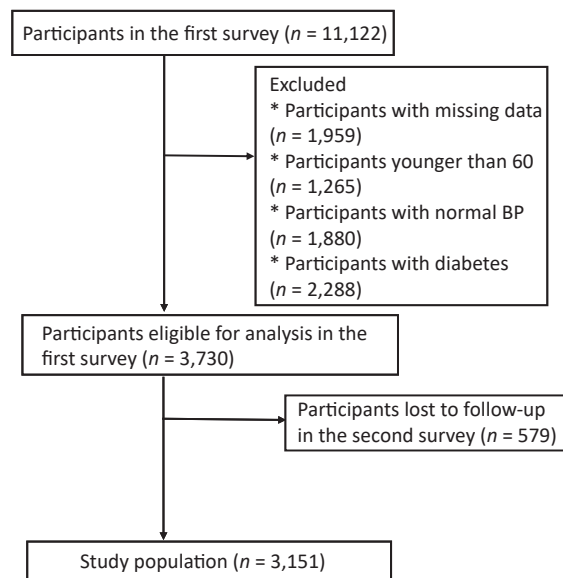
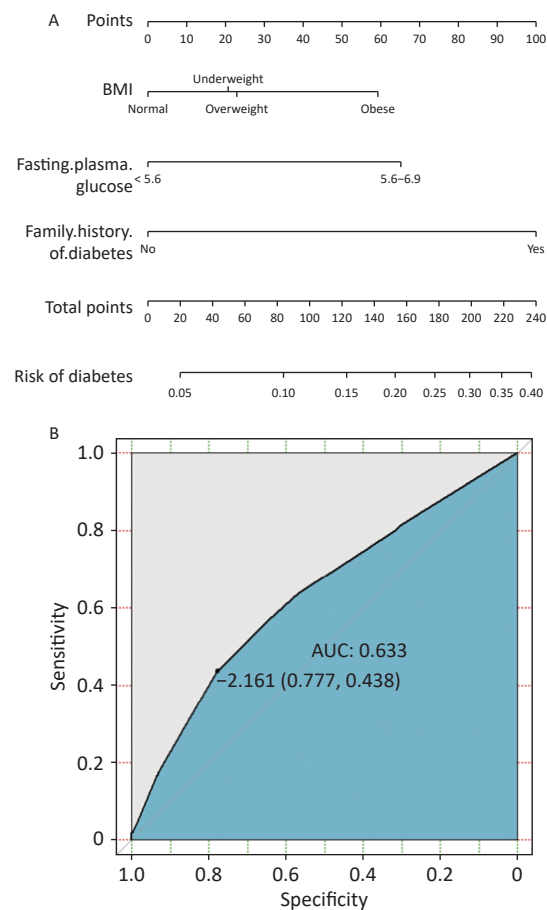
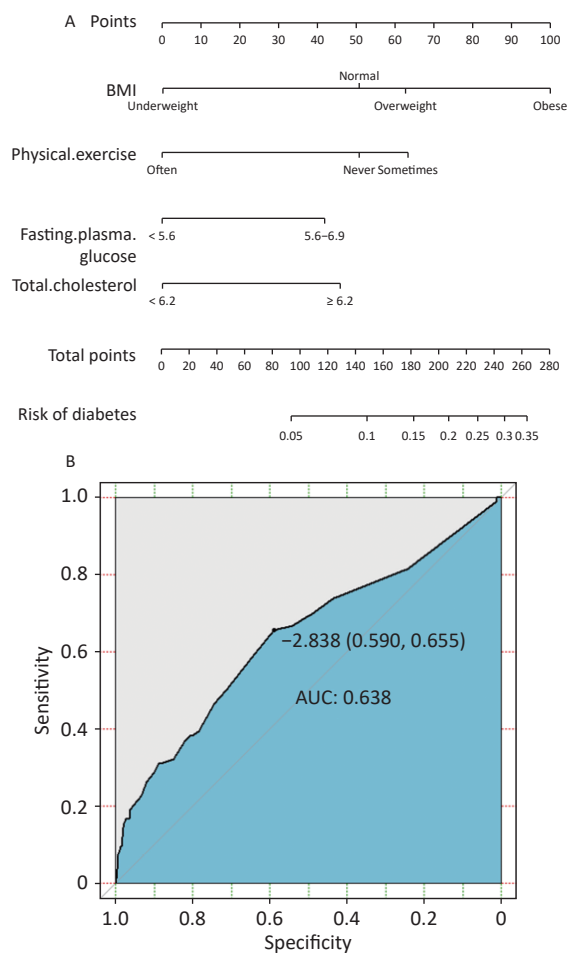




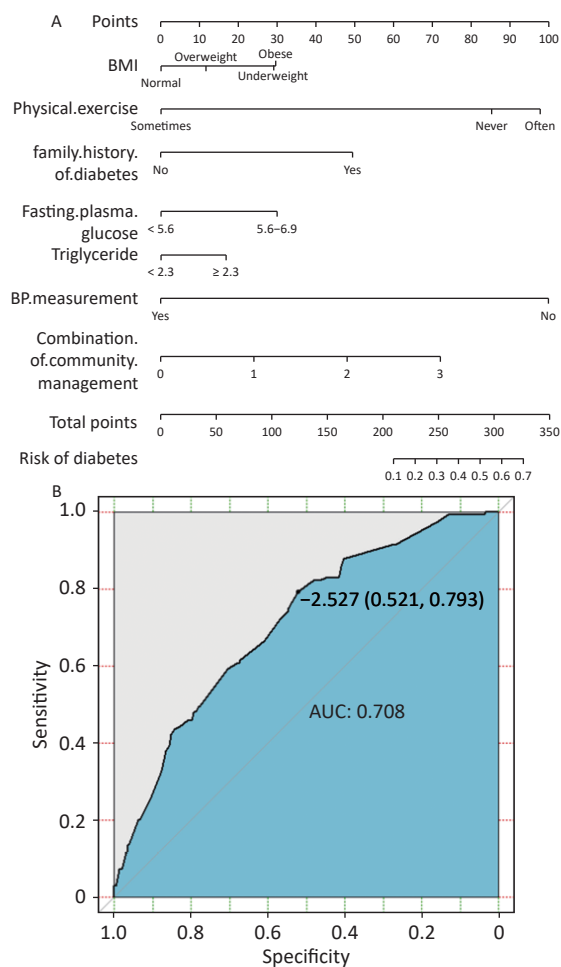
Supplementary Figure S1. Study flowchart.



Supplementary Figure S2. Nomograms (A) and ROC (B) curves for prehypertensive and hypertensive participants.



Supplementary Figure S3. Nomograms (A) and ROC (B) curves for prehypertensive participants.



Supplementary Figure S4. Nomograms (A) and ROC (B) curves for hypertensive participants.

Supplementary Table S1. Characteristics of the participants

Characteristics	Total (<i>n</i> = 3,151), <i>n</i> (%)	Prehypertension (<i>n</i> = 1,477), <i>n</i> (%)	Hypertension (<i>n</i> = 1,674), <i>n</i> (%)	<i>P</i> value
Sex				
Male	1,177 (37.4)	598 (40.5)	579 (34.6)	< 0.001
Female	1,974 (62.6)	879 (59.5)	1,095 (65.4)	
Age (years)	71.2 ± 6.1	71.1 ± 5.9	71.4 ± 6.2	0.086
Body mass index (BMI)				< 0.001
Underweight	61 (1.9)	36 (2.4)	25 (1.5)	0.355
Normal	1,345 (42.7)	705 (47.7)	640 (38.2)	
Overweight	1,284 (40.7)	565 (38.3)	719 (43.0)	
Obese	461 (14.6)	171 (11.6)	290 (17.3)	
Marital status				< 0.001
Unmarried	31 (1.0)	17 (1.2)	14 (0.8)	
Married/Cohabitation	2,792 (88.6)	1,324 (89.6)	1,468 (87.7)	
Divorced/Separated/Widowed	328 (10.4)	136 (9.2)	45 (11.5)	
Educational level				0.004
Primary school or below	609 (19.3)	259 (17.5)	350 (20.9)	
Junior middle school	1,057 (33.5)	459 (31.1)	598 (35.7)	
Senior middle school	795 (25.2)	413 (28.0)	382 (22.8)	
Undergraduate or above	690 (21.9)	346 (23.4)	344 (20.5)	0.095
Annual income (¥)				
< 30,000	1,537 (48.8)	664 (43.2)	873 (52.2)	
30,000–50,000	1,376 (43.7)	700 (50.9)	676 (40.4)	
> 50,000	238 (7.6)	113 (7.7)	125 (7.5)	0.002
Ethnicity				
Han	3,062 (97.3)	1,429 (96.8)	1,633 (97.6)	
Others	89 (2.7)	48 (3.2)	41 (2.4)	
Triglyceride (mmol/L)				0.001
< 2.3	2,642 (83.8)	1,267 (85.8)	1,073 (82.1)	
≥ 2.3	509 (16.2)	210 (14.2)	601 (17.9)	
Total cholesterol (mmol/L)				0.000
< 6.2	2,724 (86.4)	1,252 (84.8)	1,472 (87.9)	
≥ 6.2	427 (13.6)	225 (15.2)	202 (12.1)	
HDL-C (mmol/L)				< 0.001
< 4.9	507 (16.1)	170 (11.5)	337 (20.1)	
≥ 4.9	2,644 (83.9)	1,307 (88.5)	1,337 (79.9)	
LDL-C (mmol/L)				< 0.001
< 4.1	2,623 (83.2)	1216 (82.3)	1,407 (84.1)	
≥ 4.1	528 (16.8)	261 (17.7)	267 (15.9)	
Fasting plasma glucose (mmol/L)				< 0.001
< 5.6 (normal)	2,002 (85.8)	1,043 (89.6)	959 (82.4)	
5.6–6.9 (IFG)	1,149 (14.2)	434 (10.4)	715 (17.6)	
Waist (cm)	85.1 ± 9.1	84.0 ± 9.0	86.3 ± 9.0	
Physical exercise				0.244
Never	682 (21.6)	324 (21.9)	358 (21.4)	
Sometimes	164 (5.2)	60 (4.1)	104 (6.2)	
Often	2,305 (73.2)	1,093 (74.0)	1,212 (72.4)	
Current drinking	268 (8.5)	127 (8.6)	141 (8.4)	0.965
Current smoking	284 (9.0)	134 (9.1)	150 (9.0)	
History of stroke	80 (2.5)	30 (2.0)	50 (3.0)	
History of coronary heart disease	438 (13.9)	162 (11.0)	276 (16.5)	
Family history of hypertension	299 (9.5)	56 (3.8)	243 (14.5)	< 0.001
Family history of stroke	80 (2.5)	9 (0.6)	19 (1.1)	
Family history of diabetes	33 (1.0)	21 (1.4)	12 (0.7)	
Family history of coronary heart disease	77 (2.4)	26 (1.8)	51 (3.0)	

Supplementary Table S2. Univariate analysis for the risk factors associated with progression to diabetes

Characteristics	No diabetes (<i>n</i> = 2,927), <i>n</i> (%)	Diabetes (<i>n</i> = 224), <i>n</i> (%)	<i>P</i> value
Sex			0.503
Male	1,098 (93.9)	79 (6.7)	
Female	1,829 (92.7)	145 (7.3)	
Age (years)			0.491
60–	1,396 (93.6)	2,026 (6.4)	
70–	1,198 (92.3)	2,160 (7.7)	
80–	319 (91.9)	2,059 (8.1)	
90–	14 (93.3)	2,039 (6.7)	
BMI			< 0.001
Underweight	57 (93.4)	4 (6.6)	
Normal	1,273 (94.6)	72 (5.4)	
Overweight	1,189 (92.6)	95 (7.4)	
Obese	408 (88.5)	53 (11.5)	
Marital status			0.300
Unmarried	31 (100.0)	0 (0.0)	
Married/Cohabitation	2,592 (92.8)	200 (7.2)	
Divorced/Separated	304 (92.7)	24 (7.3)	
/Widowed			0.801
Educational level			0.971
Primary school or below	565 (92.8)	44 (7.2)	
Junior middle school	983 (93.0)	74 (7.0)	
Senior middle school	736 (92.6)	59 (7.4)	
Undergraduate or above	643 (93.2)	47 (6.8)	
Annual income (¥)			0.265
< 30,000	1,416 (92.1)	121 (7.9)	
30,000–50,000	1,288 (93.6)	88 (6.4)	
> 50,000	223 (93.7)	15 (6.3)	
Ethnicity			0.579
Han	2,843 (92.8)	219 (7.2)	
Others	84 (94.4)	5 (5.6)	
Physical exercise			0.293
Never	629 (92.2)	53 (7.8)	
Sometimes	157 (95.7)	7 (4.3)	
Often	2,141 (92.9)	164 (7.1)	
Current drinking			0.794
Yes	250 (93.3)	18 (6.7)	
No	2,677 (92.9)	206 (7.1)	
Current smoking			0.963
Yes	264 (93.0)	20 (7.0)	
No	2,663 (92.9)	204 (7.1)	

			Continued
Characteristics	No diabetes (<i>n</i> = 2,927), <i>n</i> (%)	Diabetes (<i>n</i> = 224), <i>n</i> (%)	<i>P</i> value
History of stroke			0.890
Yes	74 (92.5)	6 (7.5)	
No	2,853 (92.9)	218 (7.1)	
History of coronary heart disease			0.029
Yes	396 (90.4)	42 (9.6)	
No	2,531 (93.3)	182 (6.7)	
Family history of hypertension			0.594
Yes	280 (93.6)	19 (6.4)	
No	2,647 (92.8)	205 (7.2)	
Family history of stroke			0.265*
Yes	24 (85.7)	4 (14.3)	
No	2,903 (93.0)	220 (7.0)	
Family history of diabetes			0.002
Yes	26 (78.8)	7 (21.2)	
No	2,901 (93.0)	217 (7.0)	
Family history of coronary heart disease			0.003
Yes	65 (84.4)	12 (15.6)	
No	2,862 (93.1)	212 (6.9)	
Triglyceride (mmol/L)			0.026
< 2.3	2,466 (93.3)	176 (6.7)	
≥ 2.3	461 (90.6)	48 (9.4)	
Total cholesterol (mmol/L)			0.460
< 6.2	393 (92.0)	34 (8.0)	
≥ 6.2	2,534 (93.0)	190 (7.0)	
HDL-C (mmol/L)			0.446
< 4.9	475 (93.7)	32 (6.3)	
≥ 4.9	2,452 (92.7)	192 (7.3)	
LDL-C (mmol/L)			0.638
< 4.1	493 (93.4)	35 (6.6)	
≥ 4.1	2,434 (92.8)	189 (7.2)	
Fasting plasma glucose (mmol/L)			< 0.001
< 5.6 (normal)	1,902 (95.0)	100 (5.0)	
5.6–6.9 (IFG)	1,025 (89.2)	124 (10.8)	

Note. * Chi-squared test with Yates' continuity correction. IFG: impaired fasting glucose.

Supplementary Table S3. Multivariate analysis for the risk factors associated with progression to diabetes

Characteristics	P value	RR	95% CI
BMI			
Underweight	0.424	0.649	0.225–1.874
Normal	0.001	0.542	0.348–0.742
Overweight	0.024	0.677	0.462–0.946
Obese	0.006	1	
History of coronary heart disease			
Yes	0.113	1.344	0.933–1.937
No		1	
Family history of coronary heart disease			
Yes	0.052	1.923	0.994–3.720
No		1	
Family history of diabetes			
Yes	0.024	2.788	1.143–6.798
No		1	
Triglyceride (mmol/L)			
< 2.3		1	
≥ 2.3	0.140	1.292	0.919–1.816
Fasting plasma glucose (mmol/L)			
< 5.6 (normal)		1	
5.6–6.9 (IFG)	< 0.001	2.130	1.613–2.812

Note. 1: the reference cell. IFG: impaired fasting glucose; BMI: body mass index.

Supplementary Table S4. Univariate analysis for the risk factors associated with progression to diabetes in participants with prehypertension/hypertension

Characteristics	Prehypertension (n = 1,477)			Hypertension (n = 1,674)		
	No diabetes (n = 1,393)	Diabetes (n = 84)	P value	No diabetes (n = 1,534)	Diabetes (n = 140)	P value
Sex			0.646			0.792
Male	566 (94.6)	32 (5.4)		532 (91.9)	47 (8.1)	
Female	827 (94.1)	52 (5.9)		1,002 (91.5)	93 (8.5)	
Age (years)			0.344			0.936
60–	689 (95.3)	34 (4.7)		703 (92.1)	61 (7.9)	
70–	564 (93.5)	39 (6.5)		634 (91.2)	61 (8.8)	
80–	134 (92.4)	11 (7.6)		185 (91.6)	17 (8.4)	
90–	6 (100.0)	0 (0.0)		8 (88.9)	1 (11.1)	
BMI			0.118			0.005
Underweight	35 (97.2)	1 (2.8)		22 (88.0)	3 (12.0)	
Normal	671 (95.2)	41 (4.8)		602 (94.1)	38 (5.9)	
Overweight	532 (94.2)	37 (5.8)		657 (91.4)	62 (8.6)	
Obese	155 (90.6)	17 (9.4)		253 (87.2)	37 (12.8)	
Marital status			0.566			0.512 [*]
Unmarried	17 (100.0)	0 (0.0)		14 (100.0)	0 (0.0)	
Married/Cohabitation	1,247 (94.2)	77 (5.8)		1,345 (91.6)	123 (8.4)	
Divorced/Separated/Widowed	129 (94.9)	7 (5.1)		175 (91.1)	17 (8.9)	
Educational level			0.730			0.877
Primary school or below	245 (94.6)	14 (5.4)		320 (91.4)	30 (8.6)	
Junior middle school	437 (95.2)	22 (4.8)		546 (91.3)	52 (8.7)	
Senior middle school	387 (93.7)	26 (6.3)		349 (91.4)	33 (8.6)	
Undergraduate or above	324 (93.6)	22 (6.4)		319 (92.7)	25 (7.3)	
Annual income (¥)			0.364			0.747
< 30,000	620 (93.4)	44 (6.6)		796 (91.2)	77 (8.8)	
30,000–50,000	666 (95.1)	34 (4.8)		622 (92.0)	54 (8.0)	
> 50,000	107 (94.7)	6 (5.3)		116 (92.8)	9 (7.2)	
Ethnicity			0.436 [*]			0.968 [*]
Han	1,346 (94.2)	83 (5.8)		1,497 (91.7)	136 (8.3)	
Others	47 (97.9)	1 (2.1)		37 (90.2)	4 (9.8)	
Physical exercise			0.007			0.007
Never	296 (91.4)	28 (8.6)		333 (93.0)	25 (7.0)	
Sometimes	54 (90.0)	6 (10.0)		103 (99.0)	1 (1.0)	
Often	1,043 (95.4)	50 (4.6)		1,098 (90.6)	114 (9.4)	
Current drinking			0.624			0.947
Yes	121 (95.3)	6 (4.7)		129 (91.5)	12 (8.5)	
No	1,272 (94.2)	78 (5.6)		1,405 (91.7)	128 (8.3)	
Current smoking			0.305			0.448
Yes	129 (96.3)	5 (3.7)		135 (90.0)	15 (10.0)	
No	1,264 (94.1)	79 (5.9)		1,399 (91.8)	125 (8.2)	

Continued

Characteristics	Prehypertension (n = 1,477)			Hypertension (n = 1,674)		
	No diabetes (n = 1,393)	Diabetes (n = 84)	P value	No diabetes (n = 1,534)	Diabetes (n = 140)	P value
History of stroke			0.815 [*]			0.925 [*]
Yes	28 (93.3)	2 (6.7)		46 (92.0)	4 (8.0)	
No	1,365 (94.3)	82 (5.7)		1,488 (91.6)	136 (8.4)	
History of coronary heart disease			0.083			0.242
Yes	148 (91.4)	14 (8.6)		248 (89.9)	28 (10.1)	
No	1,245 (94.7)	70 (5.3)		1,286 (92.0)	112 (8.0)	
Family history of hypertension			0.913 [*]			0.279
Yes	53 (94.6)	3 (5.4)		227 (93.4)	16 (6.6)	
No	1,340 (94.3)	81 (5.7)		1,307 (91.3)	124 (8.7)	
Family history of stroke			0.481			0.448 [*]
Yes	8 (88.9)	1 (11.1)		16 (84.2)	3 (15.8)	
No	1,385 (94.3)	83 (5.7)		1,518 (91.7)	137 (8.3)	
Family history of diabetes			0.772 [*]			< 0.001
Yes	19 (90.5)	2 (9.5)		7 (58.3)	5 (41.7)	
No	1,374 (94.4)	82 (5.6)		1,527 (91.8)	135 (9.2)	
Family history of coronary heart disease			0.383			0.015
Yes	23 (88.5)	3 (11.5)		42 (82.4)	9 (17.6)	
No	1,370 (94.4)	81 (5.6)		1,492 (91.9)	131 (8.1)	
Triglyceride (mmol/L)			0.985			< 0.011
< 2.3	1,195 (94.3)	54 (5.7)		1,271 (92.4)	104 (7.6)	
≥ 2.3	198 (94.3)	30 (5.7)		263 (88.0)	36 (12.0)	
Total cholesterol (mmol/L)			0.024			0.433
< 6.2	1,188 (94.9)	64 (5.1)		1,346 (91.4)	108 (8.6)	
≥ 6.2	205 (91.1)	20 (8.9)		188 (93.1)	32 (6.9)	
HDL-C (mmol/L)			0.197			0.631
< 1.04	164 (96.5)	6 (3.5)		311 (92.3)	26 (7.7)	
≥ 1.04	1,229 (94.0)	78 (6.0)		1,223 (91.5)	114 (8.5)	
LDL-C (mmol/L)			0.804			0.748
< 4.1	1,146 (94.2)	56 (5.8)		1,288 (91.5)	119 (8.5)	
≥ 4.1	247 (94.6)	28 (5.4)		246 (92.1)	21 (7.9)	
Fasting plasma glucose (mmol/L)			0.002			< 0.001
< 5.6 (normal)	996 (95.0)	47 (5.0)		906 (93.3)	53 (6.7)	
5.6–6.9 (IFG)	397 (88.3)	37 (11.7)		628 (83.7)	87 (16.3)	
Antihypertensive medication						0.075
No				500 (89.9)	56 (10.1)	
Self-management				1,034 (92.5)	84 (7.5)	
Regular medication				1,156 (92.5)	94 (7.5)	0.032
Improving diet				1,162 (92.8)	90 (7.2)	0.003
Controlling salt intake				943 (93.4)	67 (6.6)	0.002
Increasing exercise				891 (92.8)	69 (7.2)	0.044
BP monitoring				909 (92.7)	72 (7.3)	0.072

Continued

Characteristics	Prehypertension (n = 1,477)			Hypertension (n = 1,674)		
	No diabetes (n = 1,393)	Diabetes (n = 84)	P value	No diabetes (n = 1,534)	Diabetes (n = 140)	P value
Combination of self- management						0.019
No				321 (88.4)	42 (11.6)	
Single management				166 (90.2)	18 (9.8)	
2 combinations				68 (88.3)	9 (11.7)	
≥ 3 combinations				979 (93.2)	71 (6.8)	
Community management						
BP measurement				1,218 (93.1)	90 (69.0)	< 0.001
Medication guidance				1,149 (92.8)	89 (7.2)	0.003
Dietary guidance				1,162 (9.8)	90 (7.2)	0.003
Physical exercise guidance				1,137 (92.7)	89 (7.3)	0.007
Combination of community-management						0.002
No				337 (87.1)	50 (12.9)	
Single management				9 (100.0)	0(0.0)	
2 combinations				32 (100.0)	0 (0.0)	
≥ 3 combinations				1,156 (92.8)	90 (7.2)	

Note. * Chi-squared test with Yates' continuity correction; Fisher's exact test. IFG: impaired fasting glucose; BMI, body mass index; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; BP, blood pressure.

Supplementary Table S5. Presence of metabolic syndrome in prehypertensive participants and hypertensive participants

Characteristics	Prehypertension (n = 1,477)			Hypertension (n = 1,674)		
	No diabetes (n = 1,393)	Diabetes (n = 84)	P value	No diabetes (n = 1,534)	Diabetes (n = 140)	P value
Waist (cm)						
≥ 90 for male or ≥ 85 for female	507 (36.4)	36 (42.9)	0.237	686 (44.7)	76 (54.3)	0.030
FPG (mmol/L)			0.000			0.000
≥ 6.1	145 (10.4)	20 (23.8)		246 (16.0)	48 (34.3)	
BP (mmHg)			0.768			
≥ 135/85	410 (29.4)	26 (31.0)		1,534 (100.0)	140 (100.0)	
TG (mmol/L)			0.111			0.001
≥ 1.7	445 (31.9)	34 (40.5)		554 (36.1)	71 (50.7)	
HDL-C (mmol/L)			0.318			0.263
<1.04	164 (11.8)	7 (8.3)		229 (14.9)	26 (18.6)	
Metabolic syndrome			0.531			0.000
Yes	151 (10.8)	11 (13.1)		468 (30.5)	72 (51.4)	

Note. FPG: fasting plasma glucose, BP: blood pressure; BP: blood pressure; TG: triglycerise; HDL-C, high-density lipoprotein cholesterol.

Supplementary Table S6. Association between the use of antihypertensive medication in hypertensive individuals at baseline and diabetes, estimated by Poisson regression

Group	Total (n = 1,674)	Diabetes (n = 140), n (%)	Adjusted RR (n = 168), n (%)	P value
Without antihypertensive medication	556	56 (10.1)	1	
With antihypertensive medication	1,118	84 (7.5)	0.704 (0.504, 0.983)	0.039

Note. 1: the reference cell. Final model adjusted for age, sex, education level, marital status, annual income, ethnicity, smoking, drinking, physical activity, BMI, stroke, coronary heart disease, family history of hypertension, family history of stroke, family history of diabetes, family history of coronary heart disease, TG, TC, HDL-C, LDL-C, and FPG.