

**Association of the metabolic score for insulin resistance (METS-IR)
with cardiovascular diseases, cardiovascular and all-cause mortality
in Chinese hypertensive population**

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Table S1 : The relationship between METS-IR index and cardiovascular mortality in the Fine and Gray competing risk model.

Variables	Model 1*	
	HR/95%CI	P value
METS-IR Per SD	1.56(1.07,2.29)	0.021

Model 1* adjusted for age, sex, BMI, current smoking status, mean SBP, mean DBP, hypoglycemic drugs, lipid-lowering drugs, antihypertensive drugs, AST, ALT.

METS-IR: metabolic score for insulin resistance;
BMI: body mass index; SBP: systolic blood pressure;
DBP: diastolic blood pressure; AST: aspartate transaminase; ALT: alanine transaminase.

Table S2: Baseline characteristics of the study population according to their survival status.

Variables	Total	Survival	Death	<i>P</i> value
Sex, n (%)				<0.001
Male	6714(47.2%)	6209(46.3%)	505(62.7%)	
Female	7506(52.8%)	7206(53.7%)	300(37.3%)	
Age, year	63.8 ±9.4	63.3 ±9.2	72.6 ±8.4	
Height, cm	156.1 ±8.2	156.1 ±8.2	155.0 ±8.4	<0.001
Weight, cm	57.7 ±10.7	58.0 ±10.7	52.4 ±10.0	<0.001
BMI, kg/m ²	23.6 ±3.7	23.7 ±3.7	21.8 ±3.5	<0.001
SBP, mmHg	148.4 ±17.9	148.2 ±17.6	150.8 ±21.6	<0.001
DBP, mmHg	88.9 ±10.8	89.1 ±10.6	85.2 ±12.1	<0.001
HR, bmp	76.7 ±14.2	76.5 ±13.9	79.7 ±17.5	<0.001
Current smoking	3658(25.7%)	3413(25.4%)	245(30.4%)	0.002
Current drinking	3062(21.5%)	2910(21.7%)	152(18.9%)	0.059
Use of hypoglycemic drugs	754(5.3%)	697(5.2%)	57(7.1%)	0.394
Use of lipid-lowering drugs	506(3.6%)	473(3.5%)	33(4.1%)	0.020
Use of antihypertensive drugs	9219(64.8%)	8649(64.5%)	570(70.8%)	<0.001
Education				<0.001
Primary and below	9207(79.9%)	8585(79.4%)	622(88.9%)	
Secondary school	2135(18.5%)	2063(19.1%)	72(10.3%)	
University and above	176(1.5%)	170(1.6%)	6(0.9%)	
Life level				0.036
Rich	1503(13.0%)	1403(13.0%)	100(14.3%)	
Ordinary	7741(67.2%)	7301(67.5%)	440(62.9%)	
Poor	2274(19.7%)	2114(19.5%)	160(22.9%)	
Laboratory indicators				
FBG, mmol/L	6.2 ±1.6	6.2 ±1.6	6.3 ±2.1	0.076
TG, mmol/L	1.8 ±1.3	1.8 ±1.3	1.5±1.0	<0.001
HDL, mmol/L	1.6 ±0.4	1.6 ±0.4	1.6 ±0.4	0.641
LDL, mmol/L	3.0 ±0.8	3.0 ±0.8	2.8±0.8	<0.001
AST, mmol/L	26.8 ±15.8	26.8 ±15.8	26.8±16.3	0.985
ALT, mmol/L	20.5 ±16.6	20.7±16.7	17.0±14.0	<0.001

BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure; HR: heart rate; FBG: fasting blood glucose; TG: triglyceride; HDL: high-density lipoprotein; LDL: low-density lipoprotein; METS-IR: metabolic score for insulin resistance; AST: aspartate transaminase; ALT: alanine transaminase

Table S3: Multivariable-adjust HRs and 95%CI of the METS-IR index quartiles associated with CVD, cardiovascular Mortality, all-cause mortality.

Variables	Event, n (%)	Model 1*	
		HR/95%CI	P Value
CVD			
METS-IR Per SD		1.66(1.30,2.12)	<0.001
METS-IR Quartiles			
Q1	103(3.62%)	1 [Reference]	
Q2	81(2.85%)	1.34(0.96,1.89)	0.089
Q3	71(2.50%)	1.58(1.04,2.39)	0.031
Q4	59(2.07%)	1.90(1.15,3.13)	0.012
Q5	55(1.93%)	2.67(1.45,4.92)	0.002
P For Trend			0.002
Cardiovascular Death			
METS-IR Per SD		1.57(1.22,2.02)	<0.001
METS-IR Quartiles			
Q1	129(4.54%)	1 [Reference]	
Q2	107(3.76%)	1.66(1.22,2.26)	0.001
Q3	64(2.25%)	1.44(0.95,2.18)	0.085
Q4	60(2.11%)	2.03(1.25,3.32)	0.004
Q5	39(1.37%)	2.15(1.15,4.04)	0.017
P For Trend			0.022
All-cause Death			
METS-IR Per SD		1.33(1.11,1.60)	0.002
METS-IR Quartiles			
Q1	298(10.48%)	1 [Reference]	
Q2	177(6.22%)	1.10(0.88,1.38)	0.390
Q3	139(4.89%)	1.22(0.92,1.61)	0.173
Q4	104(3.66%)	1.31(0.93,1.84)	0.129
Q5	87(3.06%)	1.70(1.11,2.16)	0.024
P For Trend			0.002

Model 1* adjusted for age, sex, BMI, current smoking status, mean SBP, mean DBP, hypoglycemic drugs, lipid-lowering drugs, antihypertensive drugs, AST, ALT.
METS-IR: metabolic score for insulin resistance; CVD: cardiovascular disease; BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure; AST: aspartate transaminase; ALT: alanine transaminase.

Table S4: Multivariate adjusted HR and 95% CI of the METS-IR index quartile associated with CVD, cardiovascular death, and all-cause death in populations who were excluded taking hypoglycemic and lipid-lowering drugs at baseline.

Variables	Event, n (%)	Model 1		Model2	
		HR/95%CI	<i>P</i> Value	HR/95%CI	<i>P</i> Value
CVD					
METS-IR Per SD		1.85(1.43,2.39)	<0.001	1.90(1.46,2.46)	<0.001
METS-IR Quartiles					
Q1	109(3.3%)	1 [Reference]		1 [Reference]	
Q2	83(2.5%)	1.53(1.08,2.16)	0.017	1.53(1.08,2.17)	0.016
Q3	65(2.0%)	1.93(1.23,3.02)	0.004	1.94(1.23,3.05)	0.004
Q4	55(1.7%)	2.96(1.65,5.32)	<0.001	3.06(1.70,5.53)	<0.001
P For Trend			<0.001		<0.001
Cardiovascular Death					
METS-IR Per SD		1.63(1.25,2.12)	<0.001	1.74(1.34,2.27)	<0.001
METS-IR Quartiles					
Q1	147(4.5%)	1 [Reference]		1 [Reference]	
Q2	94(2.9%)	1.30(0.94,1.79)	0.111	1.37(0.99,1.88)	0.058
Q3	72(2.2%)	1.57(1.03,2.40)	0.038	1.68(1.09,2.57)	0.018
Q4	41(1.3%)	1.60(0.89,2.88)	0.115	1.79(0.99,3.23)	0.053
P For Trend			0.063		0.027
All-cause Death					
METS-IR Per SD		1.37(1.13,1.65)	0.001	1.45(1.20,1.75)	<0.001

METS-IR Quartiles

Q1	322(9.9%)	1 [Reference]		1 [Reference]	
Q2	180(5.5%)	1.12(0.89,1.40)	0.336	1.15(0.92,1.44)	0.222
Q3	135(4.1%)	1.31(0.97,1.76)	0.078	1.37(1.01,1.84)	0.041
Q4	84(2.6%)	1.44(0.96,2.16)	0.081	1.56(1.03,2.34)	0.034
P For Trend			0.055		0.022

Model 1 adjusted for age, sex, BMI

Model 2 adjusted for age, sex, BMI, current smoking status, mean SBP, mean DBP, AST, ALT

METS-IR: metabolic score for insulin resistance; CVD: cardiovascular disease; BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure; AST: aspartate transaminase; ALT: alanine transaminase.

Table S5: Incremental predictive value of METS- IR index.

	C-Statistic(95% CI)	Continuous NRI	P-value	IDI	P-value
CVD					
Basic model	0,754(0.729,0.779)	1 [Reference]		1 [Reference]	
Basic model +METS-IR	0.762(0.737,0.787)	0.128	0.027	0.002	0.093
Cardiovascular Mortality					
Basic model	0.805(0.785,0.826)	1 [Reference]		1 [Reference]	
Basic model +METS-IR	0.808(0.787,0.828)	0.091	0.047	0.002	0.027
All-cause Mortality					
Basic model	0.784(0.769,0.799)	1 [Reference]		1 [Reference]	
Basic model +METS-IR	0.786(0.711,0.801)	0.041	0.113	0.001	0.040

Basic model included age, sex, BMI, SBP, DBP, smoking, drinking.

METS- IR: Metabolic score for insulin resistance; CVD: Cardiovascular disease; NRI: Net Reclassification Improvement; IDI: Integrated Discrimination Improvement; BMI: body mass index.