

Supplementary Material

Incremental Healthcare Utilization and Cost Burden of Comorbid Insomnia in Alzheimer's Disease Patients

Supplementary Table 1. Demographics of the Pre-Match Cohorts

	Insomnia Patients N=3,500		Non-Insomnia Patients N=9,884		p
Age (Mean, SD)	81.5	9.0	81.6	8.7	0.28
Female	2,397	67%	16,301	64%	0.012
Calendar year of AD diagnosis date (N, %)					
2015	1,808	50%	13,092	52%	0.375
2016	1,264	35%	8,566	34%	
2017	529	15%	3,645	14%	
2018	1	0%	9	0%	

Demographic information captured on index date.

Supplementary Table 2. Full results of multivariable models of adjusted total healthcare costs, odds of inpatient admission, and odds of having a claim for skilled nursing facility (SNF) services.

	Total Healthcare Costs				Odds of Inpatient Admission					Odds of having a claim for SNF services				
	Cost Ratio	Lower CL	Upper CL	Prob ChiSq	Odds Ratio	Lower CL	Upper CL	Wald ChiSq	Prob ChiSq	Odds Ratio	Lower CL	Upper CL	Wald ChiSq	Prob ChiSq
Insomnia versus AD Control	1.2841	1.2277	1.3431	<0.0001	1.3280	1.2240	1.4420	46.1295	<0.0001	1.4380	1.3220	1.5640	71.4978	<0.0001
Age	0.9949	0.9925	0.9974	<0.0001	1.0210	1.0160	1.0250	72.0054	<0.0001	1.0550	1.0490	1.0600	406.1359	<0.0001
Sex: male versus female	0.8454	0.8103	0.8819	<0.0001	0.8670	0.8010	0.9370	12.8996	0.0003	1.1730	1.0800	1.2740	14.4344	0.0001
Sleep apnea	1.0967	0.8561	1.4049	0.4651	0.9840	0.6220	1.5560	0.0047	0.9451	1.2080	0.7370	1.9790	0.5639	0.4527
Other sleep disorders	0.9696	0.8032	1.1705	0.7481	0.9520	0.6720	1.3480	0.0768	0.7816	0.6900	0.4740	1.0030	3.7798	0.0519
Congestive heart failure	1.3966	1.3112	1.4875	<0.0001	1.4830	1.3260	1.6570	47.9732	<0.0001	1.4760	1.3170	1.6550	44.6550	<0.0001
Myocardial infarction	1.3280	1.1844	1.4890	<0.0001	1.2310	1.0050	1.5080	4.0333	0.0446	1.2250	0.9950	1.5100	3.6435	0.0563
Peripheral vascular disease	1.0286	0.9595	1.1026	0.4266	0.9240	0.8150	1.0490	1.4900	0.2222	1.2600	1.1080	1.4320	12.4850	0.0004
Cerebrovascular disease	1.1156	1.0603	1.1737	<0.0001	1.1410	1.0400	1.2520	7.7454	0.0054	1.2120	1.1020	1.3340	15.5158	<0.0001
Hypertension	1.3171	1.2552	1.3822	<0.0001	1.1860	1.0820	1.3010	13.1827	0.0003	1.2720	1.1550	1.4000	24.0946	<0.0001
Mild liver disease	1.4774	0.9786	2.2304	0.0633	1.8400	0.8880	3.8110	2.6941	0.1007	1.2780	0.5870	2.7820	0.3830	0.5360
Moderate or severe liver disease	0.9991	0.5264	1.8963	0.9978	2.3330	0.7220	7.5340	2.0044	0.1568	2.7540	0.7940	9.5520	2.5498	0.1103
Hyperlipidemia	1.0333	0.9916	1.0766	0.1191	1.0390	0.9630	1.1220	0.9822	0.3217	0.8390	0.7760	0.9080	19.0572	<0.0001
Depression	1.0123	0.9678	1.0588	0.5942	1.0330	0.9510	1.1220	0.5890	0.4428	1.7050	1.5680	1.8540	155.9568	<0.0001
Mood disorder	1.1537	1.0141	1.3125	0.0299	1.2910	1.0220	1.6310	4.5988	0.0320	1.4690	1.1550	1.8680	9.8477	0.0017
Substance abuse disorders	0.9925	0.8738	1.1272	0.9075	1.2380	0.9840	1.5580	3.3265	0.0682	1.1710	0.9200	1.4920	1.6446	0.1997
Parkinson's disease	1.1953	1.0980	1.3013	<0.0001	1.1780	1.0100	1.3740	4.3292	0.0375	1.7020	1.4550	1.9900	44.2784	<0.0001
Pneumonia	1.3700	1.2796	1.4669	<0.0001	1.3490	1.1950	1.5230	23.3206	<0.0001	1.7270	1.5250	1.9560	74.1110	<0.0001