Supplementary Materials

Table S1. Baseline and follow-up characteristics of participants included and excluded

Variable	Included	Excluded	*P*-Value
N	2336	39126	
Baseline			
Age, y	28.0 (5.3)	32.5 (21.9)	<0.001
Male, n (%)	1080 (46.2)	18773 (48.0)	0.105
BMI, kg/m^2	21.8 (2.8)	21.3 (4.6)	<0.001
Smoker, n (%)	504 (30.1)	5732 (27.1)	0.007
Drinker, n (%)	523 (31.4)	6555 (29.5)	0.109
Follow-up			
FPG, mmol/L	5.2 (1.13)	5.5 (1.60)	<0.001
INS, μIU/mL	10.4 [7.4, 15.0]	10.6 [7.4, 15.4]	0.128
HOMA	2.30 [1.58, 3.46]	2.39 [1.62, 3.67]	0.006

Note.BMI indicates body mass index; FPG, fasting plasma glucose; INS, insulin, HOMA, homeostasis model assessment of insulin resistance.

Table S2. Latent Class Growth Mixture Models (LCGMM) results of model fitting process for BMI

No. Latent class	Polynomial degree	Log-Lik	BIC	% Participants per class	Mean posterior probabilities	% Posterior probabilities > 70%
1	Linear	-23683	47406	100	na	na
	Quadratic	-23669	47393	100	na	na
	Cubic	-23666	47403	100	na	na
2	Linear	-23470	47010	82.79/17.21	0.94/0.82	94.00/75.12
	Quadratic	-23390	46873	81.12/18.88	0.95/0.84	94.72/76.42
	Cubic	-23384	46885	18.79/81.21	0.84/0.95	77.22/94.57
3	Linear	-23406	46914	69.86/26.37/3.77	0.90/0.79/0.86	90.07/72.89/84.09
	Quadratic	**-23322**	**46776**	**69.56/4.19/26.24**	**0.91/0.84/0.80**	**89.97/73.47/73.25**
	Cubic	-23301	46765	74.57/16.82/8.60	0.91/0.73/0.78	91.27/52.93/62.69
4	Linear	-23371	46873	68.96/4.37/3.64/23.03	0.89/0.69/0.79/0.75	87.34/46.08/67.06/60.59
	Quadratic	-23278	46728	68.53/6.63/3.30/21.53	0.90/0.66/0.83/0.73	87.57/40.00/77.92/55.86
	Cubic	-23240	46689	3.51/67.76/9.84/18.88	0.82/0.89/0.70/0.73	73.17/87.68/45.65/56.24

Note. No. Latent class: latent class number of the model; Log-Lik: the maximum Log-Likelihood; BIC: the Bayesian information Criterion; % Participants per class: proportion of participants per class; The best fitting model is highlighted in bold characters. (NA: not applicable).

Table S3. Parameters estimates for the best fitting 3-class quadratic Latent Class Growth Mixture Model for BMI

	Intercept (se)*	Linear (se)	Quadratic (se)
Fixed effect			
Low-stable	21.917 (0.1901)	0.086 (0.0049)	0.002 (0.0004)
High-increasing	28.383 (0.3746)	0.239 (0.0278)	-0.014 (0.0023)
Medium-increasing	25.200 (0.2147)	0.211 (0.0094)	-0.007 (0.0010)
Random effects: variance-covariance matrix			
$\sigma^2_{int} = 2.43$			
$\sigma^2_{linear\ slope} = 0.0104$			
$\sigma^2_{quadratic\ slope} < 0.001$			
$\sigma^2_{error} = 1.23$			

Note. se = standard error

*: Intercept interpreted as the expected level of BMI in kg/m^2 at 42 years of age (centering to the mean age of the sample)

Table S4. Baseline and follow-up characteristics of weight status

Variable	Normal weight	Obesity	*P* Value
N	1625	711	
Baseline			
Age, ys	28.1 (5.2)	27.9 (5.4)	0.624
Males, n (%)	699 (43.0)	381 (53.6)	<0.001
BMI, kg/m^2	20.9 (2.0)	24.1 (3.0)	<0.001
Smoker, n (%)	312 (19.2)	192 (27.0)	<0.001
Drinker, n (%)	314 (19.3)	209 (29.4)	<0.001
Follow-up			
FPG, mmol/L	5.0 (0.86)	5.5 (1.54)	<0.001
Insulin, μIU/mL	9.4 [6.8, 13.3]	12.9 [9.1, 19.0]	<0.001
HOMA	2.06 [1.45, 3.03]	3.02 [2.04, 4.63]	<0.001
Follow-up years	18.4 (5.9)	17.9 (6.0)	0.065
Incident Diabetes, n (%)	89 (5.5)	105 (14.8)	<0.001

Note. Study variables are presented as mean (SD), median [interquartile range] or n (%), appropriately. BMI, body mass index; FPG, fasting plasma glucose; INS, insulin; HOMA, homeostasis model assessment of insulin resistance

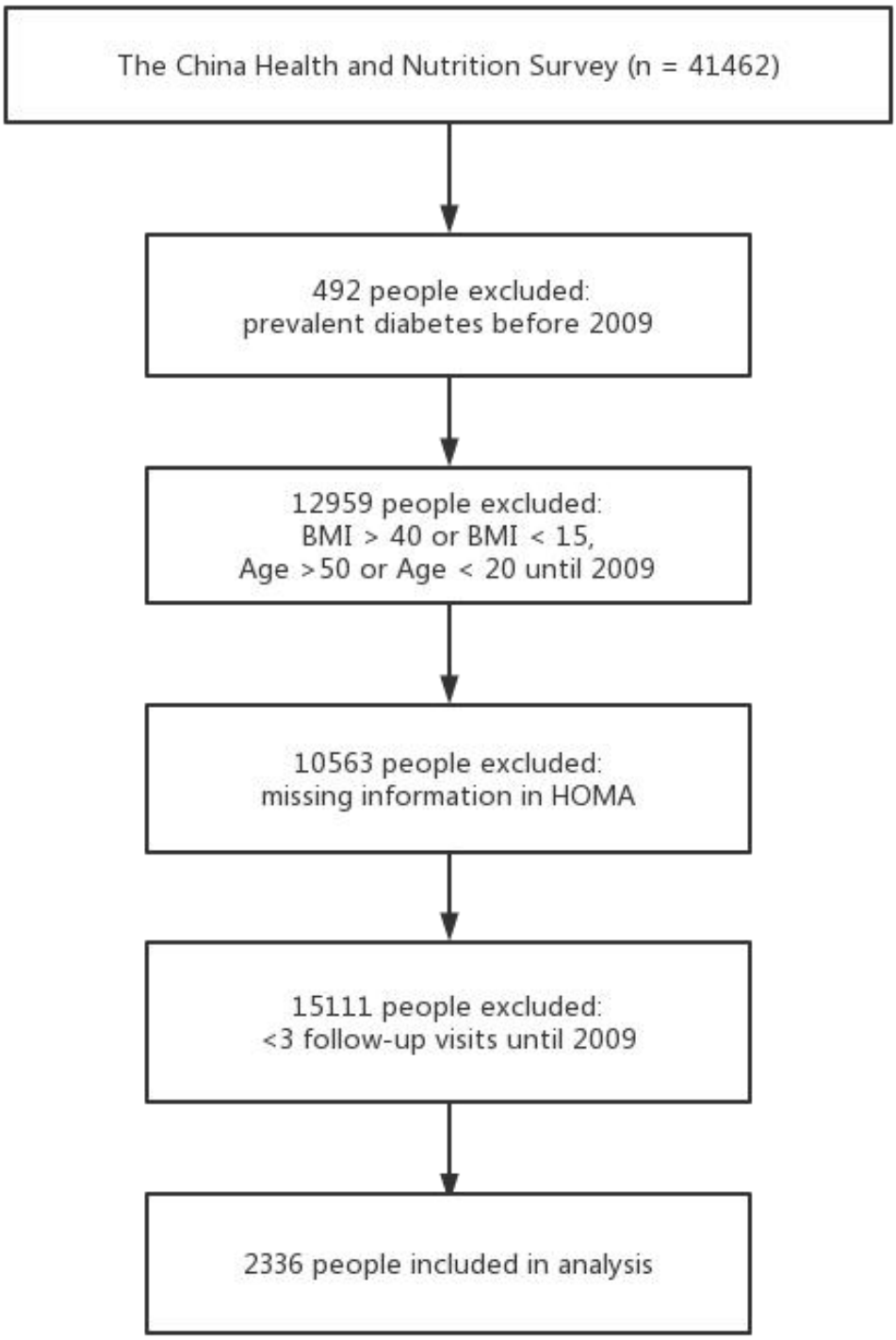

Figure S1. Flow chart of the study population inclusion and exclusion.