

Supplementary Materials

Supplementary Methods. Details of the multi-stage cluster sampling

Embedded within the Disease Surveillance Point (DSP) system, the China Chronic Disease and Risk Factor Surveillance (CCDRFS) used stratified multi-stage cluster sampling to generate a nationally representative sample for each survey.

In the first stage, 298 were selected from all 605 DSPs as primary sampling units (PSUs) using stratified sampling to generate a sample representative of both the national and provincial population in the 31 provinces of mainland China. The sampling of DSPs was done centrally by the National Centre for Chronic and Noncommunicable Disease Control and Prevention (NCNCD).

Then, within each selected DSP, the following steps were followed:

1. Townships (rural) or subdistricts (urban) were selected with probability proportional to size (PPS) sampling in each selected DSP.

2. Within the selected townships and subdistricts, villages (rural) or residential areas (urban) were selected with PPS sampling.

3. Each selected village or residential area was divided into groups of about 60 households, based on existing villager/resident groups in the village or residential area. One group was selected with simple random sampling.

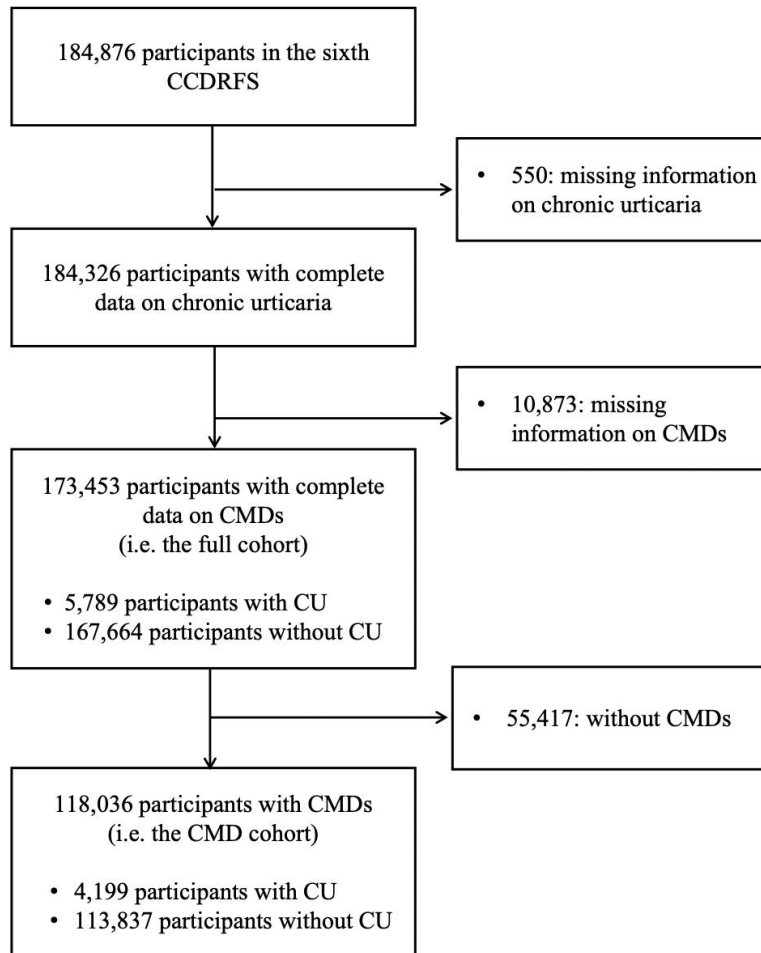
4. Within each selected household, all eligible adults in the household were invited.

Eligibility criteria include:

- a. Aged 18 years or older;
- b. Having lived in the address for more than 6 months in the past 12 months;
- c. Not pregnant;
- d. Not having a serious health condition or illness that prevents from participating, including intellectual disability or language disorder.

5. In a household, if more than half of the family's eligible members refused to participate or were not reachable, a replacement household with similar sex and age structure was selected. In each round, < 10% households were replaced.

The sampling within each DSP was performed by the provincial centres for disease control and prevention and approved by the NCNCD.



Supplementary Figure S1. Flowchart of study sample. CDRFS: China Chronic Disease and Risk Factor Surveillance; CMDs: Cardiometabolic Diseases; CU: Chronic Urticaria.

Supplementary Table S1. Definition of cardiometabolic diseases

Cardiometabolic diseases	Definition
Newly detected hypertension	A blood pressure of 140/90 mm Hg or higher at the time of physical examination and without self-reported history of physician-diagnosed hypertension.
Previously diagnosed hypertension	Self-reported diagnosis of hypertension in hospitals at the township (community) level or above and if the patient had been taking antihypertensive medicine in the past 2 weeks.
Blood pressure control of hypertension	A blood pressure lower than 140/90 mm Hg among those with hypertension at survey.
Newly detected diabetes	Without self-reported history of physician-diagnosed diabetes but meeting the American Diabetes Association 2010 criteria for diabetes, which included a fasting plasma glucose of 126 mg/dL or higher, a 2-hour plasma glucose of 200 mg/dL or higher in OGTT testing (to convert glucose to mmol/L, multiply by 0.0555), or an HbA1c of 6.5% or higher.
Previously diagnosed diabetes	Self-reported diagnosis of diabetes in hospitals at the township (community) level or above.
Glycemic control of diabetes	An HbA1c of less than 7.0% among those with diabetes at survey.
Newly detected dyslipidemia	Without self-reported history of physician-diagnosed dyslipidemia but total cholesterol of 240 mg/dL or higher, high-density lipoprotein cholesterol of 40 mg/dL or lower, low-density lipoprotein cholesterol of 160 mg/dL or higher (to convert cholesterol to mmol/L, multiply by 0.0259), or triglyceride of 200 mg/dL or higher (to convert to mmol/L, multiply by 0.0113).
Previously diagnosed dyslipidemia	Self-reported diagnosis of dyslipidemia in hospitals at the township (community) level or above.
Lipidic control of dyslipidemia	Total cholesterol lower than 240 mg/dL, high-density lipoprotein cholesterol higher than 40 mg/dL, low-density lipoprotein cholesterol lower than 160 mg/dL, and triglyceride lower than 200 mg/dL among those with dyslipidemia at survey.
Hyperuricemia	An serum uric acid of greater than 420 μ mol/L.
Coronary artery disease	Self-reported diagnosis of myocardial infarct, atrial fibrillation, or angina in hospitals at the township (community) level or above; or self-reported experience of cardiac bypass surgery or cardiac stent surgery in hospitals.
Stroke	Self-reported diagnosis of hemorrhagic stroke or ischemic stroke in hospitals at the township (community) level or above.

Supplementary Table S2. Odds ratio of various characteristics for chronic urticaria among participants with cardiometabolic diseases

Item	OR (95% CI)	P value
Age (10 year increment)	1.08 (1.05, 1.11)	<0.001
Women	1.56 (1.43, 1.71)	<0.001
Rural	1.18 (1.07, 1.30)	0.001
South	0.81 (0.71, 0.92)	0.002
Education (ref: Below high school)		
High school	0.90 (0.81, 1.00)	0.040
College or above	0.95 (0.83, 1.10)	0.511
Smoking (ref: never smoking)		
Former smoking	1.35 (1.20, 1.53)	<0.001
Current smoking	1.17 (1.06, 1.29)	0.001
Excessive alcohol drinking	0.97 (0.87, 1.09)	0.657
Sleep duration (ref: 7-10 hours)		
<5	1.79 (1.61, 1.99)	<0.001
5-6.9	1.26 (1.17, 1.35)	<0.001
>10	1.39 (1.19, 1.61)	<0.001
BMI (ref: 18.5-23.9 kg/m ²)		
<18.5	0.95 (0.78, 1.16)	0.640
≥24	1.04 (0.98, 1.11)	0.185

Note. Cardiometabolic diseases were defined as the presence of one or more of the 6 chronic conditions including hypertension, diabetes, dyslipidemia, hyperuricemia, coronary artery disease and stroke.

Supplementary Table S3. Weighted prevalence, awareness, treatment, and control of cardiometabolic diseases among the total population, 2018-2019

CMDs	Total population (<i>n</i> = 173,453) (% , 95% CI)			
	Prevalence	Awareness	Treatment	Control in treated patients
Hypertension	27.33 (26.45, 28.20)	40.61 (39.24, 41.98)	34.45 (33.19, 35.71)	32.25 (30.68, 33.81)
Diabetes	12.38 (11.82, 12.93)	36.58 (34.79, 38.37)	32.81 (31.04, 34.59)	50.18 (47.73, 52.63)
Dyslipidemia	38.24 (37.25, 39.23)	17.51 (16.50, 18.51)	10.18 (9.51, 10.85)	38.25 (35.91, 40.59)
Hyperuricemia [†]	14.09 (13.26, 14.92)	-	-	-
Coronary artery disease [†]	2.26 (2.09, 2.44)	-	-	-
Stroke [†]	2.94 (2.70, 3.18)	-	-	-

Note. [†]Awareness, treatment, and control of hyperuricemia, coronary artery disease, and stroke were not ascertained.