## SUPPLEMENTARY DATA

## Interactive effects of abdominal obesity and insulin resistance on cardiometabolic risk

Efectos interactivos de la obesidad abdominal y la resistencia a la insulina sobre el riesgo cardiometabólico

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Cardiometabolic disease	No	Events	Incidence	Incidence
Cardiometabolic disease	110.	Lvents	% (95% CI)	(per 1000 person-years)
Hypertension				
Non-AO and TyG <8.6	2335	464	19.9 (18.3-21.6)	150.8
Non-AO and TyG $\geq$ 8.6	1324	333	25.2 (22.9-27.6)	198.3
AO and TyG <8.6	759	220	29.0 (25.8-32.4)	220.5
AO and TyG $\ge$ 8.6	1094	398	36.4 (33.5-39.3)	282.1
Diabetes				
Non-AO and TyG <8.6	3064	216	7.0 (6.2-8.0)	56.6
Non-AO and TyG $\ge$ 8.6	1619	161	9.9 (8.6-11.5)	77.6
AO and TyG <8.6	1299	139	10.7 (9.1-12.5)	79.9
AO and TyG $\geq$ 8.6	1798	347	19.3 (17.5-21.2)	155.5
Heart disease				
Non-AO and TyG <8.6	2863	384	13.4 (12.2-14.7)	107.3
Non-AO and TyG $\ge$ 8.6	1835	267	14.6 (13.0-16.3)	114.9
AO and TyG <8.6	1178	241	20.5 (18.2-22.9)	159.3
AO and TyG $\geq$ 8.6	2028	416	20.5 (18.8-22.4)	155.5
Stroke				
Non-AO and TyG <8.6	3153	181	5.7 (5.0-6.6)	46.9
Non-AO and TyG $\ge$ 8.6	2051	169	8.2 (7.1-9.5)	71.4
AO and TyG <8.6	1343	128	9.5 (8.0-11.3)	83.9
AO and TyG $\geq$ 8.6	2422	296	12.2 (11.0-13.6)	104.8

Table 1 of the supplementary data. Incidence of cardiometabolic disease among groups

Table 2 of the supplementary data. The effect of abdominal obesity on the fisk of cardiometabolic diseases									
Crude mod	Crude model			Model 2	Model 2				
HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р		
Reference		Reference		Reference		Reference			
1.62 (1.45-1.79)	< .001	1.65 (1.48-1.84)	< .001	1.38 (1.24-1.54)	< .001	1.36 (1.22-1.52)	< .001		
Reference		Reference		Reference		Reference			
1.99 (1.74-2.27)	< .001	2.00 (1.74-2.30)	< .001	1.72 (1.49-1.98)	<.001	1.62 (1.40-1.88)	<.001		
Reference		Reference		Reference		Reference			
1.51 (1.36-1.68)	< .001	1.44 (1.28-1.61)	< .001	1.37 (1.22-1.54)	<.001	1.33 (1.19-1.50)	<.001		
Reference		Reference		Reference		Reference			
1.67 (1.45-1.92)	< .001	1.80 (1.56-2.09)	<.001	1.56 (1.34-1.81)	<.001	1.46 (1.25-1.70)	<.001		
	Crude mod Crude mod HR (95%CI) Reference 1.62 (1.45-1.79) Reference 1.99 (1.74-2.27) Reference 1.51 (1.36-1.68) Reference 1.67 (1.45-1.92)	Crude model         Crude model       P         Reference       1.62 (1.45-1.79)       <.001	Table 2 of the supplementary data : The effect of abdom         Crude model       Model 1         HR (95%CI)       P       HR (95%CI)         Reference       Reference         1.62 (1.45-1.79)       < .001	Table 2 of the supplementary data : The effect of abdominal obesity of a constraint of abdominal obesity of a constraint of constraint of a constraint of a constraint of a constr	Interview         Crude model         Model 1         Model 2           HR (95%CI)         P         HR (95%CI)         P         HR (95%CI)         P           Reference         Reference         Reference         Reference         Reference         Reference         Reference         1.38 (1.24-1.54)           Reference         Reference         Reference         Reference         Reference         1.72 (1.49-1.98)           Reference         Reference         Reference         Reference         Reference         1.37 (1.22-1.54)           Reference         Reference         Reference         1.56 (1.34-1.81)	Interview         Reference         <	Table 2 of the supplementary data 1 the effect of abdominal obesity of the fisk of caldionication diseases           Crude model         Model 1         Model 2         Model 3           HR (95%CI)         P         HR (95%CI)         P         HR (95%CI)         P         HR (95%CI)         P           Reference         Reference         Reference         Reference         Reference         Reference         Reference           1.62 (1.45-1.79)         <.001		

Table 2 of the supplementary data . The effect of abdominal obesity on the risk of cardiometabolic diseases

Results are shown as hazard ratios (95% CI) derived from Cox regression models. Model 1 was adjusted for age, sex, smoking, and drinking status. Model 2 was further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other disease analyses), including hypertension, diabetes, heart disease, and stroke.

	Table 5 of the supplementary data. The effect of insuminesistance on the fisk of cardiometabolic diseases										
Discoso	Crude mod	lel	Model 1	Model 1		Model 2					
Disease	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р			
<i>Hypertension</i> $(n = 5512)$											
TyG < 8.6	Reference		Reference		Reference		Reference				
$TyG \ge 8.6$	1.43 (1.29-1.59)	< .001	1.43 (1.29-1.59)	<.001	1.16 (1.03-1.30)	.013	1.14 (1.02-1.28)	.025			
Diabetes $(n = 7780)$											
TyG < 8.6	Reference		Reference		Reference		Reference				
$TyG \ge 8.6$	1.89 (1.65-2.16)	< .001	1.87 (1.64-2.15)	<.001	1.47 (1.26-1.70)	< .001	1.41 (1.21-1.64)	< .001			
Heart disease ( $n = 7904$ )											
TyG < 8.6	Reference		Reference		Reference		Reference				
$TyG \ge 8.6$	1.17 (1.05-1.30)	.005	1.13 (1.01-1.26)	.033	1.07 (0.95-1.20)	.297	1.05 (0.93-1.18)	.477			
<i>Stroke</i> $(n = 8969)$											
TyG < 8.6	Reference		Reference		Reference		Reference				
$TyG \ge 8.6$	1.55 (1.34-1.79)	< .001	1.57 (1.36-1.81)	< .001	1.34 (1.16-1.59)	< .001	1.31 (1.11-1.54)	.001			

Table 3 of the supplementary data. The effect of insulin resistance on the risk of cardiometabolic diseases

TyG, triglyceride-glucose index.

Results are shown as hazard ratios (95%CI) derived from Cox regression models. Model 1 was adjusted for age, sex, smoking, and drinking status. Model 2 was further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other diseases analyses), including hypertension, diabetes, heart diseases and stroke.

redefined coexposure stratification*										
Discos	Crude model		Model 1		Model 2		Model 3			
Disease	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р		
Hypertension										
Non-AO and TyG < 8.4	Reference		Reference		Reference		Reference			
Non-AO and 8.4≤TyG < 8.9	1.24 (1.05-1.45)	.010	1.23 (1.05-1.45)	.011	1.12 (0.95-1.31)	.191	1.11 (0.94-1.31)	.215		
Non-AO and TyG $\geq$ 8.9	1.48 (1.24-1.77)	<.001	1.53 (1.28-1.83)	<.001	1.21 (1.01-1.47)	.045	1.19 (0.98-1.44)	.073		
AO and $TyG < 8.4$	1.53 (1.26-1.86)	<.001	1.58 (1.29-1.93)	<.001	1.39 (1.13-1.69)	.002	1.37 (1.12-1.68)	.002		
AO and 8.4≤TyG <8 .9	1.92 (1.62-2.29)	<.001	1.99 (1.67-2.38)	<.001	1.63 (1.36-1.95)	< .001	1.61 (1.34-1.93)	<.001		
AO and TyG $\ge$ 8.9	2.13 (1.81-2.50)	<.001	2.16 (1.84-2.55)	<.001	1.50 (1.25-1.80)	< .001	1.45 (1.20-1.74)	<.001		
Diabetes										
Non-AO and TyG < 8.4	Reference		Reference		Reference		Reference			
Non-AO and 8.4≤TyG < 8.9	1.41 (1.12-1.77)	.003	1.41 (1.12-1.77)	.004	1.22 (0.96-1.53)	.099	1.20 (0.95-1.51)	.123		
Non-AO and TyG $\ge$ 8.9	1.56 (1.19-2.03)	.001	1.58 (1.21-2.07)	.001	1.19 (0.90-1.58)	.221	1.16 (0.88-1.54)	.299		
AO and TyG $< 8.4$	1.48 (1.13-1.93)	.004	1.50 (1.15-1.97)	.003	1.40 (1.07-1.84)	.015	1.36 (1.04-1.79)	.027		
AO and 8.4≤TyG < 8.9	2.40 (1.93-2.98)	<.001	2.43 (1.95-3.03)	<.001	1.90 (1.51-2.39)	< .001	1.79 (1.42-2.25)	<.001		
AO and TyG $\ge$ 8.9	3.24 (2.64-3.98)	< .001	3.28 (2.67-4.04)	<.001	2.30 (1.82-2.89)	< .001	2.11 (1.67-2.67)	<.001		
Heart disease										
Non-AO and TyG < 8.4	Reference		Reference		Reference		Reference			
Non-AO and 8.4≤TyG < 8.9	1.27 (1.07-1.51)	.007	1.24 (1.04-1.47)	.017	1.22 (1.02-1.45)	.029	1.21 (1.01-1.44)	.035		
Non-AO and TyG $\ge$ 8.9	1.11 (0.91-1.36)	.315	1.10 (0.90-1.35)	.353	1.05 (0.85-1.30)	.668	1.03 (0.83-1.28)	.808		

Table 4 of the supplementary data. Sensitivity analyses for joint effect of abdominal obesity and insulin resistance on the risk of cardiometabolic diseases by

AO and $TyG < 8.4$	1.56 (1.27-1.90)	< .001	1.49 (1.22-1.83)	< .001	1.44 (1.17-1.77)	.001	1.41 (1.15-1.73)	.001
AO and $8.4 \leq TyG < 8.9$	1.76 (1.48-2.11)	<.001	1.65 (1.38-1.98)	< .001	1.54 (1.28-1.86)	< .001	1.50 (1.24-1.81)	< .001
AO and TyG $\ge$ 8.9	1.68 (1.42-1.98)	<.001	1.58 (1.33-1.87)	< .001	1.46 (1.21-1.76)	<.001	1.39 (1.15-1.69)	.001
Stroke								
Non-AO and TyG < 8.4	Reference		Reference		Reference		Reference	
Non-AO and 8.4≤TyG < 8.9	1.38 (1.09-1.77)	.009	1.41 (1.11-1.81)	.005	1.35 (1.05-1.72)	.017	1.33 (1.04-1.70)	.023
Non-AO and TyG $\ge$ 8.9	1.44 (1.11-1.88)	.007	1.51 (1.16-1.98)	.002	1.27 (0.96-1.69)	.093	1.24 (0.93-1.64)	.142
AO and TyG $< 8.4$	1.66 (1.26-2.19)	< .001	1.85 (1.40-2.44)	< .001	1.67 (1.26-2.21)	<.001	1.59 (1.20-2.10)	.001
AO and $8.4 \le TyG < 8.9$	2.08 (1.64-2.64)	<.001	2.31 (1.81-2.95)	<.001	1.96 (1.53-2.52)	< .001	1.85 (1.44-2.37)	< .001
AO and TyG $\ge$ 8.9	2.21 (1.78-2.75)	< .001	2.41 (1.93-3.02)	<.001	1.86 (1.46-2.39)	< .001	1.69 (1.31-2.17)	<.001

\* Sensitivity analysis by redefined co-exposure stratified by abdominal obesity and insulin resistance (tertile TyG). Results are shown as hazard ratios (95% CI) derived from Cox regression models. Model 1 adjusted for age, sex, smoking, and drinking status. Model 2 further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other diseases analyses), including hypertension, diabetes, heart disease, and stroke.

excluding those with diabetes at baseline										
Discourse	Crude mod	el	Model 1		Model 2		Model 3			
Diseases	HR (95%CI)	Р								
Hypertension $(n = 4818)$										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.21 (1.04-1.42)	.015	1.24 (1.06-1.45)	.008	1.08 (0.91-1.27)	.385	1.07 (0.91-1.27)	.394		
AO and TyG $< 8.6$	1.48 (1.26-1.75)	<.001	1.54 (1.30-1.83)	< .001	1.36 (1.14-1.61)	.001	1.34 (1.12-1.59)	.001		
AO and TyG $\ge$ 8.6	1.89 (1.63-2.19)	<.001	1.91 (1.64-2.23)	< .001	1.48 (1.26-1.75)	< .001	1.45 (1.23-1.71)	< .001		
Heart disease ( $n = 6727$ )										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.16 (0.98-1.38)	.078	1.15 (0.97-1.36)	.102	1.18 (0.99-1.40)	.071	1.17 (0.98-1.39)	.084		
AO and $TyG < 8.6$	1.49 (1.26-1.76)	< .001	1.43 (1.21-1.70)	< .001	1.38 (1.15-1.64)	< .001	1.35 (1.14-1.61)	.001		
AO and TyG $\ge$ 8.6	1.47 (1.26-1.72)	< .001	1.39 (1.18-1.63)	<.001	1.39 (1.17-1.65)	< .001	1.35 (1.14-1.31)	.001		
<i>Stroke (n</i> = $7571$ <i>)</i>										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.45 (1.16-1.83)	.001	1.52 (1.21-1.91)	<.001	1.40 (1.10-1.77)	.006	1.38 (1.08-1.75)	.009		
AO and TyG $< 8.6$	1.59 (1.26-2.02)	< .001	1.78 (1.40-2.27)	<.001	1.56 (1.22-2.00)	< .001	1.49 (1.17-1.91)	.001		
AO and TyG $\ge$ 8.6	2.03 (1.65-2.49)	< .001	2.22 (1.80-2.74)	<.001	1.84 (1.47-2.32)	< .001	1.70 (1.35-2.15)	< .001		

Table 5 of the supplementary data. Sensitivity analyses for joint effect of abdominal obesity and insulin resistance on the risk of cardiometabolic diseases by

AO, abdominal obesity; TyG, triglyceride-glucose index.

Results are shown as hazard ratios (95%CI) derived from Cox regression models. Model 1 was adjusted for age, sex, smoking, and drinking status. Model 2 was further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other disease analyses), including hypertension, diabetes,

heart diseases, and stroke.

excluding those with endpoints occurring within the first follow-up visit										
Discos	Crude mod	lel	Model 1	Model 1		Model 2				
Disease	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р		
Hypertension $(n = 5202)$										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.34 (1.15-1.57)	< .001	1.37 (1.17-1.60)	<.001	1.17 (0.99-1.38)	.060	1.16 (0.98-1.36)	.086		
AO and TyG $< 8.6$	1.50 (1.25-1.80)	< .001	1.57 (1.30-1.89)	<.001	1.39 (1.15-1.68)	.001	1.38 (1.14-1.67)	.001		
AO and TyG $\ge$ 8.6	1.97 (1.69-2.29)	< .001	2.01 (1.72-2.35)	<.001	1.51 (1.28-1.79)	< .001	1.49 (1.25-1.76)	< .001		
Diabetes $(n = 7632)$										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.44 (1.16-1.81)	.001	1.46 (1.16-1.82)	.001	1.18 (0.93-1.48)	.167	1.16 (0.92-1.47)	.203		
AO and TyG $< 8.6$	1.49 (1.17-1.88)	.001	1.51 (1.19-1.91)	.001	1.37 (1.08-1.75)	.010	1.34 (1.05-1.71)	.019		
AO and TyG $\ge$ 8.6	2.87 (2.38-3.46)	< .001	2.90 (2.40-3.51)	<.001	2.14 (1.74-2.63)	< .001	2.02 (1.64-2.49)	< .001		
<i>Heart disease (n = <math>7723</math>)</i>										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.08 (0.92-1.28)	.356	1.07 (0.90-1.26)	.451	1.03 (0.86-1.22)	.775	1.01 (0.84-1.21)	.906		
AO and $TyG < 8.6$	1.52 (1.28-1.81)	< .001	1.46 (1.22-1.74)	< .001	1.39 (1.16-1.66)	< .001	1.35 (1.13-1.61)	.001		
AO and TyG $\ge$ 8.6	1.57 (1.35-1.82)	< .001	1.48 (1.27-1.73)	< .001	1.37 (1.16-1.62)	<.001	1.31 (1.11-1.55)	.002		
<i>Stroke (n</i> = $8920$ <i>)</i>										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.56 (1.25-1.94)	<.001	1.60 (1.28-1.99)	< .001	1.45 (1.16-1.82)	.001	1.43 (1.14-1.80)	.002		

**Table 6 of the supplementary data.** Sensitivity analyses for the joint effect of abdominal obesity and insulin resistance on the risk of cardiometabolic diseases by excluding those with endpoints occurring within the first follow-up visit

AO and TyG $< 8.6$	1.77 (1.40-2.24)	<.001	1.94 (1.53-2.46)	< .001	1.73 (1.36-2.20)	< .001	1.65 (1.29-2.10)	<.001
AO and TyG $\ge$ 8.6	2.32 (1.91-2.82)	<.001	2.49 (2.04-3.04)	<.001	2.07 (1.67-2.57)	< .001	1.92 (1.55-2.39)	<.001

Results are shown as hazard ratios (95% CI) derived from Cox regression models. Model 1 was adjusted for age, sex, smoking, and drinking status. Model was 2 further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other disease analyses), including hypertension, diabetes, heart diseases, and stroke.

excluding those with general obesity*										
Discuss	Crude mod	el	Model 1		Model 2		Model 3			
Disease	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р	HR (95%CI)	Р		
<i>Hypertension</i> $(n = 5118)$										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.31 (1.14-1.51)	<.001	1.33 (1.16-1.54)	<.001	1.12 (0.97-1.30)	.137	1.11 (0.96-1.29)	.158		
AO and TyG < 8.6	1.43 (1.21-1.71)	<.001	1.47 (1.23-1.76)	<.001	1.31 (1.09-1.57)	.003	1.30 (1.08-1.55)	.004		
AO and TyG $\ge$ 8.6	1.87 (1.62-2.17)	<.001	1.89 (1.63-2.20)	<.001	1.41 (1.20-1.66)	<.001	1.39 (1.18-1.64)	< .001		
Diabetes $(n = 6991)$										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.43 (1.16-1.75)	.001	1.44 (1.17-1.77)	.001	1.18 (0.95-1.46)	.135	1.16 (0.93-1.43)	.185		
AO and TyG < 8.6	1.36 (1.08-1.73)	.010	1.37 (1.08-1.74)	.011	1.25 (0.98-1.59)	.075	1.21 (0.95-1.54)	.126		
AO and TyG $\ge$ 8.6	2.53 (2.10-3.05)	<.001	2.53 (2.09-3.06)	<.001	1.93 (1.57-2.38)	< .001	1.82 (1.41-2.24)	< .001		
Heart disease ( $n = 7079$ )										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and TyG $\ge$ 8.6	1.11 (0.95-1.30)	.204	1.09 (0.93-1.27)	.292	1.06 (0.90-1.215)	.493	1.06 (0.89-1.24)	.562		
AO and TyG $< 8.6$	1.42 (1.19-1.70)	< .001	1.34 (1.11-1.60)	.002	1.29 (1.08-1.55)	.006	1.27 (1.06-1.53)	.010		
AO and TyG $\ge$ 8.6	1.47 (1.26-1.72)	< .001	1.36 (1.16-1.59)	<.001	1.29 (1.09-1.54)	.003	1.27 (1.07-1.51)	.007		
<i>Stroke (n</i> = $7961$ <i>)</i>										
Non-AO and TyG < 8.6	Reference		Reference		Reference		Reference			
Non-AO and $TyG \ge 8.6$	1.46 (1.18-1.80)	<.001	1.50 (1.21-1.85)	< .001	1.35 (1.08-1.68)	.008	1.32 (1.06-1.65)	.014		

Table 7 of the supplementary data. Sensitivity analyses for the joint effect of abdominal obesity and insulin resistance on the risk of cardiometabolic diseases by

AO and TyG $< 8.6$	1.63 (1.28-2.08)	< .001	1.75 (1.37-2.24)	< .001	1.57 (1.23-2.02)	< .001	1.51 (1.17-1.93)	.001
AO and TyG $\ge$ 8.6	2.06 (1.68-2.52)	< .001	2.17 (1.76-2.66)	< .001	1.81 (1.45-2.26)	<.001	1.70 (1.35-2.12)	<.001

\* General obesity was defined as  $BMI \ge 28 \text{ kg/m}^2$ . Results are shown as hazard ratios (95%CI) derived from Cox regression models. Model 1 was adjusted for age, sex, smoking, and drinking status. Model 2 was further adjusted for systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, and high-sensitivity C-reactive protein. Model 3 was adjusted for the variables in model 2 plus cardiometabolic diseases (for the other disease analyses), including hypertension, diabetes, heart diseases, and stroke.

and insulin resistance on the risk of cardiometabolic diseases by age												
Discos	Age <60 years (r	n =5093)	Age ≥60 years (n	=4141)	P for							
Disease	HR (95%CI)	Р	HR (95%CI)	Р	interaction*							
Hypertension												
Non-AO and TyG <8.6	Reference		Reference									
Non-AO and TyG ≥8.6	1.12 (0.92-1.36)	.261	1.08 (0.86-1.35)	.521	.566							
AO and TyG <8.6	1.48 (1.19-1.84)	< .001	1.23 (0.95-1.60)	.123	.311							
AO and TyG $\geq$ 8.6	1.50 (1.23-1.83)	< .001	1.40 (1.10-1.76)	.005	.348							
Diabetes												
Non-AO and TyG <8.6	Reference		Reference									
Non-AO and TyG $\geq$ 8.6	1.00 (0.75-1.35)	.989	1.35 (0.99-1.83)	.053	.273							
AO and TyG <8.6	1.25 (0.92-1.70)	.149	1.46 (1.06-2.01)	.020	.462							
AO and TyG $\ge$ 8.6	2.07 (1.60-2.67)	< .001	1.88 (1.41-2.51)	< .001	.264							
Heart diseases												
Non-AO and TyG <8.6	Reference		Reference									
Non-AO and TyG $\geq$ 8.6	1.08 (0.86-1.37)	.501	1.01 (0.80-1.26)	.965	.298							
AO and TyG <8.6	1.55 (1.23-1.95)	< .001	1.27 (0.99-1.62)	.057	.068							
AO and TyG $\ge$ 8.6	1.36 (1.09-1.70)	.007	1.29 (1.03-1.61)	.027	.074							
Stroke												
Non-AO and TyG <8.6	Reference		Reference									
Non-AO and TyG $\geq$ 8.6	1.38 (0.98-1.92)	.062	1.29 (0.97-1.73)	.080	.764							
AO and TyG <8.6	1.75 (1.23-2.47)	.002	1.42 (1.04-1.95)	.029	.386							
AO and TyG $\geq$ 8.6	1.90 (1.39-2.60)	< .001	1.61 (1.22-2.13)	.001	.315							

Table 8 of the supplementary data. Subgroup analysis for the joint effect of abdominal obesity

\* *P* for interaction represents results of multiplicative interaction analyses between joint effect and age. Results are shown as hazard ratios (95% CI) derived from Cox regression models adjusted for age, sex, smoking, drinking, systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, high-sensitivity C-reactive protein, and history of cardiometabolic disease (for the other disease analyses), including hypertension, diabetes, heart disease, and stroke.

and insulin resistance on the risk of cardiometabolic diseases by sex							
Diseases	Women (5005)		Men (n =4229)		P for		
	HR (95% CI)	<i>P</i> -value	HR (95% CI)	<i>P</i> -value	interaction <sup>#</sup>		
Hypertension							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG ≥8.6	1.06 (0.85-1.32)	.608	1.12 (0.92-1.38)	.257	.405		
AO and TyG <8.6	1.39 (1.13-1.72)	.002	1.28 (0.95-1.72)	.107	.627		
AO and TyG $\ge$ 8.6	1.51 (1.23-1.85)	< .001	1.36 (1.08-1.72)	.010	.789		
Diabetes							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.05 (0.77-1.44)	.743	1.28 (0.96-1.71)	.099	.620		
AO and TyG <8.6	1.34 (1.01-1.80)	.045	1.31 (0.92-1.88)	.135	.990		
AO and TyG $\ge$ 8.6	1.85 (1.42-2.40)	< .001	2.15 (1.62-2.86)	< .001	.656		
Heart diseases							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.15 (0.92-1.45)	.211	0.94 (0.74-1.20)	.634	.123		
AO and TyG <8.6	1.38 (1.12-1.72)	.003	1.48 (1.12-1.95)	.005	.407		
AO and TyG $\ge$ 8.6	1.38 (1.12-1.69)	.002	1.33 (1.03-1.72)	.028	.734		
Stroke							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.21 (0.87-1.70)	.264	1.43 (1.07-1.90)	.015	.561		
AO and TyG <8.6	1.50 (1.09-2.07)	.014	1.50 (1.06-2.12)	.024	.679		
AO and TyG $\geq$ 8.6	1.58 (1.17-2.14)	.003	2.04 (1.52-2.73)	< .001	.205		

Table 9 of the supplementary data. Subgroup analysis for the joint effect of abdominal obesity

 $^{\#}$  *P* for interaction represents results of multiplicative interaction analyses between joint effect and sex. Results are shown as hazard ratios (95% CI) derived from Cox regression models adjusted for age, sex, smoking, drinking, systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatine, uric acid, high-sensitivity C-reactive protein, and history of cardiometabolic disease (for the other diseases analyses), including hypertension, diabetes, heart disease and stroke.

	5 6					
	Ever/current smokers $(n = 3554)$		Never smokers $(n = 5680)$		<i>P</i> for interaction*	
Disease						
	HR (95%CI)	Р	HR (95%CI)	Р		
Hypertension						
Non-AO and TyG <8.6	Reference		Reference			
Non-AO and TyG ≥8.6	1.03 (0.82-1.29)	.793	1.17 (0.96-1.42)	.127	.439	
AO and TyG <8.6	1.28 (0.93-1.77)	.131	1.43 (1.17-1.74)	< .001	.518	
AO and TyG $\geq$ 8.6	1.30 (1.00-1.69)	.049	1.56 (1.29-1.88)	< .001	.218	
Diabetes						
Non-AO and TyG <8.6	Reference		Reference			
Non-AO and TyG ≥8.6	1.16 (0.83-1.61)	.395	1.19 (0.90-1.57)	.221	.462	
AO and TyG <8.6	1.18 (0.77-1.79)	.449	1.43 (1.09-1.87)	.009	.397	
AO and TyG $\ge$ 8.6	2.18 (1.58-3.02)	< .001	1.93 (1.51-2.45)	< .001	.857	
Heart diseases						
Non-AO and TyG <8.6	Reference		Reference			
Non-AO and TyG ≥8.6	1.05 (0.81-1.35)	.731	1.05 (0.84-1.30)	.678	.669	
AO and TyG <8.6	1.35 (1.00-1.84)	.051	1.43 (1.16-1.75)	.001	.986	
AO and TyG $\geq$ 8.6	1.23 (0.94-1.63)	.138	1.38 (1.14-1.68)	.001	.277	
Stroke						
Non-AO and TyG <8.6	Reference		Reference			
Non-AO and TyG ≥8.6	1.38 (1.02-1.87)	.039	1.28 (0.94-1.75)	.121	.815	
AO and TyG <8.6	1.60 (1.11-2.30)	.011	1.52 (1.12-2.08)	.008	.668	
AO and TyG $\geq$ 8.6	1.82 (1.33-2.50)	< .001	1.74 (1.31-2.31)	< .001	.769	

 Table 10 of the supplementary data. Subgroup analysis for the joint effect of abdominal obesity

 and insulin resistance on the risk of cardiometabolic diseases by smoking status

<sup>#</sup> *P* for interaction represents the results of multiplicative interaction analyses between the joint effect and smoking status. Results are shown as hazard ratios (95%CI) derived from Cox regression models adjusted for age, sex, drinking, systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, high-sensitivity C-reactive protein, and history of cardiometabolic disease (for the other disease analyses), including hypertension, diabetes, heart disease, and stroke.

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	Ever/current drinkers $(n = 3754)$ )		Never drinkers (n = 5480)		<i>P</i> for interaction*		
Disease							
	HR (95%CI)	Р	HR (95%CI)	Р	_		
Hypertension							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.17 (0.94-1.46)	.166	1.04 (0.85-1.27)	.709	.451		
AO and TyG <8.6	1.38 (1.04-1.84)	.028	1.33 (1.09-1.64)	.006	.803		
AO and TyG $\geq$ 8.6	1.54 (1.21-1.96)	<.001	1.39 (1.15-1.69)	.001	.739		
Diabetes							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.15 (0.84-1.58)	.389	1.18 (0.89-1.57)	.252	.842		
AO and TyG <8.6	1.12 (0.77-1.64)	.553	1.52 (1.16-2.01)	.003	.163		
AO and TyG $\geq$ 8.6	1.91 (1.41-2.59)	< .001	2.05 (1.60-2.64)	<.001	.623		
Heart diseases							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	0.95 (0.73-1.22)	.666	1.12 (0.90-1.38)	.310	.153		
AO and TyG <8.6	1.40 (1.07-1.83)	.014	1.41 (1.14-1.75)	.002	.749		
AO and TyG $\geq$ 8.6	1.23 (0.95-1.60)	.119	1.41 (1.15-1.73)	.001	.187		
Stroke							
Non-AO and TyG <8.6	Reference		Reference				
Non-AO and TyG $\geq$ 8.6	1.47 (1.08-1.99)	.014	1.23 (0.94-1.75)	.115	.943		
AO and TyG <8.6	1.32 (0.92-1.88)	.135	1.77 (0.29-2.42)	< .001	.430		
AO and TyG $\geq$ 8.6	1.82 (1.33-2.48)	<.001	1.82 (1.36-2.43)	< .001	.527		

 Table 11 of the supplementary data. Subgroup analysis for the joint effect of abdominal obesity

 and insulin resistance on the risk of cardiometabolic diseases by drinking status

\**P* for interaction represents the results of multiplicative interaction analyses between the joint effect and drinking status. Results are shown as hazard ratios (95%CI) derived from Cox regression models adjusted for age, sex, smoking, systolic blood pressure, fasting plasma glucose, total cholesterol, low-density lipoprotein cholesterol, serum creatinine, uric acid, high-sensitivity C-reactive protein, and history of cardiometabolic disease (for the other disease analyses), including hypertension, diabetes, heart disease, and stroke.