

Table 2.2. Case-control studies of in-home coal use and lung cancer in countries other than China

Reference, study location and period	Organ site	Characteristics of cases	Characteristics of controls	Exposure Assessment	Exposure categories	Odd Ratios (IC 95%)	Adjustment for potential confounders	Comments
Lissowska et al. (2005) Czech republic, Hungary, Poland, Romania, Russia, Slovakia and the United Kingdom. (1998–2002)	Lung	2,861 (2,205 men, 656 women) from main hospitals in participating centres, aged 20–79. 100% cytologically or histologically confirmed. Response rate 94.1%	3,118 (2,305 men, 813 women) from hospitals list of persons with diseases that excluded other cancers or tobacco –related diseases. Response rate 93%.	Structured interviews. Questionnaire translations (backward and forward translations) and questionnaire administration in order to eliminate an effect of intercentre differences.	Ever solid fuel (cooking or heating) No Yes Solid heating only Solid cooking only Solid cook/heat Cooking fuel Ever coal/never wood Ever wood/never coal Ever both % of lifetime used solid fuel for cooking > 0–25 > 25–20 > 50 <i>p trend</i> Heating fuel Ever coal/never wood Ever wood/never coal Ever both % of lifetime used solid fuel for heating > 0–25 > 25–20 > 50 <i>p trend</i>	1.00 1.22 (1.04–1.44) 1.08 (0.84–1.38) 1.37 (0.90–2.09) 1.24 (1.05–1.47) 1.13 (0.94–1.38) 1.23 (1.00–1.52) 0.98 (0.74–1.29) 1.10 (0.89–1.35) 1.18 (0.98–1.42) 1.52 (1.23–1.82) < 0.00001 1.08 (0.89–1.31) 1.31 (1.06–1.61) 1.04 (0.82–1.35) 1.08 (0.87–1.35) 1.13 (0.95–1.36) 1.35 (1.12–1.64) 0.00002	* Adjusted for centre sex, education level, age and tobacco pack–years.	

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Lissowska et al. (2005) (Contd)					0% - 25% of time cooking with solid fuel			
					Czech Republic	1.27 (0.76–2.15)		
					Hungary	1.16 (0.73–1.83)		
					Poland	1.00 (0.54–1.84)		
					Romania	2.05 (0.96–4.37)		
					Russia	1.04 (0.74–1.47)		
					Slovakia	0.66 (0.36–1.21)		
					United Kingdom	1.03 (0.54–1.94)		
					<i>p for heterogeneity</i>	0.25		
					<i>Gender</i>			
					Males	1.04 (0.84–1.29)		Results comparables in magnitude to the US study “Smoking and other risk factors for lung cancer in women” (1985)
					Females	1.17 (0.78–1.76)		
					<i>p for heterogeneity</i>	0.58		
					<i>Educational level</i>			
					1 (lowest)	0.99 (0.45–2.19)		
					2	1.06 (0.82- 1.35)		
					3 (highest)	1.09 (0.81–1.46)		
					<i>p for heterogeneity</i>	0.62		ⁱ 0% - 25% of time cooking with solid fuel

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Lissowska et al (2005) (Contd)					25% - 50% of time cooking with solid fuel			
					<i>Country</i>			
					Czech Republic	1.40 (0.89–2.20)		
					Hungary	1.40 (0.93–2.11)		
					Poland	1.29 (0.83–2.00)		
					Romania	1.57 (0.86–2.85)		
					Russia	1.03(0.77–1.39)		
					Slovakia	0.82 (0.50–1.32)		
					United Kingdom	0.87 (0.26–2.86)		
					<i>p for heterogeneity</i>	0.25		
					<i>Sex</i>			
					Males	1.18 (0.98–1.43)		
					Females	1.09 (0.77–1.56)		
					<i>p for heterogeneity</i>	0.58		
					<i>Educational level</i>			
					1 (lowest)	0.95 (0.51–1.75)		² 25% - 50% of time cooking with solid fuel
					2	1.09 (0.88–1.36)		
					3 (highest)	1.17 (0.91–1.52)		
					<i>p for heterogeneity</i>	0.62		

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Reference, study location and period	Organ site	Characteristics of cases	Characteristics of controls	Exposure Assessment	Exposure categories	Odd Ratios (IC 95%)	Adjustment for potential confounders	Comments
Lissowska et al (2005) (Contd)					> 50% of time cooking with solid fuel			
					<i>Country</i>			
					Czech Republic	1.12 (0.67–1.87)		
					Hungary	2.23 (1.45–3.44)		
					Poland	1.73 (1.15–2.60)		
					Romania	1.82 (1.00–3.32)		
					Russia	1.45 (0.87–2.42)		
					Slovakia	1.11 (0.64–1.94)		
					United Kingdom	NO DATA		
					<i>p for heterogeneity</i>	0.25		
					<i>Sex</i>			
					Males	1.64 (1.33–2.03)		
					Females	1.38 (0.93–2.04)		
					<i>p for heterogeneity</i>	0.58		
					<i>Educational level</i>			
					1 (lowest)	1.54 (0.64–1.76)		³ > 50% of time cooking with solid fuel
					2	1.38 (1.09–1.74)		
					3 (highest)	1.70 (1.18–2.43)		
					<i>p for heterogeneity</i>	0.62		

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Reference, study location and period	Organ site	Characteristics of cases	Characteristics of controls	Exposure Assessment	Exposure categories	Odd Ratios (IC 95%)	Adjustment for potential confounders	Comments
Sapkota <i>et al.</i> (2008) Multicentric case-control study, India (2001 - 2004)	Hypopharyngeal/Laryngeal cancer: ICDO-2 group codes: C-12, C-13, C-14, C-32 Lung cancer: ICDO-2 group code C-34	1042 hypopharyngeal/laryngeal cancer cases and 635 lung cancer cases from the Gujarat Cancer and Research Institute in Ahmedabad, the Gandhi Medical College in Bhopal, the Chittaranjan National Cancer Institute in Calcutta and the Cancer Institute (WIA) in Chennai	718 controls (84.5% men, 15.5% women) were frequency-matched to cases on age (± 5 years) sex and geographical area of residence. Controls were recruited from a population of individuals hospitalized for diseases unrelated to tobacco or alcohol consumption or visitors to hospital patients whose diseases were unrelated to tobacco or alcohol.	A standardized questionnaire was administered to all study participants by trained staff members.	(By cooking fuel types) Hipopharynx All individuals Always modern Ever solid Lifetime fuel usage >1/2 solid < 1/2 solid Always solid Type of solid fuels >1/2 wood Always wood < 1/2 coal Always coal Mixed/other Never smokers Always modern Ever solid Lifetime fuel usage >1/2 solid < 1/2 solid Always solid Type of solid fuels >1/2 wood Always wood < 1/2 coal Always coal Mixed/other	1.00 1.34 (0.97 – 1.86) 0.47 (0.24 – 0.93) 1.38 (0.80 – 2.36) 1.62 (1.14 – 2.32) 1.64 (0.93 – 2.90) 1.56 (1.09 – 2.25) 0.38 (0.08 – 1.91) 1.92 (0.67 – 1.85) 0.66 (0.36 – 1.19) Never smokers 1.00 1.11 (0.67 – 1.85) 0.57 (0.21 – 1.56) 1.67 (0.79 – 3.52) 1.11 (0.63 – 1.98) 1.91 (0.87 – 4.20) 1.06 (0.59 – 1.89) 0.82 (0.15 – 4.56) 2.03 (0.28 – 14.42) 0.70 (0.28 – 1.74)	* Adjusted by sex, age, tobacco, alcohol consumption.	

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Sapkota <i>et al.</i> (2008) (Contd)					Lung All individuals			
					Always modern	1.00		
					Ever solid	0.98 (0.74 – 1.31)		
					Lifetime fuel usage			
					>1/2 solid	0.41 (0.23 – 0.74)		
					< 1/2 solid	0.90 (0.54 – 1.51)		
					Always solid	1.21 (0.88 – 1.65)		
					Type of solid fuels			
					>1/2 wood	1.11 (0.64 – 1.92)		
					Always wood	1.06 (0.77 – 1.47)		
					< 1/2 coal	0.35 (0.11 – 1.14)		
					Always coal	3.76 (1.64 – 8.63)		
					Mixed/other	0.49 (0.28 – 0.84)		
					Never smokers	Never smokers		
					Always modern	1.00		
					Ever solid	0.84 (0.55 – 1.29)		
					Lifetime fuel usage			
					>1/2 solid	0.47 (0.20 – 1.13)		
					< 1/2 solid	0.94 (0.44 – 2.02)		
					Always solid	0.95 (0.59 – 1.54)		
					Type of solid fuels			
					>1/2 wood	1.23 (0.55 – 2.74)		
					Always wood	0.75 (0.45 – 1.24)		
					< 1/2 coal	0.40 (0.07 – 2.13)		
					Always coal	7.46 (2.15 – 25.94)		
					Mixed/other	0.52 (0.22 – 1.22)		

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Sapkota <i>et al.</i> (2008) (Contd)					(By duration of fuel usage)			
					Hypopharynx			
					Years of wood usage			
					Always modern	1.00		
					> 0 – 30	0.85 (0.50 – 1.45)		
					> 30 – 50	1.59 (1.06 – 1.52)		
					> 50	1.45 (0.96 – 2.19)		
					Years of coal usage			
					Always modern	1.00		
					> 0 – 30	0.96 (0.26 – 3.57)		
					> 30 – 50	1.08 (0.37 – 3.15)		
					> 50	3.47 (0.45 – 12.69)		
					LUNG			
					Years of wood usage			
					Always modern	1.00		
					> 0 – 30	0.49 (0.29 – 0.83)		
					> 30 – 50	1.27 (0.87 – 1.85)		
					> 50	0.95 (0.65 – 1.37)		
					Years of coal usage			
					Always modern	1.00		
					> 0 – 30	1.22 (0.42 – 3.49)		
					> 30 – 50	1.99 (0.90 – 4.43)		
					> 50	3.81 (1.16 – 12.46)		