

Supplementary Materials

Triglyceride glucose-body mass index as a practical screening tool for metabolic dysfunction-associated steatotic liver disease in older adults: A community-based cohort study

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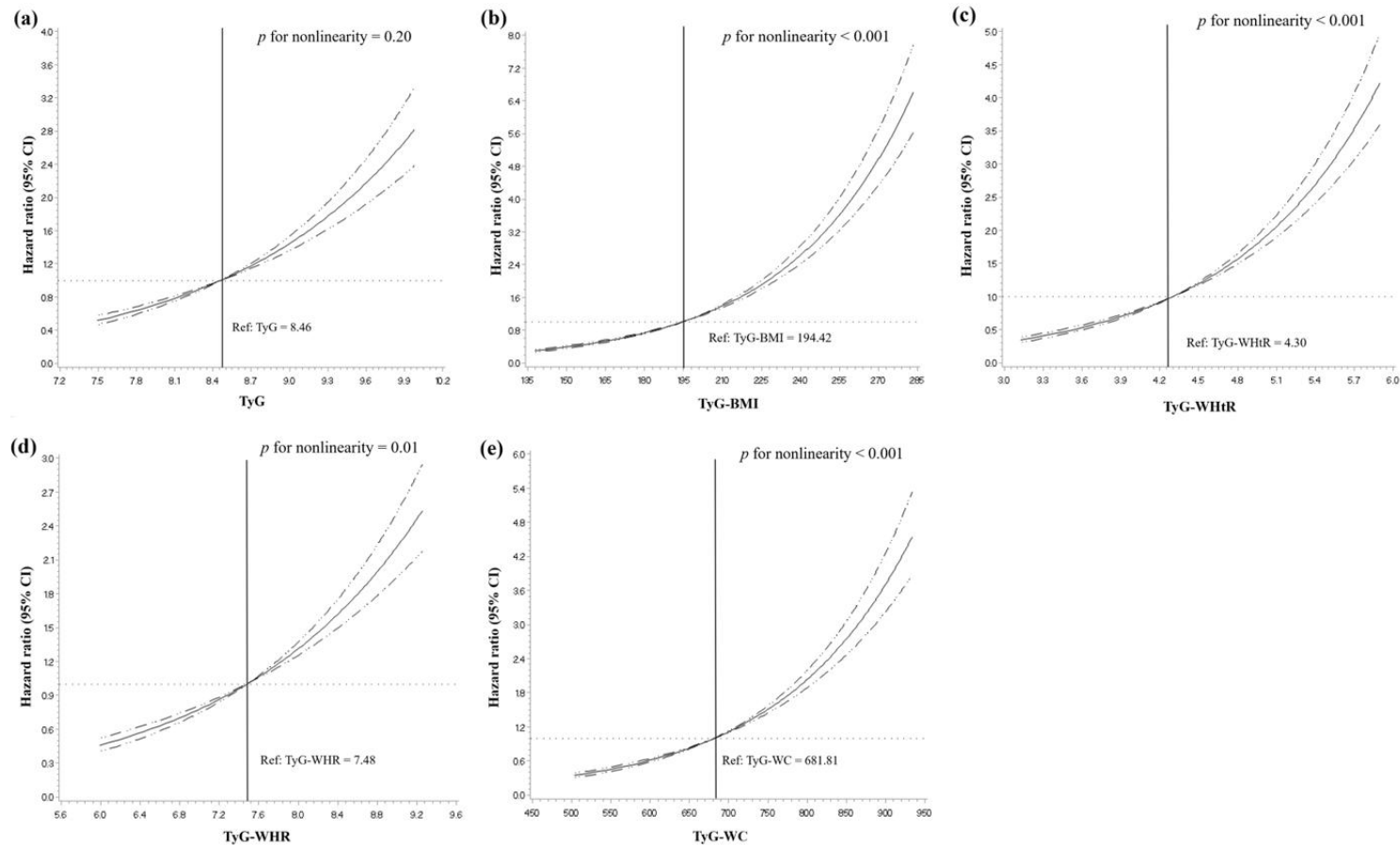
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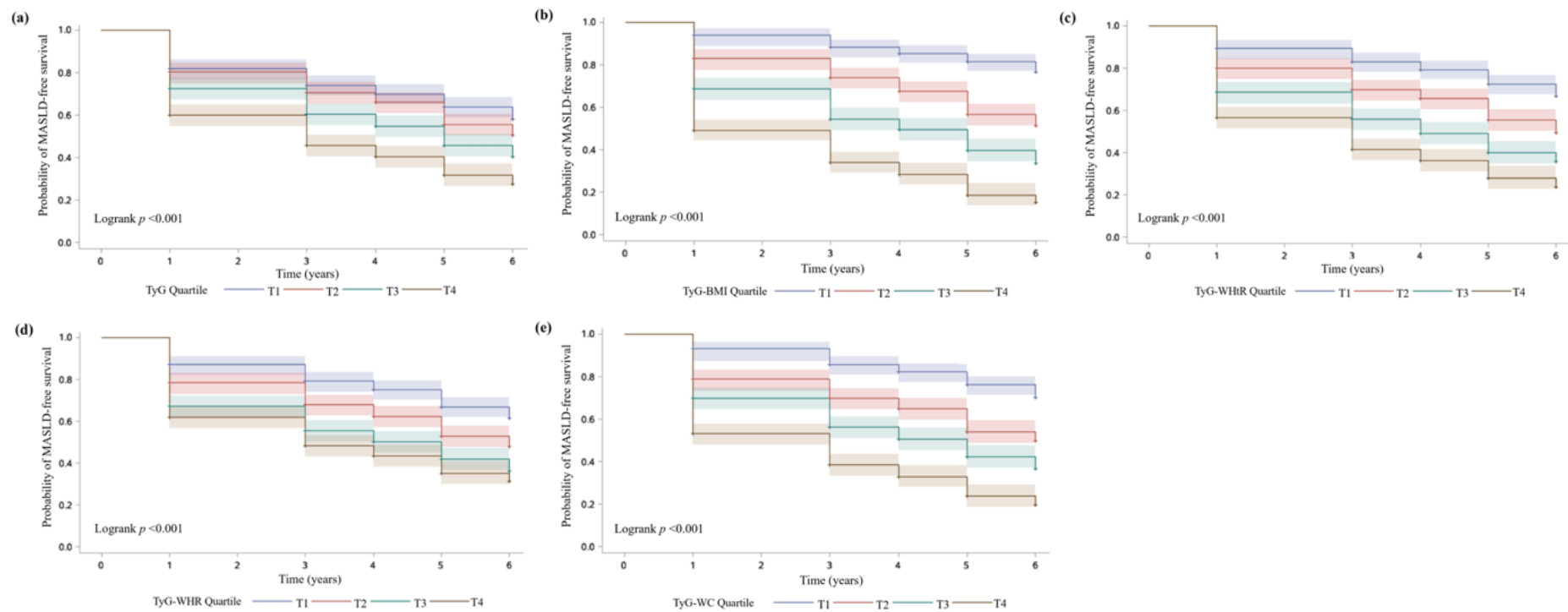


Supplementary Figure 1. Dose-response relationships of baseline TyG index and TyG-derived parameters with the risk of incident MASLD using restricted cubic splines. MASLD: metabolic dysfunction-associated steatotic liver disease; TyG: triglyceride-glucose; TyG-BMI: triglyceride glucose-body mass index; TyG-WHtR: triglyceride glucose-waist-to-height ratio; TyG-WHR: triglyceride glucose-waist-to-hip ratio; TyG-WC: triglyceride glucose- waist circumference.

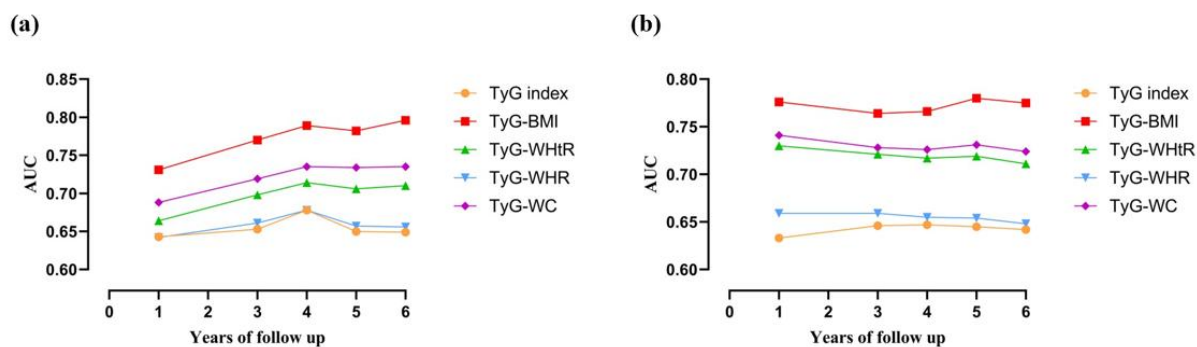
Restricted cubic splines with 5 knots were used to model the association between each parameter (TyG index, TyG-BMI, TyG-WHtR, TyG-WHR, and TyG-WC) and the log hazard of MASLD in Cox proportional hazards models, adjusted for sex, age, exercise routines, alcohol consumption, and smoking habits.

The solid lines represent the hazard ratios (HRs). The dashed lines represent the corresponding 95% confidence intervals. The reference value (HR = 1) for each parameter is indicated by a dotted line and was set at its median.

The p values for nonlinearity are displayed in each panel. Significant deviation from linearity ($p < 0.05$) was observed for TyG-BMI, TyG-WHtR, TyG-WHR, and TyG-WC, while the TyG index did not show significant deviation from linearity ($p = 0.20$).



Supplementary Figure 2. Kaplan-meier curve for MASLD-free survival of the six parameters over time. (a) Kaplan-meier curve for MASLD-free survival of TyG index quartiles over time. (b) Kaplan-meier curve for MASLD-free survival of TyG-BMI quartiles over time. (c) Kaplan-meier curve for MASLD-free survival of TyG-WHtR quartiles over time. (d) Kaplan-meier curve for MASLD-free survival of TyG-WHR quartiles over time. (e) Kaplan-meier curve for MASLD-free survival of TyG-WC quartiles over time. MASLD: metabolic dysfunction-associated steatotic liver disease; TyG: triglyceride-glucose; TyG-BMI: triglyceride glucose-body mass index; TyG-WHtR: triglyceride glucose-waist-to-height ratio; TyG-WHR: triglyceride glucose-waist-to-hip ratio; TyG-WC: triglyceride glucose- waist circumference. Liver ultrasound data were unavailable in the second year of follow-up.



Supplementary Figure 3. AUC fluctuations of the TyG index, TyG-BMI, TyG-WHtR, TyG-WHR, and TyG-WC for predicting the onset of MASLD. (a) AUC fluctuations of the TyG index, TyG-BMI, TyG-WHtR, TyG-WHR, and TyG-WC for predicting the onset of MASLD among 980 Chinese older men. (b) AUC fluctuations of the TyG index, TyG-BMI, TyG-WHtR, TyG-WHR, and TyG-WC for predicting the onset of MASLD among 1,777 Chinese older women. AUC: area under the curves; MASLD: metabolic dysfunction-associated steatotic liver disease; TyG: triglyceride-glucose; TyG-BMI: triglyceride glucose-body mass index; TyG-WHtR: triglyceride glucose-waist-to-height ratio; TyG-WHR: triglyceride glucose-waist-to-hip ratio; TyG-WC: triglyceride glucose-waist circumference. Liver ultrasound data were unavailable in the second year of follow-up

Supplementary Table 1. Hazard ratios and 95% confidence intervals for future risk of MASLD by quartiles of baseline TyG index and TyG-derived parameters, stratified by baseline ALT levels among Chinese older adults^{†‡}

Parameters/ Quartile	Low ALT group (≤ 15.6 U/L, n= 1,404)	High ALT group (> 15.6 U/L, n= 1,353)
TyG		
Q1	1.00 (Reference)	1.00 (Reference)
Q2	1.11 (0.87, 1.43)	1.24 (1.00, 1.54)
Q3	1.58 (1.25, 1.99)	1.66 (1.34, 2.05)
Q4	2.50 (2.00, 3.13)	2.10 (1.71, 2.58)
TyG-BMI		
Q1	1.00 (Reference)	1.00 (Reference)
Q2	2.11 (1.56, 2.85)	2.19 (1.72, 2.80)
Q3	3.87 (2.92, 5.15)	3.09 (2.43, 3.92)
Q4	7.36 (5.59, 9.70)	4.61 (3.65, 5.83)
TyG-WHtR		
Q1	1.00 (Reference)	1.00 (Reference)
Q2	1.81 (1.40, 2.34)	1.85 (1.47, 2.33)
Q3	2.32 (1.81, 2.99)	2.49 (1.99, 3.12)
Q4	4.00 (3.14, 5.11)	3.33 (2.66, 4.16)
TyG-WHR		
Q1	1.00 (Reference)	1.00 (Reference)
Q2	1.47 (1.15, 1.88)	1.58 (1.27, 1.97)
Q3	2.03 (1.61, 2.58)	2.04 (1.65, 2.53)
Q4	2.28 (1.81, 2.88)	2.41 (1.94, 2.98)
TyG-WC		
Q1	1.00 (Reference)	1.00 (Reference)
Q2	1.91 (1.46, 2.51)	1.96 (1.55, 2.49)
Q3	2.61 (2.01, 3.39)	2.76 (2.20, 3.47)
Q4	4.52 (3.52, 5.81)	3.71 (2.96, 4.65)

MASLD: metabolic dysfunction-associated steatotic liver disease; ALT: alanine aminotransferase; TyG: triglyceride-glucose; TyG-BMI: triglyceride glucose-body mass index; TyG-WHtR: triglyceride glucose-waist-to-height ratio; TyG-WHR: triglyceride glucose-waist-to-hip ratio; TyG-WC: triglyceride glucose-waist circumference.

[†]Stratification: Participants were stratified by the median baseline ALT level (15.6 U/L). The quartile cut-off values for each TyG-related parameter were calculated separately within each ALT stratum to ensure appropriate ranking within subgroups.

[‡]All analyses were adjusted for sex, age, exercise routines (binary: ≥1 time/week vs. <1 time/week), alcohol consumption frequency (categorical: never/almost never, occasional, regular, or daily), and smoking habits (binary: current smoker vs. non-smoker).

Supplementary Table 2. The cut-off values, sensitivities, specificities, Youden's index, and area under the curve of baseline TyG index, TyG- derived parameters, and Hepatic steatosis index for predicting MASLD incidence within a 6-year timeframe among Chinese older adults^{†‡}

Variables	Cut-off	Sensitivity (%)	Specificity (%)	Youden's index	AUC (95% CI)
Men (n= 980)					
TyG	8.39	58.7	63.0	0.217	0.628 (0.593, 0.663)
TyG-BMI	187.97	75.7	66.1	0.418	0.758 (0.728, 0.788)
TyG-WHtR	4.21	60.0	68.1	0.281	0.680 (0.646, 0.713)
TyG-WHR	7.40	68.5	56.0	0.245	0.640 (0.605, 0.675)
TyG-WC	690.06	66.7	66.7	0.335	0.708 (0.676, 0.741)
HSI	27.71	85.1	55.1	0.402	0.747 (0.716,0.778)
Women (n= 1,777)					
TyG	8.49	61.8	58.9	0.207	0.629 (0.603, 0.654)
TyG-BMI	191.33	74.7	63.2	0.379	0.759 (0.737, 0.781)
TyG-WHtR	4.28	70.5	57.3	0.278	0.689 (0.664, 0.713)
TyG-WHR	7.39	64.8	55.9	0.208	0.632 (0.606, 0.657)
TyG-WC	673.21	65.9	64.7	0.307	0.712 (0.688, 0.735)
HSI	30.99	66.0	74.4	0.404	0.756 (0.734,0.779)

HSI: Hepatic steatosis index; MASLD: metabolic dysfunction-associated steatotic liver disease; TyG: triglyceride-glucose; TyG-BMI: triglyceride glucose-body mass index; TyG-WHtR: triglyceride glucose-waist-to-height ratio; TyG-WHR: triglyceride glucose-waist-to-hip ratio; TyG-WC: triglyceride glucose-waist circumference