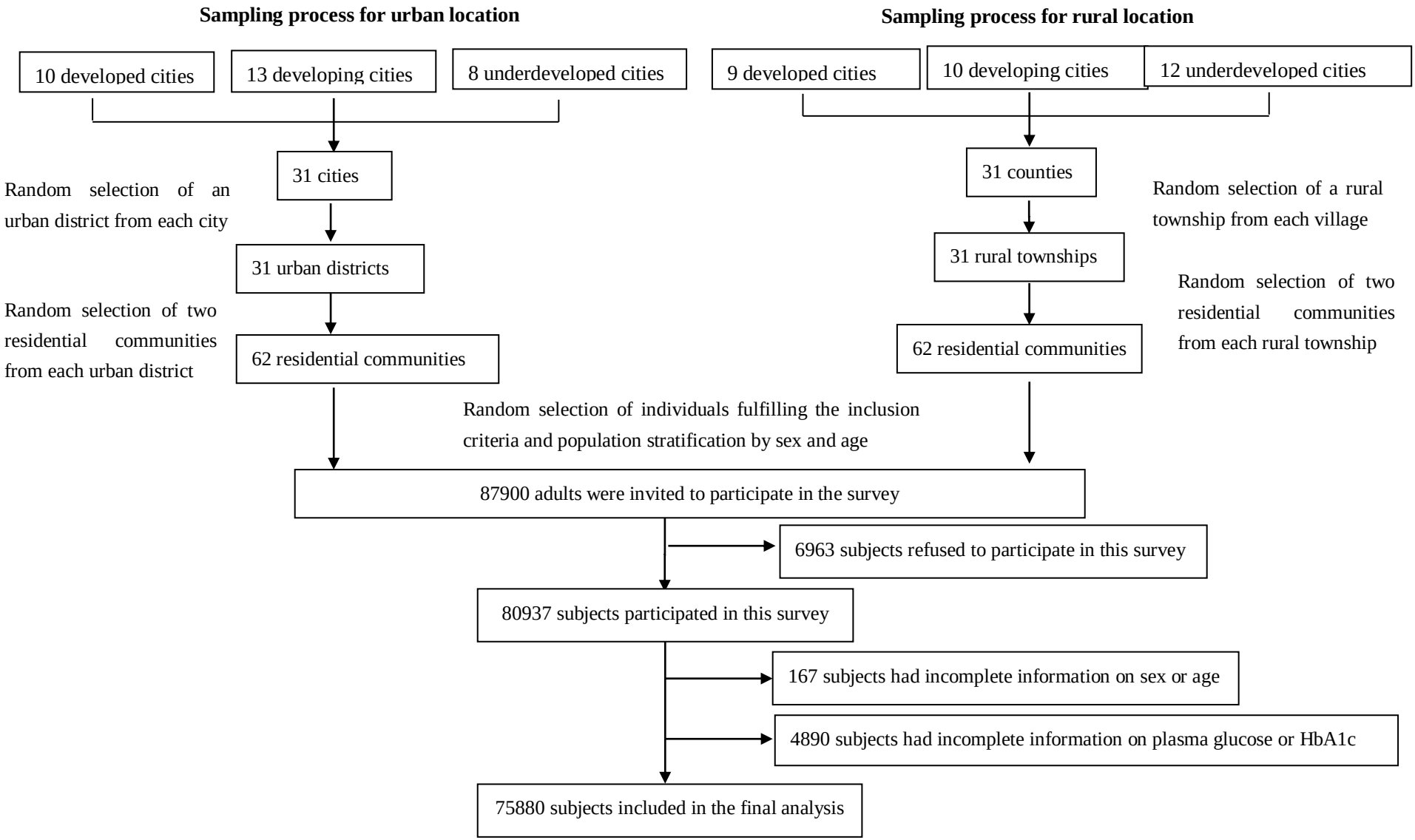
Supplementary appendix

The authors have included this supplementary material to provide additional information to readers about their work.

Figure 1. Flowchart depicting survey design



Supplementary Figure Legends: Sampling process for the urban population, at the first stage, one city was selected from each province in all 31 provinces of mainland China. Finally, 31 cities were selected and divided into 10 developed, 13 developing and 8 underdeveloped cities, based on gross domestic product per capita, concentration of commercial resources, the extent to which a city serves as a commercial hub, vitality of residents, diversity of lifestyle and future dynamism At the second stage, one district was randomly selected from each city. At the third stage, two residential communities were randomly selected from the district. At the final stage, eligible individuals from the local resident registration list who met the inclusion criteria were randomly selected according to age-sex composition among the urban population from China's 2010 national census data. For the rural population, in the first-stage, 31 cities were selected and divided into 9 developed, 10 developing and 12 underdeveloped cities based on gross domestic product per capita, concentration of commercial resources, the extent to which a city serves as a commercial hub, vitality of residents, diversity of lifestyle and future dynamism. One city was selected from each province. At the second stage, one county was randomly selected from each city. At the third stage, one rural town was randomly selected from each county. At the fourth stage, at least two residential communities were randomly selected from the rural town. At the final stage, eligible individuals from the local resident registration list who met the inclusion criteria were randomly selected according to age-sex composition among rural populations from China's 2010 national census data.

Figure 2. Fasting plasma glucose, 2-hour plasma glucose, and HbA1c among the adults living in China by age group.

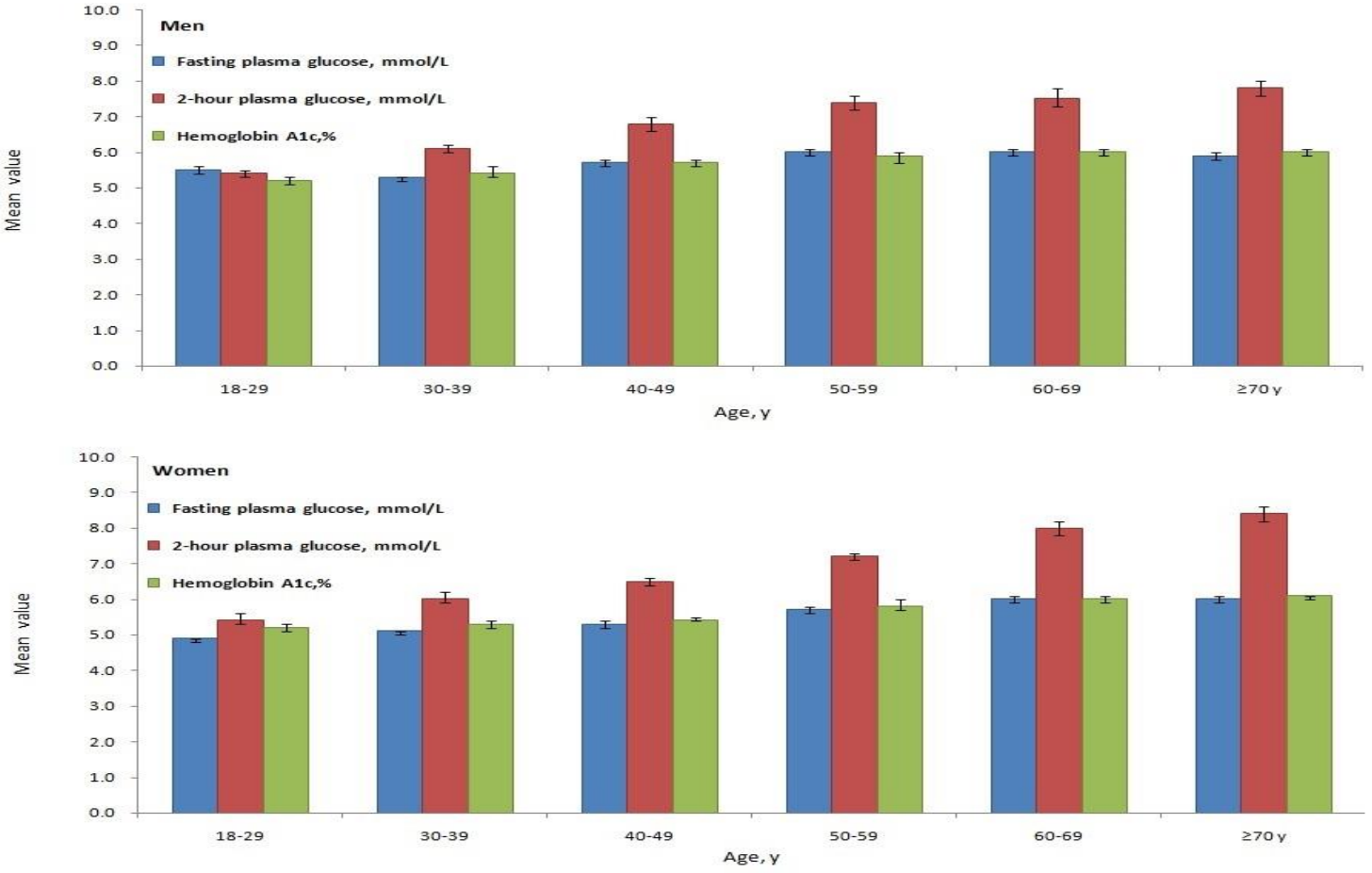


Figure 3. Choropleth maps of total diabetes and prediabetes prevalence in mainland China by province.

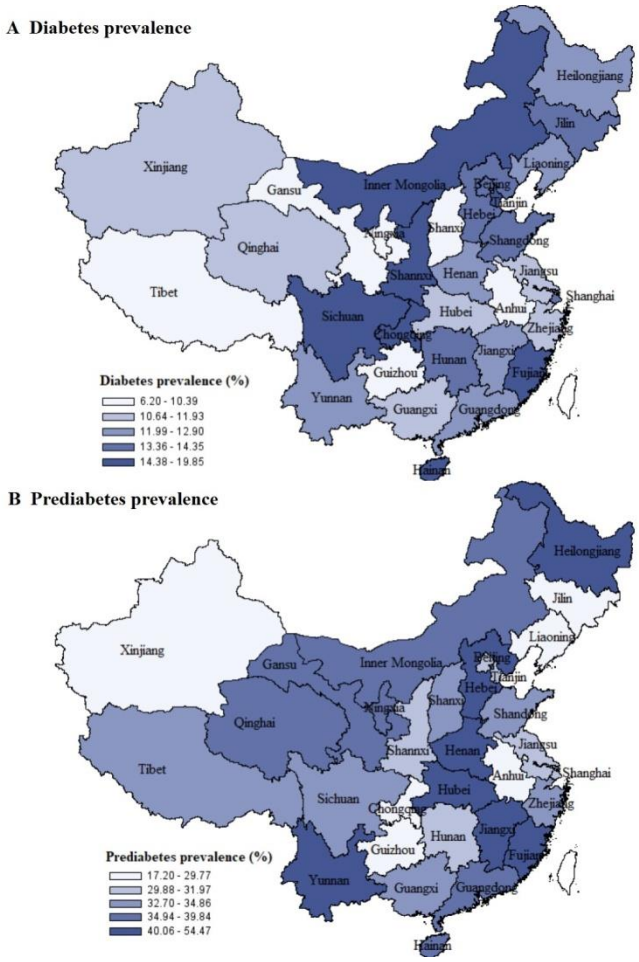
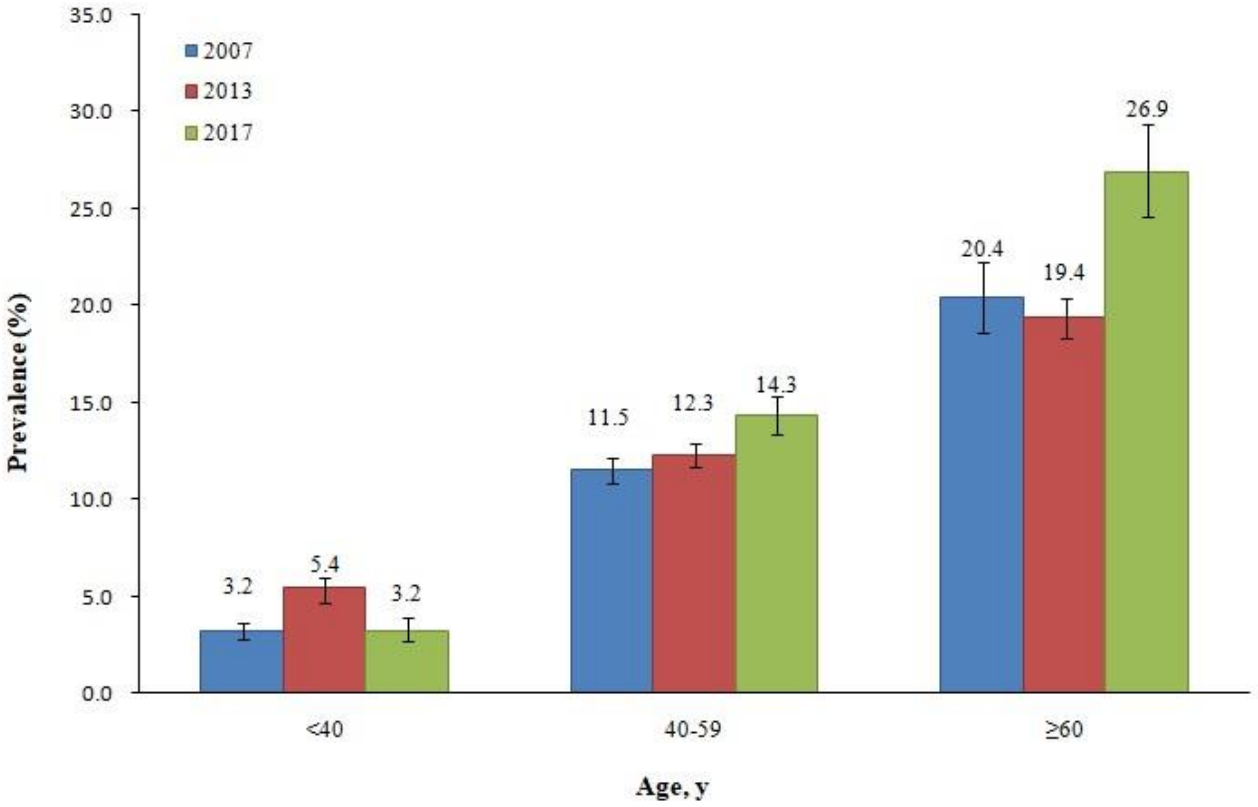


Figure 4. Prevalence of total diabetes diagnosed by the WHO criteria among adults living in China stratified by age group from the 2007, 2013 and 2017 nationwide surveys.



* Data sources: For 2007 national survey PMID: 20335585. For 2013 national survey PMID: 28655017.

Table 1. Tiers of Prefectural-level Chinese Cities*

Tier	Cities	Classification	Selected cities for urban location	Selected cities for rural location
Tier 1	Beijing, Shanghai, Guangzhou, Shenzhen	Developed	Beijing, Shanghai, Guangzhou	Beijing, Shanghai, Guangzhou
New Tier 1	Chengdu, Hangzhou, Wuhan, Chongqing, Nanjing, Tianjin, Suzhou, Xi'an, Changsha, Shenyang, Qingdao, Zhengzhou, Dalian, Dongguan, Ningbo	Developed	Wuhan, Dalian, Xi'an, Chengdu, Tianjin, Hangzhou, Chongqing	Dalian, Xi'an, Chengdu, Tianjin, Hangzhou, Chongqing
Tier 2	Xiamen, Fuzhou, Wuxi, Hefei, Kunming, Harbin, Ji'nan, Foshan, Changchun, Wenzhou, Shijiazhuang, Nanning, Changzhou, Quanzhou, Nanchang, Guiyang, Taiyuan , Yantai, Jiaxing, Nantong, Jinhua, Zhuhai, Huizhou, Xuzhou, Haikou, Ürümqi, Shaoxing, Zhongshan, Taizhou, Lanzhou	Developing	Hefei, Fuzhou, Guiyang, Haikou, Harbin, Xuzhou, Nanchang, Taiyuan, Kunming	Shijiazhuang, Taiyuan, Harbin, Fuzhou, Guiyang, Kunming
Tier 3	Weifang, Baoding, Zhenjiang, Yangzhou, Guilin, Tangshan, Sanya, Huzhou, Hohhot, Langfang, Luoyang, Weihai, Yancheng, Linyi, Jiangmen, Shantou, Taizhou , Quzhou, Handan, Jining, Wuhu, Zibo, Yinchuan, Liuzhou, Mianyang, Zhanjiang, Anshan, Quzhou, Daqing, Yichang, Baotou, Xianyang, Qinhuangdao, Zhuzhou, Putian, Jilin, Huai'an, Zhaoqing, Ningde, Hengyang, Nanping, Lianyungang, Dandong, Lijiang, Jieyang, Yanbian Korean Autonomous Prefecture, Zhoushan, Jiujiang, Longyan, Cangzhou, Fushun, Xiangyang, Shangrao, Yingkou, Sanming, Handan, Lishui, Yueyang, Qingyuan, Jingzhou, Tai'an, Luzhou, Panjin, Dongying, Nanyang, Ma'anshan, Nanchong, Xining, Xiaogan,	Developing	Hohhot, Cangzhou, Xining, Tai'an	Hohhot, Tai'an

	Qiqihar			
Tier 4	Leshan, Xiangtan, Zunyi, Suqian, Xinxiang, Xinyang, Chuzhou, Jinzhou, Chaohzou, Huanggang, Kaifeng, Deyang, Dezhou, Meizhou, Erdos, Xingtai, Maoming, Dali Bai Autonomous Prefecture, Shaoguan, Shangqiu, Anqing, Huangshi, Liu'an, Yulin, Yichun, Beihai, Mudanjiang, Zhangjiakou, Wuzhou, Rizhao, Xianning, Changde, Jiamusi, Honghe Hani and Yi Autonomous Prefecture, Qiandongnan Miao and Dong Autonomous Prefecture, Yangjiang, Jinzhong, Weinan, Hulunbeier, Enshi Tujia and Miao Autonomous Prefecture, Heyuan, Chenzhou, Fuyang, Liaocheng, Datong, Baoji, Xuchang, Chifeng, Yuncheng, Anyang, Linfen, Xuancheng, Qujing, Xishuangbanna Dai Autonomous Prefecture, Shaoyang, Huludao, Pingdingshan, Liaoyang, Heze, Benxi, Huaihua, Siping, Yulin, Shiyan, Yibin, Binzhou, Fuzhou, Huainan, Zhoukou, Qiannan Buyi and Miao Autonomous Prefecture, Luzhou, Yuxi, Meishan, Tonghua, Suzhou, Zaozhuang, Neijiang, Zhuning, Ji'an, Tongliao, Jingdezhen, Fuxin, Yaan, Tieling, Chengde, Loudi	Underdeveloped	Xinxiang, Changde	Kaifeng, Changde, Shiyan, Jingdezhen
Tier 5	Karamay, Changzhi, Yongzhou, Suihua, Bayingolin Mongol Autonomous Prefecture, Lhasa, Yunfu, Yiyang, Baise, Ziyang, Jinmen, Songyuan, Liangshan Yi Autonomous Prefecture, Dazhou, Kazak Autonomous Prefecture of Ili, Guang'an, Zigong, Hanzhong, Chaoyang, Luohe, Qinzhou, Guigang, Anshun, Ezhou, Guangyuan, Hechi, Yingtan, Ulanqab, Tongling, Hui Autonomous Prefecture of Changji, Hengshui,	Underdeveloped	Longnan, Chongzuo, Liaoyuan, Guyuan, Lhasa, Turpan	Liaoyuan, Chongzuo, Longnan, Haidong, Guyuan, Turpan, Lhasa, Danzhou

	Qiandongnan Buyi and Miao Autonomous Prefecture, Puyang, Xilin Gol League, Bayan Nur, Jixi, Hezhou, Fangchenggang, Hinggan League, Baishan, Sanmenxia, Xinzhou, Shuangyashan, Yi Autonomous Prefecture of Chuxiong, Xinyu, Laibin, Huaibei, Haozhou, Xiangxi Tujia and Miao Autonomous Prefecture, Lvliang, Panzhihua, Jincheng, Yan'an, Bijie, Zhangjiajie, Jiuquan, Chongzuo, Pingxiang, Wwuhai, Yichun, Liupanshui, Suizhou, Dehong Dai and Jingpo Autonomous Prefecture, Chizhou, Heihe, Hami, Wenshan Zhang and Miao Autonomous Prefecture, Aba Tibetan and Qiang Autonomous Prefecture, Tianshui, Liaoyuan, Zhangye, Tongren, Hebi, Danzhou, Baoshan, Ankang, Baicheng, Bazhong, Puer, Hegang, Laiwu, Yangquan, Garze Tibetan Autonomous Prefecture, Jiayuguan, Baiyin, Lincang, Shangluo, Akesu Prefecture, Haixi Mongolian and Tibetan Autonomous Prefecture, Daxinganling region, Qitaihe, Suzhou, Tongchuan, Dingxi, Diqing Tibetan Autonomous Prefecture, Xigaze, Qingyang, Zhaotong, Kashi Prefecture, Nujiang of the Lisu Autonomous Prefecture, Haidong, Altay Prefecture, Pingliang, Shizuishan, Wuwei, Alxa League, Tacheng Prefecture, Linzhi, Jinchang, Wuzhong, Zhongwei, Longnan, Shannan, Turpan, Bortala Mongol Autonomous Prefecture, Linxia Hui Autonomous Prefecture, Guyuan, Gannan Tibetan Autonomous Prefecture, Changdu, Ngari Prefecture, Hainan Tibetan Autonomous Prefecture, Hotan Prefecture, Kizilsu Kirgiz Autonomous			

	Prefecture, Haibei Tibetan Autonomous Prefecture, Nagqu Prefecture, Yushu Tibetan Autonomous Prefecture, Huangnan Tibetan Autonomous Prefecture, Golog Tibetan Autonomous Prefecture, Sansha			

*According to tiers of Chinese cities published by Yicai Chinese Cities Research Institution [1], the ranking assessed all Chinese cities drawing from data on the following dimensions: gross domestic product per capita, concentration of commercial resources, the extent to which a city serves as a commercial hub, vitality of residents, diversity of lifestyle, and future dynamism. The list above shows the classification, which includes 338 cities ranked on 6 tiers: developed (tier 1, new tier 1), developing (tier 2, tier 3), and underdeveloped (tier 4, tier 5).

Reference:

[1]. Tiers of Prefecture-level Chinese Cities. Yicai Chinese Cities Research Institution. https://baike.baidu.com/item/中国城市新分级名单/12702007?fr=Aladdin [in Chinese]. Accessed by 20 September, 2019.

Table 2. Age- and sex-standardized prevalence of newly diagnosed diabetes, impaired fasting glucose (IFG), impaired glucose tolerance (IGT) and risk factors among the adults living in China.

	Estimated prevalence, % (95% CI)		
	Newly diagnosed diabetes[a]	IFG[b]	IGT[b]
Overall	6.8 (6.1-7.4)	2.4 (2.0-2.9)	11.5 (10.5-12.7)
Sex			
Men	7.4 (6.6-8.1)	3.0 (2.5-3.6)	11.2 (10.1-12.4)
Women	6.1 (5.5-6.8)	1.8 (1.4-2.2)	11.9 (10.7-13.2)
p for difference	0.0001	<0.0001	0.14
Urbanization			
Urban	6.6 (5.8-7.4)	2.1 (1.6-2.7)	12.2 (10.5-14.1)
Rural	6.9 (5.9-8.1)	2.7 (1.9-3.7)	10.8 (9.4-12.5)
p for difference	0.13	0.18	0.8
Age group			
18-29	1.2 (1.0-1.6)	0.9 (0.6-1.1)	4.1 (3.2-5.3)
30-39	3.7 (3.2-4.3)	1.7 (1.5-2.1)	8.7 (7.4-10.2)
40-49	7.3 (6.5-8.3)	2.9 (2.3-3.6)	13.2 (11.8-14.9)
50-59	10.6 (9.5-11.7)	3.9 (3.2-4.7)	15.9 (14.6-17.3)
60-69	13.9 (12.0-16.1)	3.8 (2.8-5.1)	19.1 (17.4-21.0)
≥70	15.4 (14.0-16.9)	3.1 (2.3-4.2)	21.5 (20.0-23.0)
p for trend	<0.0001	<0.0001	0.0006
Ethnicity			
Han	6.7 (6.1-7.4)	2.4 (2.0-2.9)	11.4 (10.4-12.6)
Tibetan	5.0 (3.6-6.9)	0.6 (0.4-0.8)	8.5 (5.7-12.3)

Uyghur	6.9 (5.5-8.6)	1.3 (0.7-2.5)	7.0 (5.8-8.4)
Hui	4.4 (4.0-4.9)	3.1 (2.6-3.6)	5.9 (4.7-7.4)
Zhuang	7.6 (6.7-8.6)	2.5 (1.7-3.6)	17.4 (14.1-21.4)
p for difference	<0.0001	0.15	<0.0001
Region			
South	7.0 (6.9-7.1)	1.5 (0.8-3.0)	16.1 (11.8-21.6)
North	7.6 (7.2-8.0)	2.7 (2.4-3.1)	9.9 (8.1-12.1)
East	6.3 (5.2-7.6)	2.3 (1.5-3.3)	11.1 (9.6-12.9)
Central	5.6 (4.4-7.1)	1.4 (0.9-2.1)	9.0 (8.0-10.1)
Southwest	8.6 (6.2-11.7)	4.0 (2.5-6.3)	12.8 (10.9-15.0)
Northwest	6.4 (5.7-7.3)	1.8 (0.9-3.5)	11.4 (10.0-12.9)
Northeast	6.2 (5.3-7.1)	3.2 (2.5-4.1)	12.1 (10.2-14.5)
p for difference	0.01	0.009	0.02
Income per year (¥)			
≤30000 ~~Chinese Yuan~~	7.0 (6.3-7.8)	2.6 (2.0-3.3)	11.6 (10.3-13.1)
>30000 ~~Chinese Yuan~~	6.5 (5.9-7.3)	2.2 (1.8-2.7)	11.6 (10.6-12.6)
p for difference	0.0004	0.03	0.002
Education			
Less than high school	7.1 (6.3-7.9)	2.8 (2.2-3.6)	11.3 (10.3-12.3)
High school and above	6.6 (5.9-7.3)	2.0 (1.6-2.5)	11.8 (10.6-13.1)
p for difference	<0.0001	0.0001	<0.0001
C~~urrent c~~igarette			

smoking			
Current nonsmoker	6.7 (6.1-7.4)	2.3 (1.9-2.8)	11.7 (10.5-12.9)
Occasional smoker	7.3 (6.1-8.7)	2.2 (1.6-3.0)	9.8 (8.2-11.7)
Regular smoker	6.9 (5.8-8.2)	2.4 (1.9-3.1)	9.9 (8.6-11.5)
p for trend	0.77	0.6	0.007
Family history of diabetes			
Yes	8.1 (7.1-9.2)	2.1 (1.7-2.5)	11.8 (10.6-13.0)
No	6.5 (5.9-7.1)	2.4 (2.0-2.9)	11.4 (10.3-12.6)
p for difference	0.04	0.03	0.45
Body mass index			
<25	5.0 (4.5-5.7)	2.1 (1.7-2.6)	9.8 (8.6-11.0)
25 ~~<~~to <30	8.3 (7.5-9.0)	2.8 (2.3-3.5)	13.9 (12.7-15.3)
≥30	13.2 (12.0-14.4)	2.9 (2.3-3.6)	17.4 (15.3-19.9)
p for trend	0.02	0.002	<0.0001
Waist circumference (cm)			
Men ≥90~~ cm~~, women ≥80~~ cm~~	8.7 (8.0-9.5)	2.7 (2.2-3.3)	14.0 (12.6-15.5)
Men <90~~ cm~~, women <80 ~~cm~~	4.8 (4.2-5.5)	2.2 (1.7-2.7)	9.6 (8.5-11.0)
p for difference	<0.0001	0.0003	<0.0001

[a] Newly dignosed diabetes and prediabetes were defined by the 2018 ADA diagnostic criteria.

[b] Isolated IGT and isolated IFG were defined by the WHO diagnostic criteria.

Table 3. Crude and adjusted prevalence of diabetes and prediabetes by province.

	Crude, % (95% CI)		Age- and sex-adjusted, % (95% CI)	
Province	Total diabetes	Prediabetes	Total diabetes	Prediabetes
Jilin	13.7 (12.2-15.2)	26.3 (24.4-28.1)	13.4 (8.0-21.7)	24.3 (20.1-29.1)
Tianjin	13.4 (12.1-14.7)	32.1 (30.3-33.9)	14.4 (11.4-17.9)	31.6 (30.0-33.2)
Hebei	14.8 (13.5-16.2)	42.1 (40.2-43.9)	14.4 (11.0-18.5)	40.8 (32.6-49.7)
Shanxi	9.9 (8.7-11.0)	34.5 (32.7-36.3)	10.4 (6.9-15.4)	34.5 (29.1-40.4)
Inner Mongolia	20.9 (19.3-22.4)	41.3 (39.4-43.2)	19.9 (17.6-22.4)	39.8 (24.1-58.1)
Liaoning	12.8 (11.5-14.0)	27.7 (26.0-29.4)	12.7 (9.3-17.0)	27.2 (26.2-28.1)
Beijing	17.0 (15.1-18.8)	38.2 (35.8-40.5)	13.6 (13.1-14.1)	31.7 (30.0-33.6)
Heilongjiang	12.7 (11.4-13.9)	40.8 (38.9-42.7)	12.9 (9.1-18.0)	40.1 (22.0-61.4)
Shanghai	14.0 (12.7-15.4)	32.9 (31.1-34.8)	13.7 (13.7-13.8)	29.9 (25.7-34.4)
Jiangsu	11.3 (10.1-12.6)	31.3 (29.5-33.2)	11.5 (11.4-11.7)	30.8 (21.8-41.5)
Zhejiang	11.8 (10.6-13.1)	32.8 (31.0-34.6)	11.2 (8.7-14.4)	32.7 (25.6-40.7)
Anhui	9.0 (7.9-10.1)	18.8 (17.3-20.3)	8.5 (5.6-12.6)	17.2 (13.1-22.2)
Fujian	17.6 (16.1-19.0)	48.0 (46.1-49.9)	17.3 (9.6-29.0)	49.8 (40.0-59.5)
Jiangxi	12.6 (11.3-13.9)	48.3 (46.3-50.2)	12.1 (8.9-16.1)	46.6 (38.7-54.7)
Shandong	14.4 (12.8-16.0)	36.3 (34.1-38.5)	13.4 (11.8-15.1)	34.9 (32.7-37.1)
Henan	11.7 (10.5-13.0)	39.8 (38.0-41.7)	12.0 (10.9-13.2)	40.1 (36.7-43.5)
Hubei	10.7 (9.5-11.8)	43.3 (41.5-45.2)	10.6 (9.5-11.9)	42.0 (41.5-42.6)
Hunan	14.2 (12.9-15.6)	32.9 (31.0-34.7)	14.0 (13.8-14.3)	31.5 (25.3-38.6)
Guangdong	13.5 (12.2-14.8)	37.6 (35.8-39.5)	12.7 (8.4-18.7)	34.9 (31.0-39.1)

Guangxi	12.3 (10.9-13.6)	34.7 (32.7-36.7)	11.9 (7.8-17.7)	34.8 (32.7-36.9)
Hainan	18.7 (17.0-20.4)	40.4 (38.3-42.6)	17.5 (17.2-17.8)	35.0 (31.4-38.7)
Chongqing	17.0 (15.5-18.6)	30.4 (28.5-32.3)	16.0 (15.3-16.7)	29.8 (23.7-36.6)
Sichuan	18.9 (17.1-20.8)	38.0 (35.8-40.3)	15.6 (12.1-19.8)	34.6 (26.9-43.1)
Guizhou	7.4 (6.4-8.4)	30.4 (28.6-32.1)	6.2 (2.9-12.8)	27.6 (17.8-40.1)
Yunnan	12.6 (11.3-13.9)	53.5 (51.6-55.4)	12.4 (10.8-14.2)	54.5 (46.1-62.6)
Tibet	6.3 (5.3-7.4)	28.8 (26.8-30.7)	6.5 (6.0-7.0)	34.4 (26.2-43.7)
Shaanxi	15.2 (13.7-16.7)	31.4 (29.5-33.3)	15.1 (13.7-16.6)	32.0 (25.8-38.9)
Gansu	9.4 (8.3-10.5)	36.8 (35.0-38.7)	9.1 (6.7-12.3)	36.0 (33.4-38.6)
Qinghai	12.2 (10.9-13.4)	38.9 (37.0-40.7)	11.8 (8.6-16.0)	38.5 (30.3-47.3)
Ningxia	8.4 (7.5-9.4)	38.8 (37.1-40.6)	8.0 (4.0-15.2)	37.9 (37.4-38.4)
Xinjiang	11.0 (9.8-12.3)	22.1 (20.5-23.7)	11.4 (10.6-12.3)	21.7 (15.9-28.8)

Table 4. Overview of the four nationally representative epidemiologic surveys of diabetes in mainland China

	2007 Survey	**2010 Survey**	**2013 Survey**	**2017 Survey**
Authors	Wenying Yang, et al.	Yu Xu, et al.	Limin Wang, et al.	Yongze Li, et al.
Study objective	"To estimate the prevalence of diabetes among Chinese adults."	"To investigate the prevalence of diabetes and glycemic control in the Chinese adult population."	"To estimate the recent prevalence and to investigate the ethnic variation of diabetes and prediabetes in the Chinese adult population."	"To assess the current prevalence of diabetes and risk factors in mainland China, as well as the national trend in diabetes prevalence."
Geographical range	14 provinces	31 provinces	31 provinces	31 provinces
Participants	46239 participants aged 20 or older	98658 participants aged 18 or older	170287 participants aged 18 or older	75880 participants aged 18 or older
Study design	Cross-sectional study	Cross-sectional study	Cross-sectional study	Cross-sectional study
Study resource	The China National Diabetes and Metabolic Disorders Study	The China Noncommunicable Disease Surveillance 2010	The China Chronic Disease and Risk Factors Surveillance study	Thyroid disorders, iodine status and diabetes epidemiological survey
Sampling design	Multistage, stratified sampling method	Multistage, stratified, probability sampling method	Multistage, stratified sampling method	Multistage, stratified sampling method
Sampling process				
Stage 1	Select provinces from 6 geographic regions (not random)	Select 4 subdistricts in urban areas or townships in rural areas from 162 study sites	Select 8 strata from each province	Select cities from 31 provinces
Stage 2	Select cities and counties	Select 3 neighborhood	Select 298 surveillance points	Randomly select one

	from the provinces (not random)	communities or administrative villages		district/rural town from each city
Stage 3	Randomly select districts from cities and rural townships from counties	Randomly select 50 households from each neighborhood community or administrative village	Select 1176 rural townships or urban subdistricts	Randomly select two residential communities from each district/rural town
Stage 4	Randomly select street districts from city districts and rural villages from townships	Randomly select one person from each household	As described, similar to 2010 Survey	Randomly select participants according to the age and sex composition of each community and an urban/ rural ratio
Stage 5	Stratify the samples according to the sex and age			
Statistical method	Weighted to represent the national population aged 20 years or older. Weight coefficients were derived from 2006 China population census	Weighted to represent the national population aged 18 years or older. Weight coefficients were derived from 2010 China population census	Weighted to represent the national population aged 18 years or older. Weight coefficients were derived from 2010 China population census	Weighted to represent the national population aged 18 years or older. Weight coefficients were derived from 2010 China population census
Diagnostic criteria	The 1999 World Health Organization diagnostic criteria	The 2010 American Diabetes Association criteria*	The 2010 American Diabetes Association criteria*	The 2018 American Diabetes Association criteria*
Definition of total diabetes	Self-reported diabetes diagnosed by physician, or FPG ≥ 7.0 mmol/L, or OGTT2hPG ≥ 11.1 mmol/L	Self-reported diabetes diagnosed by physician, or FPG ≥ 7.0 mmol/L, or OGTT2hPG ≥ 11.1 mmol/L, or HbA1c ≥ 6.5%	Self-reported diabetes diagnosed by physician, or FPG ≥ 7.0 mmol/L, or OGTT2hPG ≥ 11.1 mmol/L,	Self-reported diabetes diagnosed by physician, or FPG ≥ 7.0 mmol/L, or OGTT2hPG ≥ 11.1 mmol/L,

			or HbA1c ≥ 6.5%	or HbA1c ≥ 6.5%
Main results				
Mean age (years)	44.9	42.7	43.5	42.8
Mean body mass index, kg/m^2	23.7	23.7	24.0	24.0
Mean waist circumference, cm	80.7	80.2	N/A	83.2
Mean fasting glucose, mg/dL	94.8	100.5	100.5	97.3
Mean 2-hour glucose, mg/dL	124	112.3	114.2	117.1
Mean HbA1c, %	-	5.8	5.4	5.6
Body mass index, %				
<25 kg/m^2	63.2	64.9	60.5	63.1
25-<30 kg/m^2	36.8 (≥25 kg/m^2)	29.4	32.8	30.6
≥30 kg/m^2		5.7	6.7	6.3
Waist circumference, %				
<90 cm in men and <80 cm in women	72.9	63.1	N/A	55.9
≥90 cm in men and ≥ cm in women	27.1	36.9	N/A	44.1
Weighted prevalence by the ADA criteria, ** %				
Total diabetes	N/A	11.6	10.9	12.8

Diagnosed diabetes	N/A	3.5	4.0	6.0
Undiagnosed diabetes	N/A	8.1	6.9	6.8
Prediabetes	N/A	50.1	35.7	35.2
Unweighted prevalence of diabetes by the ADA criteria, ** %	N/A	N/A	14.7	12.9
Weighted prevalence by the WHO criteria,* ** %				
Total diabetes	9.7	9.7	10.4	11.2
Men	10.6	10.2	11.1	12.1
Women	8.8	9.1	9.6	10.3
Diagnosed diabetes	N/A	3.5	4.0	6.0
Men	4.1	3.6	3.9	6.4
Women	3.5	3.4	4.1	5.6
Undiagnosed diabetes	N/A	6.2	6.4	5.2
Men	6.5	6.6	7.2	5.8
Women	5.2	5.7	5.5	4.6
Prediabetes	15.5	N/A	N/A	18.1
Weighted prevalence of awareness of diabetes, %	N/A	30.1	36.5	43.3
Weighted prevalence	N/A	25.8	32.2	49.0

of treatment of diabetes, %				
Weighted prevalence of control of diabetes, %	N/A	39.7	49.2	49.4

* This study also provided the results defined by 1999 World Health Organization diagnostic criteria. ** Diabetes was diagnosed according to the ADA criteria. *** Diabetes was diagnosed according to the WHO criteria. Data sources: For 2007 national survey PMID: 20335585. For 2010 national survey PMID: 24002281. For 2013 national survey PMID: 28655017.

Table 5. Prevalence of total diabetes, prediabetes diagnosed by the ADA criteria and obesity among the adults living in China stratified by age group according to the 2013 and 2017 nationwide surveys.

Age group	Prevalence of total diabetes, % (95% CI)		Prevalence of prediabetes, % (95% CI)		Prevalence of obesity, % (95% CI)	
	2013	2017	2013	2017	2013	2017
<40 Years old	5.9 (5.1-6.6)	3.9 (3.3-4.7)	28.8 (26.8-30.9)	24.5 (22.4-26.7)	6.0 (5.5-6.5)	5.7 (5.1-6.3)
40-59 Years old	12.9 (12.3-13.5)	15.8 (14.8-16.9)	39.5 (37.8-41.2)	42.9 (41.0-44.9)	7.3 (6.9-7.6)	7.2 (6.7-7.9)
60 Years or older	20.2 (19.1-21.2)	30.2 (27.9-32.6)	45.8 (44.3-47.2)	47.7 (45.0-50.5)	5.5 (5.0-6.0)	5.6 (5.0-6.2)

* Data sources: For 2013 national survey PMID: 28655017.

Appendix 1. Additional information on anthropometric and clinical methods and quality control

Bodyweight and height were measured according to the 3rd edition of Cardiovascular Survey Methods from the World Health Organization. Waist circumference was measured on standing participants midway between the lower edge of the costal arch and the upper edge of the iliac crest. Blood specimens for the glucose test were collected using vacuum blood–collection tubes containing anticoagulant sodium fluoride. A stringent quality assurance and quality control program was implemented to ensure the validity and reliability of the study data. All investigators and research staff underwent a training session twice on the use of standardized protocols and instruments for data collection. A standardized investigation protocol for each province ensured consistency. All laboratory equipment was calibrated and blinded duplicate samples were used. Regular maintenance was performed every day during the period of measurement. We performed quality controls three times (before, during and after) for each batch, and three samples were randomly selected from high, middle and low values to re-analysis after each procedure. The precision of the Bio-Rad VARIANT II Hemoglobin Analyzer was evaluated according to the Clinical & Laboratory Standards Institute guideline. All data were double entered in EpiData 3.1 and then compared and corrected for errors. The center sent supervisory personnel to each survey site for quality control.