

Table 2.37. Cohort studies on smoking and risk of stomach cancer

Reference, location, name of study	Cohort description	Smoking categories	No. of cases			Relative risks (95%CI or <i>p</i> value)			Adjustment factors/comments	
						Gastric cancer				
Simán et al. (2001) Sweden	Nested case-control study in cohort of 32906 residents aged 29-63 years participated in a health screening programme 1974-1992; Follow-up until end of 1992 through National Cancer Registry and medical records review; 56 gastric cancers and 224 matched controls	Non-smoker				Stomach 1.0	Cardia 1.0	Distal 1.0	Adjusted for occupation	
		Current smoker				2.2 (1.2-4.2)	1.9 (0.48-7.8)	2.7 (0.93-8.1)		
		Pack-years <i>per 20 pack-years</i>								
		<i>Cigarettes/d</i>								
		1-4				1.51 (0.80-2.8)				
		5-14				2.1 (0.98-4.4)				
		15-24				2.5 (1.1-5.6)				
		>24				2.01 (1.03-3.92)				
		<i>p trend</i>				0.110				
		<i>Years smoking</i>								
<30				1.31 (0.66-2.59)						
30-39				1.58 (0.88-2.83)						
≥40				2.36 (1.42-3.91)						
<i>p trend</i>				0.048						
Sasazuki et al. (2002) Japan, The Japan Public Health Center (JPHC)-based prospective study	Population-based cohort study of 19657 men born between 1930 and 1949 (40-59 years old at baseline); Follow-up 1990-1999 through local cancer registries, analysis restricted to men 37 cardia cancers, 205 distal gastric cancer cases		Card	Dist. Dif.	Dist. Undif	Cardia and upper-third	Distal differentiated type	Distal undifferentiated type	Adjusted for age, area, alcohol drinking, consumption of fruit, green or yellow vegetables, salted cod roe or fish gut, BMI.	
		<i>Smoking status</i>								
		Never	4	16	18	1.0	1.0	1.0		
		Former	7	33	18	1.6 (0.5-5.5)	2.0 (1.1-3.7)	0.9 (0.5-1.8)		
		Current	24	75	27	2.4 (0.8-7.1)	2.1 (1.2-3.6)	0.6 (0.3-1.1)		
		<i>Cigarettes/d</i>								
		1-19	24	76	44	2.0 (0.6-7.2)	1.9 (1.0-3.7)	0.9 (0.4-1.8)		
		20	34	87	31	3.0 (0.9-9.6)	2.2 (1.2-4.1)	0.6 (0.3-1.3)		
		21+	20	83	13	2.2 (0.6-8.0)	2.6 (1.3-4.9)	0.3 (0.1-0.8)		
		<i>p trend</i>				0.83	0.31	0.09		
<i>Pack-years</i>										
0.05-20.9	15			1.7 (0.5-5.9)	1.3 (0.7-2.6)	1.0 (0.5-2.0)				
21.0-33.0	28			2.8 (0.9-8.9)	2.7 (1.5-4.9)	0.5 (0.2-1.1)				
33.15+	23			1.6 (0.5-5.5)	2.2 (1.2-4.0)	0.6 (0.6-1.3)				
<i>p trend</i>				0.85	0.16	0.20				

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Reference, location, name of study	Cohort description	Smoking categories	No. of cases			Relative risks (95%CI or <i>p</i> value)			Adjustment factors/ comments	
			Stom	Card	Noncar	Gastric cancer				
González et al.(2003), European Prospective Investigation into Cancer and Nutrition (EPIC)	Multicentre prospective cohort study, 23 centres in 10 European countries, 521468 subjects of both sexes, aged 25-70 years, recruited from 1992 to 1998; Follow-up until 2002 based on population cancer registries or active follow-up. 305 incident gastric cancer cases	Never	37	13	32	Stomach Men	1.0	Cardia Both sexes	1.0	Stratified for country, adjusted for age, length of follow-up, sex (were applicable), consumption of vegetables, fresh fruits, processed meat, alcohol, BMI and educational level.
		Former smoker	42	12	27	1.08 (0.67-1.74)	1.19 (0.51-2.77)	1.62 (0.92-2.85)		
		Current smoker	42	16	21	1.73 (1.06-2.83)	4.10 (1.76-9.57)	1.94 (1.05-3.60)		
		Never	64			Women	1.0			
		Former smoker	21			1.39 (0.81-2.40)				
		Current smoker	29			1.87 (1.12-3.12)				
		<i>Time since quitting</i>				Both sexes				
		<10 years	17			0.70 (0.39-1.25)				
		10-19 years	18			0.71 (0.40-1.27)				
		>20 years	22			0.63 (0.34-1.17)				
		Log-continuous (base 2)	116			0.96 (0.92-1.00)				
		p trend				0.075				
		<i>Cigarettes/d</i>								
		Never	101			1.0				
		1-4	6			1.23 (0.55-2.91)				
		5-14	20			1.39 (0.84-2.31)				
		15-24	34			2.39 (1.56-3.68)				
>24	11			2.01 (1.03-3.92)						
p trend				0.110						
<i>Years smoking</i>										
<30	13			1.31 (0.66-2.59)						
30-39	17			1.58 (0.88-2.83)						
≥40	29			2.36 (1.42-3.91)						
p trend				0.048						

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			<i>Men</i>	<i>Women</i>	Gastric cancer			
					<i>Men</i>	<i>Women</i>		
Jee et al. (2004) Korea	1212906 Koreans, 30-95 years of age. Study population includes participants in a national insurance program - the Korean Medical Insurance Corporation (KMIC); Hospital admission files were used to identify a first admission event for cancer, follow-up 1993-2001 by computerized search of death certificate data from the National Statistical Office 3627 male and 881 female deaths; 7316 male cases	<i>Mortality</i>						Adjusted for age.
		Never	483	718	1.0	1.0		
		Former smoker	1003	62	1.4 (1.3-1.6)	1.0 (0.8-1.3)		
		Current smoker	2141	101	1.6 (1.4-1.7)	0.9 (0.7-1.1)		
		<i>Incidence</i>						
		Never	1022		1.0			
Former smoker	2006		1.4 (1.3-1.5)					
Current smoker	4288		1.5 (1.4-1.6)					

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						Gastric cancer				
Koizumi et al. (2004) Japan	Two population-based prospective cohort studies in rural northern Japan. Cohort 1 included 9980 men (≥40 years old) and Cohort 2 included 19412 men (40-64 years old). Vital status obtained through population registries of the municipalities, cancer diagnosis ascertained using record linkage to the Miyagi Prefectural Cancer Registry. Follow-up 1984-1992 (Cohort 1), 1990-1997 (Cohort 2) 228 gastric cancer cases in Cohort 1 1223 gastric cancer cases in Cohort 2	Smoking status							Adjusted for age, body mass index, history of peptic ulcer, parental history of gastric cancer, type of health insurance, alcohol consumption, daily consumption of pickled vegetables and consumption of bean-paste soup.	
		Never	65				1.0			
		Current smokers	283				1.84 (1.39-2.43)			
		<i>Cigarettes per day</i>								
		1-19	74				1.41 (1.00-1.98)			
		20-24	123				1.98 (1.45-2.71)			
		≥25	86				2.15 (1.53-3.02)			
		<i>p</i> for trend				<0.05				
		Past smokers				1.77 (1.29-2.43)				
		<i>Years since quitting</i>								
		<5	35				1.72 (1.12-2.64)			
		5-14	48				2.08 (1.41-3.07)			
		≥15	20				1.31 (0.77-2.21)			
						Cardia	Body	Antrum		
						1.0	1.0	1.0		
						1.29 (0.64-2.61)	1.22 (0.69-2.15)	2.00 (1.13-3.55)		
						1.42 (0.63-3.23)	1.15 (0.54-2.47)	1.19 (0.57-2.48)		
						1.09 (0.45-2.62)	1.49 (0.79-2.82)	2.34 (1.24-4.40)		
						1.74 (0.70-4.33)	1.47 (0.74-2.95)	2.79 (1.42-5.48)		
						0.27	0.10	<0.05		

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					Gastric cancer	
Wen et al. (2004) Taiwan	Used two existing cohorts: A community-based cohort established 1982 to 1992 consisted of 66161 (37196 males and 2965 females) residents >=18 years of age. The second cohort included 71361 civil servants and teachers recruited 1989–1992. Vital status as of December 31, 2000 and cause of death information through matches with computerized national death files	Current smoker	89		1.68 (1.15-2.43)	
		Average daily cigarette consumption				
		≤10 cigarette			1.60 (0.99-2.59)	
		≤11-20			1.54 (1.00-2.36)	
		≥20 cigarettes			2.91 (1.49-5.69)	
		<i>p</i> for trends			<0.01	
		Years of smoking				
		≤20 years			1.97 (1.08-3.58)	
20-30years		1.32 (0.69-2.52)				
>30 years		1.74 (1.14-2.64)				
		<i>p</i> for trend		0.01		
Doll et al. (2005) United Kingdom	34439 male British doctors, who reported their smoking habits in November 1951 were follow-up periodically through mailed questionnaire; 50 year for mortality 1951-2001; 272 deaths from pancreatic cancer	Never smoker		<i>Men</i>		Standardized indirectly for age and study year
		<i>Cigarette smokers</i>		1.0		
		Former smoker		0.90		
		Current smoker		1.49		
		<i>Current cigarettes/d</i>				
		1-14		1.37		
		15-24		1.69		
		≥25		1.38		
<i>Other smokers</i>						
Former smoker		1.0				
Current smoker		1.33				

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						Gastric cancer			
Fujino et al (2005) Japan, The Japan Collaborative Cohort Study (JACC Study)	Baseline survey was conducted between 1988 and 1990, 110792 participants (46465 men and 64327 women) aged between 40 and 79; Annually active follow-up, cause of death recorded from the official death certificate held at the relevant regional health centre 757 deaths (522 males, 235 females)	Never Past smoker Current smoker <i>Cigarettes per day</i> 1-14 15-24 25-34 35+ Past smokers <i>Cigarette-years</i> 1-399 400-799 800+	<i>Men</i>			<i>Men</i>			Adjusted for age, smoking, alcohol consumption, educational level, preference for salty foods and green-tea consumption.
			87	1.0					
			164	1.24 (0.95-1.61)					
			271	1.33 (1.04-1.79)					
			62	1.27 (0.91-1.76)					
			162	1.40 (1.08-1.83)					
			27	1.01 (0.65-1.56)					
			20	1.64 (1.00-2.68)					
			164	1.23 (0.96-1.59)					
			30	1.38 (0.91-2.08)					
114	1.36 (1.04-1.79)								
116	1.31 (1.00-1.72)								
Lindblad et al. (2005) United Kingdom	Nested case-control study in the General Practitioner Research Database, 1994-2001; Patients aged 40-84 years; 522 gastric cancers (195 cardia, 327 non-cardia)	Smoking status Non-smoker Former smoker Current smoker Unknown	Stom	Card	Non	Stomach	Cardia	Non-cardia	Adjusted for sex, age, calendar year, body mass index, alcohol consumption and reflux
			405	75	134	1.0	1.0	1.0	
			94	21	25	1.30 (1.02-1.65)	1.40 (0.85-2.30)	1.10 (0.71-1.70)	
			222	36	75	1.70 (1.42-2.03)	1.38 (0.92-2.09)	1.70 (1.26-2.29)	
			302	63	93	1.19 (0.94-1.50)	1.26 (0.76-2.07)	1.48 (0.97-2.26)	

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					Gastric cancer	
Sauvaget et al (2005) Japan, Life Span Study (LSS)	Longitudinal study including 38576 atomic-bomb survivors in Hiroshima and Nagasaki, age at baseline was 53 years. Incident cases were identified through linkage with the cancer registries in Hiroshima and Nagasaki; Follow-up 1980-1999 1270 incident carcinomas of gastric cancer	Never	491	Stomach	1.0	Adjusted for city, sex, sex-specific age, calendar period, education and radiation dose.
		Past smoker	210		1.37 (1.13-1.66)	
		Current smoker	539		1.50 (1.28-1.76)	
		In current smokers: <i>Cigarettes per day</i>				
		0	491		1.0	
		1-19	213		1.44 (1.19-1.73)	
		20-39	266		1.58 (1.30-1.94)	
		40+	46		1.64 (1.17-2.30)	
		<i>p</i> trend			<0.001	
		<i>Duration in years</i>				
		1-19	41		0.78 (0.54-1.11)	
		20-29	110		1.23 (0.96-1.58)	
		30-39	166		1.90 (1.53-2.36)	
		40+	163		1.92 (1.51-2.45)	
		<i>p</i> for trend			<0.001	
		In past smokers: <i>Duration in years</i>				
		1-9	35		1.59 (1.11-2.28)	
10-19	25		1.33 (0.87-2.04)			
20-29	38		1.72 (1.19-2.47)			
30-39	36		1.63 (1.11-2.38)			
40+	36		2.24 (1.51-3.31)			
<i>p</i> trend			<0.001			
<i>Time since smoking cessation (years)</i>						
0	491		0.74(0.54-1.00)			
16+	59		1.0			
11-15	28		1.06 (0.67-1.67)			
6-10	42		1.32 (0.88-1.96)			
1-5	65		1.29 (0.90-1.85)			
<i>p</i> trend			0.153			

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				Gastric cancer		
				<i>Men</i> Cardia cancers	<i>Men</i> Noncardia cancers	
Tran et al. (2005) China; Linxian General Population Trial	Population-based prospective study of 29584 adults, 40-69 years of age at baseline; Follow-up 1986-2001 1089 gastric cardia cancer, 363 gastric noncardia cancer Analysis restricted to males	Current cigarette smoker		1.12 (0.96-1.32)	1.40 (1.07-1.85)	Adjusted for age.
		<i>Cigarettes per day</i>				
		0		1.0	1.0	
		<7		1.01 (0.71-1.43)	1.08 (0.60-1.95)	
		7-9		0.62 (0.32-1.21)	1.06 (0.42-2.67)	
		10-19		1.02 (0.72-1.45)	1.17 (0.65-2.12)	
		≥20		1.00 (0.70-1.44)	0.91 (0.49-1.70)	
		p trend		0.873	0.638	
		<i>Duration in years</i>				
		<19		1.01 (0.74-1.38)	1.07 (0.61-1.86)	
		19-27		1.14 (0.84-1.55)	1.47 (0.88-2.46)	
		28-35		1.26 (0.96-1.66)	1.60 (1.01-2.51)	
		≥36		1.16 (0.87-1.54)	1.77 (1.12-2.77)	
		p trend		0.155	0.007	
		Current pipe smoker		1.39 (0.93-2.10)	1.17 (0.60-2.38)	
		<i>Pipes per day</i>				
		<3		1.04 (0.74-1.45)	0.93 (0.53-1.61)	
		2-4		1.89 (1.30-2.74)	1.24 (0.63-2.46)	
		5-6		1.15 (0.81-1.64)	1.04 (0.58-1.85)	
		≥7		1.25 (0.84-1.86)	0.70 (0.33-1.49)	
p trend		0.144	0.649			
<i>Duration in years</i>						
<4		1.24 (0.84-1.82)	1.44 (0.81-2.58)			
4-10		1.26 (0.86-1.85)	0.91 (0.46-1.77)			
11-27		1.79 (1.26-2.55)	0.92 (0.46-1.85)			
≥28		1.75 (1.20-2.54)	1.71 (0.94-3.11)			
p trend		0.001	0.275			

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					Gastric cancer		
Kurosawa et al. (2006) Japan	Cohort study of 8035 resident ages >30 years in a rural area, who completed a questionnaire; 11 year follow-up; 76 stomach cancers	No-smokers	21		1.00		<i>Age- and sex-adjusted</i>
		ex-smoker	20		2.11 (0.96-4.66)		
		current-smoker	29		2.16 (1.04-4.52)		
Sjödahl et al. (2007) Norway; Helseundersøkelsen i Nord Trøndelag 1 (HUNT-1)	Cohort study in Nord Trøndelag county in Norway, all inhabitants of the county, aged at least 20 years. Linkage with Norwegian Cancer Registry; Follow-up 1984-1986 251 new cases of gastric cancer (224 noncardia and 27 cardia cancer)	<i>Smoking status</i>	Stom	Noncard	Stomach cancer (incl. cardia)	Noncardia cancers	Adjusted for sex, education, BMI and alcohol drinking.
		Never	87	82	1.0	1.0	
		Current smoking	77	70	1.88 (1.33-2.67)	1.83 (1.27-2.64)	
		Former smoking	48		1.30 (0.88-1.91)	1.14 (0.75-1.73)	
		<i>Type of tobacco</i>					
		Cigarette only	59	54	1.76 (1.22-2.54)	1.73 (1.18-2.54)	
		Pipe only	13	11	2.02 (1.08-3.76)	1.80 (0.92-3.53)	
		<i>Age at start of daily smoking</i>					
		<15	6	6	2.60 (0.89-7.58)	2.99 (1.00-8.89)	
		15-19	61	52	2.06 (0.98-4.35)	2.04 (0.94-4.44)	
		20-24	35	29	2.04 (0.95-4.38)	1.92 (0.86-4.27)	
		25 years or more	22	21	1.63 (0.76-3.52)	1.71 (0.77-3.76)	
		<i>p value for trend</i>			0.02	0.04	
		<i>Frequency of smoking</i>					
		<10 cigs/day	33	28	1.52 (0.99-2.31)	1.36 (0.87-2.14)	
		10-19 cigs/day	50	42	1.73 (1.17-2.55)	1.55 (1.03-2.35)	
		≥20 cigs/day	19	17	1.99 (1.16-3.42)	1.93 (1.09-3.42)	
		<i>p value for trend</i>			0.00	0.01	
		<i>Duration of smoking</i>					
		<10 years	6	6	1.30 (0.55-3.06)	1.40 (0.59-3.33)	
10-19 years	20	15	1.54 (0.92-2.60)	1.27 (0.71-2.29)			
20-29 years	27	26	1.61 (1.01-2.57)	1.70 (1.05-2.73)			
30 years or more	65	55	1.66 (1.14-2.41)	1.47 (0.99-2.19)			
<i>p value for trend</i>			0.00	0.04			
<i>Cessation</i>							
<1 year ago	2	2	0.54 (0.12-2.34)	0.57 (0.13-2.52)			
1-5 years ago	8	7	1.07 (0.45-2.52)	1.01 (0.41-2.52)			
>5 years ago	39	30	1.03 (0.57-1.89)	0.82 (0.43-1.58)			
Other	1	1	1.07 (0.14-7.99)	1.12 (0.15-8.42)			
<i>p value for trend</i>			0.53	0.38			

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			Card	Noncard	Gastric cancer		
					Cardia cancers	Noncardia cancers ¹⁾	
Freedman et al. (2007) USA NIH-AARP Diet and Health Study	Members of the American Association of Retired Persons, greater than 50 years of age, who resided in six US states. 282856 men and 191750 women; Vital status ascertained by annual linkage of the cohort to the Social Security Administration Death Master File, cancer registry linkage, and responses to mailings; Follow-up 1995-2000 188 gastric cardia, 187 gastric noncardia cancer cases.	<i>Smoking status</i> Never Former smoking Current smoking Ever pipe or cigar smoking <i>Quit smoking status</i> Stopped ≥10 y ago Stopped 5-9 y ago Stopped 1-4 y ago Current smokers p trend <i>Cigarette smoke dose per day</i> >0-1 pack >1-2 packs >2 packs p trend	30 120 38 60 89 21 10 38 83 62 13	53 96 38 37 70 19 7 38 80 42 12	1.0 2.14 (1.42-3.22) 2.86 (1.73-4.70) 1.30 (0.94-1.79) 2.01 (1.32-3.07) 2.73 (1.55-4.82) 2.39 (1.16-4.92) 2.87 (1.75-4.73) <0.0001 2.28 (1.49-3.48) 2.50 (1.60-3.91) 1.52 (0.78-2.96) 0.0095	1.0 1.22 (0.86-1.73) 2.04 (1.32-3.16) 1.01 (0.69-1.48) 1.12 (0.78-1.63) 1.79 (1.05-3.05) 1.18 (0.54-2.62) 2.05 (1.33-3.18) 0.0008 1.37 (0.96-1.96) 1.41 (0.92-2.15) 1.29 (0.68-2.54) 0.15	Adjusted for age at entry, fruit intake, vegetable intake, and total energy, sex, body mass index, education, alcohol intake, vigorous physical activity and usual daily physical activity. ¹⁾ Additionally adjusted for race/ethnicity.
Kim et al. (2007) Korea; Korean Multi-Center Cancer Cohort (KMCC)	Community-based cohort study population consisted of 13785 subjects who had been enrolled in the Korean Multi-Center Cancer Cohort between 1993 and 2002 139 incident gastric cancer cases (92 male	<i>Smoking status</i> Never Former smokers Current smokers Ever P trend <i>Intensity of smoking (Pack-years)</i> Men Women <20 <10 10-19 ≥20 ≥10 p trend	<i>Men</i> 19 19 54 41 10 22	<i>Women</i> 39 8 5 3 4 4	<i>Men</i> 1.0 2.38 (1.12-5.05) 2.38 (1.25-4.51) 0.01 2.53 (1.29-4.69) 1.36 (0.58-3.19) 3.14 (1.54-6.41) 0.02	<i>Women</i> 1.0 1.03 (1.47-2.29) 1.36 (0.51-3.47) 0.79 (0.22-2.49)	Adjusted for age, education level, alcohol drinking, and history of gastritis or ulcer.

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		Men	Women	Men	Women	Men	Women	
Kim et al. (2007) (contd)	cases, 47 female)	<i>Cigarettes per day</i>				<i>Gastric cancer</i>		Adjusted for age, education level, alcohol drinking, and history of gastritis or ulcer.
		Men	Women					
		1-9	<10	15	4	3.45 (1.57-7.58)	1.05 (0.36-3.01)	
		20-39		7		1.36 (0.53-3.48)		
		≥20	≥10	27	4	2.50 (1.26-4.96)	1.02 (0.35-2.98)	
		p trend				0.15		
		<i>Smoking duration, years of Smoking</i>						
		Men	Women					
		1-19	<20	7		1.82 (0.71-4.69)	2.31 (0.82-6.57)	
		20-39		18		2.09 (1.00-4.38)		
		≥40	≥20	35		3.13 (1.59-6.17)	0.65 (0.22-1.88)	
		p trend				<0.01		
		<i>Age at starting smoking</i>						
		≥25		12		2.35 (1.05-5.25)		
		20-24		28		2.85 (1.44-5.66)		
		<20		15		2.12 (0.99-4.58)		
		p trend				0.04		
		<i>Years since smoking cessation</i>						
		Current		54		1.0		
		0-3		6		1.47 (0.62-3.45)		
4-15		3		0.25 (0.03-1.78)				
≥16		10		1.11 (0.59-2.10)				
Never		19		0.42 (0.22-0.79)				
<i>Environmental tobacco smoking at home</i>								
Never		70	12	1.0	1.0			
Former		21	26	1.14 (0.69-1.90)	1.46 (0.73-2.91)			
Current		1	9	0.93 (0.13-6.80)	1.83 (0.75-4.44)			
p trend				0.68	0.16			

Table 2.37. Cohort studies on smoking and risk of stomach cancer

Reference, location, name of study	Cohort description	Smoking categories	No. of cases		Relative risks (95%CI or <i>p</i> value)		Adjustment factors/ comments
					Gastric cancer		
			Card	Dis.	Cardia and upper third	Distal.	
Sung et al. (2007) Korea National Health Insurance Corporation Study	Population-based cohort of 669570 Korean men in an insurance plan. Follow-up 1996-2002 127 cardia and upper-third gastric cancer, 2409 distal gastric cancers, 1007 unclassified gastric cancers	<i>Smoking status</i>					Adjusted for age, body mass index, alcohol intake and preference for saltiness in food.
		Never	24	616	1.0	1.0	
		Former	24	405	1.9 (1.1-3.3)	1.3 (1.2-1.5)	
		Current	79	1297	2.2 (1.4-3.5)	1.4 (1.3-1.6)	
		<i>Cigarettes per day</i>					
		1-19	60	1027	2.3 (1.4-3.7)	1.4 (1.3-1.6)	
		≥20	18	261	2.5 (1.3-4.7)	1.4 (1.2-1.6)	
		<i>p trend</i>			0.1953	0.3567	
<i>Smoking duration</i>							
≤19 years	29	391	2.9 (1.6-5.1)	1.4 (1.2-1.6)			
20-29 years	21	431	1.9 (1.0-3.4)	1.4 (1.3-1.6)			
≥30 years	26	424	2.4 (1.3-4.2)	1.5 (1.3-1.7)			
<i>p trend</i>			0.3387	0.8958			
Batty et al. (2008) UK, Whitehall study	Prospective cohort of 17363 London-based male government employees (age 40-69 years) who were examined in the late 1960s and followed up for a maximum of 38 years; Follow-up until 2005 through the National Health Service Central Registry. 206 stomach cancer deaths	<i>Cigarette smoking status</i>	Stom		Stomach		Adjusted for age, employment grade, physical activity, BMI, marital status, systolic and diastolic blood pressure, cholesterol, forced expiratory volume in one second, height, impaired glucose tolerance, diabetes, and disease at entry.
		Never	32		1.0		
		Former	66		0.97 (0.63-1.49)		
		Current	108		1.63 (1.09-2.45)		
		<i>Current smokers per 10 cigarettes/d per 10 years smoking</i>			1.18 (0.98-1.43)	1.01 (0.74-1.36)	

Table 2.37. Cohort studies on smoking and risk of stomach cancer

Reference, location, name of study	Cohort description	Smoking categories	No. of cases	Relative risks (95%CI or <i>p</i> value)		Adjustment factors/ comments
					Gastric cancer	
Shikata et al. (2008) Japan	1071 Japanese men aged ≥40 years in Hisayama who underwent screening examination in 1988; Hospital admission files were used to identify a first admission event for cancer, follow-up 1988-2002 by health check-ups and monitoring system; 68 gastric cancers 3627 male and 881 female deaths; 7316 male cases	Current smoking	Stom	Stom		Adjusted for age, <i>H. pylori</i> infection, history of peptic ulcer, family history of cancer, BMI, diabetes, total cholesterol, physical activity, alcohol intake, dietary factors
		No	25	1.00		
		Yes	43	1.82 (1.08-3.05)		
		<i>Cigarettes per day</i>				
		None	25	1.00		
		1-9	5	1.36 (0.50-3.71)		
10-19	17	1.93 (1.01-3.67)				
≥20	21	1.88 (1.02-3.43)				
	<i>p</i> trend			0.024		

Table 2.37. Cohort studies on smoking and risk of stomach cancer

Reference, location, name of study	Cohort description	Smoking categories	No. of cases		Relative risks (95%CI or <i>p</i> value)		Adjustment factors/ comments	
			Card	Noncard	Gastric cancer			
					Cardia	Noncardia		
Zendehtel et al. (2008) Sweden	336381 male Swedish construction workers who provided information on tobacco smoking and snuff use within a health surveillance program between 1971 and 1993. Follow-up until 2004 through linkage to several nationwide registries. 276 cardia gastric cancer cases, 1109 noncardia gastric cancer cases	Never				1.0	1.0	Adjusted for attained age and body mass index. Regarding snuff use, additionally adjusted for smoking intensity
		Current smokers <10g/day				2.3 (1.6-3.3)	1.4 (1.2-1.6)	
		10-19g/day				2.1 (1.4-3.1)	1.3 (1.1-1.6)	
		≥20g/day				2.4 (1.6-3.7)	1.4 (1.2-1.8)	
		<i>p</i> trend				0.1	0.3	
		Previous smokers				1.8 (1.2-2.7)	1.3 (1.1-1.5)	
		Smoke free <5 yr				1.9 (1.1-3.4)	1.2 (0.9-1.6)	
		Smoke free ≥5 yr				1.7 (1.1-2.6)	1.3 (1.1-1.6)	
		<i>p</i> trend				0.7	0.6	
		<i>Smoking product</i>						
		Cigarette only				1.7 (1.2-2.5)	1.3 (1.1-1.5)	
		Pipe only				3.1 (2.1-4.7)	1.5 (1.2-1.8)	
		Cigar only				-	1.0 (0.5-1.8)	
		<i>Snuff users</i>						
		<i>In the entire cohort</i>						
		Non-users	218	856		1.0	1.0	
<70 years old	31	128		0.9 (0.6-1.3)	0.9 (0.7-1.1)			
≥70 years old	27	125		1.3 (0.8-1.9)	1.5 (1.2-1.8)			
<i>Among ever smokers</i>								
Non-users	174	615		1.0	1.0			
<70 years old	28	96		1.0 (0.7-1.6)	0.8 (0.7-1.1)			
≥70 years old	22	89		1.4 (0.8-2.2)	1.4 (1.1-1.8)			
<i>Among never smokers</i>								
Never user of any tobacco	44	242		1.0	1.0			
<70 years old	3	32		0.6 (0.2-2.1)	1.2 (0.8-1.8)			
≥70 years old	3	36		1.3 (0.5-3.4)	1.7 (1.2-2.5)			