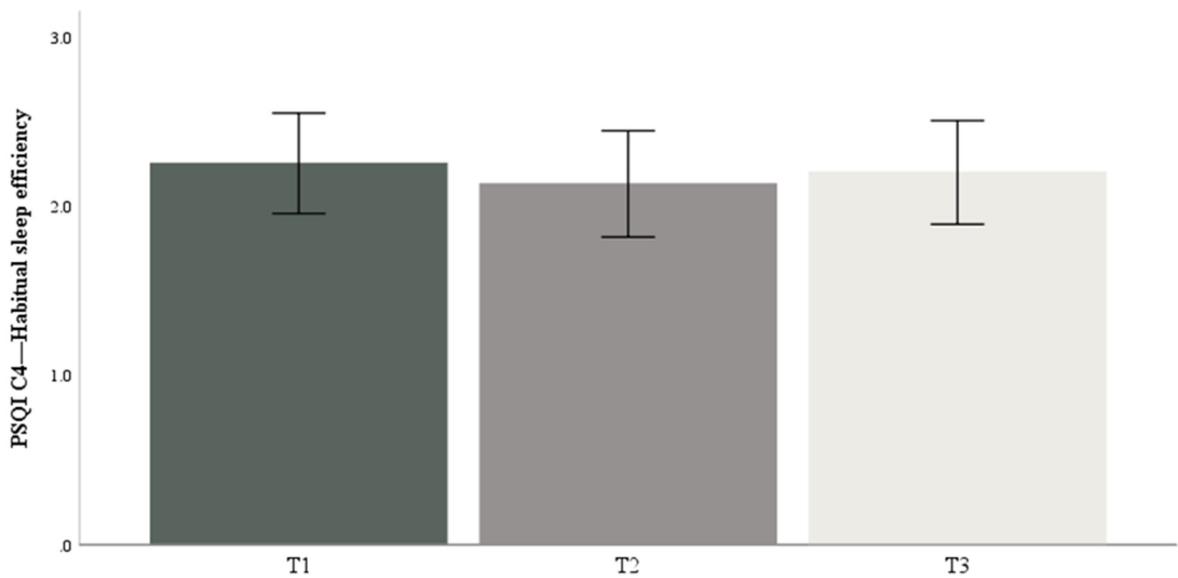
Figure S2. Mean PSQI C1—Subjective sleep quality score for the three time points
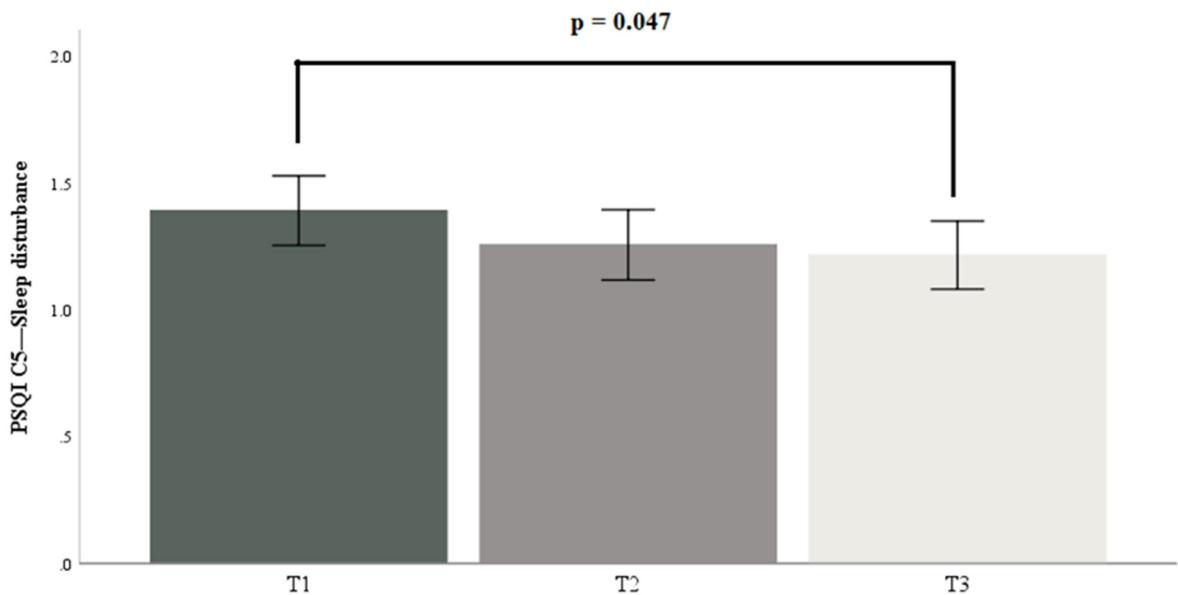
Figure S3. Mean PSQI C2—Sleep latency score for the three time points
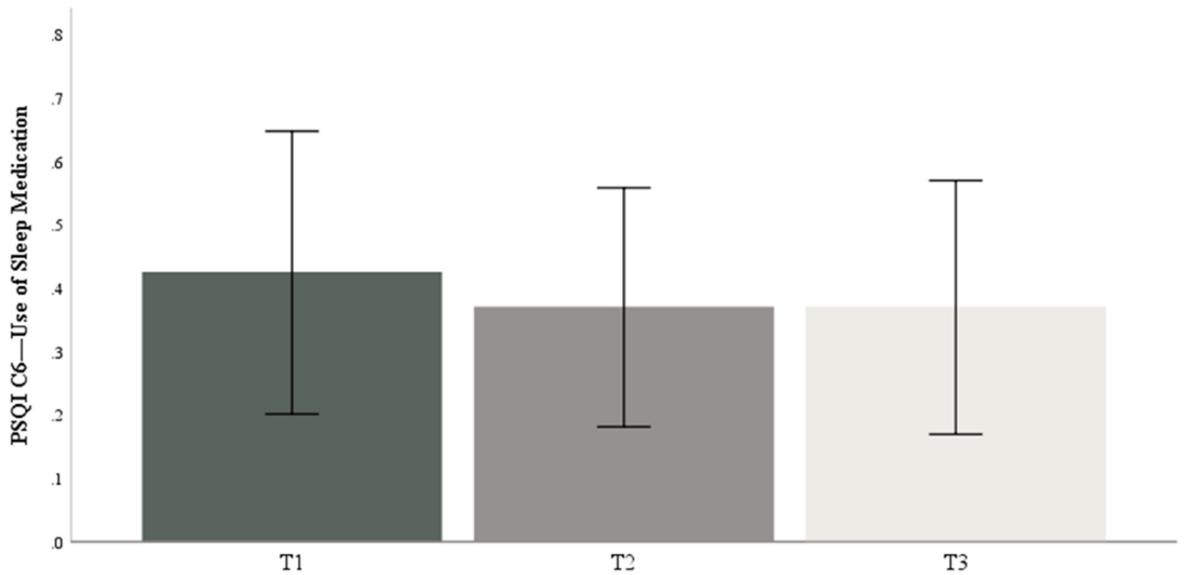
**Figure S4.** Mean PSQI C3—Sleep duration score for the three time points
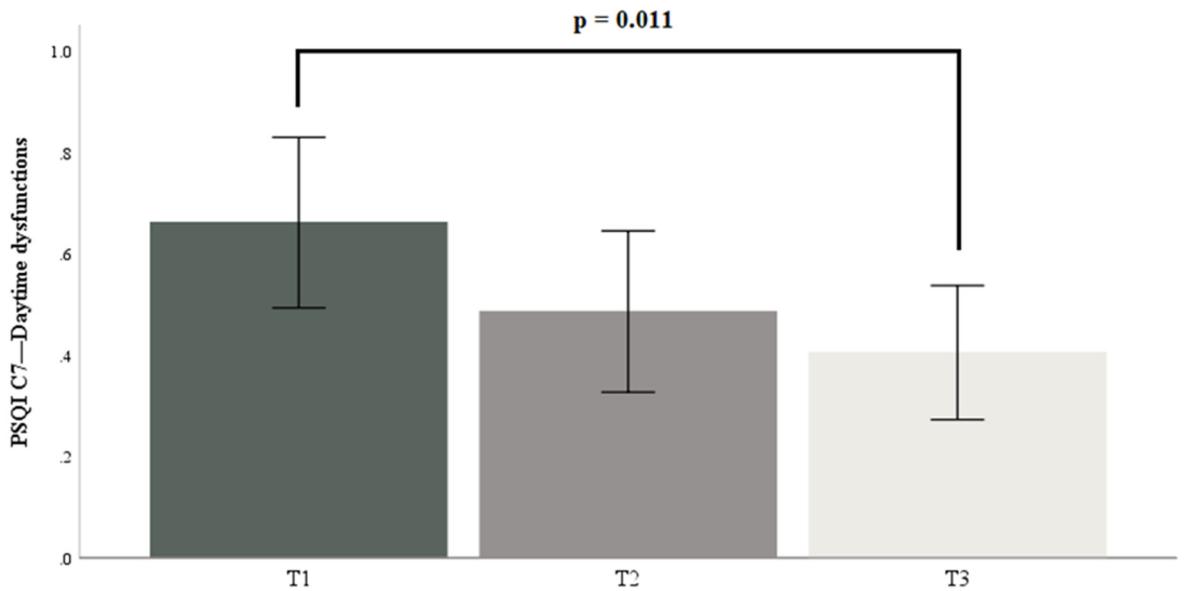
Figure S5. Mean PSQI C4—Habitual sleep efficiency score for the three time points
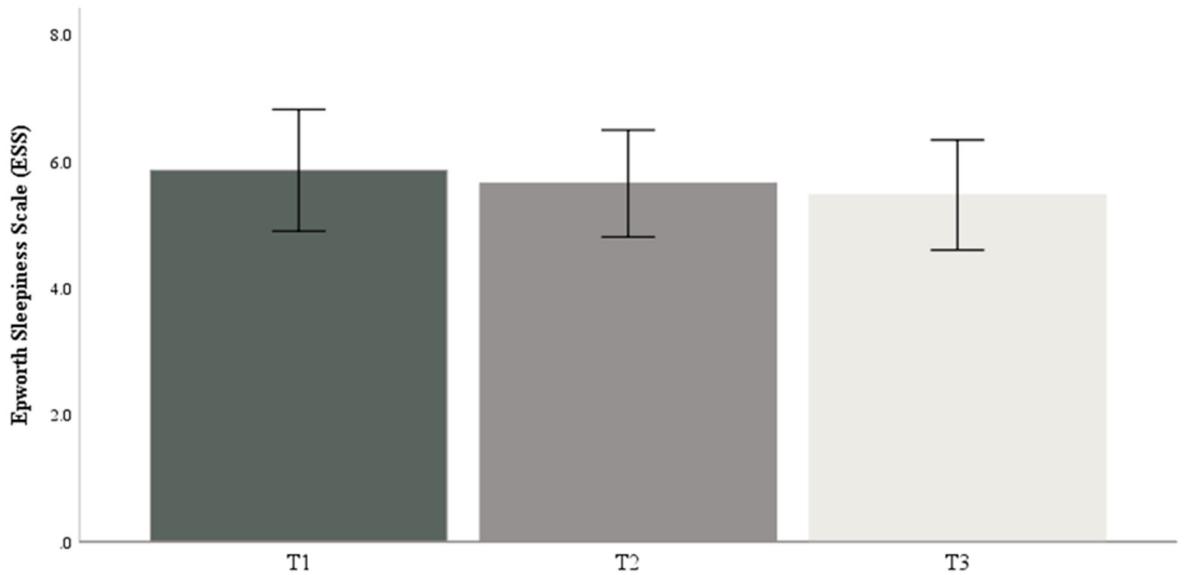
Figure S6. Mean PSQI C5—Sleep disturbance score for the three time points
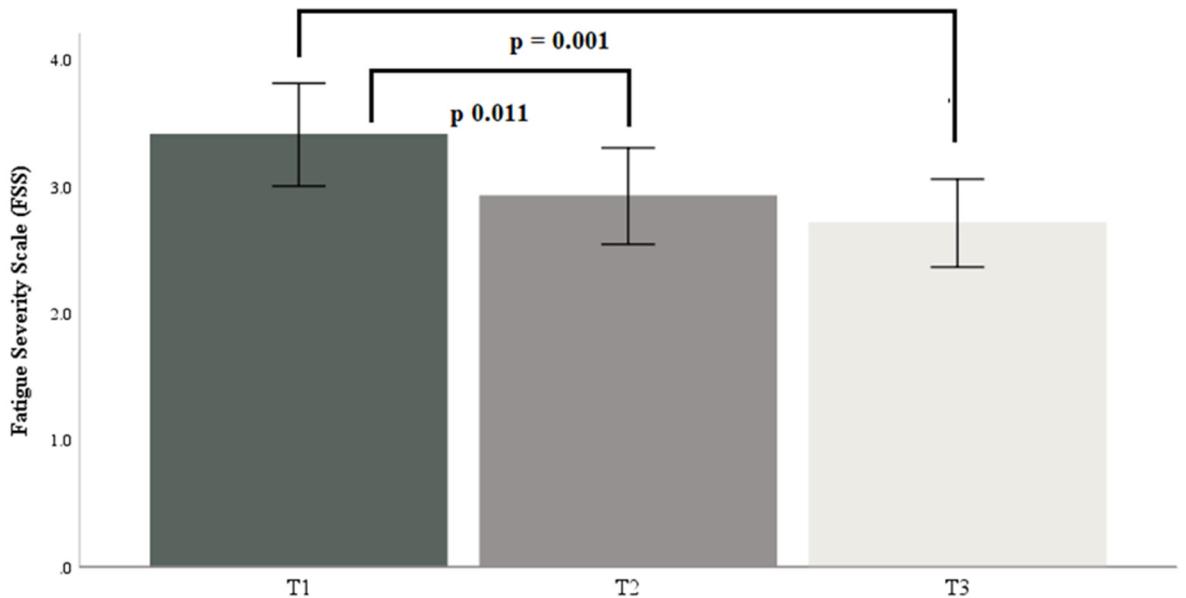
Figure S7. Mean PSQI C6—Use of Sleep Medication score for the three time points
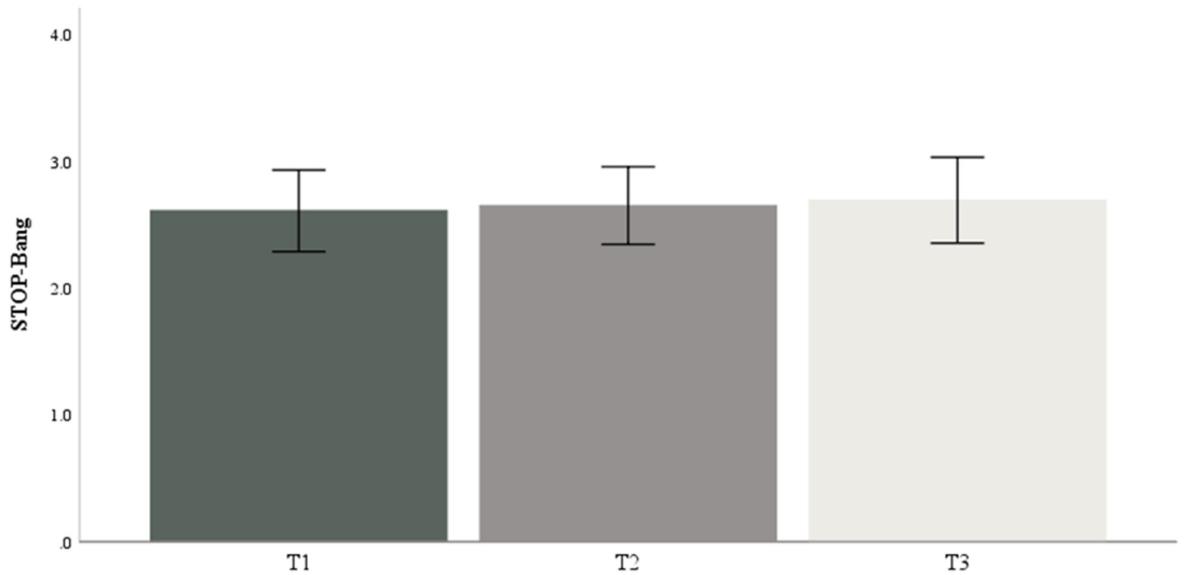
Figure S8. Mean PSQI C7—Daytime dysfunctions score for the three time points
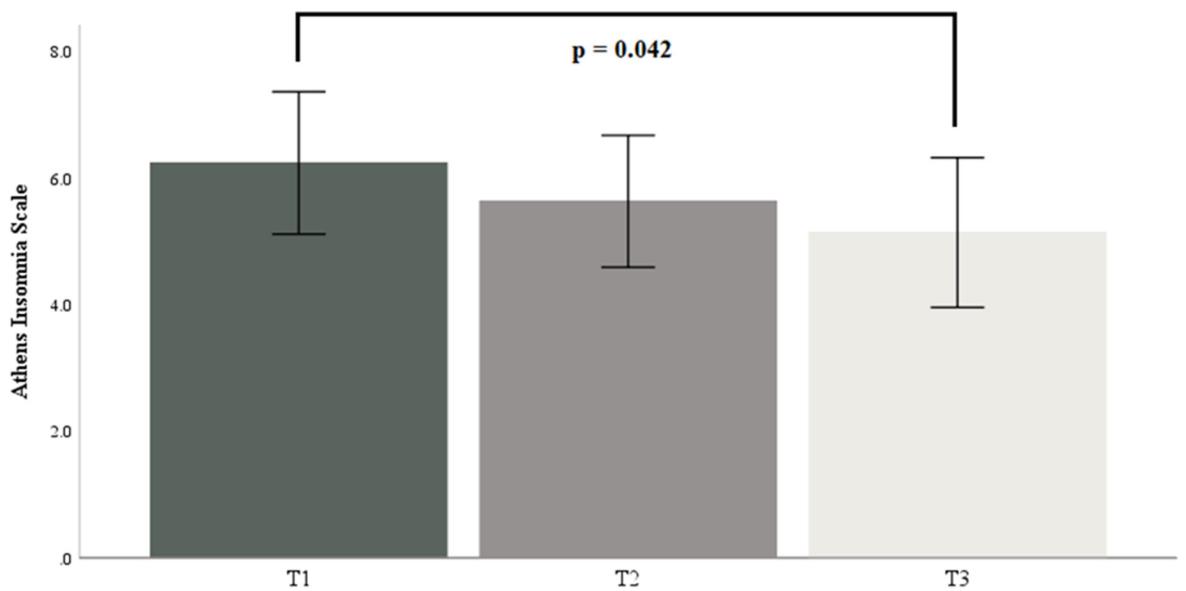
Figure S9. Mean Epworth Sleepiness Scale score for the three time points

**Figure S10.** Mean Fatigue Severity Scale score for the three time points

**Figure S11.** Mean STOP-Bang score for the three time points

Figure S12. Mean Athens Insomnia Scale score for the three time points