Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

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eAppendix. Korea National Health Insurance Service

The national health insurance has provided health coverage to the entire South Korean population since 1989. An insured individual pays a national health insurance fee that is proportional to the individual's income. Although a user charge exists, it is mandatory for all Koreans to join the Korean National Health Insurance Service (KNHIS). Each South Korean resident is assigned a unique identification number at birth, which is used by the KNHIS to identify each individual. Thus, healthcare claim data are not omitted or duplicated. Most (97.1%) Koreans are mandatory subscribers. The remaining 3% of the population with low incomes are covered by the Medical Aid program. Since 2006, the information on Medical Aid beneficiaries has been incorporated into the KNHIS database. Therefore, data extracted from the KNHIS database are indeed based on the entire Korean population, eliminating selection bias. In addition, the KNHIS controls all medical costs among beneficiaries, medical providers, and the government. Nearly all medical data, including diagnostic codes, procedures, prescription drugs, and personal information, are included in the KNHIS database. The KNHIS utilizes the Korean Classification of Diseases diagnostic practice codes, which are similar to those of the International Classification of Diseases.

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eTable 1. Korean Classification of Diseases diagnostic practice codes selected from the 2002–2013 Korea National Health Insurance Service–National Sample Cohort

Variable	KCD diagnostic code
Obstructive sleep apnea	G47.3
Depressive disorder	F32.x, F33.x, F34.1
Anxiety disorder	F40.0, F40.1, F40.2, F41.0, F41.1, F41.8, F41.9
Hypertension	I10
Diabetes mellitus	E10, E11, E12, E13, E14
Chronic kidney disease	N18

KCD = Korean Classification of Diseases

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eTable 2. Characteristics of the study subjects

Variables	Comparison	OSA	*p*-Value
Sex			1.000
Male	696 (86.6%)	174 (86.6%)	
Female	108 (13.4%)	27 (13.4%)	
Age (years)			1.000
<45	444 (55.2%)	111 (55.2%)	
45-64	321 (39.9%)	81 (40.3%)	
>64	39 (4.9%)	9 (4.5%)	
Residence			0.994
Seoul (metropolitan)	267 (33.2%)	66 (32.8%)	
Other metropolitan cities	132 (16.4%)	33 (16.4%)	
Small cities, rural	405 (50.4%)	102 (50.7%)	
Household income			0.993
Low (0–30%)	104 (12.9%)	26 (12.9%)	
Middle (30–70%)	241 (30.0%)	61 (30.3%)	
High (70–100%)	459 (57.1%)	114 (56.7%)	
Disability			0.794
No	786 (97.8%)	196 (97.5%)	
Yes	18 (2.2%)	5 (2.5%)	
Comorbidities			1.000
No	532 (66.2%)	133 (66.2%)	
Yes	272 (33.8%)	68 (33.8%)	

OSA = Obstructive sleep apnea.

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eTable 3. Characteristics of study participants

Variables	Comparison (n=788)	OSA (n=197)	Effect size	95% CI	χ^2
Sex			**0.000**	**-0.156-0.156**	**0.000**
Male	688 (87.3%)	172 (87.3%)			
Female	100 (12.7%)	25 (12.7%)			
Ages (years)			**0.000**	**-0.156-0.156**	**0.000**
<45	432 (54.8%)	108 (54.8%)			
45-64	324 (41.1%)	81 (41.1%)			
>64	32 (4.1%)	8 (4.1%)			
Residence			**0.000**	**-0.156-0.156**	**0.000**
Most Metropolitan	252 (32.0%)	63 (32.0%)			
Other metropolitan Cities	132 (16.8%)	33 (16.8%)			
Small cities, rural	404 (51.3%)	101 (51.3%)			
Household income			**0.000**	**-0.156-0.156**	**0.000**
Low (0-30%)	100 (12.7%)	25 (12.7%)			
Middle (30-70%)	240 (30.5%)	60 (30.5%)			
High (70-100%)	448 (56.9%)	112 (56.9%)			
Disability			**0.000**	**-0.156-0.156**	**0.000**
No	768 (97.5%)	192 (97.5%)			
Yes	20 (2.5%)	5 (2.5%)			
Comorbidities			**0.000**	**-0.156-0.156**	**0.000**
No	528 (67.0%)	132 (67.0%)			
Yes	260 (33.0%)	65 (33.0%)			

Data reported as n (%). OSA, obstructive sleep apnea; CI, confidence interval. Most metropolitan is Seoul.

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eTable 4. A summary of events and censoring in this cohort study

	Affective disorder	**Depressive disorder**	**Anxiety disorder**
Event	240	117	180
Total censored (No event)	745	868	805
Termination of study	742	865	802
Loss to follow up / Drop-out	3	3	3

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