

Supplemental Table 1. The correlation, area under the receiver operating characteristic curve (AUC) and C-statistics analysis for incident heart failure of adiposity measures in the Kailuan study

	Pearson's correlation coefficient*	Harrell's C (95%CI)	AUC (95%CI)
Waist circumference	1.00	0.798 (0.783, 0.813)	0.796 (0.781, 0.811)
Neck circumference	0.316	0.798 (0.783, 0.813)	0.796 (0.781, 0.811)
WHtR	0.923	0.799 (0.784, 0.814)	0.797 (0.782, 0.812)
CVAI	0.832	0.779 (0.762, 0.795)	0.777 (0.76, 0.794)

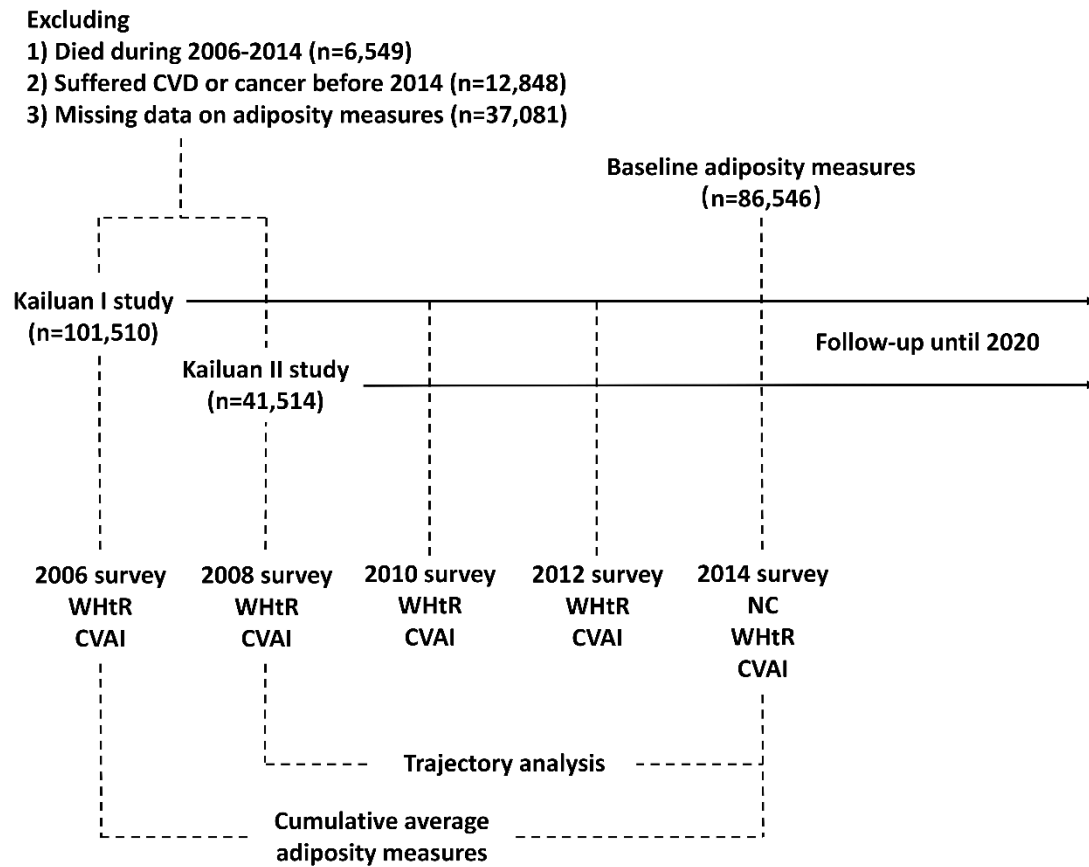
Abbreviations: WHtR: waist to height ratio; CVAI: Chinese visceral adiposity index.

* Correlated with waist circumference.

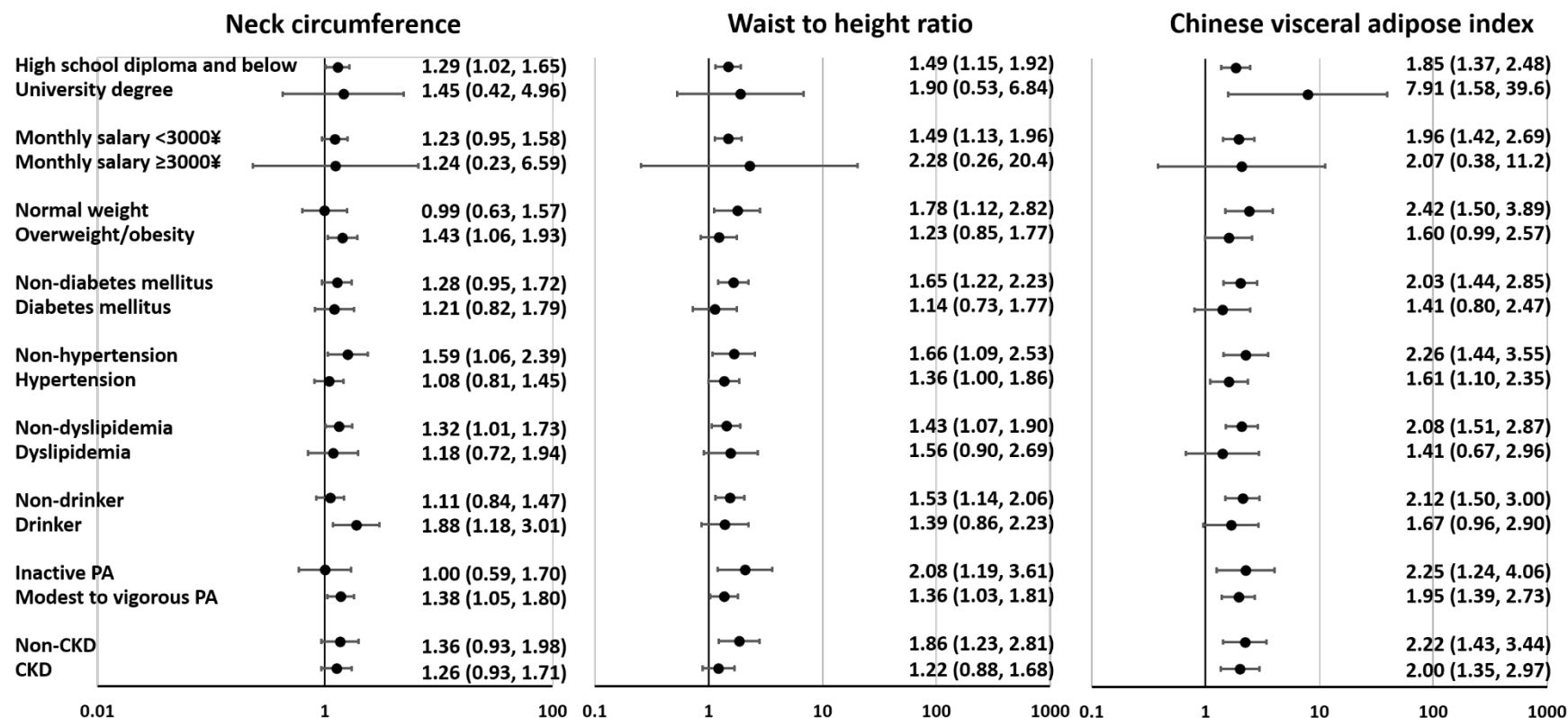
Supplemental Table 2. Mediation analysis of the association between adiposity measures and heart failure in the Kailuan study

	Estimates, 95%CI		
	Neck circumference	WHtR	CVAI
Diabetes mellitus			
ACME	-22.7 (-43.3, -10.8)	-45.0 (-89.5, -21.7)	-111 (-213, -53.4)
ADE	-267.8 (-705.0, -77.7)	-314.5 (-695.1, -45.4)	-727 (-1440, -263.7)
Total Effect	-290.5 (-742.1, -95.4)	-359.4 (-760.6, -72.4)	-838 (-1640, -327.3)
Mediation Proportion, %	8.11 (4.05, 20)	12.9 (7.01, 37)	13.6 (8.69, 21)
Hypertension			
			21.9
ACME	-65.8 (-135.2, -31.2)	-100.8 (-222.9, -41.4)	-276.0 (-514.7, -121.8)
ADE	-256.0 (-699.1, -29.9)	-310.7 (-852.0, -84.2)	-846.2 (-1778.9, -346.6)
Total Effect	-321.8 (-838.8, -90.8)	-411.4 (-1017.9, -140.1)	-1122.1 (-2253.4, -494.4)
Mediation Proportion, %	22 (11.3, 65)	24.7 (12.0, 53)	24.4 (17.3, 37)
Dyslipidemia			
	1.4	3.5	3.1
ACME	-4.35 (-10.2, -1.23)	-14.1 (-27.6, -4.29)	-21.2 (-57.4, 2.60)
ADE	-295 (-678, -36.3)	-329.1 (-815.4, -64.9)	-732 (-1340, -302.6)
Total Effect	-299 (-683, -38.8)	-343.2 (-840.5, -75.8)	-753 (-1370, -315.3)
Mediation Proportion, %	1.46 (0.55, 6)	4.63 (1.45, 16)	2.95 (-0.51, 7)

Abbreviations: WHtR: waist to height ratio; CVAI: Chinese visceral adiposity index; ACME: average causal mediation effects; ADE: average direct effects.



Supplemental Figure 1. Flow charts showing the selection strategy of the Kailuan study.
CVD: cardiovascular diseases; WHtR: waist-to-height ratio; CVAI: Chinese visceral adiposity index; NC: neck circumference.



Supplemental Figure 2. Adjusted hazard ratios (HRs) with 95% confidence interval (CIs) for incident heart failure stratified by socio-demographic characteristics and comorbidity in the Kailuan study. All models except for CVAI were adjusted for age (quartiles), sex (men or women), family history of myocardial infarction and stroke (yes or no), heart rate (quartiles), urine protein (negative, trace, +, ++ or +++), high-sensitivity C reactive protein (quartiles), **non-high density lipoprotein cholesterol (quartiles)**, fasting blood glucose (quartiles), systolic blood pressure (quartiles), diastolic blood pressure (quartiles), physical activity (inactive, moderately active or vigorously active), smoking status (never, former, current), estimated glomerular filtration rate (quartiles), alcohol consumption (never, light, moderate, heavy, unknown or past),

educational level (illiterate, primary, middle school, high school or college/university), occupation (white collar, coal miner or blue collar), monthly salary (<500, 500-1000, 1001-3000, 3001-5000 or ≥ 5000 ¥), snoring (never, occasional or frequent). PA: physical activity; CKD: chronic kidney diseases; CVAI: Chinese visceral adipose index. CVAI were adjusted for low density lipoprotein cholesterol, rather than non-high density lipoprotein cholesterol.