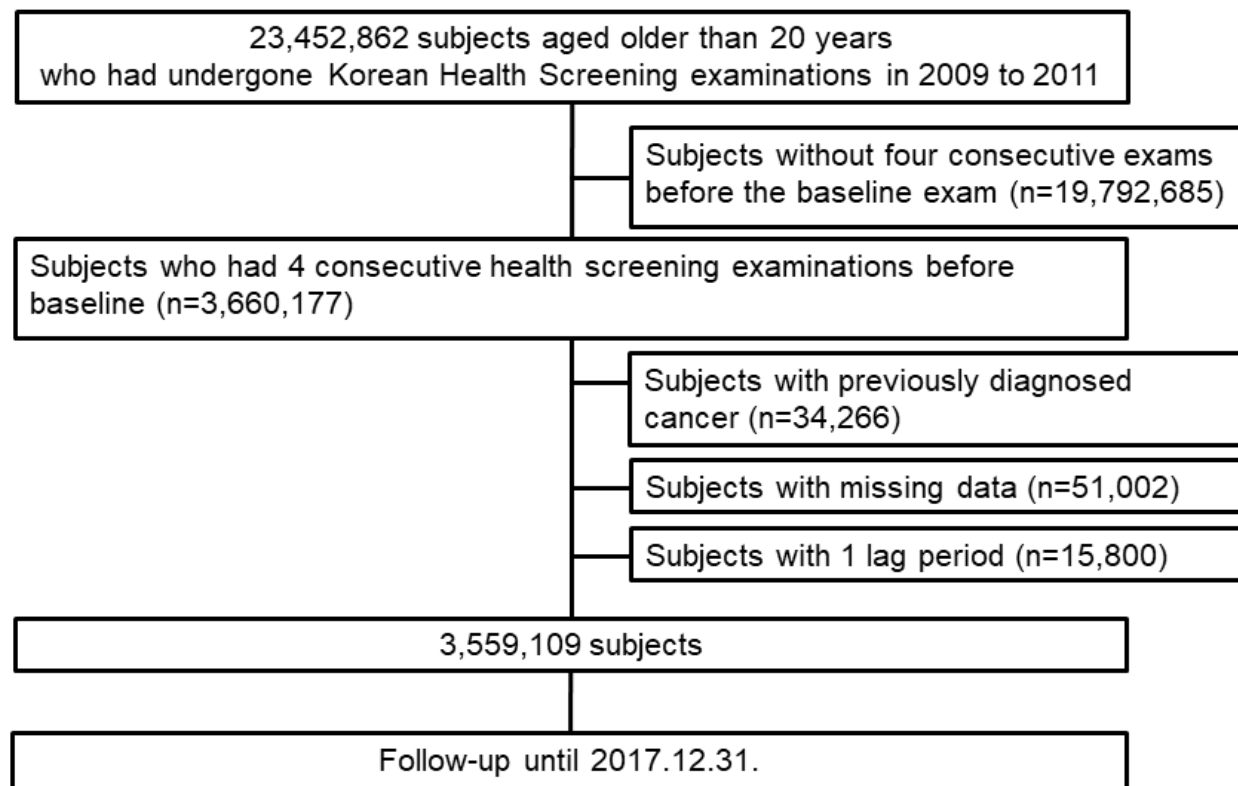


Supplementary Figure 1. Flowchart of the enrolment of the study population.

Supplementary Figure 1.



Supplementary Table 1. Impact of the GGT points on cancer incidence according to the subgroup analysis including age, smoking, alcohol drinking, body

mass index, and liver cirrhosis or chronic hepatitis.

		Male					
		GGT points					p for interaction
		0	1	2	3	4	
Total Digestive							
Age	<60	1(ref.)	1.26 (1.21, 1.31)	1.41 (1.35, 1.47)	1.48 (1.41, 1.54)	1.85 (1.79, 1.92)	0.188
	≥60	1(ref.)	1.27 (1.19, 1.35)	1.26 (1.16, 1.36)	1.47 (1.36, 1.59)	1.68 (1.59, 1.79)	
Ever smoker	No	1(ref.)	1.37 (1.28, 1.46)	1.50 (1.39, 1.62)	1.69 (1.56, 1.82)	1.98 (1.86, 2.10)	<0.001
	Yes	1(ref.)	1.25 (1.20, 1.30)	1.36 (1.30, 1.43)	1.46 (1.40, 1.53)	1.85 (1.79, 1.91)	
Drinking	No	1(ref.)	1.34 (1.26, 1.42)	1.51 (1.41, 1.63)	1.73 (1.61, 1.87)	2.26 (2.13, 2.40)	<0.001
	Mild	1(ref.)	1.24 (1.18, 1.29)	1.34 (1.28, 1.41)	1.40 (1.34, 1.47)	1.79 (1.73, 1.86)	
	Heavy	1(ref.)	1.23 (1.10, 1.38)	1.28 (1.13, 1.44)	1.49 (1.34, 1.66)	1.64 (1.51, 1.78)	
BMI	<25	1(ref.)	1.31 (1.26, 1.37)	1.47 (1.40, 1.55)	1.57 (1.50, 1.66)	2.02 (1.95, 2.10)	<0.001
	≥25	1(ref.)	1.22 (1.15, 1.29)	1.29 (1.21, 1.37)	1.42 (1.34, 1.51)	1.70 (1.63, 1.78)	
LC or hepatitis	No	1(ref.)	1.22 (1.18, 1.26)	1.32 (1.26, 1.37)	1.41 (1.35, 1.47)	1.68 (1.63, 1.73)	<0.001
	Yes	1(ref.)	1.66 (1.47, 1.87)	2.13 (1.87, 2.43)	2.47 (2.18, 2.80)	4.05 (3.69, 4.46)	
Gastrointestinal							
Age	<60	1(ref.)	1.09 (1.04, 1.14)	1.18 (1.12, 1.25)	1.19 (1.13, 1.25)	1.30 (1.25, 1.36)	0.057
	≥60	1(ref.)	1.14 (1.06, 1.23)	1.08 (0.98, 1.18)	1.27 (1.16, 1.39)	1.23 (1.14, 1.32)	
Ever smoker	No	1(ref.)	1.19 (1.10, 1.28)	1.27 (1.16, 1.39)	1.28 (1.17, 1.41)	1.38 (1.28, 1.49)	0.036
	Yes	1(ref.)	1.10 (1.05, 1.15)	1.16 (1.10, 1.22)	1.22 (1.16, 1.29)	1.32 (1.27, 1.37)	
Drinking	No	1(ref.)	1.06 (0.99, 1.15)	1.23 (1.12, 1.34)	1.23 (1.12, 1.36)	1.32 (1.21, 1.43)	0.471
	Mild	1(ref.)	1.14 (1.09, 1.20)	1.16 (1.09, 1.23)	1.23 (1.16, 1.23)	1.36 (1.30, 1.42)	
	Heavy	1(ref.)	1.13 (0.99, 1.28)	1.18 (1.03, 1.35)	1.26 (1.12, 1.42)	1.28 (1.16, 1.40)	
BMI	<25	1(ref.)	1.13 (1.08, 1.19)	1.22 (1.15, 1.30)	1.27 (1.20, 1.35)	1.39 (1.33, 1.45)	0.005

	≥25	1(ref.)	1.10 (1.03, 1.17)	1.12 (1.05, 1.21)	1.20 (1.12, 1.28)	1.28 (1.21, 1.35)	
LC or hepatitis	No	1(ref.)	1.13 (1.08, 1.17)	1.18 (1.13, 1.24)	1.25 (1.19, 1.31)	1.32 (1.28, 1.37)	0.003
	Yes	1(ref.)	0.95 (0.77, 1.18)	1.19 (0.94, 1.50)	1.04 (0.82, 1.32)	1.61 (1.36, 1.90)	
Esophagus							
Age	<60	1(ref.)	1.66 (1.25,2.19)	2.29 (1.72, 3.04)	2.19 (1.65, 2.91)	3.36 (2.74, 4.14)	0.053
	≥60	1(ref.)	1.79 (1.33,2.42)	1.39 (0.94, 2.08)	2.51 (1.83, 3.45)	2.18 (1.65, 2.88)	
Ever smoker	No	1(ref.)	1.39 (0.86,2.26)	1.74 (1.00, 3.02)	3.45 (2.23, 5.34)	3.15 (2.16, 4.60)	0.176
	Yes	1(ref.)	1.86 (1.48,2.33)	2.02 (1.57, 2.61)	2.20 (1.73, 2.81)	3.03 (2.53, 3.64)	
Heavy drinker	No	1(ref.)	1.54 (0.99, 2.42)	1.68 (0.94, 2.99)	3.44 (2.16, 5.46)	3.41 (2.26, 5.14)	0.093
	Mild	1(ref.)	1.85 (1.43, 2.40)	2.26 (1.71, 2.98)	2.26 (1.72, 2.97)	3.30 (2.70, 4.04)	
	Heavy	1(ref.)	1.48 (0.88, 2.50)	1.15 (0.63, 2.11)	1.83 (1.14, 2.95)	1.97 (1.34, 2.90)	
BMI	<25	1(ref.)	1.82 (1.44,2.29)	1.90 (1.44, 2.49)	2.45 (1.92, 3.14)	2.98 (2.47, 3.60)	0.938
	≥25	1(ref.)	1.67 (1.08,2.59)	2.27 (1.46, 3.53)	2.42 (1.59, 3.70)	3.38 (2.42, 4.71)	
LC or hepatitis	No	1(ref.)	1.76 (1.43, 2.17)	2.02 (1.60, 2.55)	2.35 (1.89, 2.92)	2.89 (2.44, 3.42)	0.035
	Yes	1(ref.)	2.50 (0.70, 8.90)	0.90 (0.11, 7.52)	5.70 (1.88, 17.26)	10.00 (3.97, 25.22)	
Stomach							
Age	<60	1(ref.)	1.12(1.05,1.20)	1.21(1.12,1.30)	1.18 (1.10, 1.27)	1.25 (1.19, 1.32)	0.014
	≥60	1(ref.)	1.06(0.95,1.17)	0.97(0.85,1.11)	1.18 (1.04, 1.34)	1.06 (0.95, 1.18)	
Ever smoker	No	1(ref.)	1.20(1.08,1.33)	1.18(1.04,1.35)	1.25 (1.09, 1.42)	1.30 (1.17, 1.45)	0.412
	Yes	1(ref.)	1.10(1.03,1.17)	1.17(1.09,1.26)	1.21 (1.12, 1.29)	1.25 (1.19, 1.32)	
Heavy drinker	No	1(ref.)	1.06 (0.96, 1.17)	1.17 (1.04, 1.33)	1.25 (1.10, 1.42)	1.23 (1.10, 1.38)	0.740
	Mild	1(ref.)	1.17 (1.09, 1.25)	1.17 (1.08, 1.27)	1.21 (1.12, 1.30)	1.28 (1.20, 1.35)	
	Heavy	1(ref.)	1.00 (0.83, 1.20)	1.18 (0.98, 1.42)	1.20 (1.01, 1.42)	1.23 (1.08, 1.41)	
BMI	<25	1(ref.)	1.11(1.04,1.19)	1.21(1.11,1.31)	1.22 (1.12, 1.32)	1.25 (1.17, 1.33)	0.806
	≥25	1(ref.)	1.14(1.04,1.24)	1.13(1.03,1.25)	1.22 (1.11, 1.34)	1.28 (1.19, 1.38)	
LC or hepatitis	No	1(ref.)	1.13 (1.07, 1.19)	1.18 (1.10, 1.25)	1.23 (1.15, 1.30)	1.25 (1.19, 1.31)	0.112

	Yes	1(ref.)	1.01 (0.76, 1.34)	1.15 (0.83, 1.59)	0.98 (0.70, 1.38)	1.48 (1.17, 1.87)	
Colorectal							
Age	<60	1(ref.)	1.03 (0.97, 1.10)	1.11 (1.04, 1.20)	1.13 (1.05, 1.22)	1.28 (1.21, 1.35)	0.011
	≥60	1(ref.)	1.18 (1.07, 1.30)	1.10 (0.97, 1.25)	1.25 (1.10, 1.41)	1.33 (1.21, 1.47)	
Ever smoker	No	1(ref.)	1.19 (1.07, 1.32)	1.27 (1.12, 1.44)	1.27 (1.12, 1.45)	1.46 (1.32, 1.61)	0.018
	Yes	1(ref.)	1.05 (0.98, 1.12)	1.09 (1.02, 1.18)	1.16 (1.08, 1.25)	1.30 (1.23, 1.37)	
Heavy drinker	No	1(ref.)	1.03 (0.93, 1.15)	1.25 (1.11, 1.42)	1.14 (1.00, 1.31)	1.33 (1.19, 1.49)	0.089
	Mild	1(ref.)	1.09 (1.01,1.16)	1.08 (0.99,1.17)	1.19 (1.10, 1.28)	1.37 (1.29, 1.45)	
	Heavy	1(ref.)	1.22 (1.02, 1.45)	1.19 (0.99, 1.43)	1.22 (1.03, 1.45)	1.24 (1.09, 1.42)	
BMI	<25	1(ref.)	1.11 (1.03, 1.19)	1.17 (1.08, 1.28)	1.26 (1.16, 1.37)	1.43 (1.34, 1.52)	0.001
	≥25	1(ref.)	1.05 (0.96, 1.15)	1.08 (0.98, 1.19)	1.11 (1.01, 1.21)	1.24 (1.15, 1.33)	
LC or hepatitis	No	1(ref.)	1.10 (1.04, 1.16)	1.13 (1.06, 1.21)	1.20 (1.12, 1.27)	1.32 (1.26, 1.39)	0.029
	Yes	1(ref.)	0.84 (0.62, 1.15)	1.17 (0.85, 1.62)	1.03 (0.74, 1.44)	1.65 (1.32, 2.08)	
Hepatobiliary pancreas							
Age	<60	1(ref.)	1.65 (1.55, 1.77)	1.99 (1.85, 2.14)	2.20 (2.05, 2.36)	3.36 (3.19, 3.53)	0.689
	≥60	1(ref.)	1.55 (1.40, 1.72)	1.64 (1.44, 1.85)	1.90 (1.68, 2.15)	2.86 (2.62, 3.13)	
Ever smoker	No	1(ref.)	1.81 (1.63, 2.01)	2.09 (1.84, 2.36)	2.66 (2.37, 2.99)	3.60 (3.30, 3.93)	<0.001
	Yes	1(ref.)	1.59 (1.49, 1.70)	1.87 (1.74, 2.01)	2.03 (1.89, 2.17)	3.24 (3.08, 3.41)	
Heavy drinker	No	1(ref.)	1.90 (1.74, 2.08)	2.27 (2.03, 2.53)	2.82 (2.54, 3.14)	4.42 (4.08, 4.78)	<0.001
	Mild	1(ref.)	1.47 (1.36, 1.59)	1.73 (1.60, 1.88)	1.83 (1.69, 1.99)	2.94 (2.78, 3.11)	
	Heavy	1(ref.)	1.50 (1.22, 1.85)	1.60 (1.29, 1.99)	2.01 (1.66, 2.42)	2.74 (2.36, 3.18)	
BMI	<25	1(ref.)	1.74 (1.62, 1.87)	2.12 (1.95, 2.30)	2.37 (2.19, 2.56)	3.76 (3.55, 3.98)	<0.001
	≥25	1(ref.)	1.49 (1.36, 1.63)	1.65 (1.50, 1.83)	1.89 (1.72, 2.08)	2.81 (2.62, 3.01)	
LC or hepatitis	No	1(ref.)	1.45 (1.36, 1.54)	1.66 (1.54, 1.78)	1.82 (1.71, 1.95)	2.69 (2.56, 2.82)	<0.001
	Yes	1(ref.)	2.07 (1.81, 2.38)	2.74 (2.36, 3.18)	3.29 (2.85, 3.78)	5.73 (5.14, 6.38)	
Liver							

Age	<60	1(ref.)	2.41 (2.19, 2.64)	3.12 (2.83, 3.44)	3.68 (3.36, 4.04)	6.64 (6.20, 7.11)	0.307
	≥60	1(ref.)	2.16 (1.84, 2.54)	2.77 (2.31, 3.32)	3.33 (2.80, 3.97)	6.42 (5.65, 7.29)	
Ever smoker	No	1(ref.)	2.77 (2.40, 3.20)	3.55 (3.01, 4.18)	4.42 (3.79, 5.17)	7.02 (6.25, 7.89)	0.013
	Yes	1(ref.)	2.25 (2.05, 2.48)	2.98 (2.69, 3.30)	3.52 (3.19, 3.87)	6.79 (6.33, 7.29)	
Heavy drinker	No	1(ref.)	2.88 (2.56, 3.25)	3.83 (3.34, 4.39)	4.98 (4.36, 5.68)	8.62 (7.81, 9.52)	<0.001
	Mild	1(ref.)	2.05 (1.83, 2.29)	2.74 (2.44, 3.08)	3.00 (2.68, 3.35)	5.91 (5.45, 6.40)	
	Heavy	1(ref.)	1.78 (1.29, 2.47)	2.0 (1.44, 2.79)	3.08 (2.34, 4.06)	5.20 (4.16, 6.50)	
BMI	<25	1(ref.)	2.69 (2.43, 2.97)	3.73 (3.35, 4.15)	4.24 (3.81, 4.71)	8.24 (7.64, 8.88)	<0.001
	≥25	1(ref.)	1.90 (1.66, 2.17)	2.29 (1.99, 2.64)	2.96 (2.60, 3.36)	5.10 (4.62, 5.63)	
LC or hepatitis	No	1(ref.)	1.96 (1.78, 2.16)	2.55 (2.30, 2.83)	3.00 (2.72, 3.30)	5.53 (5.15, 5.93)	0.359
	Yes	1(ref.)	2.26 (1.96, 2.61)	3.09 (2.64, 3.61)	3.67 (3.16, 4.26)	6.52 (5.82, 7.32)	

Pancreas

Age	<60	1(ref.)	1.15 (1.04, 1.28)	1.24 (1.10, 1.39)	1.25 (1.12, 1.40)	1.43 (1.31, 1.56)	0.350
	≥60	1(ref.)	1.17 (1.00, 1.36)	0.96 (0.78, 1.18)	1.19 (0.98, 1.45)	1.41 (1.22, 1.64)	
Ever smoker	No	1(ref.)	1.19 (1.00, 1.41)	1.19 (0.96, 1.48)	1.43 (1.16, 1.75)	1.67 (1.43, 1.95)	0.552
	Yes	1(ref.)	1.17 (1.06, 1.29)	1.18 (1.06, 1.33)	1.23 (1.10, 1.37)	1.42 (1.31, 1.55)	
Heavy drinker	No	1(ref.)	1.14 (0.974, 1.32)	1.28 (1.06, 1.55)	1.36 (1.11, 1.65)	1.64 (1.40, 1.92)	0.517
	Mild	1(ref.)	1.19 (1.07, 1.33)	1.11 (0.98, 1.27)	1.24 (1.09, 1.40)	1.45 (1.32, 1.59)	
	Heavy	1(ref.)	1.14 (0.84, 1.54)	1.33 (0.98, 1.80)	1.22 (0.92, 1.63)	1.37 (1.10, 1.71)	
BMI	<25	1(ref.)	1.19 (1.06, 1.32)	1.20 (1.05, 1.37)	1.34 (1.18, 1.52)	1.49 (1.35, 1.65)	0.715
	≥25	1(ref.)	1.16 (1.01, 1.33)	1.17 (1.01, 1.37)	1.19 (1.03, 1.38)	1.46 (1.30, 1.63)	
LC or hepatitis	No	1(ref.)	1.17 (1.07, 1.28)	1.18 (1.07, 1.31)	1.26 (1.14, 1.39)	1.41 (1.31, 1.53)	0.010
	Yes	1(ref.)	1.13 (0.76, 1.67)	1.13 (0.71, 1.82)	1.31 (0.84, 2.02)	2.42 (1.79, 3.27)	

Biliary

Age	<60	1(ref.)	1.37 (1.16, 1.60)	1.51 (1.27, 1.81)	1.48 (1.24, 1.76)	1.89 (1.66, 2.16)	0.799
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	≥60	1(ref.)	1.51 (1.26, 1.82)	1.36 (1.07, 1.72)	1.39 (1.09, 1.76)	1.71 (1.43, 2.06)	
Ever smoker	No	1(ref.)	1.44 (1.15, 1.80)	1.61 (1.23, 2.09)	1.96 (1.53, 2.52)	1.97 (1.61, 2.42)	0.135
	Yes	1(ref.)	1.45 (1.25, 1.67)	1.43 (1.21, 1.70)	1.32 (1.11, 1.57)	1.85 (1.64, 2.10)	
Heavy drinker	No	1(ref.)	1.62 (1.33, 1.97)	1.41 (1.08, 1.85)	1.60 (1.21,2.11)	2.45 (2.01, 3.00)	<0.001
	Mild	1(ref.)	1.22 (1.03, 1.45)	1.55 (1.30, 1.85)	1.34 (1.11, 1.61)	1.71 (1.50, 1.96)	
	Heavy	1(ref.)	2.29 (1.52, 3.47)	1.02 (0.58, 1.79)	1.82 (1.19, 2.79)	1.86 (1.31, 2.64)	
BMI	<25	1(ref.)	1.62 (1.39, 1.88)	1.53 (1.27, 1.86)	1.47 (1.21, 1.79)	2.04 (1.77, 2.35)	0.166
	≥25	1(ref.)	1.23 (1.01, 1.50)	1.41 (1.14, 1.75)	1.47 (1.20, 1.81)	1.74 (1.48, 2.04)	
LC or hepatitis	No	1(ref.)	1.40 (1.24, 1.59)	1.48 (1.28, 1.72)	1.39 (1.20, 1.62)	1.82 (1.63, 2.03)	0.218
	Yes	1(ref.)	1.79 (1.15, 2.77)	1.24 (0.68, 2.27)	2.46 (1.55, 3.90)	2.57 (1.74, 3.79)	

Female							
		GTP_N					p for interaction
		0	1	2	3	4	
Total Digestive							
Age	<60	1(ref.)	0.99 (0.92, 1.06)	1.00 (0.91, 1.09)	1.06 (0.96, 1.16)	1.22(1.14,1.32)	0.214
	≥60	1(ref.)	1.04 (0.88, 1.22)	1.14 (0.95, 1.37)	1.31 (1.10, 1.56)	1.45(1.26,1.67)	
Ever smoker	No	1(ref.)	0.99 (0.93, 1.06)	1.02 (0.94, 1.11)	1.11 (1.02, 1.21)	1.28(1.20,1.37)	0.747
	Yes	1(ref.)	1.04 (0.66, 1.63)	1.07 (0.65, 1.78)	0.94 (0.55, 1.60)	0.98(0.65,1.50)	
Heavy drinker	No	1(ref.)	1.00 (0.93, 1.08)	1.00 (0.90, 1.10)	1.17 (1.07, 1.29)	1.31 (1.21, 1.41)	0.350
	Mild	1(ref.)	0.97 (0.84, 1.12)	1.09 (0.93, 1.28)	0.92 (0.77, 1.10)	1.17 (1.02, 1.33)	
	Heavy	1(ref.)	1.59 (0.45, 5.64)	2.81 (0.85, 9.29)	1.88 (0.46, 7.64)	2.77(0.93,8.22)	
BMI	<25	1(ref.)	1.00 (0.93, 1.09)	1.04 (0.94, 1.15)	1.13 (1.02, 1.25)	1.36(1.26,1.48)	0.073
	≥25	1(ref.)	0.94 (0.82, 1 .09)	0.95 (0.81, 1.12)	1.04 (0.89, 1.21)	1.11(0.98,1.25)	
LC or hepatitis	No	1(ref.)	0.98 (0.92, 1.05)	1.01 (0.93, 1.10)	1.06 (0.97, 1.16)	1.17 (1.10, 1.26)	<0.001

	Yes	1(ref.)	1.36 (0.92, 2.00)	1.37 (0.87, 2.17)	2.60 (1.78, 3.80)	3.99 (2.94, 5.42)	
Gastrointestinal							
Age	<60	1(ref.)	0.94 (0.86, 1.02)	0.96 (0.86, 1.06)	0.95 (0.86, 1.06)	1.02 (0.94, 1.11)	0.224
	≥60	1(ref.)	0.99 (0.82, 1.19)	0.93 (0.75, 1.16)	1.21 (0.99, 1.48)	1.17 (0.99, 1.39)	
Ever smoker	No	1(ref.)	0.95 (0.88, 1.02)	0.95 (0.86, 1.04)	1.01 (0.92, 1.11)	1.06 (0.98, 1.15)	0.806
	Yes	1(ref.)	0.97 (0.59, 1.59)	1.11 (0.65, 1.89)	0.91 (0.51, 1.62)	0.84 (0.53, 1.35)	
Heavy drinker	No	1(ref.)	0.95 (0.87, 1.04)	0.89 (0.80, 1.00)	1.05 (0.94, 1.17)	1.08 (0.98, 1.18)	0.201
	Mild	1(ref.)	0.94 (0.81, 1.10)	1.10 (0.92, 1.31)	0.89 (0.73, 1.08)	0.99 (0.85, 1.15)	
	Heavy	1(ref.)	0.81 (0.16, 4.03)	3.04 (0.92, 10.08)	2.11 (0.52, 8.61)	2.14 (0.65, 7.06)	
BMI	<25	1(ref.)	0.95 (0.87, 1.03)	0.98 (0.88, 1.09)	1.04 (0.92, 1.16)	1.12 (1.02, 1.23)	0.165
	≥25	1(ref.)	0.92 (0.79, 1.08)	0.86 (0.71, 1.02)	0.93 (0.78, 1.11)	0.93 (0.81, 1.07)	
LC or hepatitis	No	1(ref.)	0.94 (0.88, 1.02)	0.95 (0.87, 1.05)	0.99 (0.90, 1.10)	1.04 (0.96, 1.13)	0.084
	Yes	1(ref.)	1.18 (0.71, 1.97)	0.97 (0.51, 1.84)	1.76 (1.04, 3.00)	1.79 (1.14, 2.81)	
Esophagus							
Age	<60	1(ref.)	0.61 (0.18, 2.12)	1.40 (0.46, 4.28)	0.41 (0.05, 3.11)	1.59 (0.62, 4.13)	0.426
	≥60	1(ref.)	1.97 (0.49, 7.93)	-	2.07 (0.45, 9.57)	1.06 (0.22, 5.04)	
Ever smoker	No	1(ref.)	0.86 (0.34, 2.16)	0.93 (0.31 ,2.76)	1.02 (0.34, 3.05)	1.41 (0.62, 3.18)	-
	Yes	1(ref.)	.	.	.	.
Heavy drinker	No	1(ref.)	0.87 (0.31, 2.41)	0.56 (0.13, 2.47)	1.22 (0.39, 3.78)	1.01 (0.37, 2.75)	0.994
	Mild	1(ref.)	1.45 (0.26, 8.01)	2.24 (0.40, 12.66)	.	2.83 (0.66, 12.19)	
	Heavy	1(ref.)	.	.	.	.
BMI	<25	1(ref.)	0.66 (0.22, 1.94)	0.84 (0.25 ,2.88)	0.98 (0.29, 3.39)	1.38 (0.56, 3.44)	0.515
	≥25	1(ref.)	5.21 (0.54, 50.58)	2.20 (0.14 ,35.73)	2.05 (0.13, 33.49)	2.57 (0.25, 26.30)	
LC or hepatitis	No	1(ref.)	1.00 (0.42, 2.40)	0.93 (0.31 ,2.76)	1.02 (0.34, 3.06)	1.40 (0.62, 3.16)	1.000
	Yes	1(ref.)	.	.	.	.
Stomach							

Age	<60	1(ref.)	0.85 (0.74 ,0.98)	0.89 (0.76, 1.06)	0.90 (0.75, 1.08)	0.99 (0.86, 1.14)	0.348
	≥60	1(ref.)	0.98 (0.73 ,1.31)	0.89 (0.63, 1.26)	1.27 (0.93, 1.73)	1.20 (0.92, 1.56)	
Ever smoker	No	1(ref.)	0.88 (0.77 ,0.99)	0.88 (0.76, 1.03)	1.00 (0.85, 1.16)	1.05 (0.93, 1.19)	0.458
	Yes	1(ref.)	0.78 (0.35 ,1.73)	1.06 (0.48, 2.38)	0.52 (0.18, 1.52)	0.59 (0.27, 1.28)	
Heavy drinker	No	1(ref.)	0.93 (0.81, 1.06)	0.86 (0.72, 1.03)	1.00 (0.84, 1.20)	1.06 (0.92, 1.22)	0.705
	Mild	1(ref.)	0.72 (0.55, 0.95)	0.95 (0.71, 1.28)	0.89 (0.65, 1.22)	0.94 (0.73, 1.20)	
	Heavy	1(ref.)	.	3.65 (0.73, 18.36)	2.74 (0.45, 16.74)	2.95 (0.62, 14.10)	
BMI	<25	1(ref.)	0.89 (0.77 ,1.02)	0.93 (0.78, 1.11)	0.94 (0.77, 1.14)	1.11 (0.95, 1.29)	0.496
	≥25	1(ref.)	0.82 (0.63 ,1.06)	0.80 (0.60, 1.06)	1.03 (0.79, 1.33)	0.91 (0.73, 1.13)	
LC or hepatitis	No	1(ref.)	0.87 (0.77, 0.99)	0.90 (0.77, 1.05)	0.95 (0.81, 1.11)	1.01 (0.89, 1.15)	0.043
	Yes	1(ref.)	0.93 (0.38, 2.27)	0.62 (0.18, 2.16)	2.46 (1.13, 5.34)	1.94 (0.96, 3.93)	
Colorectal							
Age	<60	1(ref.)	0.98 (0.89, 1.09)	1.00 (0.88, 1.13)	0.99 (0.87, 1.13)	1.03 (0.93, 1.15)	0.712
	≥60	1(ref.)	1.01 (0.81, 1.28)	0.93 (0.71, 1.23)	1.15 (0.89, 1.48)	1.15 (0.93, 1.43)	
Ever smoker	No	1(ref.)	0.99 (0.90, 1.09)	0.99 (0.88, 1.11)	1.03 (0.91, 1.15)	1.06 (0.96, 1.17)	0.997
	Yes	1(ref.)	0.93 (0.50, 1.76)	1.01 (0.50, 2.05)	1.10 (0.55, 2.20)	0.99 (0.56, 1.75)	
Heavy drinker	No	1(ref.)	0.99 (0.89, 1.10)	0.93 (0.81, 1.06)	1.09 (0.96, 1.25)	1.09 (0.98, 1.22)	0.267
	Mild	1(ref.)	1.00 (0.83, 1.20)	1.17 (0.95, 1.44)	0.85 (0.67, 1.08)	0.97 (0.81, 1.17)	
	Heavy	1(ref.)	0.93 (0.18, 4.86)	1.48 (0.28, 7.75)	0.93 (0.11, 8.17)	0.88 (0.15, 5.04)	
BMI	<25	1(ref.)	0.97 (0.87, 1.07)	1.02 (0.89, 1.16)	1.10 (0.96, 1.26)	1.12 (1.00, 1.25)	0.107
	≥25	1(ref.)	1.04 (0.86, 1.25)	0.90 (0.73, 1.13)	0.87 (0.70, 1.09)	0.95 (0.80, 1.13)	
LC or hepatitis	No	1(ref.)	0.99 (0.90, 1.08)	0.99 (0.88, 1.11)	1.02 (0.90,1.15)	1.05 (0.95, 1.16)	0.622
	Yes	1(ref.)	1.21 (0.66, 2.23)	1.08 (0.51, 2.29)	1.57 (0.80, 3.08)	1.68 (0.96, 2.94)	
Hepatobiliary pancreas							
Age	<60	1(ref.)	1.09 (0.95, 1.26)	1.22 (1.03, 1.44)	1.40 (1.18, 1.66)	1.91 (1.68, 2.17)	0.827
	≥60	1(ref.)	1.16 (0.89, 1.53)	1.52 (1.14, 2.03)	1.54 (1.16, 2.06)	2.10 (1.67, 2.63)	

Ever smoker	No	1(ref.)	1.10 (0.97, 1.25)	1.29 (1.11, 1.49)	1.44 (1.24, 1.66)	1.95 (1.74, 2.18)	0.949
	Yes	1(ref.)	1.25 (0.50, 3.11)	1.20 (0.43, 3.39)	0.92 (0.30, 2.84)	1.66 (0.76, 3.61)	
Heavy drinker	No	1(ref.)	1.16 (1.00, 1.33)	1.32 (1.12, 1.56)	1.62 (1.37, 1.90)	2.04 (1.80, 2.32)	0.156
	Mild	1(ref.)	0.93 (0.71, 1.22)	1.14 (0.85, 1.54)	0.88 (0.63, 1.24)	1.66 (1.32, 2.07)	
	Heavy	1(ref.)	4.38 (0.39, 48.59)	5.69 (0.51, 63.81)	3.27 (0.20, 52.92)	4.48 (0.44, 45.63)	
BMI	<25	1(ref.)	1.09 (0.94, 1.25)	1.30 (1.10, 1.55)	1.43 (1.20, 1.71)	2.07 (1.81, 2.36)	0.564
	≥25	1(ref.)	1.14 (0.88, 1.48)	1.23 (0.93, 1.62)	1.38 (1.06, 1.80)	1.74 (1.41, 2.14)	
LC or hepatitis	No	1(ref.)	1.07 (0.94, 1.21)	1.22 (1.05, 1.42)	1.27 (1.09, 1.48)	1.59 (1.41, 1.79)	<0.001
	Yes	1(ref.)	1.65 (0.95, 2.86)	2.18 (1.21, 3.92)	3.98 (2.40, 6.61)	7.51 (4.95, 11.42)	
Liver							
Age	<60	1(ref.)	1.37 (1.07, 1.76)	1.56 (1.15, 2.09)	2.12 (1.60, 2.81)	3.80 (3.09, 4.68)	0.765
	≥60	1(ref.)	1.64 (0.95, 2.82)	2.38 (1.37, 4.15)	2.34 (1.33, 4.11)	4.58 (2.95, 7.10)	
Ever smoker	No	1(ref.)	1.40 (1.11, 1.76)	1.71 (1.32, 2.23)	2.17 (1.68, 2.80)	4.04 (3.35, 4.87)	0.415
	Yes	1(ref.)	1.57 (0.51, 4.84)	1.28 (0.33, 4.92)	1.23 (0.32, 4.76)	1.43 (0.49, 4.15)	
Heavy drinker	No	1(ref.)	1.50 (1.16, 1.94)	1.73 (1.28, 2.34)	2.53 (1.92, 3.35)	4.31 (3.48, 5.33)	0.330
	Mild	1(ref.)	1.11 (0.69, 1.80)	1.47 (0.88, 2.48)	1.06 (0.58, 1.95)	2.85 (1.96, 4.13)	
	Heavy	1(ref.)	.	.	.	.
BMI	<25	1(ref.)	1.46 (1.14, 1.89)	1.70 (1.26, 2.30)	2.35 (1.76, 3.13)	4.28 (3.47, 5.29)	0.615
	≥25	1(ref.)	1.18 (0.71, 1.97)	1.60 (0.96, 2.68)	1.59 (0.96, 2.65)	3.02 (2.06, 4.42)	
LC or hepatitis	No	1(ref.)	1.25 (0.98, 1.60)	1.48 (1.12, 1.96)	1.55 (1.16, 2.07)	2.58 (2.08, 3.18)	<0.001
	Yes	1(ref.)	2.53 (1.31, 4.87)	3.04 (1.49,6.20)	6.14 (3.32, 11.36)	11.81 (6.95, 20.07)	
Pancreas							
Age	<60	1(ref.)	0.93 (0.76, 1.13)	1.11 (0.88, 1.39)	1.18 (0.94, 1.49)	1.29 (1.07, 1.56)	0.884
	≥60	1(ref.)	1.11 (0.78, 1.60)	1.10 (0.73, 1.67)	1.21 (0.81, 1.81)	1.45 (1.05, 2.00)	
Ever smoker	No	1(ref.)	0.98 (0.82, 1.16)	1.10 (0.90, 1.35)	1.20 (0.98, 1.47)	1.31 (1.11, 1.54)	0.757
	Yes	1(ref.)	0.32 (0.04, 2.54)	0.87 (0.18, 4.18)	.	1.58 (0.54, 4.62)	

Heavy drinker	No	1(ref.)	1.01 (0.83, 1.23)	1.09 (0.86, 1.37)	1.29 (1.03, 1.61)	1.32 (1.10, 1.59)	0.832
	Mild	1(ref.)	0.82 (0.57, 1.19)	1.11 (0.74, 1.65)	0.86 (0.54, 1.35)	1.31 (0.95, 1.80)	
	Heavy	1(ref.)	.	3.13 (0.19, 51.65)	.	1.34 (0.07, 27.41)	
BMI	<25	1(ref.)	0.87 (0.71, 1.06)	1.15 (0.91, 1.44)	1.14 (0.89, 1.46)	1.29 (1.06, 1.58)	0.241
	≥25	1(ref.)	1.30 (0.93, 1.80)	1.02 (0.69, 1.52)	1.31 (0.92, 1.88)	1.45 (1.08, 1.93)	
LC or hepatitis	No	1(ref.)	0.97 (0.82, 1.16)	1.11 (0.91, 1.36)	1.17 (0.95, 1.43)	1.28 (1.08,1.51)	0.216
	Yes	1(ref.)	0.66 (0.18, 2.40)	0.67 (0.14, 3.08)	1.64 (0.54, 4.96)	2.61 (1.11, 6.15)	
Biliary							
Age	<60	1(ref.)	1.13 (0.86, 1.50)	1.18 (0.84, 1.64)	1.36 (0.98, 1.90)	1.33 (1.01, 1.75)	0.827
	≥60	1(ref.)	1.08 (0.69, 1.70)	1.54 (0.97, 2.44)	1.32 (0.81, 2.15)	1.63 (1.10, 2.40)	
Ever smoker	No	1(ref.)	1.11 (0.88, 1.42)	1.29 (0.99, 1.69)	1.35 (1.03, 1.78)	1.45 (1.16, 1.81)	0.999
	Yes	1(ref.)	1.25 (0.11, 14.01)	1.71 (0.15, 19.51)	1.63 (0.14, 19.05)	1.35 (0.16, 11.32)	
Heavy drinker	No	1(ref.)	1.13 (0.87, 1.49)	1.38 (1.02, 1.87)	1.57 (1.16, 2.11)	1.49 (1.16, 1.93)	0.793
	Mild	1(ref.)	1.02 (0.62, 1.69)	1.05 (0.58, 1.89)	0.75 (0.38, 1.48)	1.29 (0.82, 2.03)	
	Heavy	1(ref.)	.	.	.	.
BMI	<25	1(ref.)	1.24 (0.94, 1.63)	1.24 (0.89, 1.74)	1.26 (0.88, 1.79)	1.58 (1.20, 2.08)	0.388
	≥25	1(ref.)	0.84 (0.52, 1.36)	1.34 (0.85, 2.11)	1.43 (0.92, 2.21)	1.24 (0.85, 1.81)	
LC or hepatitis	No	1(ref.)	1.09 (0.86, 1.39)	1.23 (0.93, 1.62)	1.32 (1.00, 1.74)	1.36 (1.08, 1.71)	0.550
	Yes	1(ref.)	2.24 (0.56, 8.99)	4.54 (1.20, 17.18)	2.71 (0.59, 12.45)	4.94 (1.49, 16.45)	