

Supplemental Material

Supplemental material for the manuscript entitled “Associations of traditional cardiovascular risk factors with 15-year blood pressure change and trajectories in Chinese adults: a prospective cohort study”

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Supplementary methods

Assessment of lifestyle factors

In the interviewer-administered questionnaire of the CKB study, ever smokers were asked for frequency, type, and the amount of tobacco smoked per day, and former smokers were also asked for years since stopping and the reason for quitting smoking^[1]. Participants who drank at least once a week were asked for the types of alcoholic beverages consumed and the amount drunk on a typical drinking day in the prior 12 months^[2]. For physical activity, participants were asked about the usual type and duration of activities in occupational, commuting, domestic, and leisure-time related domains in the past 12 months. Total physical activity was calculated by multiplying the metabolic equivalent of task (MET) value of each type of activity and the hours spent on that activity per day and then summarizing the MET-hours for all activities^[3]. Qualitative habitual intakes of 12 conventional food groups in the past 12 months were assessed using a validated food frequency questionnaire^[4].

Coefficient of variation (CV) and average real variability (ARV) calculations

The CV of blood pressure was calculated as SD divided by mean SBP or mean DBP. ARV was the average absolute difference between consecutive blood pressure measurements and was calculated using the following formula:

$$ARV = \frac{|BP_2 - BP_1| + |BP_3 - BP_2|}{2}$$

Trajectory modeling approach

Given that the blood pressure of our participants was approximately normally distributed, we estimated parameters for continuous and normal distribution data using the censored normal model, with follow-up year as the time scale and age as a time-varying covariate. The evaluation of linear or quadratic terms was based on the 0.05 significant level, starting with the highest polynomial. We initiated models with 3, 4 and 5 trajectories, respectively. Then chose the optimal number by comparing the BIC for each number of trajectories. Finally, the model with 5 trajectories identified fit best.

References

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Table S1. The distribution of anti-hypertensive drug types and numbers in participants with hypertension

	2004–08 baseline (n= 5,324)	2013–14 resurvey (n= 7,762)	2020–21 resurvey (n= 9,478)
Participants with anti-hypertensive treatment*	1,512 (28.4)	4,074 (52.5)	6,577 (69.4)
Drug type**			
Angiotensin-converting enzyme inhibitor	160 (10.6)	302 (7.4)	283 (4.3)
Beta blocker	100 (6.6)	388 (9.5)	370 (5.6)
Diuretic	20 (1.3)	114 (2.8)	348 (5.3)
Calcium channel blocker	341 (22.6)	787 (19.3)	2,248 (34.2)
Angiotensin receptor blocker	N/A	362 (8.9)	1,205 (18.3)
Other anti-hypertensive drugs	N/A	2,356 (57.8)	2,959 (45.0)
Unknown	985 (65.1)	668 (16.4)	567 (8.6)
Drug number**			
1	438 (29.0)	2,693 (66.1)	4,812 (73.2)
2	84 (5.6)	563 (13.8)	1,014 (15.4)
3	5 (0.3)	116 (2.9)	166 (2.5)
4	N/A	29 (0.7)	16 (0.2)
5	N/A	4 (0.1)	1 (0.02)
6	N/A	1 (0.02)	1 (0.02)

Data was presented as number (%).

*Using participants with hypertension as denominator.

**Using participants with anti-hypertensive treatment as denominator.

Table S2. Spearman's rank correlation coefficients between metrics of BPC and mean BP

	Mean	SD	CV	ARV	cumBP
SBP					
Mean	1.000				
SD	0.417	1.000			
CV	0.221	0.974	1.000		
ARV	0.382	0.925	0.902	1.000	
cumSBP	0.916	0.412	0.234	0.387	1.000
DBP					
Mean	1.000				
SD	0.225	1.000			
CV	0.030	0.976	1.000		
ARV	0.212	0.917	0.894	1.000	
cumDBP	0.889	0.219	0.045	0.210	1.000

All P values for Spearman's rank correlation coefficients <0.001.

ARV, average real variability; BP, blood pressure; BPC, blood pressure change; cumDBP, cumulative diastolic blood pressure; cumSBP, cumulative systolic blood pressure; CV, coefficient of variation; SD, standard deviation.

Table S3. The adjusted differences in CV and ARV by baseline population characteristics

	SBP		DBP	
	CV	ARV	CV	ARV
Mean values for all participants	9.5	16.0	8.8	8.6
Age, per 10 years	0.7 (0.6, 0.8)	2.1 (1.9, 2.3)	0.0 (-0.1, 0.1)	0.1 (0.0, 0.2)
Sex				
Women	Reference	Reference	Reference	Reference
Men	-0.9 (-1.2, -0.6)	-1.4 (-1.9, -0.8)	0.1 (-0.1, 0.4)	0.3 (0.0, 0.6)
Residence				
Urban	Reference	Reference	Reference	Reference
Rural	0.0 (-0.2, 0.2)	-0.6 (-1.0, -0.2)	0.2 (-0.0, 0.4)	0.2 (-0.0, 0.4)
Education				
College or university	Reference	Reference	Reference	Reference
Middle or high school	0.8 (0.4, 1.3)	1.8 (0.8, 2.7)	0.6 (0.1, 1.1)	0.6 (0.1, 1.1)
Primary school or below	1.1 (0.5, 1.6)	2.2 (1.1, 3.2)	0.8 (0.3, 1.3)	0.8 (0.3, 1.3)
Smoking				
Never	Reference	Reference	Reference	Reference
Former	-0.1 (-0.5, 0.4)	-0.2 (-1.0, 0.7)	-0.1 (-0.5, 0.3)	-0.1 (-0.5, 0.4)
Current, cigarettes (or equivalent)/d				
<20	0.4 (0.0, 0.7)	0.2 (-0.4, 0.9)	0.2 (-0.1, 0.5)	0.0 (-0.4, 0.3)
≥20	0.5 (0.1, 0.8)	0.4 (-0.3, 1.1)	0.3 (-0.0, 0.6)	0.0 (-0.3, 0.4)
Alcohol drinking				
Less than weekly	Reference	Reference	Reference	Reference
Former	0.4 (-0.1, 0.8)	0.5 (-0.4, 1.4)	0.3 (-0.1, 0.8)	0.4 (-0.1, 0.8)
Weekly	0.0 (-0.4, 0.4)	0.2 (-0.5, 1.0)	0.5 (0.1, 0.9)	0.7 (0.3, 1.1)
Daily, g/d (pure alcohol)				
<30	0.5 (-0.1, 1.1)	0.3 (-0.8, 1.5)	0.2 (-0.3, 0.8)	0.1 (-0.5, 0.7)
30–59	0.7 (0.2, 1.2)	1.1 (0.1, 2.1)	0.6 (0.1, 1.1)	0.8 (0.2, 1.3)
≥60	0.7 (0.2, 1.2)	1.7 (0.7, 2.6)	0.7 (0.2, 1.1)	1.0 (0.5, 1.5)
Fresh vegetable consumption				
Daily	Reference	Reference	Reference	Reference
Nondaily	-0.2 (-0.6, 0.2)	-0.6 (-1.4, 0.2)	-0.4 (-0.8, -0.0)	-0.3 (-0.7, 0.1)
Fresh fruit consumption				
Daily	Reference	Reference	Reference	Reference
Nondaily	0.1 (-0.2, 0.4)	0.3 (-0.2, 0.8)	0.0 (-0.2, 0.3)	0.1 (-0.1, 0.4)
Red meat consumption				
Daily	Reference	Reference	Reference	Reference
Weekly	0.0 (-0.2, 0.2)	0.2 (-0.2, 0.7)	0.1 (-0.1, 0.3)	0.2 (-0.1, 0.4)
Less than weekly	0.1 (-0.2, 0.4)	0.3 (-0.3, 0.9)	0.3 (-0.0, 0.6)	0.2 (-0.1, 0.5)
Total physical activity, per 4 MET-h/d*	-0.02 (-0.04, 0.01)	0.00 (-0.05, 0.05)	0.00 (-0.02, 0.03)	0.00 (-0.02, 0.03)
BMI, per 5 kg/m ²	0.0 (-0.1, 0.1)	1.1 (0.9, 1.3)	-0.1 (-0.3, -0.0)	0.5 (0.4, 0.6)
WC, per 10 cm	0.0 (-0.1, 0.1)	0.7 (0.5, 0.9)	-0.1 (-0.2, -0.0)	0.3 (0.2, 0.4)
Body shape				

	SBP		DBP	
	CV	ARV	CV	ARV
BMI<18.5	0.0 (-0.4, 0.5)	-0.8 (-1.7, 0.0)	0.0 (-0.4, 0.4)	-0.4 (-0.9, 0.0)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	-0.6 (-1.4, 0.3)	0.1 (-1.5, 1.7)	-0.8 (-1.6, 0.0)	-0.4 (-1.3, 0.4)
BMI 24.0–27.9, WC<90/85	0.1 (-0.1, 0.3)	1.3 (0.9, 1.7)	-0.2 (-0.4, 0.0)	0.4 (0.2, 0.6)
BMI 24.0–27.9, WC≥90/85	-0.1 (-0.4, 0.2)	0.8 (0.2, 1.3)	-0.3 (-0.5, 0.0)	0.3 (0.0, 0.6)
BMI≥28.0, WC<90/85	0.4 (-0.3, 1.1)	1.5 (0.2, 2.9)	-0.4 (-1.0, 0.3)	0.3 (-0.4, 1.0)
BMI≥28.0, WC≥90/85	-0.1 (-0.4, 0.2)	1.6 (1.0, 2.2)	-0.1 (-0.4, 0.2)	1.0 (0.7, 1.3)

The table presents the adjusted difference (95% confidence interval) of CV and ARV for categorical variables compared with the reference group and adjusted CV and ARV change (95% CI) per specified unit for continuous variables. Please refer to the method section for detailed covariate adjustment.

*The 4 MET-h/d is equivalent to about 1 hour of moderate physical activity per day.

ARV, average real variability (mmHg); BMI, body mass index; CV, coefficient of variation (%); DBP, diastolic blood pressure; MET-h/d, metabolic equivalent task-hour/day; SBP, systolic blood pressure; WC, waist circumference.

Table S4. The adjusted differences in SBP change indices by baseline characteristics in hypertensive and normotensive participants

	Hypertension (n = 10,751)				Normotension (n = 5234)			
	SD	CV	ARV	cumSBP	SD	CV	ARV	cumSBP
Mean values	15.6	10.7	18.8	2246.5	8.1	7.0	10.2	1798.0
Age, per 10 years	0.6 (0.4, 0.8)	0.1 (-0.1, 0.2)	1.1 (0.8, 1.4)	80.2 (73.6, 86.7)	0.5 (0.3, 0.7)	0.4 (0.2, 0.5)	0.6 (0.4, 0.9)	20.0 (14.4, 25.7)
Sex								
Women	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Men	-1.5 (-2.0, -0.9)	-0.9 (-1.3, -0.6)	-1.6 (-2.3, -0.9)	-26.2 (-43.7, -8.6)	-0.5 (-0.9, -0.1)	-0.6 (-0.9, -0.2)	-0.5 (-1.1, 0.1)	37.9 (23.2, 52.6)
Residence								
Urban	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Rural	0.0 (-0.4, 0.4)	0.0 (-0.3, 0.2)	-0.8 (-1.3, -0.3)	62.8 (50.6, 74.9)	-0.1 (-0.4, 0.2)	-0.1 (-0.3, 0.1)	-0.4 (-0.8, 0.0)	58.5 (48.2, 68.8)
Education								
College or university	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Middle or high school	0.9 (-0.1, 1.9)	0.6 (-0.1, 1.2)	1.4 (0.1, 2.8)	24.2 (-8.0, 56.3)	0.7 (0.0, 1.3)	0.6 (0.0, 1.1)	0.7 (-0.1, 1.6)	-8.7 (-30.8, 13.5)
Primary school or below	1.2 (0.2, 2.3)	0.8 (0.1, 1.5)	1.9 (0.5, 3.3)	33.7 (0.0, 67.4)	0.8 (0.1, 1.4)	0.6 (0.0, 1.2)	0.9 (-0.1, 1.8)	-0.2 (-24.0, 23.6)
Smoking								
Never	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.0 (-0.8, 0.9)	0.1 (-0.5, 0.6)	0.1 (-1.0, 1.2)	-13.4 (-39.6, 12.9)	-0.3 (-1.0, 0.4)	-0.2 (-0.8, 0.4)	-0.3 (-1.3, 0.7)	-25.6 (-50.9, -0.2)
Current, cigarettes (or equivalent)/d								
<20	0.6 (-0.1, 1.2)	0.6 (0.2, 1.1)	0.6 (-0.2, 1.5)	-37.6 (-58.3, -16.9)	-0.2 (-0.7, 0.3)	-0.1 (-0.5, 0.4)	-0.4 (-1.1, 0.2)	-30.1 (-47.1, -13.0)
≥20	0.8 (0.1, 1.4)	0.7 (0.3, 1.1)	0.7 (-0.2, 1.5)	-30.0 (-50.6, -9.4)	0.0 (-0.5, 0.4)	0.0 (-0.4, 0.5)	-0.1 (-0.8, 0.6)	-24.1 (-41.2, -7.1)
Alcohol drinking								
Less than weekly	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.6 (-0.3, 1.4)	0.2 (-0.3, 0.8)	0.2 (-0.9, 1.3)	49.9 (22.7, 77.1)	0.1 (-0.7, 0.8)	0.1 (-0.6, 0.7)	0.1 (-0.9, 1.2)	3.9 (-22.2, 29.9)
Weekly	-0.3 (-1.1, 0.4)	-0.4 (-0.9, 0.1)	-0.5 (-1.5, 0.4)	39.3 (16.3, 62.3)	0.3 (-0.3, 0.8)	0.2 (-0.3, 0.6)	0.3 (-0.4, 1.1)	15.5 (-3.7, 34.8)
Daily, g/d (pure alcohol)								
<30	0.4 (-0.7, 1.4)	0.2 (-0.5, 0.9)	-0.4 (-1.8, 1.0)	31.9 (-2.4, 66.2)	0.7 (-0.2, 1.6)	0.6 (-0.2, 1.4)	0.7 (-0.5, 2.0)	13.9 (-17.4, 45.3)
30–59	0.6 (-0.4, 1.5)	0.3 (-0.4, 0.9)	0.4 (-0.8, 1.7)	37.0 (6.2, 67.9)	1.1 (0.3, 1.9)	0.9 (0.2, 1.6)	1.5 (0.4, 2.6)	41.6 (14.0, 69.3)
≥60	0.3 (-0.5, 1.2)	0.1 (-0.5, 0.6)	0.4 (-0.7, 1.5)	55.3 (28.0, 82.6)	0.8 (0.1, 1.6)	0.6 (-0.0, 1.3)	1.6 (0.6, 2.7)	22.7 (-3.9, 49.3)

	Hypertension (n = 10,751)				Normotension (n = 5234)			
	SD	CV	ARV	cumSBP	SD	CV	ARV	cumSBP
Fresh vegetable consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	-0.7 (-1.5, 0.1)	-0.6 (-1.1, -0.0)	-1.3 (-2.4, -0.3)	23.3 (-1.7, 48.3)	0.3 (-0.2, 0.9)	0.3 (-0.2, 0.8)	0.4 (-0.4, 1.2)	-1.9 (-21.7, 17.8)
Fresh fruit consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	0.4 (-0.1, 0.9)	0.2 (-0.2, 0.5)	0.4 (-0.2, 1.1)	-4.8 (-21.1, 11.4)	-0.2 (-0.5, 0.2)	-0.2 (-0.5, 0.1)	-0.2 (-0.7, 0.3)	-10.9 (-23.6, 1.8)
Red meat consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Weekly	0.2 (-0.2, 0.6)	0.1 (-0.2, 0.3)	0.4 (-0.2, 0.9)	5.1 (-8.4, 18.6)	-0.1 (-0.4, 0.2)	-0.1 (-0.3, 0.2)	-0.1 (-0.5, 0.3)	-8.3 (-19.0, 2.4)
Less than weekly	0.2 (-0.4, 0.8)	0.1 (-0.3, 0.5)	0.4 (-0.4, 1.1)	36.2 (17.1, 55.4)	0.1 (-0.4, 0.5)	0.1 (-0.3, 0.5)	-0.1 (-0.7, 0.5)	5.2 (-10.5, 21.0)
Total physical activity, per 4 MET-h/d*	-0.02 (-0.07, 0.03)	-0.01 (-0.04, 0.02)	0.02 (-0.05, 0.08)	-1.97 (-3.56, -0.38)	-0.03 (-0.06, 0.01)	-0.03 (-0.06, 0.01)	-0.02 (-0.07, 0.03)	-1.45 (-2.69, -0.20)
BMI, per 5 kg/m ²	-0.6 (-0.8, -0.3)	-0.8 (-0.9, -0.6)	-0.3 (-0.6, 0.0)	73.7 (65.8, 81.5)	-0.2 (-0.4, -0.0)	-0.3 (-0.5, -0.2)	-0.2 (-0.5, 0.1)	40.5 (33.4, 47.5)
WC, per 10 cm	-0.4 (-0.6, -0.3)	-0.5 (-0.7, -0.4)	-0.2 (-0.5, -0.0)	32.2 (26.5, 37.8)	-0.2 (-0.3, -0.0)	-0.2 (-0.3, -0.1)	-0.1 (-0.3, 0.1)	15.9 (10.9, 21.0)
Body shape								
BMI<18.5	1.4 (0.4, 2.4)	1.4 (0.7, 2.1)	1.4 (0.1, 2.7)	-73.1 (-105.4, -40.8)	0.0 (-0.5, 0.5)	0.1 (-0.3, 0.5)	-0.1 (-0.8, 0.6)	-36.8 (-53.9, -19.6)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	-1.4 (-2.9, 0.1)	-1.2 (-2.2, -0.1)	-0.8 (-2.8, 1.1)	35.7 (-12.5, 84.0)	-0.4 (-1.7, 1.0)	-0.3 (-1.5, 0.9)	-0.1 (-2.0, 1.8)	-14.9 (-62.7, 33.0)
BMI 24.0–27.9, WC<90/85	-0.2 (-0.6, 0.2)	-0.4 (-0.7, -0.2)	0.3 (-0.2, 0.8)	65.7 (53.4, 78.1)	-0.3 (-0.6, -0.0)	-0.4 (-0.6, -0.1)	-0.2 (-0.6, 0.2)	38.5 (27.9, 49.1)
BMI 24.0–27.9, WC≥90/85	-1.0 (-1.5, -0.5)	-1.0 (-1.3, -0.7)	-0.9 (-1.6, -0.3)	38.7 (22.5, 54.9)	-0.3 (-0.8, 0.2)	-0.4 (-0.8, 0.1)	-0.4 (-1.2, 0.3)	18.5 (0.3, 36.7)
BMI≥28.0, WC<90/85	-0.1 (-1.4, 1.1)	-0.5 (-1.4, 0.3)	0.0 (-1.6, 1.7)	104.9 (64.9, 144.8)	-0.1 (-1.3, 1.2)	-0.3 (-1.3, 0.8)	-0.6 (-2.3, 1.1)	60.9 (17.5, 104.3)
BMI≥28.0, WC≥90/85	-1.0 (-1.5, -0.5)	-1.2 (-1.6, -0.9)	-0.4 (-1.1, 0.3)	112.4 (95.3, 129.6)	-0.3 (-0.9, 0.3)	-0.5 (-1.0, 0.0)	0.0 (-0.9, 0.8)	53.8 (32.3, 75.3)

The table presents the adjusted difference (95% confidence interval) in SBP change indices for categorical variables compared with the reference group and adjusted index change (95% CI) per specified unit for continuous variables in hypertension and non-hypertension participants. Please refer to the method section for detailed covariate adjustment.

*The 4 MET-h/d is equivalent to about 1 hour of moderate physical activity per day.

ARV, average real variability (mmHg); BMI, body mass index; cumSBP, cumulative systolic blood pressure (100 mmHg×year); CV, coefficient of variation (%); MET-h/d, metabolic equivalent task-hour/day; SD, standard deviation (mmHg); WC, waist circumference.

Table S5. The adjusted differences in DBP change indices by baseline characteristics in hypertensive and normotensive participants

	Hypertension (n = 10,751)				Normotension (n = 5234)			
	SD	CV	ARV	cumDBP	SD	CV	ARV	cumDBP
Mean values	7.9	9.3	9.5	1298.0	5.5	7.7	6.8	1100.4
Age, per 10 years	-0.5 (-0.7, -0.4)	-0.5 (-0.6, -0.3)	-0.4 (-0.6, -0.3)	-30.5 (-34.3, -26.8)	-0.1 (-0.2, 0.0)	0.1 (-0.1, 0.2)	0.0 (-0.2, 0.1)	-22.6 (-26.5, -18.7)
Sex								
Women	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Men	0.4 (0.1, 0.7)	0.3 (-0.1, 0.6)	0.5 (0.1, 0.8)	27.0 (16.8, 37.1)	0.1 (-0.2, 0.4)	-0.1 (-0.5, 0.4)	0.1 (-0.3, 0.5)	25.9 (15.6, 36.1)
Residence								
Urban	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Rural	0.2 (-0.0, 0.4)	0.2 (-0.1, 0.4)	0.2 (-0.1, 0.5)	43.0 (36.0, 50.0)	0.1 (-0.1, 0.3)	0.2 (-0.1, 0.4)	0.1 (-0.2, 0.4)	38.0 (30.9, 45.1)
Education								
College or university	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Middle or high school	0.3 (-0.3, 0.8)	0.3 (-0.3, 0.9)	0.5 (-0.2, 1.2)	-0.4 (-19.0, 18.1)	0.6 (0.1, 1.0)	0.8 (0.1, 1.4)	0.3 (-0.2, 0.9)	-3.3 (-18.7, 12.1)
Primary school or below	0.5 (-0.1, 1.1)	0.6 (-0.0, 1.3)	0.8 (0.0, 1.5)	0.5 (-19.0, 20.0)	0.5 (0.0, 1.0)	0.7 (0.0, 1.4)	0.4 (-0.3, 1.0)	-2.6 (-19.1, 14.0)
Smoking								
Never	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.1 (-0.4, 0.5)	0.1 (-0.4, 0.6)	0.0 (-0.5, 0.6)	-6.3 (-21.5, 8.9)	-0.5 (-1.0, 0.0)	-0.6 (-1.4, 0.1)	-0.3 (-1.0, 0.3)	-12.6 (-30.2, 5.1)
Current, cigarettes (or equivalent)/d								
<20	0.0 (-0.4, 0.3)	0.2 (-0.2, 0.6)	-0.1 (-0.5, 0.4)	-29.1 (-41.1, -17.2)	0.1 (-0.3, 0.4)	0.2 (-0.3, 0.7)	0.1 (-0.4, 0.5)	-14.0 (-25.9, -2.1)
≥20	0.1 (-0.3, 0.4)	0.3 (-0.1, 0.7)	0.0 (-0.5, 0.4)	-25.5 (-37.4, -13.6)	0.1 (-0.2, 0.5)	0.2 (-0.3, 0.7)	0.1 (-0.4, 0.6)	-7.3 (-19.1, 4.6)
Alcohol drinking								
Less than weekly	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.4 (-0.1, 0.8)	0.3 (-0.2, 0.9)	0.3 (-0.2, 0.9)	28.5 (12.7, 44.2)	0.1 (-0.4, 0.7)	0.1 (-0.6, 0.9)	0.0 (-0.7, 0.7)	10.6 (-7.5, 28.7)
Weekly	0.3 (-0.1, 0.7)	0.2 (-0.3, 0.6)	0.4 (-0.1, 0.9)	24.7 (11.3, 38.0)	0.6 (0.2, 1.0)	0.8 (0.2, 1.3)	0.6 (0.1, 1.1)	14.1 (0.7, 27.5)
Daily, g/d (pure alcohol)								
<30	0.2 (-0.4, 0.7)	0.1 (-0.5, 0.8)	-0.1 (-0.9, 0.6)	32.9 (13.0, 52.7)	0.1 (-0.6, 0.7)	0.0 (-0.9, 0.9)	0.3 (-0.6, 1.1)	16.9 (-5.0, 38.7)
30–59	0.5 (0.0, 1.0)	0.5 (-0.1, 1.1)	0.7 (0.0, 1.4)	29.7 (11.8, 47.5)	0.4 (-0.2, 0.9)	0.4 (-0.4, 1.2)	0.5 (-0.3, 1.2)	30.7 (11.4, 49.9)
≥60	0.3 (-0.2, 0.8)	0.2 (-0.3, 0.8)	0.5 (-0.1, 1.1)	33.6 (17.8, 49.4)	1.0 (0.4, 1.5)	1.2 (0.4, 1.9)	1.2 (0.5, 1.9)	25.4 (6.9, 43.9)

	Hypertension (n = 10,751)				Normotension (n = 5234)			
	SD	CV	ARV	cumDBP	SD	CV	ARV	cumDBP
Fresh vegetable consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	-0.3 (-0.7, 0.1)	-0.4 (-0.9, 0.1)	-0.4 (-1.0, 0.1)	9.4 (-5.1, 23.8)	-0.3 (-0.6, 0.1)	-0.4 (-1.0, 0.1)	-0.1 (-0.7, 0.4)	5.4 (-8.3, 19.1)
Fresh fruit consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	0.0 (-0.2, 0.3)	0.0 (-0.3, 0.3)	0.1 (-0.3, 0.5)	-5.8 (-15.2, 3.6)	0.0 (-0.3, 0.2)	0.0 (-0.4, 0.4)	0.0 (-0.3, 0.4)	-10.6 (-19.5, -1.8)
Red meat consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Weekly	0.1 (-0.1, 0.3)	0.1 (-0.2, 0.4)	0.2 (-0.1, 0.5)	0.1 (-7.7, 7.9)	0.0 (-0.2, 0.2)	0.0 (-0.3, 0.3)	0.0 (-0.3, 0.3)	-2.7 (-10.2, 4.7)
Less than weekly	0.3 (-0.0, 0.6)	0.4 (-0.0, 0.7)	0.3 (-0.1, 0.7)	8.6 (-2.4, 19.7)	0.1 (-0.2, 0.4)	0.1 (-0.3, 0.6)	-0.1 (-0.6, 0.3)	10.3 (-0.6, 21.3)
Total physical activity, per 4 MET-h/d*	0.00 (-0.03, 0.02)	0.00 (-0.03, 0.03)	0.00 (-0.03, 0.04)	-1.27 (-2.19, -0.36)	0.00 (-0.02, 0.03)	0.00 (-0.03, 0.04)	0.01 (-0.02, 0.04)	-1.21 (-2.07, -0.34)
BMI, per 5 kg/m ²	-0.1 (-0.3, -0.0)	-0.5 (-0.6, -0.3)	0.1 (-0.1, 0.2)	47.4 (42.9, 52.0)	-0.1 (-0.2, 0.1)	-0.3 (-0.5, -0.1)	-0.1 (-0.3, 0.1)	31.9 (26.9, 36.8)
WC, per 10 cm	-0.1 (-0.2, -0.0)	-0.3 (-0.4, -0.2)	0.0 (-0.1, 0.1)	22.2 (19.0, 25.5)	-0.1 (-0.2, 0.0)	-0.2 (-0.4, -0.1)	-0.1 (-0.2, 0.0)	15.4 (11.8, 18.9)
Body shape								
BMI<18.5	0.2 (-0.4, 0.7)	0.4 (-0.2, 1.0)	0.2 (-0.5, 0.9)	-33.6 (-52.2, -14.9)	0.0 (-0.3, 0.4)	0.2 (-0.3, 0.7)	0.0 (-0.4, 0.5)	-26.0 (-37.9, -14.1)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	-0.8 (-1.6, 0.0)	-1.2 (-2.1, -0.3)	-0.9 (-2.0, 0.1)	25.4 (-2.5, 53.3)	-0.2 (-1.2, 0.8)	-0.3 (-1.7, 1.1)	-0.1 (-1.3, 1.2)	-12.1 (-45.3, 21.2)
BMI 24.0–27.9, WC<90/85	-0.2 (-0.4, -0.0)	-0.5 (-0.8, -0.3)	-0.1 (-0.3, 0.2)	43.6 (36.5, 50.8)	-0.1 (-0.3, 0.2)	-0.3 (-0.6, 0.1)	0.1 (-0.2, 0.4)	30.9 (23.5, 38.2)
BMI 24.0–27.9, WC≥90/85	-0.3 (-0.6, -0.0)	-0.7 (-1.0, -0.4)	-0.2 (-0.6, 0.1)	31.7 (22.4, 41.1)	-0.3 (-0.6, 0.1)	-0.6 (-1.1, -0.1)	-0.3 (-0.8, 0.2)	25.1 (12.4, 37.7)
BMI≥28.0, WC<90/85	-0.2 (-0.8, 0.5)	-0.7 (-1.4, 0.1)	-0.1 (-0.9, 0.8)	81.8 (58.6, 104.9)	-0.7 (-1.6, 0.2)	-1.2 (-2.4, 0.1)	-1.0 (-2.2, 0.1)	60.8 (30.7, 90.9)
BMI≥28.0, WC≥90/85	-0.1 (-0.4, 0.1)	-0.7 (-1.0, -0.3)	0.3 (-0.1, 0.7)	71.2 (61.3, 81.1)	0.1 (-0.3, 0.5)	-0.2 (-0.8, 0.5)	0.1 (-0.4, 0.7)	44.5 (29.6, 59.4)

The table presents the adjusted difference (95% confidence interval) in DBP change indices for categorical variables compared with the reference group and adjusted index change (95% CI) per specified unit for continuous variables in hypertension and non-hypertension participants. Please refer to the method section for detailed covariate adjustment.

*The 4 MET-h/d is equivalent to about 1 hour of moderate physical activity per day.

ARV, average real variability (mmHg); BMI, body mass index; cumDBP, cumulative diastolic blood pressure (100 mmHg×year); CV, coefficient of variation (%); MET-h/d, metabolic equivalent task-hour/day; SD, standard deviation (mmHg); WC, waist circumference.

Table S6. The adjusted differences in SBP and DBP change indices by baseline characteristics in participants without antihypertensive treatment

	SBP				DBP			
	SD	CV	ARV	cumSBP	SD	CV	ARV	cumDBP
Mean values	11.1	8.7	13.4	1925.5	6.3	8.3	7.6	1152.0
Age, per 10 years	1.4 (1.2, 1.6)	0.8 (0.7, 0.9)	1.7 (1.5, 2.0)	65.7 (59.8, 71.6)	-0.2 (-0.2, -0.1)	-0.1 (-0.2, 0.1)	-0.1 (-0.2, 0.1)	-17.2 (-20.7, -13.8)
Sex								
Women	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Men	-0.9 (-1.4, -0.4)	-0.8 (-1.1, -0.4)	-1.0 (-1.6, -0.4)	22.6 (6.5, 38.7)	0.3 (0.0, 0.5)	0.2 (-0.2, 0.5)	0.3 (0.0, 0.7)	29.3 (19.9, 38.7)
Residence								
Urban	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Rural	0.1 (-0.2, 0.5)	0.1 (-0.2, 0.3)	-0.4 (-0.9, -0.0)	55.5 (44.2, 66.8)	0.1 (-0.1, 0.3)	0.1 (-0.1, 0.4)	0.1 (-0.1, 0.4)	39.1 (32.5, 45.7)
Education								
College or university	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Middle or high school	1.5 (0.8, 2.3)	1.1 (0.5, 1.6)	1.8 (0.8, 2.8)	32.8 (7.0, 58.7)	0.8 (0.3, 1.2)	0.9 (0.4, 1.5)	0.8 (0.2, 1.3)	11.6 (-3.6, 26.7)
Primary school or below	1.8 (1.0, 2.6)	1.3 (0.7, 1.9)	2.1 (1.1, 3.2)	36.9 (9.3, 64.5)	0.8 (0.4, 1.3)	1.0 (0.4, 1.6)	0.9 (0.3, 1.5)	10.8 (-5.4, 26.9)
Smoking								
Never	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.1 (-0.7, 0.9)	0.1 (-0.5, 0.7)	0.2 (-0.8, 1.2)	-29.5 (-56.2, -2.8)	-0.1 (-0.6, 0.3)	-0.2 (-0.8, 0.4)	0.0 (-0.5, 0.6)	-10.4 (-26.0, 5.2)
Current, cigarettes (or equivalent)/d								
<20	0.5 (-0.1, 1.0)	0.4 (0.0, 0.9)	0.4 (-0.3, 1.1)	-21.9 (-40.4, -3.4)	0.3 (-0.0, 0.6)	0.5 (0.1, 0.9)	0.3 (-0.1, 0.7)	-10.6 (-21.4, 0.3)
≥20	0.2 (-0.4, 0.7)	0.3 (-0.2, 0.7)	0.1 (-0.6, 0.8)	-31.9 (-50.7, -13.1)	0.1 (-0.2, 0.4)	0.2 (-0.2, 0.6)	0.0 (-0.4, 0.4)	-16.8 (-27.8, -5.9)
Alcohol drinking								
Less than weekly	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.1 (-0.8, 0.9)	0.1 (-0.6, 0.7)	-0.3 (-1.4, 0.7)	3.7 (-24.5, 32.0)	0.4 (-0.1, 0.8)	0.5 (-0.1, 1.1)	0.4 (-0.2, 1.0)	13.1 (-3.4, 29.6)
Weekly	0.3 (-0.4, 0.9)	0.1 (-0.4, 0.6)	0.0 (-0.8, 0.8)	39.4 (18.6, 60.2)	0.5 (0.2, 0.9)	0.6 (0.1, 1.0)	0.5 (0.1, 1.0)	25.3 (13.1, 37.4)
Daily, g/d (pure alcohol)								
<30	0.9 (-0.1, 1.9)	0.6 (-0.1, 1.4)	0.6 (-0.7, 1.8)	33.9 (0.8, 67.0)	0.0 (-0.5, 0.6)	-0.1 (-0.8, 0.6)	-0.1 (-0.8, 0.6)	33.5 (14.1, 52.8)
30–59	0.9 (0.1, 1.8)	0.6 (-0.0, 1.3)	1.1 (0.0, 2.2)	49.3 (20.9, 77.7)	0.5 (0.0, 0.9)	0.4 (-0.2, 1.0)	0.5 (-0.1, 1.1)	36.6 (20.0, 53.2)

	SBP				DBP			
	SD	CV	ARV	cumSBP	SD	CV	ARV	cumDBP
≥60	1.6 (0.8, 2.4)	1.0 (0.4, 1.5)	1.9 (1.0, 2.9)	80.6 (54.6, 106.5)	1.1 (0.6, 1.5)	1.1 (0.5, 1.6)	1.3 (0.8, 1.8)	54.2 (39.1, 69.4)
Fresh vegetable consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	0.2 (-0.5, 0.9)	0.1 (-0.4, 0.6)	0.1 (-0.8, 0.9)	16.2 (-5.9, 38.3)	-0.4 (-0.7, -0.0)	-0.5 (-1.0, -0.0)	-0.3 (-0.7, 0.2)	9.1 (-3.8, 22.0)
Fresh fruit consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	-0.1 (-0.6, 0.3)	-0.2 (-0.5, 0.2)	0.0 (-0.5, 0.6)	-8.0 (-22.3, 6.3)	-0.0 (-0.2, 0.2)	-0.0 (-0.3, 0.3)	0.1 (-0.2, 0.4)	-9.1 (-17.5, -0.7)
Red meat consumption								
Daily	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Weekly	-0.4 (-0.7, 0.0)	-0.3 (-0.5, 0.0)	-0.3 (-0.8, 0.1)	-5.8 (-17.8, 6.1)	-0.1 (-0.3, 0.1)	-0.1 (-0.4, 0.2)	-0.1 (-0.3, 0.2)	-1.7 (-8.7, 5.3)
Less than weekly	0.1 (-0.5, 0.6)	0.1 (-0.3, 0.5)	-0.0 (-0.7, 0.6)	10.5 (-7.0, 28.1)	0.2 (-0.1, 0.5)	0.3 (-0.1, 0.6)	0.0 (-0.3, 0.4)	10.4 (0.1, 20.6)
Total physical activity, per 4 MET-h/d*	-0.03 (-0.07, 0.01)	-0.02 (-0.05, 0.01)	-0.02 (-0.07, 0.04)	-2.28 (-3.67, -0.89)	-0.00 (-0.03, 0.02)	0.00 (-0.03, 0.03)	-0.00 (-0.03, 0.03)	-1.75 (-2.57, -0.94)
BMI, per 5 kg/m ²	0.1 (-0.1, 0.4)	-0.2 (-0.3, 0.0)	0.2 (-0.1, 0.5)	66.3 (58.6, 73.9)	-0.0 (-0.1, 0.1)	-0.3 (-0.4, -0.1)	0.0 (-0.1, 0.2)	43.6 (39.1, 48.1)
WC, per 10 cm	0.1 (-0.1, 0.2)	-0.1 (-0.2, 0.0)	0.1 (-0.1, 0.3)	30.1 (24.6, 35.5)	-0.0 (-0.1, 0.0)	-0.2 (-0.4, -0.1)	-0.1 (-0.2, 0.1)	21.6 (18.4, 24.8)
Body shape								
BMI<18.5	-0.0 (-0.7, 0.6)	0.2 (-0.2, 0.7)	0.0 (-0.8, 0.8)	-67.9 (-88.6, -47.2)	-0.1 (-0.4, 0.3)	0.1 (-0.4, 0.5)	-0.1 (-0.6, 0.3)	-32.7 (-44.8, -20.6)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	-0.7 (-2.3, 0.8)	-0.7 (-1.8, 0.5)	0.6 (-1.3, 2.5)	18.5 (-32.2, 69.2)	-0.4 (-1.3, 0.4)	-0.8 (-1.9, 0.3)	-0.3 (-1.4, 0.8)	16.5 (-13.1, 46.1)
BMI 24.0–27.9, WC<90/85	0.2 (-0.1, 0.5)	-0.1 (-0.3, 0.2)	0.4 (-0.0, 0.8)	63.2 (51.7, 74.6)	-0.0 (-0.2, 0.2)	-0.3 (-0.5, -0.0)	0.0 (-0.2, 0.3)	41.5 (34.8, 48.2)
BMI 24.0–27.9, WC≥90/85	0.0 (-0.5, 0.6)	-0.2 (-0.6, 0.2)	-0.1 (-0.8, 0.6)	48.3 (30.1, 66.4)	-0.2 (-0.5, 0.1)	-0.6 (-1.0, -0.2)	-0.3 (-0.7, 0.1)	36.2 (25.6, 46.8)
BMI≥28.0, WC<90/85	1.1 (-0.3, 2.5)	0.7 (-0.4, 1.7)	1.5 (-0.3, 3.3)	62.6 (15.7, 109.4)	0.1 (-0.6, 0.9)	-0.1 (-1.1, 0.9)	0.2 (-0.7, 1.2)	64.6 (37.2, 92.0)
BMI≥28.0, WC≥90/85	0.3 (-0.4, 0.9)	-0.2 (-0.7, 0.3)	0.4 (-0.4, 1.2)	93.5 (72.4, 114.7)	0.2 (-0.2, 0.5)	-0.2 (-0.6, 0.3)	0.3 (-0.1, 0.8)	66.3 (53.9, 78.6)

The table presents the adjusted difference (95% confidence interval) in SBP and DBP change indices for categorical variables compared with the reference group and adjusted SBP/DBP indices change (95% CI) per specified unit for continuous variables in participants without antihypertensive treatment. Please refer to the method section for detailed covariate adjustment.

*The 4 MET-h/d is equivalent to about 1 hour of moderate physical activity per day.

ARV, average real variability (mmHg); BMI, body mass index; cumDBP, cumulative diastolic blood pressure (100 mmHg×year); cumSBP, cumulative systolic blood pressure (100 mmHg×year); CV, coefficient of variation (%); MET-h/d, metabolic equivalent task-hour/day; SD, standard deviation (mmHg); WC, waist circumference.

Table S7. The baseline characteristics of participants with hypertension, normotension, and without anti-hypertensive treatment

	Hypertension	Normotension	Without anti-hypertensive treatment
Number	10,751	5,234	8,978
Age, years	52.0	46.6	48.1
Men, %	37.2	33.7	35.8
Rural, %	67.2	69.2	69.3
Primary school or below, %	60.2	50.2	53.0
Smoking daily, %	24.5	23.6	24.9
Drinking daily, %	9.2	6.7	8.3
Daily food consumption, %			
Fresh fruits	13.3	14.5	13.8
Fresh vegetables	95.6	95.3	95.4
Red meat	24.1	25.3	25.1
Total physical activity, MET-h/d	22.4	25.2	24.3
BMI, kg/m ²	24.2	22.5	22.9
WC, cm	80.4	75.7	76.7
SBP, mmHg	137.6	115.9	121.6
DBP, mmHg	81.2	70.8	73.7

BMI, body mass index; DBP, diastolic blood pressure; MET-h/d, metabolic equivalent task-hour/day; SBP, systolic blood pressure; WC, waist circumference.

Table S8. Association between baseline characteristics and DBP trajectory groups

	G2	G3	G4	G5
Age, years				
<50	Reference	Reference	Reference	Reference
50–59	0.94 (0.84, 1.06)	0.97 (0.86, 1.10)	0.66 (0.52, 0.84)	1.54 (1.27, 1.87)
≥60	0.93 (0.80, 1.08)	0.70 (0.59, 0.83)	0.58 (0.41, 0.81)	1.19 (0.92, 1.53)
Sex				
Women	Reference	Reference	Reference	Reference
Men	1.27 (1.08, 1.50)	1.33 (1.10, 1.60)	1.63 (1.16, 2.30)	1.81 (1.38, 2.39)
Residence				
Urban	Reference	Reference	Reference	Reference
Rural	0.99 (0.89, 1.11)	1.01 (0.89, 1.14)	1.08 (0.84, 1.37)	0.93 (0.77, 1.12)
Education				
College or university	Reference	Reference	Reference	Reference
Middle or high school	1.24 (0.95, 1.61)	1.15 (0.85, 1.56)	1.58 (0.86, 2.90)	1.34 (0.83, 2.18)
Primary school or below	1.09 (0.82, 1.45)	1.06 (0.77, 1.46)	1.20 (0.63, 2.30)	1.36 (0.81, 2.26)
Smoking				
Never	Reference	Reference	Reference	Reference
Former	0.88 (0.67, 1.17)	1.11 (0.82, 1.49)	0.86 (0.51, 1.46)	0.80 (0.53, 1.21)
Current, cigarettes (or equivalent)/d				
<20	0.78 (0.65, 0.95)	0.79 (0.64, 0.98)	0.49 (0.32, 0.75)	0.58 (0.42, 0.81)
≥20	0.80 (0.66, 0.98)	0.80 (0.64, 1.00)	0.67 (0.45, 0.99)	0.63 (0.46, 0.87)
Alcohol drinking				
Less than weekly	Reference	Reference	Reference	Reference
Former	1.26 (0.96, 1.67)	1.51 (1.11, 2.05)	2.12 (1.24, 3.61)	2.12 (1.41, 3.18)
Weekly	1.39 (1.10, 1.77)	1.67 (1.29, 2.16)	2.20 (1.44, 3.34)	1.82 (1.26, 2.64)
Daily, g/d (pure alcohol)				
<30	1.15 (0.83, 1.61)	1.39 (0.96, 2.01)	1.70 (0.85, 3.41)	1.71 (1.01, 2.89)
30–59	1.27 (0.94, 1.71)	1.48 (1.06, 2.06)	1.67 (0.87, 3.18)	1.77 (1.09, 2.85)
≥60	2.40 (1.77, 3.26)	2.64 (1.88, 3.69)	2.90 (1.58, 5.32)	3.35 (2.11, 5.32)
Fresh vegetable consumption				
Daily	Reference	Reference	Reference	Reference
Nondaily	1.19 (0.94, 1.51)	1.14 (0.88, 1.49)	1.64 (1.05, 2.54)	1.14 (0.75, 1.72)
Fresh fruit consumption				
Daily	Reference	Reference	Reference	Reference
Nondaily	0.91 (0.78, 1.05)	1.01 (0.86, 1.20)	1.15 (0.82, 1.61)	1.21 (0.93, 1.57)
Red meat consumption				
Daily	Reference	Reference	Reference	Reference
Weekly	1.05 (0.93, 1.19)	1.01 (0.88, 1.17)	0.98 (0.75, 1.29)	1.07 (0.87, 1.33)
Less than weekly	1.10 (0.92, 1.32)	0.95 (0.77, 1.16)	1.23 (0.85, 1.77)	1.10 (0.82, 1.50)
Total physical activity*				
Low	Reference	Reference	Reference	Reference
Medium	1.00 (0.90, 1.12)	0.96 (0.84, 1.09)	0.76 (0.59, 0.98)	0.92 (0.75, 1.11)
High	0.96 (0.85, 1.08)	0.94 (0.82, 1.08)	0.78 (0.60, 1.02)	0.82 (0.67, 1.02)

	G2	G3	G4	G5
BMI				
<18.5 kg/m ²	Reference	Reference	Reference	Reference
18.5–23.9 kg/m ²	1.74 (1.44, 2.11)	3.01 (2.27, 4.00)	4.42 (1.79, 10.91)	2.65 (1.54, 4.55)
24.0–27.9 kg/m ²	3.30 (2.68, 4.06)	9.64 (7.18, 12.94)	17.56 (7.09, 43.50)	11.97 (6.92, 20.71)
≥28.0 kg/m ²	5.19 (3.87, 6.95)	22.97 (16.04, 32.89)	40.42 (15.68, 104.22)	35.13 (19.39, 63.65)
WC (men/women)				
<85/80 cm	Reference	Reference	Reference	Reference
85–90/80–85 cm	1.62 (1.42, 1.86)	2.76 (2.38, 3.19)	3.00 (2.29, 3.93)	3.54 (2.87, 4.36)
≥90/85 cm	2.32 (1.99, 2.70)	4.63 (3.95, 5.43)	6.57 (5.09, 8.47)	6.43 (5.20, 7.94)
Body shape				
BMI<18.5	0.58 (0.48, 0.70)	0.34 (0.25, 0.45)	0.24 (0.10, 0.59)	0.38 (0.22, 0.66)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	1.32 (0.83, 2.11)	1.66 (0.98, 2.81)	4.92 (2.33, 10.38)	1.64 (0.70, 3.88)
BMI 24.0–27.9, WC<90/85	1.80 (1.59, 2.03)	2.99 (2.61, 3.41)	3.62 (2.82, 4.66)	4.23 (3.46, 5.17)
BMI 24.0–27.9, WC≥90/85	2.25 (1.86, 2.73)	4.10 (3.35, 5.03)	6.13 (4.42, 8.51)	5.73 (4.35, 7.54)
BMI≥28.0, WC<90/85	2.82 (1.60, 4.99)	6.43 (3.61, 11.46)	3.98 (1.40, 11.31)	11.49 (5.81, 22.72)
BMI≥28.0, WC≥90/85	3.03 (2.36, 3.89)	7.93 (6.15, 10.24)	10.63 (7.35, 15.37)	13.76 (10.10, 18.75)

The table presents the adjusted RRR (95% CI), with G1 being the reference group. Please refer to the method section for detailed covariate adjustment.

*Total physical activity level was categorized based on age- (<50, 50–59, and ≥60 years) and sex-specific tertile cutoff points. G1: optimal, low-growth (reference); G2: normal, low-growth; G3: elevated, low-growth; G4: high DBP, high-growth; G5: extreme high DBP, decrease.

BMI, body mass index; DBP, diastolic blood pressure; RRR, relative risk ratio; WC, waist circumference.

Table S9. Association between baseline characteristics and combined blood pressure trajectories

	Isolated SBP high-risk trajectory	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Both SBP and DBP high-risk trajectories
	VS. Both SBP and DBP low-risk trajectories			VS. Isolated SBP high-risk trajectory		VS. Isolated DBP high-risk trajectory
Age, years						
<50	Reference	Reference	Reference	Reference	Reference	Reference
50–59	1.24 (1.11, 1.39)	2.47 (1.72, 3.57)	1.13 (0.98, 1.31)	1.99 (1.37, 2.90)	0.91 (0.77, 1.08)	0.46 (0.31, 0.67)
≥60	1.44 (1.24, 1.67)	3.69 (2.42, 5.62)	0.90 (0.73, 1.11)	2.56 (1.66, 3.96)	0.62 (0.49, 0.79)	0.24 (0.15, 0.39)
Sex						
Women	Reference	Reference	Reference	Reference	Reference	Reference
Men	0.69 (0.58, 0.82)	2.22 (1.45, 3.41)	1.16 (0.93, 1.44)	3.22 (2.05, 5.05)	1.68 (1.30, 2.17)	0.52 (0.33, 0.83)
Residence						
Urban	Reference	Reference	Reference	Reference	Reference	Reference
Rural	1.11 (0.99, 1.24)	0.73 (0.54, 1.00)	1.06 (0.91, 1.23)	0.66 (0.48, 0.91)	0.95 (0.80, 1.13)	1.44 (1.03, 2.02)
Education						
College or university	Reference	Reference	Reference	Reference	Reference	Reference
Middle or high school	1.29 (0.94, 1.77)	0.99 (0.49, 2.02)	1.36 (0.91, 2.03)	0.77 (0.36, 1.64)	1.05 (0.65, 1.69)	1.37 (0.62, 3.03)
Primary school or below	1.34 (0.97, 1.86)	1.12 (0.53, 2.36)	1.34 (0.88, 2.05)	0.83 (0.37, 1.85)	1.00 (0.61, 1.65)	1.20 (0.52, 2.79)
Smoking						
Never	Reference	Reference	Reference	Reference	Reference	Reference
Former	0.88 (0.67, 1.15)	0.70 (0.39, 1.26)	0.83 (0.60, 1.14)	0.80 (0.42, 1.49)	0.95 (0.64, 1.39)	1.19 (0.62, 2.27)
Current, cigarettes (or equivalent)/d						
<20	0.87 (0.71, 1.08)	0.66 (0.39, 1.09)	0.66 (0.50, 0.86)	0.75 (0.44, 1.29)	0.75 (0.55, 1.03)	1.00 (0.57, 1.76)
≥20	0.93 (0.76, 1.15)	0.66 (0.40, 1.08)	0.81 (0.63, 1.04)	0.70 (0.42, 1.19)	0.87 (0.64, 1.18)	1.24 (0.72, 2.12)

	Isolated SBP high-risk trajectory	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Both SBP and DBP high-risk trajectories
	VS. Both SBP and DBP low-risk trajectories			VS. Isolated SBP high-risk trajectory		VS. Isolated DBP high-risk trajectory
Alcohol drinking						
Less than weekly	Reference	Reference	Reference	Reference	Reference	Reference
Former	1.20 (0.91, 1.58)	1.17 (0.61, 2.25)	1.82 (1.33, 2.48)	0.97 (0.49, 1.94)	1.51 (1.04, 2.21)	1.56 (0.77, 3.15)
Weekly	1.29 (1.03, 1.61)	1.13 (0.61, 2.07)	1.50 (1.15, 1.95)	0.87 (0.46, 1.65)	1.16 (0.84, 1.60)	1.33 (0.69, 2.55)
Daily, g/d (pure alcohol)						
<30	0.96 (0.67, 1.40)	1.72 (0.87, 3.42)	1.28 (0.83, 1.99)	1.78 (0.84, 3.79)	1.33 (0.78, 2.27)	0.74 (0.34, 1.64)
30–59	1.13 (0.82, 1.56)	1.08 (0.51, 2.31)	1.45 (0.99, 2.12)	0.96 (0.43, 2.14)	1.28 (0.80, 2.04)	1.34 (0.58, 3.07)
≥60	1.50 (1.14, 1.97)	1.31 (0.65, 2.64)	1.57 (1.11, 2.23)	0.87 (0.42, 1.82)	1.05 (0.70, 1.58)	1.21 (0.56, 2.60)
Fresh vegetable consumption						
Daily	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	1.18 (0.94, 1.49)	1.25 (0.65, 2.40)	1.17 (0.87, 1.58)	1.05 (0.53, 2.08)	0.99 (0.70, 1.41)	0.94 (0.47, 1.91)
Fresh fruit consumption						
Daily	Reference	Reference	Reference	Reference	Reference	Reference
Nondaily	1.20 (1.03, 1.41)	1.48 (0.95, 2.29)	1.25 (1.01, 1.54)	1.22 (0.78, 1.93)	1.04 (0.81, 1.32)	0.85 (0.53, 1.36)
Red meat consumption						
Daily	Reference	Reference	Reference	Reference	Reference	Reference
Weekly	1.01 (0.89, 1.15)	1.03 (0.73, 1.46)	1.01 (0.85, 1.20)	1.02 (0.71, 1.47)	1.00 (0.82, 1.22)	0.98 (0.67, 1.44)
Less than weekly	1.10 (0.92, 1.31)	0.84 (0.49, 1.45)	1.20 (0.95, 1.51)	0.77 (0.44, 1.35)	1.10 (0.84, 1.43)	1.43 (0.80, 2.56)
Total physical activity*						
Low	Reference	Reference	Reference	Reference	Reference	Reference
Medium	1.06 (0.94, 1.19)	1.04 (0.74, 1.46)	0.86 (0.73, 1.00)	0.98 (0.69, 1.39)	0.81 (0.68, 0.97)	0.82 (0.57, 1.18)

	Isolated SBP high-risk trajectory	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Isolated DBP high-risk trajectory	Both SBP and DBP high-risk trajectories	Both SBP and DBP high-risk trajectories
	VS. Both SBP and DBP low-risk trajectories			VS. Isolated SBP high-risk trajectory		VS. Isolated DBP high-risk trajectory
High	1.04 (0.92, 1.18)	1.01 (0.70, 1.47)	0.83 (0.70, 0.98)	0.97 (0.66, 1.43)	0.80 (0.66, 0.97)	0.82 (0.55, 1.22)
BMI						
<18.5 kg/m ²	Reference	Reference	Reference	Reference	Reference	Reference
18.5–23.9 kg/m ²	2.40 (1.67, 3.44)	1.10 (0.50, 2.41)	2.54 (1.45, 4.46)	0.46 (0.20, 1.08)	1.06 (0.55, 2.04)	2.31 (0.89, 6.01)
24.0–27.9 kg/m ²	4.41 (3.07, 6.34)	2.14 (0.97, 4.73)	6.18 (3.53, 10.84)	0.49 (0.21, 1.15)	1.40 (0.73, 2.69)	2.88 (1.10, 7.53)
≥28.0 kg/m ²	6.75 (4.63, 9.84)	2.84 (1.21, 6.66)	10.64 (5.99, 18.90)	0.42 (0.17, 1.05)	1.58 (0.81, 3.08)	3.75 (1.36, 10.35)
WC (men/women)						
<85/80 cm	Reference	Reference	Reference	Reference	Reference	Reference
85–90/80–85 cm	1.75 (1.56, 1.97)	1.86 (1.32, 2.62)	2.09 (1.78, 2.45)	1.06 (0.74, 1.52)	1.19 (0.99, 1.44)	1.13 (0.78, 1.63)
≥90/85 cm	2.01 (1.80, 2.26)	1.88 (1.33, 2.64)	2.98 (2.57, 3.44)	0.93 (0.66, 1.33)	1.48 (1.25, 1.75)	1.58 (1.10, 2.28)
Body shape						
BMI<18.5	0.42 (0.29, 0.60)	0.90 (0.41, 1.98)	0.40 (0.23, 0.71)	2.16 (0.92, 5.07)	0.97 (0.50, 1.86)	0.45 (0.17, 1.17)
BMI 18.5–23.9, WC<90/85	Reference	Reference	Reference	Reference	Reference	Reference
BMI 18.5–23.9, WC≥90/85	1.08 (0.66, 1.75)	0.60 (0.08, 4.39)	2.41 (1.42, 4.07)	0.56 (0.07, 4.25)	2.24 (1.15, 4.35)	4.00 (0.52, 30.76)
BMI 24.0–27.9, WC<90/85	1.85 (1.65, 2.07)	1.96 (1.40, 2.73)	2.37 (2.04, 2.77)	1.06 (0.75, 1.50)	1.29 (1.08, 1.54)	1.21 (0.85, 1.74)
BMI 24.0–27.9, WC≥90/85	1.85 (1.59, 2.16)	1.88 (1.21, 2.91)	2.85 (2.35, 3.45)	1.01 (0.65, 1.59)	1.54 (1.23, 1.93)	1.51 (0.95, 2.42)
BMI≥28.0, WC<90/85	2.67 (1.91, 3.75)	2.48 (0.88, 6.98)	3.31 (2.12, 5.17)	0.93 (0.32, 2.68)	1.24 (0.75, 2.04)	1.34 (0.44, 4.02)
BMI≥28.0, WC≥90/85	2.84 (2.44, 3.31)	2.57 (1.62, 4.06)	4.45 (3.67, 5.39)	0.90 (0.56, 1.45)	1.57 (1.26, 1.95)	1.73 (1.07, 2.82)

The table presents the adjusted RRR (95% CI). Please refer to the method section for detailed covariate adjustment.

*Total physical activity level was categorized based on age- (<50, 50–59, and ≥60 years) and sex-specific tertile cutoff points.

BMI, body mass index; DBP, diastolic blood pressure; RRR, relative risk ratio; SBP, systolic blood pressure; WC, waist circumference.