

**Supplemental Files**

**Supplemental Table 1. Univariate analysis for predictin major adverse cardiovascular events.**

	<b>HR</b>	<b>95% CI</b>	<b><i>p</i> value</b>
the TyG-WHtR quartile			
Quartile 1	1.00		
Quartile 2	1.27	1.11-1.46	0.0006
Quartile 3	1.30	1.14-1.49	0.0001
Quartile 4	1.44	1.26-1.65	<0.0001
the TyG-WC quartile			
Quartile 1	1.00		
Quartile 2	1.18	1.02-1.35	0.0226
Quartile 3	1.35	1.18-1.55	<0.0001
Quartile 4	1.48	1.30-1.69	<0.0001
Age (years)	1.04	1.03-1.04	<0.0001
Male	1.45	1.30-1.59	<0.0001
White	1.33	1.22-1.49	<0.0001
Education level			
Less than high school	1.00		
High school graduate or GED	0.83	0.72-0.96	0.0107
Some college	0.85	0.74-0.98	0.0252
College degree or higher	0.68	0.58-0.78	<0.0001
Living alone	0.91	0.81-1.02	0.0894
Depression	1.25	1.12-1.39	<0.0001
smoking	1.32	1.19-1.45	<0.0001
Alcohol	0.92	0.82-1.02	0.1118
Proteinuria	1.30	1.18-1.45	<0.0001
eGFR	0.99	0.99-1.00	<0.0001
Duration of diabetes (years)	1.02	1.02-1.03	<0.0001
CVD history	2.40	2.18-2.62	<0.0001
Previous heart failure	2.50	2.13-2.94	<0.0001
Previous hypertension	1.21	1.09-1.36	0.0007
Previous hyperlipidemia	1.09	0.99-1.21	0.0849
Blood pressure (mmHg)			
SBP	1.01	1.00-1.01	<0.0001
DBP	0.99	0.98-0.99	<0.0001
Heart rate (bpm)	1.00	0.99-1.00	0.2475
HbA1c (%)	1.12	1.08-1.17	<0.0001
FPG (mmol/L)	1.00	1.00-1.00	<0.0001
BMI (kg/m <sup>2</sup> )	1.00	0.99-1.01	0.4958
TG (mg/dL)	1.00	1.00-1.00	<0.0001
TC (mg/dL)	1.00	1.00-1.00	0.0531
LDL-C (mg/dL)	1.00	1.00-1.00	0.0334

TyG	1.20	1.12-1.27	<0.0001
WHtR	2.60	1.45-4.67	0.0014
WC	1.01	1.01-1.01	<0.0001
<b>Medications use</b>			
Insulin	1.45	1.32-1.59	<0.0001
ARB/ACEI	1.01	0.92-1.12	0.7904
CCB	1.40	1.25-1.56	<0.0001
Beta blockers	1.69	1.54-1.86	<0.0001
Biguanides	0.79	0.72-0.87	<0.0001
Thiazolidinediones	0.82	0.73-0.93	0.0014
Sulfonylureas	0.92	0.84-1.01	0.0945
Aspirin	1.12	1.02-1.23	0.0219
Statins	1.09	0.99-1.21	0.0722
Cholesterol absorption inhibitors	1.18	0.86-1.63	0.3109

Abbreviations:HR, hazard ratio; CI, confidence interval;TyG, triglyceride glucose;WHtR, waist height ratio;WC, waist circumference; GED, general education development; CVD, cardiovascular disease; bpm, beet per minute; HbA1c, hemoglobin A1c; FPG, fasting plasma glucose; TG, triglycerides; eGFR, estimated glomerular filtration rate; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; ACEI, angiotensin-converting enzyme inhibitors; ARB, angiotensin receptor blockers; CCB, calcium channel blockers; MACEs, major adverse cardiovascular events.

**Supplemental Table 2. Association of change in triglyceride glucose-waist height ratio with the risk of major adverse cardiovascular events stratified by different factors.**

Subgroup	Change in the TyG-WHtR, HR (95% CI)				P for interaction
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
<b>Sex</b>					0.9576
Male	Ref	1.17 (1.00, 1.38)	1.26 (1.07, 1.49)	1.35 (1.12, 1.62)	
Female	Ref	1.27 (0.96, 1.68)	1.33 (1.01, 1.76)	1.37 (1.04, 1.81)	
<b>Age</b>					0.5226
<65	Ref	1.11 (0.91, 1.36)	1.28 (1.05, 1.57)	1.39 (1.14, 1.71)	
≥65	Ref	1.24 (1.02, 1.52)	1.24 (1.01, 1.52)	1.28 (1.02, 1.61)	
<b>Race</b>					0.9900
White	Ref	1.22 (1.02, 1.46)	1.29 (1.08, 1.55)	1.38 (1.14, 1.66)	

Non-white	Ref	1.17 (0.94, 1.47)	1.26 (0.99, 1.60)	1.30 (0.99, 1.71)	
<b>CVD history</b>					0.7028
No	Ref	1.20 (0.98, 1.47)	1.20 (0.98, 1.47)	1.22 (0.98, 1.52)	
Yes	Ref	1.17 (0.96, 1.42)	1.32 (1.08, 1.61)	1.47 (1.19, 1.81)	
<b>Heart failure</b>					0.4809
No	Ref	1.15 (0.99, 1.33)	1.24 (1.07, 1.44)	1.32 (1.13, 1.55)	
Yes	Ref	1.75 (1.02, 3.00)	1.71 (1.01, 2.91)	1.75 (1.04, 2.96)	
<b>Previous hyperlipidemia</b>					0.7768
No	Ref	1.06 (0.82, 1.39)	1.26 (0.97, 1.64)	1.30 (0.98, 1.72)	
Yes	Ref	1.23 (1.05, 1.46)	1.28 (1.08, 1.52)	1.39 (1.16, 1.66)	
<b>Previous hypertension</b>					0.7975
No	Ref	1.25 (0.93, 1.68)	1.18 (0.86, 1.60)	1.41 (1.01, 1.95)	
Yes	Ref	1.17 (0.99, 1.37)	1.29 (1.10, 1.52)	1.34 (1.13, 1.60)	
<b>Duration of diabetes</b>					0.4443
< 10	Ref	1.11 (0.89, 1.38)	1.09 (0.88, 1.37)	1.25 (1.00, 1.58)	
≥10	Ref	1.23 (1.03, 1.48)	1.39 (1.15, 1.67)	1.40 (1.15, 1.72)	
<b>HbA1C</b>					0.3217
< 8.1	Ref	1.19 (0.96, 1.46)	1.43 (1.16, 1.78)	1.41 (1.12, 1.78)	
≥8.1	Ref	1.17 (0.97, 1.42)	1.13 (0.93, 1.37)	1.28 (1.05, 1.57)	
<b>Insulins</b>					0.2675
No	Ref	1.07 (0.89, 1.29)	1.15 (0.95, 1.39)	1.30 (1.06, 1.58)	
Yes	Ref	1.36 (1.09, 1.69)	1.48 (1.18, 1.84)	1.46 (1.15, 1.84)	

Abbreviations:HR, hazard ratio; CI, confidence interval; TyG, triglyceride glucose;WHtR, waist height ratio; CVD, cardiovascular disease; MACEs, major adverse cardiovascular events.

**Supplemental Table 3. Association of change in triglyceride glucose-waist circumference with the risk of major adverse cardiovascular events stratified by different factors.**

Subgroup	Change in the TyG-WC, HR (95% CI)				P for interaction
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
<b>Sex</b>					0.2953
Male	Ref	1.00 (0.84, 1.20)	1.15 (0.96, 1.37)	1.26 (1.05, 1.52)	

Female	Ref	1.30 (1.02, 1.65)	1.42 (1.10, 1.82)	1.26 (1.05, 1.52)	
<b>Age</b>					0.4704
<65	Ref	1.02 (0.83, 1.25)	1.27 (1.04, 1.55)	1.34 (1.09, 1.65)	
≥65	Ref	1.14 (0.93, 1.39)	1.18 (0.96, 1.45)	1.23 (0.98, 1.55)	
<b>Race</b>					0.9844
White	Ref	1.07 (0.89, 1.30)	1.21 (1.01, 1.45)	1.29 (1.07, 1.56)	
Non-white	Ref	1.12 (0.90, 1.40)	1.28 (1.01, 1.63)	1.34 (1.02, 1.76)	
<b>CVD history</b>					0.3371
No	Ref	1.06 (0.86, 1.31)	1.31 (1.06, 1.61)	1.24 (0.99, 1.54)	
Yes	Ref	1.12 (0.92, 1.36)	1.15 (0.95, 1.41)	1.39 (1.13, 1.71)	
<b>Heart failure</b>					0.0089
No	Ref	1.04 (0.89, 1.20)	1.21 (1.04, 1.41)	1.23 (1.05, 1.44)	
Yes	Ref	2.14 (1.24, 3.69)	1.43 (0.82, 2.50)	2.48 (1.46, 4.22)	
<b>Previous hyperlipidemia</b>					0.5136
No	Ref	1.01 (0.77, 1.31)	1.29 (1.00, 1.68)	1.21 (0.91, 1.61)	
Yes	Ref	1.13 (0.95, 1.34)	1.21 (1.02, 1.43)	1.36 (1.14, 1.63)	
<b>Previous hypertension</b>					0.6049
No	Ref	1.23 (0.91, 1.66)	1.19 (0.87, 1.62)	1.42 (1.03, 1.96)	
Yes	Ref	1.05 (0.90, 1.24)	1.24 (1.06, 1.46)	1.28 (1.08, 1.52)	
<b>Duration of diabetes</b>					0.5003
< 10	Ref	1.15 (0.91, 1.45)	1.24 (0.99, 1.55)	1.23 (0.97, 1.56)	
≥10	Ref	1.05 (0.87, 1.27)	1.21 (1.00, 1.46)	1.39 (1.14, 1.69)	
<b>HbA1C</b>					0.4046
< 8.1	Ref	1.09 (0.88, 1.35)	1.37 (1.10, 1.69)	1.37 (1.08, 1.73)	
≥8.1	Ref	1.09 (0.90, 1.32)	1.10 (0.91, 1.34)	1.25 (1.02, 1.53)	
<b>Insulins</b>					0.1366
No	Ref	0.95 (0.79, 1.15)	1.16 (0.96, 1.40)	1.16 (0.95, 1.43)	
Yes	Ref	1.30 (1.04, 1.62)	1.34 (1.07, 1.68)	1.55 (1.23, 1.95)	

Abbreviations:HR, hazard ratio; CI, confidence interval; TyG, triglyceride glucose; WC, waist circumference; CVD, cardiovascular disease; MACEs, major adverse cardiovascular events.

**Supplemental Table 4. Association of change in triglyceride glucose-waist height ratio with the risk of total mortality stratified by different factors.**

Subgroup	Change in the TyG-WHtR, HR (95% CI)				P for interaction
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
<b>Sex</b>					0.6175
Male	Ref	1.02 (0.87, 1.20)	1.22 (1.04, 1.44)	1.48 (1.25, 1.76)	
Female	Ref	1.11 (0.85, 1.45)	1.22 (1.04, 1.44)	1.48 (1.25, 1.76)	
<b>Age</b>					0.6605
<65	Ref	1.12 (0.90, 1.39)	1.26 (1.01, 1.56)	1.52 (1.23, 1.89)	
≥65	Ref	0.98 (0.83, 1.17)	1.12 (0.94, 1.34)	1.33 (1.09, 1.61)	
<b>Race</b>					0.6379
White	Ref	1.07 (0.90, 1.27)	1.14 (0.96, 1.35)	1.39 (1.17, 1.66)	
Non-white	Ref	0.99 (0.79, 1.24)	1.27 (1.00, 1.60)	1.43 (1.10, 1.86)	
<b>CVD history</b>					0.0053
No	Ref	1.28 (1.06, 1.54)	1.20 (0.99, 1.45)	1.48 (1.21, 1.80)	
Yes	Ref	0.83 (0.68, 1.01)	1.14 (0.94, 1.39)	1.35 (1.10, 1.66)	
<b>Heart failure</b>					0.8480
No	Ref	1.04 (0.91, 1.20)	1.21 (1.05, 1.40)	1.44 (1.24, 1.67)	
Yes	Ref	1.05 (0.64, 1.72)	1.08 (0.67, 1.75)	1.52 (0.96, 2.40)	
<b>Previous hyperlipidemia</b>					0.4341
No	Ref	0.89 (0.70, 1.13)	1.04 (0.82, 1.32)	1.23 (0.96, 1.58)	
Yes	Ref	1.11 (0.94, 1.31)	1.26 (1.07, 1.49)	1.51 (1.27, 1.80)	
<b>Previous hypertension</b>					0.9386
No	Ref	0.99 (0.75, 1.32)	1.10 (0.82, 1.46)	1.31 (0.96, 1.78)	
Yes	Ref	1.05 (0.90, 1.22)	1.20 (1.02, 1.40)	1.46 (1.24, 1.71)	
<b>Duration of diabetes</b>					0.4540
< 10	Ref	1.14 (0.92, 1.41)	1.18 (0.95, 1.47)	1.54 (1.23, 1.92)	
≥10	Ref	0.97 (0.82, 1.16)	1.19 (1.00, 1.42)	1.34 (1.11, 1.62)	
<b>HbA1C</b>					0.4544
< 8.1	Ref	1.08 (0.88, 1.31)	1.35 (1.10, 1.65)	1.60 (1.29, 1.99)	
≥8.1	Ref	1.05 (0.87, 1.26)	1.12 (0.93, 1.35)	1.36 (1.12, 1.65)	

<b>Insulins</b>					0.4639
No	Ref	1.06 (0.89, 1.26)	1.11 (0.92, 1.33)	1.39 (1.15, 1.68)	
Yes	Ref	1.02 (0.82, 1.27)	1.31 (1.07, 1.62)	1.48 (1.19, 1.84)	

Abbreviations:HR, hazard ratio; CI, confidence interval; TyG, triglyceride glucose; WHtR, waist height ratio;CVD, cardiovascular disease.

**Supplemental Table 5. Association of change in triglyceride glucose-waist circumference with the risk of total mortality stratified by different factors.**

Subgroup	Change in the TyG-WC, HR (95% CI)				P for interaction
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
<b>Sex</b>					0.3098
Male	Ref	0.96 (0.81, 1.14)	1.10 (0.93, 1.31)	1.40 (1.17, 1.66)	
Female	Ref	1.27 (1.01, 1.60)	1.29 (1.01, 1.66)	1.66 (1.28, 2.15)	
<b>Age</b>					0.5815
<65	Ref	1.06 (0.85, 1.33)	1.25 (1.00, 1.55)	1.51 (1.22, 1.88)	
≥65	Ref	1.07 (0.90, 1.28)	1.10 (0.91, 1.32)	1.40 (1.15, 1.70)	
<b>Race</b>					0.9781
White	Ref	1.07 (0.89, 1.28)	1.16 (0.97, 1.38)	1.49 (1.24, 1.77)	
Non-white	Ref	1.04 (0.84, 1.30)	1.18 (0.93, 1.50)	1.42 (1.08, 1.85)	
<b>CVD history</b>					0.4203
No	Ref	1.16 (0.96, 1.41)	1.25 (1.03, 1.52)	1.51 (1.24, 1.85)	
Yes	Ref	0.95 (0.78, 1.17)	1.07 (0.87, 1.30)	1.44 (1.17, 1.77)	
<b>Heart failure</b>					0.4680
No	Ref	1.05 (0.91, 1.21)	1.17 (1.01, 1.35)	1.46 (1.25, 1.70)	
Yes	Ref	1.33 (0.80, 2.20)	1.25 (0.77, 2.04)	2.04 (1.27, 3.28)	
<b>Previous hyperlipidemia</b>					0.8334
No	Ref	0.97 (0.76, 1.24)	1.10 (0.86, 1.40)	1.35 (1.05, 1.75)	
Yes	Ref	1.11 (0.93, 1.31)	1.20 (1.02, 1.43)	1.53 (1.28, 1.82)	
<b>Previous hypertension</b>					0.6336
No	Ref	1.02 (0.76, 1.37)	1.19 (0.89, 1.59)	1.29 (0.95, 1.76)	
Yes	Ref	1.07 (0.92, 1.25)	1.16 (0.99, 1.36)	1.53 (1.30, 1.80)	
<b>Duration of diabetes</b>					0.7715

< 10	Ref	1.06 (0.85, 1.32)	1.19 (0.96, 1.48)	1.59 (1.27, 1.99)	
≥10	Ref	1.07 (0.90, 1.28)	1.15 (0.96, 1.38)	1.41 (1.17, 1.70)	
<b>HbA1C</b>					0.0412
< 8.1	Ref	1.02 (0.83, 1.25)	1.38 (1.13, 1.69)	1.58 (1.27, 1.97)	
≥8.1	Ref	1.14 (0.95, 1.38)	1.06 (0.88, 1.29)	1.48 (1.22, 1.79)	
<b>Insulins</b>					0.6276
No	Ref	1.01 (0.84, 1.21)	1.12 (0.93, 1.35)	1.49 (1.23, 1.81)	
Yes	Ref	1.16 (0.94, 1.44)	1.26 (1.02, 1.56)	1.50 (1.20, 1.87)	

Abbreviations:HR, hazard ratio; CI, confidence interval; TyG, triglyceride glucose; WC, waist circumference; CVD, cardiovascular disease.