

Supplementary Information

Impact of cooking oil fume exposure and fume extractor use on lung cancer risk in non-smoking Han Chinese women

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Supplementary Table 1. Odds ratios and 95% confidence intervals for cooking time-years and risk of lung cancer between cases and controls regarding to different fume extractor use ratio in the Taiwan GELAC study during 2002–2010

	Short-term use of fume extractor				Long-term use of fume extractor			
	Controls (389)		Cases (250)		Controls (522)		Cases (653)	
Cooking time-years	N (%)		N (%)	aOR ^a 95% CI	N (%)		N (%)	aOR 95% CI
≤10	148 (38.0)		143 (57.2)	1	148 (28.4)		143 (21.9)	1
11–110	226 (58.1)		59 (23.6)	3.50 1.74, 7.30 ^{*b}	333 (63.8)		451 (69.1)	1.53 1.13, 2.08 [*]
>110	15 (3.9)		48 (19.2)	6.27 2.52, 16.32 [*]	41 (7.8)		59 (9.0)	2.29 1.14, 4.70 [*]

Abbreviations: aOR, adjusted odds ratio; OR, odds ratio; CI, confidence interval.

^aaOR: The OR was adjusted for age, education, lung cancer in first-degree relatives, exposure to second-hand smoke at home and the workplace, exposure to second-hand smoke of relatives who smoked, history of hormone-replacement therapy, history of oral contraceptive use, homemaker status, and history of being a chef.

^b* indicates that the 95% CI of the OR does not include 1.

Supplementary Table 2. Odds ratios and 95% confidence intervals for cooking time-years and risk of lung adenocarcinoma between cases and controls in the Taiwan GELAC study during 2002–2010

Cooking time-years	Crude model				Adjusted model			
	Controls (1273)		Adenocarcinoma (1089)		Controls (787)		Adenocarcinoma (933)	
	N (%)	N (%)	OR	95% CI	N (%)	N (%)	aOR ^a	95% CI
≤10	204 (16.0)	125 (11.5)	1		148 (18.8)	116 (12.5)	1	
11–60	378 (29.7)	368 (33.8)	1.59	1.22, 2.07* ^b	239 (30.4)	312 (33.5)	1.61	1.16, 2.23*
61–110	421 (33.1)	338 (31.0)	1.31	1.01, 1.71*	252 (32.0)	292 (31.4)	1.77	1.17, 2.67*
111–160	223 (17.5)	198 (18.2)	1.45	1.08, 1.95*	121 (15.4)	160 (17.2)	2.05	1.12, 3.81*
>160	47 (3.7)	60 (5.5)	2.08	1.34, 3.26*	27 (3.4)	51 (5.5)	3.12	1.28, 7.76*
<i>P</i> _{trend} = 0.0366								

Abbreviations: aOR, adjusted odds ratio; OR, odds ratio; CI, confidence interval.

^aaOR: The OR was adjusted for age, education, lung cancer in first-degree relatives, exposure to second-hand smoke at home and the workplace, exposure to second-hand smoke of relatives who smoked, history of hormone-replacement therapy, history of oral contraceptive use, homemaker status, and history of being a chef.

^b* indicates that the 95% CI of the OR does not include 1.

Supplementary Table 3. Adjusted odds ratios and 95% confidence intervals of fume extractor use ratio between lung adenocarcinoma cases and healthy controls in the Taiwan GELAC study during 2002–2010

	Controls	Adenocarcinoma		
	N (%)	N (%)	aOR ^a	95% CI
Overall (Cooking time-years >10)				
Short-term use (ratio 0–0.33)	41 (7.3)	89 (12.4)	1	
Medium-term use (ratio 0.34–0.66)	144 (25.8)	184 (25.7)	0.64	0.41, 1.00
Long-term use (ratio 0.67–1)	374 (66.9)	442 (61.9)	0.52	0.33, 0.80* ^b
Cooking time-years 11–110				
Short-term use (ratio 0–0.33)	26 (5.9)	53 (9.8)	1	
Medium-term use (ratio 0.34–0.66)	80 (18.2)	99 (18.2)	0.65	0.36, 1.16
Long-term use (ratio 0.67–1)	333 (75.9)	391 (72.0)	0.55	0.32, 0.93*
Cooking time-years >110				
Short-term use (ratio 0–0.33)	15 (12.5)	36 (20.9)	1	
Medium-term use (ratio 0.34–0.66)	64 (53.3)	85 (49.4)	0.72	0.34, 1.48
Long-term use (ratio 0.67–1)	41 (34.2)	51 (29.7)	0.46	0.19, 1.07

Abbreviations: aOR, adjusted odds ratio; OR, odds ratio; CI, confidence interval.

^aaOR: The OR was adjusted for age, education, categories of cooking time-years, lung cancer in first-degree relatives, exposure to second-hand smoke at home and the workplace, exposure to second-hand smoke of relatives who smoked, history of hormone-replacement therapy, history of oral contraceptive use, homemaker status, and history of being a chef.

^b* indicates that the 95% CI of the OR does not include 1.

Supplementary Table 4. Odds ratios and 95% confidence intervals for different cooking habits and risk of lung adenocarcinoma between cases and controls in the Taiwan GELAC study during 2002–2010

Cooking habits		Controls	Adenocarcinoma		
		N (%)	N (%)	aOR^b	95% CI
Cooking methods^a					
Pan-frying	Low frequency (CDW ≤ 5)	383 (57.8)	349 (44.6)	1	
	High frequency (CDW > 5)	280 (42.2)	433 (55.4)	1.55	1.24, 1.94* ^c
Stir-frying	Low frequency (CDW < 7)	224 (32.7)	222 (28.0)	1	
	High frequency (CDW = 7)	462 (67.3)	572 (72.0)	1.18	0.92, 1.51
Deep-frying	Low frequency (CDW = 0)	411 (60.1)	451 (56.9)	1	
	High frequency (CDW > 0)	273 (39.9)	342 (43.1)	1.09	0.88, 1.37
Cooking oils					
Vegetable oil frequently		374 (54.1)	439 (50.8)	1	
Vegetable oil and lard		305 (44.1)	396 (45.8)	1.00	0.79, 1.27
Lard frequently		15 (1.7)	30 (3.5)	1.49	0.77, 3.01

Abbreviations: aOR, adjusted odds ratio; CDW, weighted average of cooking days weekly; CI, confidence interval.

^aThe medians of CDW for pan-frying, stir-frying, and deep-frying are 5, 7, and 0, respectively.

^baOR: The OR was adjusted for age, education, categories of cooking time-years, lung cancer in first-degree relatives, exposure to second-hand smoke at home and the workplace, exposure to second-hand smoke of relatives who smoked, history of hormone-replacement therapy, history of oral contraceptive use, homemaker status, and history of being a chef.

^c* indicates that the 95% CI of the OR does not include 1.

Supplementary Table 5. Odds ratios and 95% confidence intervals for each covariate and risk of lung cancer between cases and controls in the Taiwan GELAC study during 2002–2010

Covariate	Univariate model				Multivariate model			
	Controls	Cases	OR	95% CI	Controls	Cases	OR	95% CI
	N	N			N	N		
Age	1,302	1,302	1.00	0.99, 1.00			1.01	1.00, 1.02
Education	1,302	1,302	1.00	0.95, 1.06			0.97	0.90, 1.05
Lung cancer in first-degree relatives	915	1,242	2.16	1.55, 3.05 ^a			2.06	1.44, 3.01*
Second-hand smoke at home	1,268	1,276	1.43	1.22, 1.68*			1.34	1.10, 1.64*
Second-hand smoke at work	1,302	1,300	1.37	1.12, 1.68*	800	1,115	1.18	0.92, 1.52
Second-hand smoke of relatives	1,301	1,299	1.22	1.02, 1.47*			1.08	0.86, 1.34
History of hormone-replacement therapy	1,221	1,248	0.93	0.76, 1.14			0.75	0.59, 0.95*
History of oral contraceptive use	1,237	1,229	1.22	0.92, 1.62			0.98	0.71, 1.35
Homemaker status	1,283	1,297	0.64	0.48, 0.84*			0.61	0.44, 0.85*
History of being a chef	1,302	1,301	1.03	0.75, 1.41			1.04	0.70, 1.56

Abbreviations: OR, odds ratio; CI, confidence interval.

^a* indicates that the 95% CI of the OR does not include 1.