

Table S1. Patient characteristics of ESS study cohort by Sample

	Sample 1 Patients	Sample 2 Patients	P-Value
<i>Total Number of Patients, n (%)</i>	5392 (50.0)	5393 (50.0)	
Female Sex, n (%)	2633 (48.8)	2659 (49.3)	0.62
Age (years), mean $\pm$ sd	49.4 $\pm$ 15.0	49.7 $\pm$ 15.0	0.27
Race, n (%)			0.61
White	4075 (80.2)	4130 (80.9)	
Black	889 (17.5)	869 (17.0)	
Other	117 (2.3)	107 (2.1)	
Household income (x\$1k), median (q1, q3)	53.9 (42.6, 66.3)	53.9 (42.8, 66.4)	0.20
Comorbidities, n (%)			
Diabetes	1059 (19.6)	1036 (19.2)	0.57
Depression	1075 (19.9)	1044 (19.4)	0.45
Hypertension	2056 (38.1)	1998 (37.1)	0.24
Sleep-related comorbidities, n (%)			
Sleep apnea	4067 (76.5)	4093 (76.9)	0.60
Insomnia	1837 (34.6)	1848 (34.7)	0.84
Restless legs	892 (16.8)	908 (17.1)	0.69
CPAP Use	1092 (20.4)	1121 (20.9)	0.49
Polysomnographic sleep study	3264 (60.5)	3265 (60.5)	0.99
AHI, median (q1, q3)	15.9 (7.0, 28.3)	15.5 (6.8, 28.1)	0.35
Patient-reported measurements, mean $\pm$ sd			
Average sleep time	6.3 $\pm$ 2.1	6.3 $\pm$ 2.1	0.82
Fatigue severity scale	42.5 $\pm$ 14.9	42.7 $\pm$ 14.8	0.49
PHQ-9 depression score	8.9 $\pm$ 6.4	9.0 $\pm$ 6.4	0.28

P-values obtained by chi-square test, t-test, or Mann-Whitney U test, as appropriate. AHI=Apnea-Hypopnea Index; sd=standard deviation; q=quartile

Table S2. Supplemental tables of confirmatory factor analysis within clinically relevant subgroups in Sample 2

	N	χ^2 (df=20)	CFI	RMSEA (90% CI)
<i>Sex, Total</i>	5393	981	0.983	0.094 (0.089-0.099)
Male	2734	497	0.984	0.093 (0.086-0.101)
Female	2659	499	0.983	0.095 (0.088-0.102)
<i>Age, Total</i>	5393	981	0.983	0.094 (0.089-0.099)
<70	4890	874	0.984	0.093 (0.088-0.099)
70+	503	124	0.979	0.102 (0.085-0.119)
<i>Race, Total</i>	4999	953	0.982	0.097 (0.091-0.102)
Black	869	180	0.981	0.096 (0.084-0.109)
White	4130	799	0.983	0.097 (0.091-0.103)
<i>Income, Total</i>	5219	967	0.983	0.095 (0.090, 0.100)
<\$53,944	2488	492	0.983	0.097 (0.090, 0.105)
≥\$53,944	2731	494	0.983	0.093 (0.086, 0.100)
<i>Depression, Total</i>	5040	903	0.984	0.094 (0.088-0.099)
PHQ-9 Score 20+	399	171	0.978	0.139 (0.119-0.157)
PHQ-9 Score <20	4641	755	0.983	0.089 (0.084-0.095)
<i>Fatigue, Total</i>	5251	953	0.984	0.094 (0.089-0.099)
FSS Score 36+	3727	806	0.980	0.103 (0.097-0.109)
FSS Score <36	1524	204	0.979	0.078 (0.068-0.088)
<i>Comorbidities: Sleep Apnea, Total</i>	5321	965	0.984	0.094 (0.089-0.099)
Sleep Apnea (no insomnia or RLS)	2295	396	0.984	0.091 (0.083-0.098)
No Sleep Apnea	3026	575	0.984	0.096 (0.089-0.103)
<i>Comorbidities: Insomnia, Total</i>	5321	965	0.984	0.094 (0.089-0.099)
Insomnia (no apnea or RLS)	469	95	0.980	0.089 (0.072-0.108)
No Insomnia	4852	893	0.983	0.095 (0.090-0.100)
<i>Insomnia Severity Index, Total</i>	1042	235	0.981	0.102 (0.090-0.113)
ISI Score 15+	727	207	0.977	0.113 (0.100-0.128)
ISI Score <15	315	53	0.985	0.072 (0.049-0.096)
<i>AHI, Total</i>	3265	561	0.983	0.091 (0.085-0.098)
AHI 30+	725	160	0.982	0.098 (0.084-0.113)
AHI <30	2540	412	0.984	0.088 (0.081-0.095)

Model parameters estimated using weighted least squares means and variance adjusted estimator.

RMSEA=root mean square error of approximation; CFI=comparative fit index; PHQ-9=Patient Health Questionnaire-9 depression screen; FSS=Fatigue Severity Scale; RLS=restless leg syndrome; ISI=Insomnia Severity Index; AHI=apnea-hypopnea index.