

Supplementary materials

Xuan Chen et al

Prevalence of Abdominal Obesity in Chinese Middle-Aged and Older Adults with a Normal Body Mass Index and Its Association with Type 2 Diabetes Mellitus: a Nationally Representative Cohort Study from 2011 to 2018

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Figure S2. Bee swarm plots of the distribution of waist-to-height ratio across the subgroups. **(A)**. Bee swarm plots of the distribution of waist-to-height ratio grouped by gender. **(B)**. Bee swarm plots of the distribution of waist-to-height ratio in T2DM patients and participants without T2DM.

Figure S3. The Kaplan-Meier unadjusted survival estimates for different waist-to-height ratio groups.

Table S1 Prevalence of Abdominal Obesity Defined by Waist Circumference

Variable	Normal WC		Increased WC		Substantially Increased WC	
	No.	Prevalence, % (95% CI)	No.	Prevalence, % (95% CI)	No.	Prevalence, % (95% CI)
General	4758	59.9 (58.8-60)	1745	22.0 (21.1-22.9)	1439	18.1 (17.3-19.0)
Gender						
Men	4099	72.6 (71.3-74.0)	761	17.8 (16.7-19.0)	407	9.5 (8.7-10.4)
Women	1659	45.1 (43.5-46.8)	984	26.8 (25.3-28.2)	1032	28.1 (26.6-29.5)
Age, years						
45-50	985	66.0 (63.6-68.4)	331	22.2 (20.1-24.3)	177	11.9 (10.2-13.5)
50-55	744	62.5 (59.7-65.2)	275	23.1 (20.7-25.5)	172	14.4 (12.5-16.4)
55-60	1072	61.6 (59.4-63.9)	367	21.1 (19.2-23.0)	300	17.3 (15.5-19.0)
60-65	767	58.5 (55.8-61.2)	305	23.3 (21.0-25.6)	239	18.2 (16.1-20.3)
65-70	551	60.1 (56.9-63.3)	184	20.1 (17.5-22.7)	182	19.9 (17.3-22.4)
≥70	639	49.5 (46.8-52.2)	283	21.9 (19.7-24.2)	369	28.6 (26.1-31.1)
T2DM status						
T2DM	345	45.0 (41.5-48.6)	221	28.9 (15.6-32.1)	200	26.1 (23.0-29.2)
Without T2DM	4389	61.5 (60.4-62.6)	1514	21.2 (20.3-22.2)	1232	17.3 (16.4-18.1)

Abbreviations: WC, waist circumference; T2DM, type 2 diabetes mellitus

Table S2 Prevalence of Abdominal Obesity Defined by Waist-to-height Ratio

Variable	Normal WHtR		Increased WHtR		Substantially Increased WHtR	
	No.	Prevalence, % (95% CI)	No.	Prevalence, % (95% CI)	No.	Prevalence, % (95% CI)
General	3353	42.2 (41.1-43.3)	2319	29.2 (28.2-30.2)	2270	28.6 (27.6-29.6)
Gender						
Men	2358	55.3 (53.8-56.8)	826	19.4 (18.2-20.5)	1083	25.4 (24.1-26.7)
Women	995	27.1 (25.6-28.5)	1493	40.6 (39.0-42.2)	1187	32.3 (30.8-33.8)
Age, years						
45-50	797	53.4 (50.9-55.9)	472	31.6 (29.3-34.0)	224	15.0 (13.2-16.8)
50-55	570	47.9 (45.0-50.7)	364	30.6 (28.0-33.2)	257	21.6 (19.2-23.9)
55-60	752	43.2 (40.9-45.6)	563	32.4 (30.2-34.6)	424	24.4 (22.4-26.4)
60-65	535	40.8 (38.2-43.5)	383	29.2 (26.8-31.7)	393	30.0 (27.5-32.5)
65-70	347	37.8 (34.7-41.0)	243	26.5 (23.6-29.4)	327	35.7 (32.6-38.8)
≥70	352	27.3 (24.8-29.7)	294	22.8 (20.5-25.1)	645	50.0 (47.2-52.7)
T2DM status						
T2DM	223	29.1 (25.9-32.3)	233	30.4 (27.2-33.7)	310	40.5 (37.0-44.0)
Without T2DM	3117	43.7 (42.5-44.8)	2072	29.0 (28.0-30.1)	1946	27.3 (26.2-28.3)

Abbreviations: WHtR, waist-to-height ratio; T2DM, type 2 diabetes mellitus

Table S3 Incidence of T2DM and Hazard Ratios (95% CI) of Waist-to-height Ratio for Different Subgroups in the Cox Proportional-hazards Model

	Waist-to-height Ratio		
	Normal	Increased	Substantially increased
General (n=4348)			
No of subjects	1888	1305	1155
No of T2DM cases	108	111	131
Person-years	12034.7	8261.8	6977.5
Incidence rate ^a	9.0	13.4	18.8
HR (95% CI)	1.00	1.37 (1.03-1.83)	1.70 (1.26-2.30)
Men (n=2238)			
No of subjects	1281	440	517
No of T2DM cases	79	31	52
Person-years	8124.1	2798.0	3157.8
Incidence rate ^a	9.7	11.1	16.5
HR (95% CI)	1.00	1.05 (0.68-1.62)	1.36 (0.91-2.05)
Women (n=2110)			
No of subjects	607	865	638
No of T2DM cases	29	80	79
Person-years	3910.6	5463.9	3819.7
Incidence rate ^a	7.4	14.6	20.7
HR (95% CI)	1.00	1.80 (1.16-2.80)	2.27 (1.40-3.68)
Prediabetes (n=1901)			
No of subjects	786	563	552
No of T2DM cases	59	64	82
Person-years	5010.7	3529.0	3300.6
Incidence rate ^a	11.8	18.1	24.8
HR (95% CI)	1.00	1.52 (1.04-2.24)	1.95(1.31-2.89)
NGT (n=2447)			
No of subjects	1102	742	603
No of T2DM cases	49	47	49
Person-years	7024.0	4732.8	3676.9
Incidence rate ^a	7.0	9.9	13.3
HR (95% CI)	1.00	1.18 (0.76-1.82)	1.40 (0.88-2.25)

Notes: ^a 1000 person-year. Model: Adjusted for age, sex, body mass index, district, educational level, smoking consumption, drinking status, systolic blood pressure, diastolic blood pressure, total cholesterol, triglycerides, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol and HbA_{1c}.

Abbreviations: HR, hazard ratio; NGT, normal glucose tolerance; T2DM, type 2 diabetes mellitus.

Table S4 Incidence of T2DM and Hazard Ratios (95% CI) of Normal and Abdominal Obesity in the Cox Proportional-hazards Model

	Waist Circumference		Waist-to-height Ratio	
	Normal	Abdominal Obesity	Normal	Abdominal Obesity
General (n=4348)				
No of subjects	2705	1643	1888	2460
No of T2DM cases	170	180	108	242
Person-years	17180.6	10093.4	12034.7	15239.3
Incidence rate ^a	9.9	17.8	9.0	15.9
HR (95% CI)	1.00	1.59 (1.25-2.03)	1.00	1.51 (1.16-1.96)
Men (n=2238)				
No of subjects	1682	556	1281	957
No of T2DM cases	104	58	79	83
Person-years	10668.8	3411	8124.1	5955.8
Incidence rate ^a	9.7	17.0	9.7	13.9
HR (95% CI)	1.00	1.52 (1.06-2.18)	1.00	1.21 (0.85-1.71)
Women (n=2110)				
No of subjects	1023	1087	607	1503
No of T2DM cases	66	122	29	159
Person-years	6511.8	6682.4	3910.6	9283.6
Incidence rate ^a	10.1	18.3	7.4	17.1
HR (95% CI)	1.00	1.59 (1.15-2.21)	1.00	1.93 (1.26-2.96)
Prediabetes (n=1901)				
No of subjects	1149	752	786	1115
No of T2DM cases	90	115	59	146
Person-years	7293.5	4546.8	5010.7	6829.6
Incidence rate ^a	12.3	25.3	11.8	21.4
HR (95% CI)	1.00	2.10 (1.51-2.90)	1.00	1.70 (1.20-2.41)
NGT (n=2447)				
No of subjects	1556	891	1102	1345
No of T2DM cases	80	65	49	96
Person-years	9887.2	5546.6	7024.0	8409.7
Incidence rate ^a	8.1	11.7	7.0	11.4
HR (95% CI)	1.00	1.13 (0.78-1.64)	1.00	1.26 (0.85-1.88)

Notes: ^a 1000 person-year. Model: Adjusted for age, sex, body mass index, district, educational level, smoking consumption, drinking status, systolic blood pressure, diastolic blood pressure, total cholesterol, triglycerides, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol and HbA_{1c}.

Abbreviations: HR, hazard ratio; NGT, normal glucose tolerance; T2DM, type 2 diabetes mellitus.

Figure S1

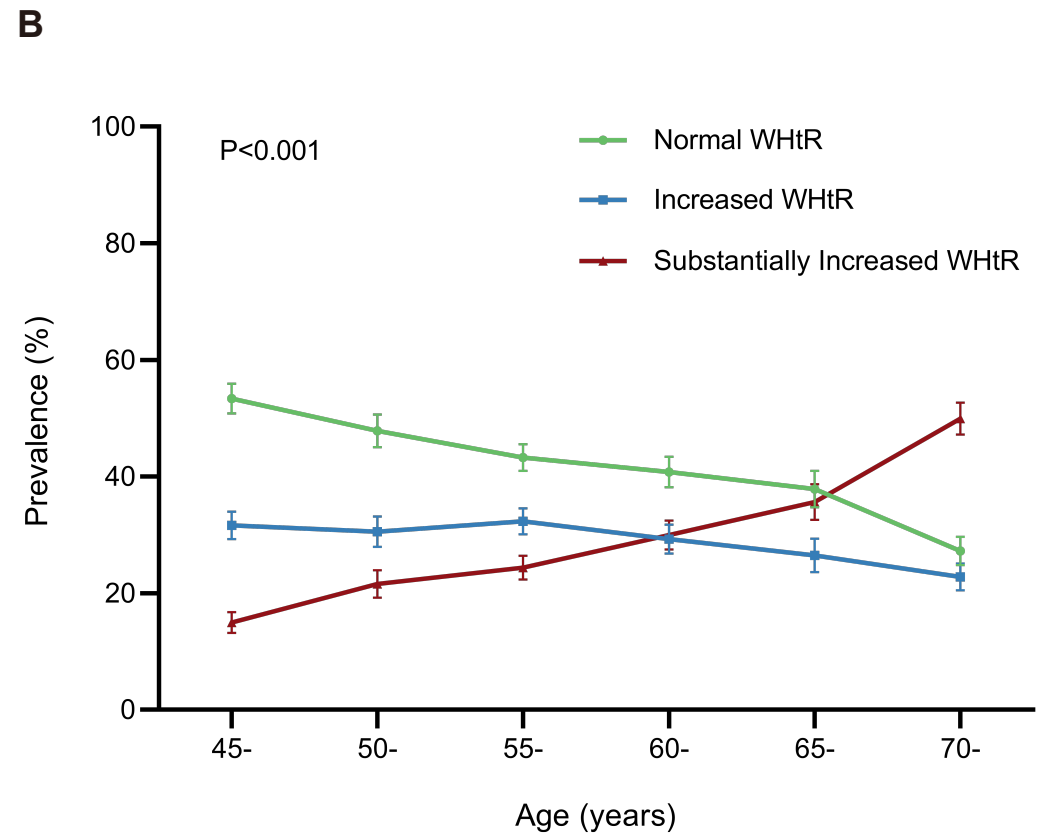
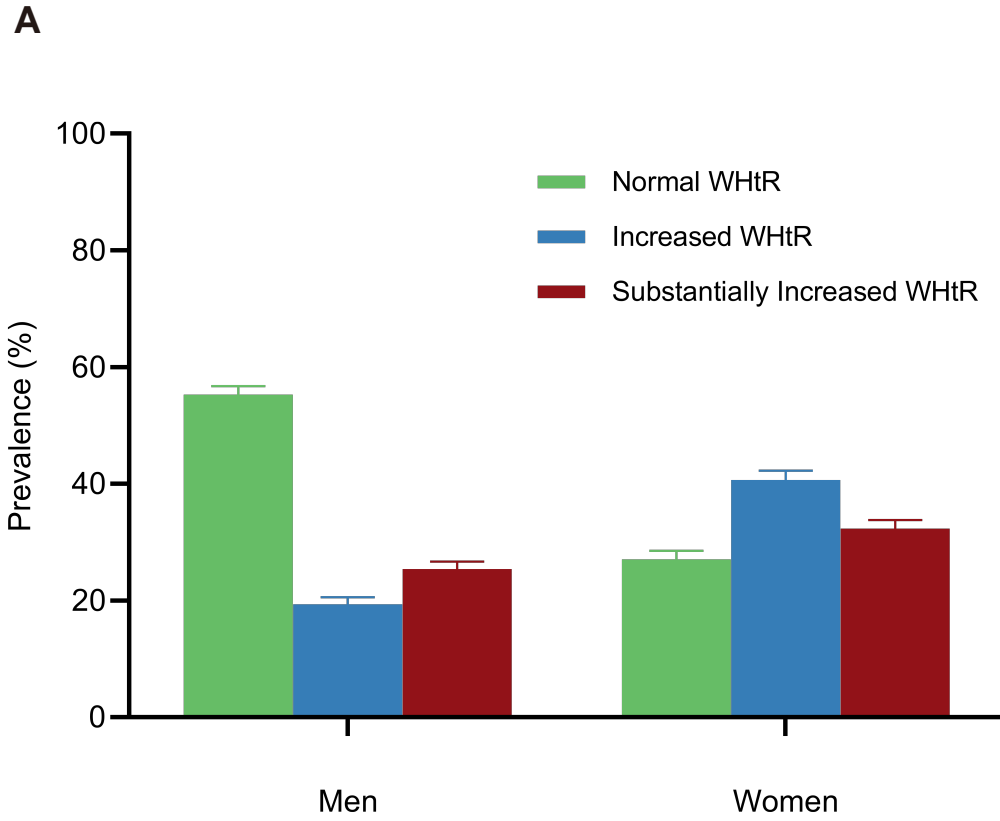
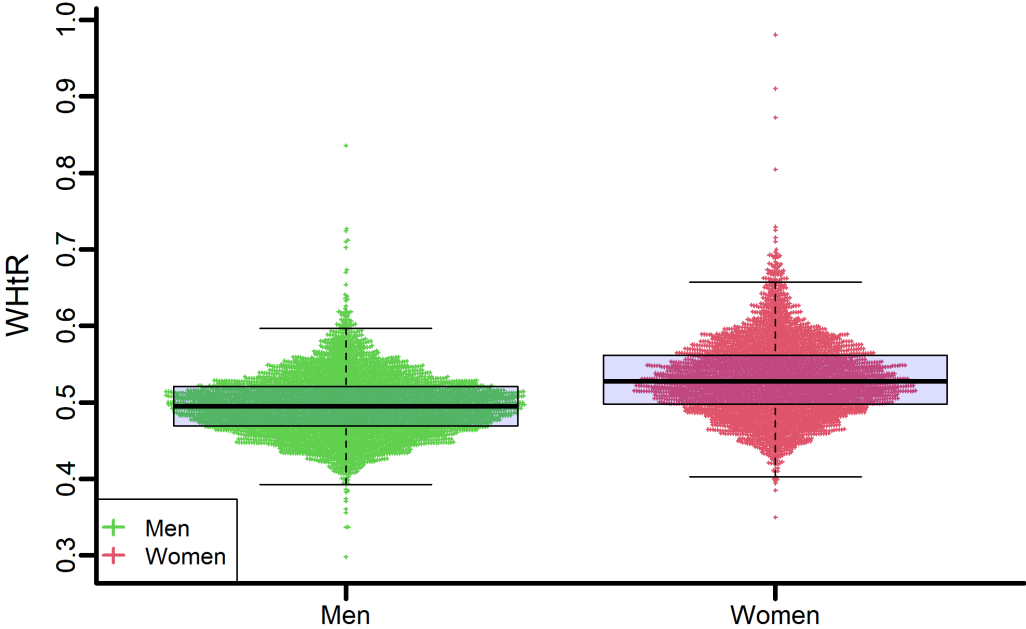


Figure S2

A



B

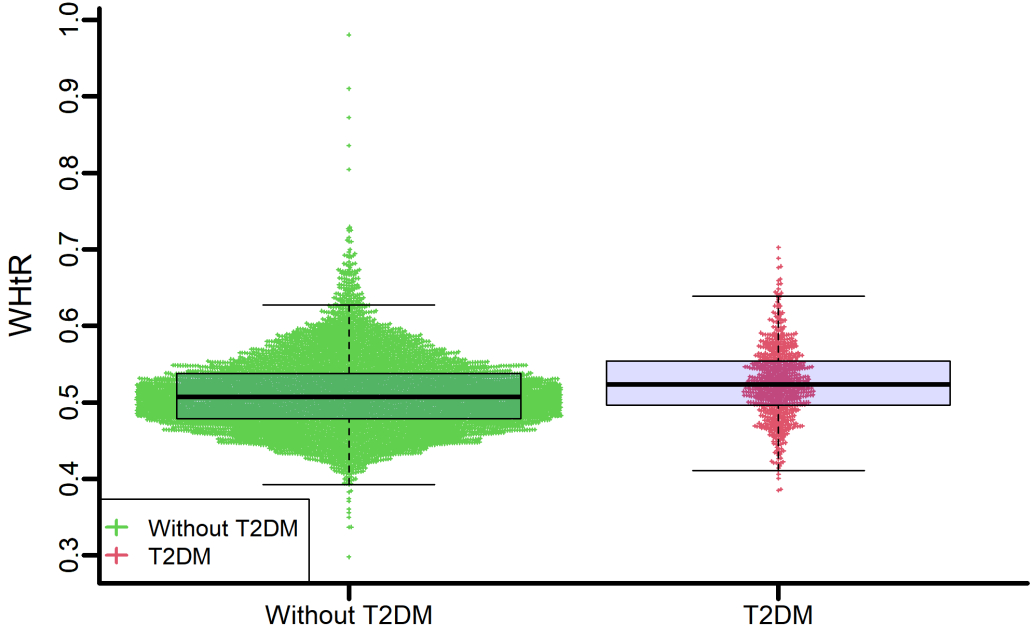
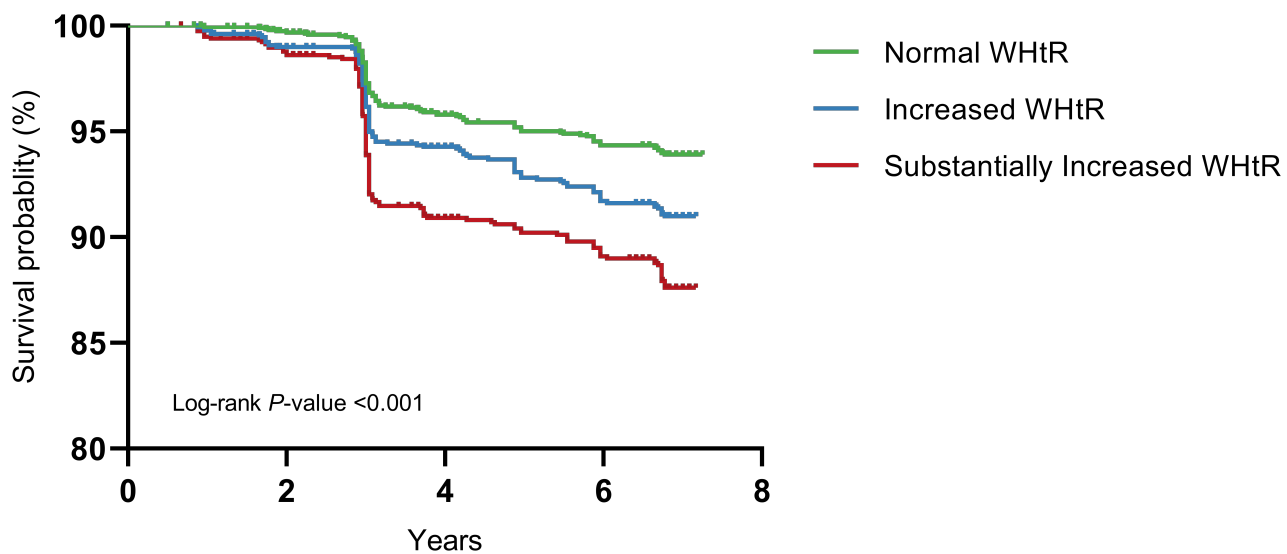


Figure S3



No at risk	Normal WHtR	1888	1888	1859	1684
	Increased WHtR	1305	1305	1274	1158
	Substantially Increased WHtR	1155	1155	1120	956
Cum.censored	Normal WHtR	0	24	127	220
	Increased WHtR	0	18	74	131
	Substantially Increased WHtR	0	21	100	157
Cum.event	Normal WHtR	0	5	77	101
	Increased WHtR	0	13	73	103
	Substantially Increased WHtR	0	14	99	117
Survival probability (%)	Normal WHtR	100	99.7	95.9	94.5
	Increased WHtR	100	99.0	94.3	91.9
	Substantially Increased WHtR	100	98.8	91.3	89.6