

Table 1 Characteristics of sociological demographic characteristics

Characteristics	n	overweight/obese (n = 1750)	Three groups		
			NFG/NGT (n = 1134)	Pre-DM (n = 306)	T2DM (n = 310)
Gender, n (%)					
Male	753	753	443	131	179
Female	995	995	689	175	131
Age					
		40.66 ± 11.29	39.08 ± 11.33	42.15 ± 10.81	44.93 ± 10.26
<18	33	15.58 ± 1.50 (33)	15.65 ± 1.50 (26)	15.80 ± 1.64 (5)	14 ± 0(2)
18-45	1071	34.59 ± 7.49 (1071)	33.68 ± 7.50 (739)	35.92 ± 7.34 (178)*	37.45 ± 6.66 (154)#
46-60	587	50.79 ± 3.57 (587)	50.56 ± 3.48 (339)	51.14 ± 3.77 (112)	51.04 ± 3.60 (136)
>60	57	65.05 ± 3.98 (57)	64.96 ± 4.26 (28)	63.45 ± 2.42 (11)	66.17 ± 4.13 (18)
Smoking status, n (%)					
smoking	233	233 (13.3)	130 (11.5)	41 (13.4)	62 (20.0)
no-smoking	1514	1514 (86.7)	1001 (88.5)	265 (86.6)	248 (80.0)

Weight (kg)	1750	81.18 ± 18.73	80.54 ± 19.24 (1134)	81.90 ± 16.76 (306)	82.85 ± 18.58 (310)
BMI (kg/m ²)	1750	29.98 ± 5.16	29.85 ± 5.34 (1134)	30.24 ± 4.43 (306)	30.23 ± 5.15 (310)
24≤BMI<28	760	26.13 ± 1.11	26.16 ± 1.11 (419)	26.11 ± 1.14 (108)	26.06 ± 1.09 (133)
BMI≥28	990	32.94 ± 5.10	32.96 ± 5.51 (615)	32.49 ± 3.90 (198)	33.36 ± 4.76 (177)
Abdominal circumference (cm)	683	97.93 ± 13.41	96.99 ± 14.10 (407)	99.23 ± 11.85 (138)	99.42 ± 12.60 (138)
SBP (mmHg)	1750	124.70 ± 17.26	122.70 ± 16.65 (1134)	126.7 ± 17.78 (306)*	130 ± 17.62 (310)#^
DBP (mmHg)	1750	82.45 ± 11.61	81.13 ± 11.27 (1134)	83.74 ± 12.23 (306)*	86 ± 11.34 (310)#^
FPG (mmol/L)	1125	4.89 ± 1.51	4.58 ± 0.65 (887)	4.95 ± 1.22 (94)*	6.81 ± 3.15 (144)#^
INS (μU/mL)	1037	10.96 ± 10.48	10.87 ± 11.67 (545)	10.30 ± 5.47 (245)	11.82 ± 11.43 (247)
FCP (pmol/L)	274	567.7 ± 440.2	555 ± 491.3 (171)	489.7 ± 292.2 (46)	668.4 ± 357.2 (57)
HOMA-IR	552	2.33 ± 2.67	2.14 ± 2.60 (361)	1.99 ± 1.14 (81)	3.19 ± 3.45 (110)#^
HbA1c (%)	1177	6.01 ± 1.12	5.56 ± 0.55 (701)	5.79 ± 0.72 (208)*	7.25 ± 1.53 (268)#^
TC (mmol/L)	1720	4.99 ± 1.08	4.93 ± 1.06 (1115)	5.03 ± 0.99 (301)	5.17 ± 1.20 (304)^
LDL-C (mmol/L)	1720	2.97 ± 0.85	2.97 ± 0.84 (1115)	3.01 ± 0.82 (301)	2.93 ± 0.91 (304)#^

HDL-C (mmol/L)	1720	1.09 ± 0.26	1.11 ± 0.26 (1115)	1.08 ± 0.26 (301)	1.01 ± 0.24 (304) ^{#^}
TG (mmol/L)	1720	2.03 ± 2.27	1.80 ± 1.94 (1115)	2.01 ± 1.63 (301)	2.87 ± 3.47 (304) ^{#^}
β-HB (mmol/L)	842	0.50 ± 0.74	0.56 ± 0.82 (536)	0.45 ± 0.69 (146)	0.32 ± 0.44 (160) [^]
ALB (g/L)	1646	42.65 ± 3.15	42.58 ± 3.15 (1078)	42.61 ± 3.08 (274)	42.96 ± 3.23 (294)
TBA (μmol/L)	1419	3.22 ± 4.07	3.09 ± 4.29 (898)	3.23 ± 3.52 (266)	3.69 ± 3.76 (255)
TP (g/L)	1646	71.81 ± 5.20	71.65 ± 5.05 (1078)	71.54 ± 5.23 (274)	72.68 ± 5.62 (294) ^{#^}
CHE (U/L)	1650	11037 ± 2052	10778 ± 2035 (1080)	11339 ± 1939 (274) [*]	11699 ± 2035 (296) [^]
TBIL (μmol/L)	1633	13.91 ± 6.78	13.90 ± 6.84 (1068)	13.99 ± 6.77 (273)	13.85 ± 6.58 (292)
DBIL (μmol/L)	1620	5.27 ± 2.13	5.30 ± 2.11 (1060)	5.26 ± 2.22 (271)	5.17 ± 2.15 (289)
IBIL (μmol/L)	1629	8.70 ± 4.81	8.64 ± 4.84 (1066)	8.80 ± 4.66 (271)	8.83 ± 4.84 (292)
AST (U/L)	1634	22.68 ± 13.41	21.66 ± 12.07 (1067)	23.50 ± 15.32 (273)	25.61 ± 15.52 (294) [^]
ALT (U/L)	1626	32.45 ± 28.32	30.82 ± 28.42 (1058)	33.95 ± 30.37 (272)	36.92 ± 25.38 (296) [^]
GGT (U/L)	1648	37.75 ± 36.36	34.09 ± 32.25 (1079)	40.44 ± 39.07 (273) [*]	48.57 ± 44.72 (296) ^{#^}
ALP (U/L)	1650	64.25 ± 19.67	62.71 ± 18.79 (1080)	65.42 ± 20.88 (274)	68.79 ± 20.91 (296) [^]
CRP (mg/L)	12	7.64 ± 5.65	7.47 ± 5.90 (11)	-	9.48 ± 0(1)

ESR (mm/h)	9	31.22 ± 12.03	32.14 ± 13.72 (7)	28.00 ± 1.41 (2)	-
UA (μmol/L)	1653	411 ± 109.1	407.4 ± 111.8 (1079)	418.5 ± 102.1(277)	416.9 ± 105.2 (297)
Urea (mmol/L)	1651	4.21 ± 1.15	4.09 ± 1.12 (1077)	4.24 ± 1.04 (277)	4.58 ± 1.31 (297) ^{#^}
Crea (μmol/L)	1653	65.95 ± 15.62	65.83 ± 14.44 (1078)	65.29 ± 15.17 (278)	66.98 ± 19.66 (297)
Cys-C (mg/L)	1636	0.89 ± 0.18	0.87 ± 0.17 (1064)	0.91 ± 0.18 (277) [*]	0.92 ± 0.22 (295) [#]
IGF-1(ng/mL)	437	187.6 ± 68.94	193.7 ± 72.1 (276)	186.9 ± 64.66 (77)	168.6 ± 58.51 (84)

“*”, “#”, “^” means $P < 0.05$ between NFG group and Pre-DM group, Pre-DM group and T2DM group, NFG group and T2DM group, respectively.

BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; FPG, fasting plasma glucose; INS, insulin; FCP, fasting C-peptide; HOMA-IR, homeostasis model assessment-insulin resistance; HbA1c, hemoglobin A1c; TC, total cholesterol; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; TG, triglyceride; β-HB, beta-hydroxybutyric acid; ALB, albumin; TBA, total bile acid; TP, total protein; CHE, cholinesterase; TBIL, total bilirubin; DBIL-1, direct bilirubin; IBIL-1, indirect bilirubin; AST, aspartate transaminase; ALT, alanine transaminase; GGT, gamma-glutamyl transferase; ALP, alkaline phosphatase; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; UA, uric acid; Urea, urea nitrogen; Crea, creatinine; Cys-C, cystatin-C; IGF-1, insulin-like growth factor-1.