

Table e-1. The autoregressive cross-lagged model between BMI (per SD), waist circumference (per SD), and habitual snoring (n=25,037)
*

Characteristics at baseline	Outcomes at 2 nd resurvey		
	β (95% CI)		OR (95% CI)
	BMI	Waist circumference	Habitual snoring
BMI (per SD)	3.105 (3.064, 3.145)	3.264 (3.119, 3.410)	1.31 (1.23, 1.40)
Waist circumference (per SD)	-0.011 (-0.053, 0.031)	5.158 (5.010, 5.306)	1.10 (1.03, 1.17)
habitual snoring (yes vs no)	-0.023 (-0.075, 0.028)	0.018 (-0.166, 0.201)	6.48 (6.04, 6.96)

BMI: body mass index; SD: standard deviation; OR: odds ratio; CI: confidence interval

*The model was adjusted for the same variables as in the model of Figure 1.

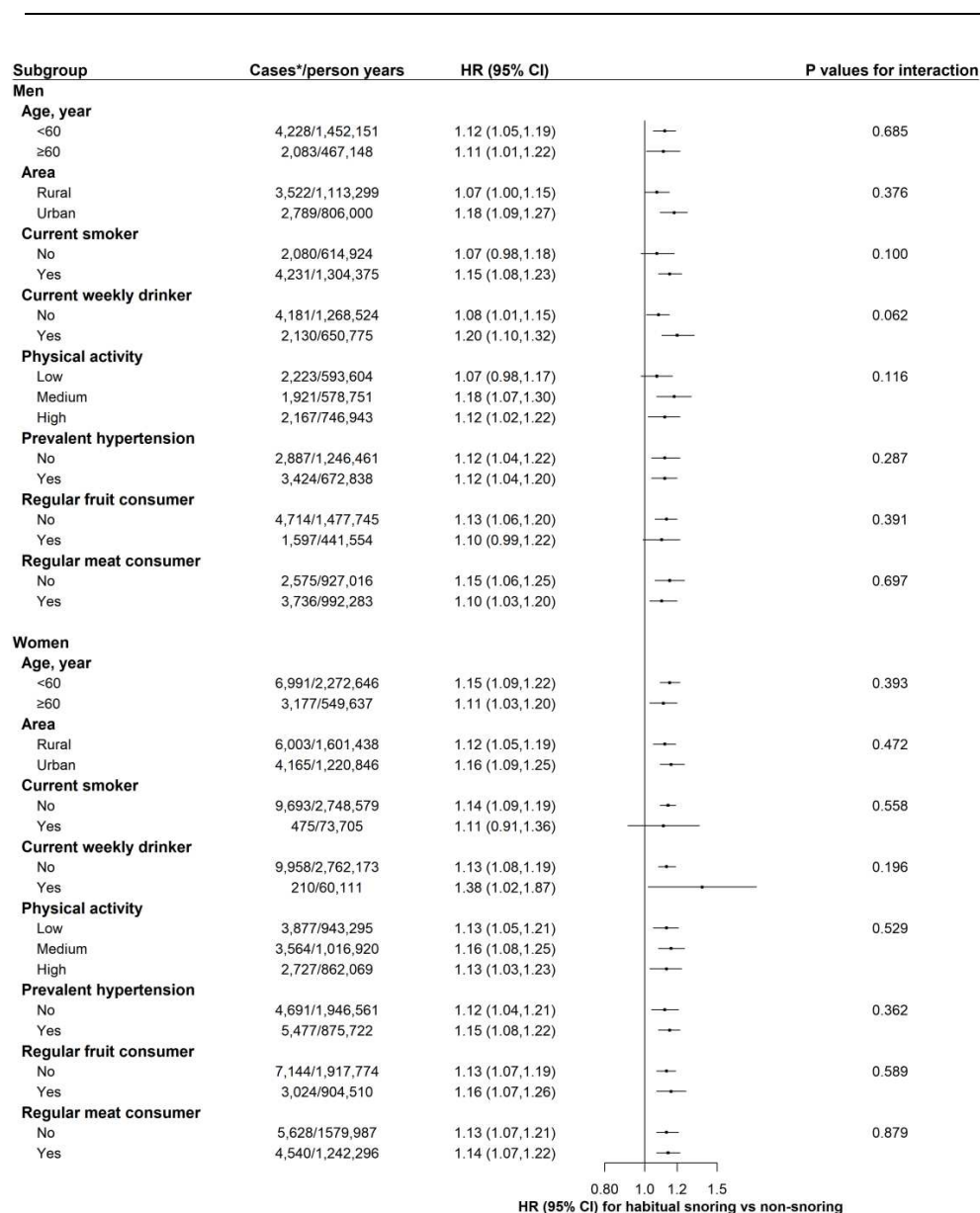


Figure e-1. Subgroup analyses of the association between habitual snoring and type 2 diabetes according to selected baseline characteristics.

HR: hazard ratio; CI: confidence interval.

* Total incident diabetes cases for participants with habitual snoring and non-snoring.

The Cox proportional hazard models were stratified by age groups and ten study regions, and adjusted for the same factors as in model 5 of Table 2 except the subgrouping variables.

Table e-2. Sensitivity analyses of the association between habitual snoring and type 2 diabetes

	Men		Women		P values for interaction
	Non-snoring	Habitual snoring	Non-snoring	Habitual snoring	
Sensitivity analysis by additionally adjusted for body fat percentage					
Cases	3,700	2,611	7,271	2,897	0.712
Person years	1,376,688	542,611	2,357,347	464,937	
Incidence rate (per 10,000 person years)	26.9	48.1	30.8	62.3	
HR (95% CI)	1.00	1.12 (1.06,1.18)	1.00	1.14 (1.09,1.19)	
Sensitivity analysis by excluding cases occurring during the first 2 years of follow-up					
Cases	3,364	2,400	6,585	2,622	0.220
Person years	1,376,300	542,355	2,356,541	464,606	
Incidence rate (per 10,000 person years)	24.4	44.3	27.9	56.4	
HR (95% CI)	1.00	1.13 (1.07,1.19)	1.00	1.14 (1.09,1.20)	
Sensitivity analysis by excluding participants who were never married, divorced or widowed					
Cases	3,443	2,470	6,367	2,511	0.608
Person years	1,274,767	516,230	2,125,447	408,337	
Incidence rate (per 10,000 person years)	27.0	47.8	30.0	61.5	
HR (95% CI)	1.00	1.11 (1.05,1.17)	1.00	1.14 (1.08,1.20)	

HR: hazard ratio; CI: confidence interval.

The Cox proportional hazard models were stratified by age groups and study regions, as appropriate, and were adjusted for the same factors as in model 5 of Table 2.

Table e-3. The association between habitual snoring and type 2 diabetes in 23,858 adults* participating in the second resurvey

	Non-snoring	Habitual snoring	Overall
Cases†	1,076	557	1,633
Person years	147,528	41,046	188,574
Incidence rate (per 10,000 person years)	72.9	135.7	86.6
HR (95% CI)	1.00	1.17 (1.05,1.31)	---

HR: hazard ratio; CI: confidence interval.

The Cox proportional hazard model was stratified by gender, age groups, and study regions, and was adjusted for the same factors as in model 5 of Table 2. To maximize the statistical power, we did not assess the snoring-diabetes association in men and women separately.

* Participants without self-reported or screen-detected diabetes at baseline.

† Including cases self-reported or screen-detected at the 2nd resurvey, and those identified during the follow-up. Screened-detected diabetes was defined as a random glucose level ≥11.1 mmol/L or a fasting glucose level ≥ 7.0 mmol/L, but without self-reported diabetes.

Table e-4. Sensitivity analysis of the association between snoring frequency and type 2 diabetes

	Men			Women		
	Never snoring	Sometimes snoring	Habitual snoring	Never snoring	Sometimes snoring	Habitual snoring
Cases	2,148	1,552	2,611	4,729	2,542	2,897
Person years	860,669	516,019	542,611	1,727,068	630,279	464,937
Incidence rate (per 10,000 person years)	25.0	30.1	48.1	27.4	40.3	62.3
HR (95% CI)	1.00	0.94 (0.88,1.00)	1.09 (1.03,1.16)	1.00	1.07 (1.02,1.12)	1.17 (1.11,1.23)

HR: hazard ratio; CI: confidence interval.

The Cox proportional hazard models were stratified by age groups and ten study regions, and adjusted for the same factors as in model 5 of Table 2.

Table e-5. Adjusted hazard ratios of type 2 diabetes for participants with different combinations of snoring status and adiposity measures

	Men		Women	
	Non-snoring	Habitual snoring	Non-snoring	Habitual snoring
BMI subgroups				
Underweight/normal	1.00	1.12 (1.02, 1.24)	1.00	1.19 (1.09, 1.31)
Overweight	1.47 (1.35, 1.60)	1.64 (1.49, 1.79)	1.38 (1.30, 1.47)	1.58 (1.46, 1.71)
General obesity	1.80 (1.57, 2.05)	2.06 (1.81, 2.34)	1.65 (1.51, 1.80)	1.83 (1.66,2.02)
Waist circumference subgroups				
Normal	1.00	1.12 (1.03,1.22)	1.00	1.20 (1.09,1.31)
Pre-central obesity	1.41 (1.28,1.55)	1.69 (1.52,1.88)	1.45 (1.36,1.56)	1.63 (1.48,1.80)
Central obesity	1.80 (1.63,1.98)	1.96 (1.77,2.18)	1.76 (1.64,1.89)	1.97 (1.82,2.14)

BMI: body mass index

The Cox proportional hazard models were stratified by age groups and ten study regions, and adjusted for the same factors as in model 5 of Table 2, except baseline BMI and waist circumference. Baseline BMI was adjusted for in joint analyses of waist circumference and snoring while baseline waist circumference was adjusted for in joint analyses of BMI and snoring.

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