

S4 Table. Summary of the previous studies on the associations between obesity and colorectal cancer in Korea

Study	Study design	Study period	Study subjects				No. of cases	No. of controls	Category	RR/OR (95% CIs)	Confounding variables considered
			Type and source	Cancer site	Sex	No.					
Chung YW et al. (2006) [22]	Case-control	2002 to 2004	Hospital based (Hanyang University Guri Hospital, Guri, Korea); 105 cases and 207 controls	Colorectum	Both sexes		37	48 < 23.0 (kg/m ²)	1.00	Adjusted for age, sex, glucose, triglyceride, and cholesterol level	
							32	36 23.0-24.9	1.40 (0.60-3.30)		
							36	21 ≥ 25.0	2.30 (0.90-5.80)		
Jee SH et al. (2008) [23]	Prospective cohort	1992 to 1995	Population-based cohort; Korea Medical Insurance Corporation; 770,556 men and 443,273 women	Colon	Men	Not specified	389	< 20.0 (kg/m ²)	0.69 (0.60-0.80)	Adjusted for age and smoking status	
							1590	20.0-22.9	0.83 (0.76-0.91)		
							1415	23.0-24.9	1.00		
							1218	25.0-29.9	1.08 (0.99-1.19)		
							59	≥ 30.0	1.42 (1.02-1.98)		
Jee SH et al. (2008) [23]	Prospective cohort	1992 to 1995	Population-based cohort; Korea Medical Insurance Corporation; 770,556 men and 443,273 women	Rectum	Men	Not specified	395	< 20.0 (kg/m ²)	0.83 (0.72-0.96)	Adjusted for age and smoking status	
							1424	20.0-22.9	0.90 (0.81-0.99)		
							1162	23.0-24.9	1.00		
							1014	25.0-29.9	1.04 (0.93-1.16)		
							37	≥ 30.0	1.16 (0.77-1.74)		
Jee SH et al. (2008) [23]	Prospective cohort	1992 to 1995	Population-based cohort; Korea Medical Insurance Corporation; 770,556 men and 443,273 women	Colon	Women	Not specified	223	< 20.0 (kg/m ²)	0.75 (0.61-0.92)	Adjusted for age and smoking status	
							586	20.0-22.9	0.82 (0.70-0.96)		
							509	23.0-24.9	1.00		
							573	25.0-29.9	0.92 (0.79-1.07)		
							68	≥ 30.0	1.01 (0.72-1.42)		
Jee SH et al. (2008) [23]	Prospective cohort	1992 to 1995	Population-based cohort; Korea Medical Insurance Corporation; 770,556 men and 443,273 women	Rectum	Women	Not specified	195	< 20.0 (kg/m ²)	0.86 (0.68-1.08)	Adjusted for age and smoking status	
							526	20.0-22.9	0.98 (0.83-1.17)		
							400	23.0-24.9	1.00		
							511	25.0-29.9	1.11 (0.93-1.32)		
							49	≥ 30.0	1.14 (0.78-1.68)		
Lim HJ et al. (2008) [8]	Prospective cohort	1993 to 1998; aged 65 years or more; linking data from the Korean Medical Insurance Corporation	Population-based dynamic cohort (Korea Elderly Pharmacepidemiologic Cohort [KEPEC]); 4,834 men and 9,470 women	Colorectum	Both sexes		2,585	< 18.5 (kg/m ²)	0.52 (0.29-0.95)	Crude RR	
							6,887	18.5-22.9	1.00		
							2,562	23.0-24.9	0.87 (0.53-1.43)		
							2,270	≥ 25.0	0.68 (0.38-1.22)		

		(KMIC) until December 31, 2002									
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Proximal colon	Men	21,997 362,844 245,149 239,506	19 210 156 151	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	1.10 (0.70-1.80) 1.00 1.10 (0.90-1.40) 1.10 (0.90-1.40)	Adjusted for age	
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Distal colon	Men	21,997 362,844 245,149 239,506	18 259 213 261	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	0.80 (0.50-1.20) 1.00 1.30 (1.10-1.50) 1.60 (1.40-2.00)	Adjusted for age	
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Rectum	Men	21,997 362,844 245,149 239,506	59 609 439 430	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	1.10 (0.80-1.40) 1.00 1.10 (1.00-1.20) 1.10 (1.00-1.30)	Adjusted for age	
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Proximal colon	Women	16,314 172,402 95,096 111,608	9 76 54 97	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	1.10 (0.60-2.30) 1.00 1.10 (0.80-1.60) 1.50 (1.10-2.00)	Adjusted for age	
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Distal colon	Women	16,314 172,402 95,096 111,608	10 75 63 77	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	1.40 (0.70-2.70) 1.00 1.30 (1.00-1.90) 1.30 (0.90-1.80)	Adjusted for age	
Shin A et al. (2011) [10]	Prospective cohort	1996 to 1997; 7 years of follow- up	Population-based cohort; Korea Medical Insurance Corporation; 869,725 men and 395,501 women	Rectum	Women	16,314 172,402 95,096 111,608	17 209 135 190	< 18.5 (kg/m ²) 18.5-22.9 23.0-24.9 ≥ 25.0	0.80 (0.50-1.30) 1.00 1.00 (0.80-1.30) 1.10 (0.90-1.30)	Adjusted for age	
Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Proximal colon	Men	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.13 (1.07-1.19)	Adjusted for age, height, family history for cancer, and amount of alcohol consumed.	
Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Colon	Men	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.20 (1.11-1.30)	Adjusted for age, height, family history for cancer, and amount of alcohol consumed.	

Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Right colon	Men	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.11 (0.98-1.26)	Adjusted for age, height, family history for cancer, and amount of alcohol consumed.
Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Left colon	Men	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.27 (1.15-1.41)	Adjusted for age, height, family history for cancer, and amount of alcohol consumed.
Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Rectum	Women	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.07 (0.99-1.15)	Adjusted for age, height, family history for cancer, and amount of alcohol consumed.
Shin A et al. (2014) [19]	Prospective cohort	1996 to 1997	Population-based cohort; Korea Medical Insurance Corporation; 846,559 men and 479,449 women	Right colon	Women	Not specified	Not specified	< 25.0 (kg/m ²) ≥ 25.0	1.00 1.16 (0.98-1.37)	Adjusted for age, height, fasting glucose, and family history of cancer
Wie GA et al. (2014) [24]	Prospective cohort	2004 to 2008	Hospital based (participated in the Cancer Screening Examination Cohort of the National Cancer Center); 4,402 men and 3,622 women; follow-up (median 7.0 years) of Korea)	Colorectum	Both sexes	4,810 3,214	34 19	< 25.0 (kg/m ²) ≥ 25.0 (kg/m ²)	1.00 0.64 (0.32-1.26)	Adjusted for age, sex, energy intake, BMI, physical activity, smoking, alcohol use, income, education and marital status.
Shin CM et al. (2017) [25]	Retrospective cohort	Until 2013	National Health Insurance Service–National Sample Cohort	Colorectum	Both sexes	18,208 167,535 98,105 112,362 12,721	148 1,742 1,385 1,658 175	<18.5 18.5-23.0 23.0-25.0 25.0-30.0 ≥ 30	0.83 (0.70-1.00) 1.00 1.17 (1.08-1.26) 1.17 (1.09-1.26) 1.35 (1.14-1.59)	Adjusted for age, sex, drinking, smoking, exercise, income, diabetes mellitus, hypertension, and hypercholesterolemia
Choi YJ et al. (2018) [26]	Retrospective cohort	2009 to 2012	National Health Insurance Corporation (NHIC)	Colorectum	Both sexes	4,429,260 person-year	4,102	< 90 cm among men; <85 cm among women ≥ 90 cm among men; ≥ 85 cm	1.00 1.16 (1.12-1.20)	Adjusted for age, sex, smoking status, alcohol consumption, and regular physical exercise

Kim H et al. (2019) [16]	Case-control	2007 to 2014	National Cancer Center (NCC)	Colorectum	Both sexes	581 1,239	among women 329 \geq 25 kg/m ² 593 < 25 kg/m ²	1.00 0.78 (0.63-0.97)	Adjusted for prior BMI, physical activity, smoking, alcohol drinking and dietary inflammatory index
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BMI, body mass index; CI, confidence interval; OR, odds ratio; RR, relative risk.