**Supplemental Table 1a. Characteristics of participants according to plasma C20:0 and C22:0**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Characteristics\* | C20:0† |  |  | C22:0† |  |
|  | Q1 | Q2 | Q3 | Q4 | *P*trend |  | Q1 | Q2 | Q3 | Q4 | *P*trend |
| Age | 50(6) | 50(6) | 49(6) | 48 (6) | <0.0001 |  | 49 (6) | 49 (6) | 49(6) | 49(6) | 0.14 |
| Sex |  |  |  |  | <0.0001 |  |  |  |  |  | <0.0001 |
| Male | 189(44%) | 144(33%) | 131(30%) | 122(28%) |  |  | 202(47%) | 138(32%) | 119(27%) | 128(30%) |  |
| Female | 243(56%) | 288(67%) | 302 (70%) | 311(72%) |  |  | 230 (53%) | 294 (68%) | 314 (73%) | 305(70%) |  |
| Education |  |  |  |  | 0.32 |  |  |  |  |  | 0.15 |
| illiteracy | 10(2%) | 9(2%) | 11(3%) | 13 (3%) |  |  | 11(3%) | 10(2%) | 9(2%) | 13(3%) |  |
| Primary School | 52(12%) | 54(12% ) | 56 (13%) | 37(9%) |  |  | 50 (12%) | 60(14%) | 46(11%) | 43(10%) |  |
| Middle School | 276(64%) | 269(62% ) | 277(64%) | 78(64%) |  |  | 280(65%) | 275(64%) | 272(63%) | 273(63%) |  |
| High School | 86(20%) | 97(22% ) | 85 (20%) | 98(23%) |  |  | 83(19%) | 84(19%) | 99(23%) | 100(23%) |  |
| College | 8(2%) | 3(1% | 4 (1%) | 7(2%) |  |  | 8(2%) | 3(1%) | 7 (2% ) | 4(1%) |  |
| Current smoking status | 123(28%) | 86(20%) | 84(19%) | 88(20%) | 0.01 |  | 141(33%) | 76(18%) | 74(17%) | 91(21%) | 0.0002 |
| Current alcohol drinking | 133(31%) | 107(25%) | 106(24%) | 104(24%) | 0.03 |  | 146(34%) | 98(23% ) | 103(24%) | 104(24%) | 0.004 |
| Agricultural work | 190(44%) | 211(49%) | 220(50%) | 234(54%) | 0.003 |  | 207(48%) | 217(50%) | 206(48%) | 226(52%) | 0.3 |
| Physical activity | 52(12%) | 54(12%) | 61(14%) | 55(13%) | 0.67 |  | 53(12%) | 72(17%) | 52(12%) | 46(11%) | 0.17 |
| BMI(kg/m2) | 27.1(3.3) | 26.7(3.8) | 26.0(3.5) | 25.4(3.7) | <0.0001 |  | 26.3(3.6) | 26.5(3.5) | 26.4(3.6) | 25.4(3.7) | <0.0001 |
| WC(cm) | 88.9(9.7) | 87.0(10.2) | 84.9(10.1) | 82.7(10.6) | <0.0001 |  | 88.3(9.6) | 86.6(10.1) | 85.8(10.3) | 82.8(10.8) | <0.0001 |
| Obesity | 169(39%) | 147(34%) | 116(27%) | 95 (22%) | <0.0001 |  | 164 (38%) | 141 (33%) | 133 (31%) | 88 (20%) | <0.0001 |
| Hypertension | 245(57%) | 222(51%) | 202(47%) | 145(33%) | <0.0001 |  | 250 (58%) | 212 ( 49%) | 200 (46%) | 151 (35%) | <0.0001 |
| Diabetes | 57(13%) | 40(9%) | 28(6% ) | 20(5%) | <0.0001 |  | 43(10%) | 44 (10% ) | 34(8%) | 24(6%) | 0.01 |
| TG | 2.27(1.91) | 1.43(0.98) | 1.19(0.98) | 1.04(1.5) | <0.0001 |  | 2.39(2.41) | 1.4 0(0.79) | 1.2(0.84) | 0.94(0.61) | <0.0001 |
| TC | 5.48(1.02) | 5.34(0.90) | 5.17(0.87) | 5.03(0.9 ) | <0.0001 |  | 5.41(1.06) | 5.23(0.92) | 5.26(0.90) | 5.12(0.88) | <0.0001 |
| HDL-c | 1.34(0.31) | 1.44(0.32) | 1.50(0.34) | 1.53(0.35) | <0.0001 |  | 1.35(0.34 ) | 1.42 (0.32) | 1.48(0.32) | 1.54(0.34) | <0.0001 |

\*Continuous variables were expressed as mean (SD) and categorical variables were expressed as frequency (percentage of case).

†VLCSFAs were classified into four group based on the quartiles of VLCSFAs in all subjects: 0.17, 0.20 and 0.22 for C20:0; 0.57, 0.68 and 0.81 for C22:0.

**Supplemental Table 1b. Characteristics of participants according to plasma C24:0 and total VLCSFAs**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Characteristics\* |  |  | C24:0† |  |  |  |  | Total VLCSFAs† |  |
|  | Q1 | Q2 | Q3 | Q4 | *P*trend |  | Q1 | Q2 | Q3 | Q4 | *P*trend |
| Age | 48 (7) | 49 (6) | 50(6) | 50 (6) | <0.0001 |  | 49(6) | 49(6) | 49(6) | 49(6) | 0.24 |
| Sex |  |  |  |  | 0.04 |  |  |  |  |  | 0.005 |
| Male | 140(32%) | 141(33%) | 131(30%) | 174(40%) |  |  | 181(42% ) | 132(31%) | 136(31%) | 138(32%) |  |
| Female | 292(68%) | 291(67%) | 302(70%) | 259(60%) |  |  | 251(58% ) | 300(69%) | 297(69%) | 295(68%) |  |
| Education |  |  |  |  | 0.89 |  |  |  |  |  | 0.75 |
| illiteracy | 9 (2%)  | 12 (3%) | 12 (3%) | 10 (2%)  |  |  | 6 (1%) | 16 (4% )  | 9 (2%)  | 12 (3%) |  |
| Primary School | 44 (10%) | 61 (14%) | 49 (11%) | 45 (11%) |  |  | 47 (11%) | 59 (14%) | 48 (11%) | 45 (10%) |  |
| Middle School | 276(64%) | 273 (63%) | 268(62%) | 282(65%) |  |  | 283 (66%) | 267 (62%) | 271 (63%) | 279 (64%) |  |
| High School | 99 (23%) | 81 (19%) | 97 (22%) | 90 (21%) |  |  | 90 (21%) | 86 (20%) | 98 (23%) | 92 (21% ) |  |
| College | 4 (1%) | 5 (1%) | 7 (2%) | 6 (1%) |  |  | 6 (1%) | 4 (1%) | 7 (2%) | 5 (1%) |  |
| Current smoking status | 100(23%) | 87 (20%) | 81(19% ) | 113(26% ) | 0.47 |  | 116(27% ) | 87 (20%) | 84 (19% ) | 95(22% ) | 0.01 |
| Current alcohol drinking | 112(26%) | 103(24%) | 98(23%) | 137(32% ) | 0.11 |  | 131(30% )  | 98(23%) | 112(26% ) | 110(25% ) | 0.21 |
| Agricultural work | 205(47%) | 207(48%) | 212(49% ) | 232(54% ) | 0.08 |  | 204(47%) | 208(48%) | 208(48%) | 236(55%) | 0.04 |
| Physical activity | 53(12% ) | 67.0(16%) | 59 (14%) | 43 (10%) | 0.28 |  | 53 (12% ) | 60 (14%) | 64 (15%) | 45 (10%) | 0.44 |
| BMI(kg/m2) | 26.4(3.8) | 26.8 (3.8) | 26.2 (3.5)  | 25.8 (3.2) | 0.01 |  | 27.3(3.4) | 26.3(3.8)  | 25.9(3.7) | 25.6(3.3) | <0.0001 |
| WC(cm) | 85.9(11.6) | 87.0(10.5) | 85.7(10.1) | 84.8(9.2 ) | 0.07 |  | 89.2( 9.9 ) | 85.8(10.5) | 84.8(10.7) | 83.7(9.6) | <0.0001 |
| Obesity | 146(34%) | 154 (36%) | 132 (30%) | 94 (22%) | <0.0001 |  | 185 (43%) | 137 (32%) | 116 (27%) | 88 (20%) | <0.0001 |
| Hypertension | 168(39%) | 204 (47%) | 224(52%) | 218 (50%) | 0.0002 |  | 237 (55%) | 193 (45%) | 187 (43%) | 197 (45%) | 0.01 |
| Diabetes | 51 (12%) | 38.0(9%) | 34 (8%) | 22 (5%) | 0.0004 |  | 54 (12%)  | 39 (9%) | 29 (7%) | 23 (5%) | <0.0001 |
| TG | 2.11(2.46) | 1.63 (0.95) | 1.22(0.65)  | 0.97(0.78) | <0.0001 |  | 2.49 ( 2.39) | 1.44(0.83) |  1.10(0.5) | 0.9 (0.75) | <0.0001 |
| TC | 5.23(1.06 ) | 5.30(0.88) | 5.3(0.90)  | 5.19(0.95) | 0.64 |  | 5.35( 1.06 ) | 5.28(0.89) | 5.21 (0.89) | 5.17(0.93) | 0.003 |
| HDL-c | 1.35(0.36) | 1.42(0.32) | 1.50(0.32) | 1.53(0.33) | <0.0001 |  | 1.3 ( 0.31) | 1.44(0.32) | 1.50 (0.31) | 1.56(0.35) | <0.0001 |

\*Continuous variables were expressed as mean (SD) and categorical variables were expressed as frequency (percentage of case).

†VLCSFAs were classified into four group based on the quartiles of VLCSFAs in all subjects included in analysis: 0.40, 0.57 and 0.70 for C24:0; 1.23, 1.43 and 1.65 for total VLCSFAs.

**Supplemental Table 2. Spearman correlation coefficients for plasma fatty acids**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 　 | C20:0 | C22:0 | C24:0 | total VLCSFAs | C16:0 | C18:0 | MUFAs‡ | C18:3n3 | C20:5n3 | C22:6n3 | n3PUFAs§ | C18:2n6 | C20:4n6 | n6PUFAs|| |
| Percentageof totalfatty acids † | 0.20( 0.04 ) | 0.69 ( 0.20 ) | 0.56( 0.21 ) | 1.46 ( 0.34 ) | 20.2 ( 1.68 ) | 8.33 ( 0.86 )  | 18.8 ( 2.96 ) | 0.80 ( 0.30 ) | 0.48 ( 0.25 ) | 1.92 ( 0.59 ) | 3.69 ( 0.80 ) | 35.4 ( 3.66 ) | 8.15 ( 1.85 ) | 46.5( 3.73 ) |
| C20:0 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C22:0 | 0.75\*\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |
| C24:0 | 0.23\*\* | 0.21\*\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |
| total VLCSFAs | 0.69\*\* | 0.79\*\* | 0.72\*\* | 1.00  |  |  |  |  |  |  |  |  |  |  |
| C16:0 | -0.34\*\* | -0.34\*\* | -0.13\*\* | -0.31\*\*  | 1.00 |  |  |  |  |  |  |  |  |  |
| C18:0 | 0.48\*\* | 0.36\*\* | 0.13\*\* | 0.35\*\*  | -0.23\*\* | 1.00  |  |  |  |  |  |  |  |  |
| MUFAs | -0.48\*\*  | -0.49\*\* | -0.22\*\* | -0.47\*\*  | 0.54\*\* | -0.51\*\*  | 1.00  |  |  |  |  |  |  |  |
| C18:3n3 | -0.37\*\* | -0.42\*\* | -0.27\*\* | -0.45\*\*  | 0.03 | -0.25\*\*  | 0.10\*\*  | 1.00  |  |  |  |  |  |  |
| C20:5n3 | 0.12\*\* | 0.26\*\* | -0.50\*\* | -0.11\*\*  | 0.04 | 0.16\*\*  | -0.15\*\*  | 0.05\*  | 1.00  |  |  |  |  |  |
| C22:6n3 | 0.23\*\* | 0.27\*\* | -0.15\*\* | 0.10\*\*  | -0.12\*\*  | 0.19\*\*  | -0.20\*\*  | -0.11\*\* | 0.41\*\*  | 1.00  |  |  |  |  |
| n3PUFAs | 0.05\* | 0.10\*\* | -0.42\*\* | -0.16\*\*  | -0.05\* | 0.10\*\*  | -0.16\*\*  | 0.34\*\* | 0.71\*\*  | 0.76\*\* | 1.00  |  |  |  |
| C18:2n6 | 0.23\*\*  | 0.25\*\*  | 0.12\*\* | 0.22\*\*  | -0.68\*\* | 0.06\*  | -0.62\*\*  | 0.11\*\* | -0.21\*\*  | -0.15\*\* | -0.17\*\* | 1.00  |  |  |
| C20:4n6 | 0.28\*\*  | 0.27\*\*  | 0.27\*\*  | 0.36\*\*  | -0.29\*\*  | 0.31\*\*  | -0.42\*\*  | -0.39\*\* | 0.20\*\*  | 0.29\*\* | 0.13\*\* | -0.13\*\*  | 1.00  |  |
| n6PUFAs | 0.35\*\*  | 0.37\*\*  | 0.24\*\*  | 0.39\*\*  | -0.81\*\*  | 0.22\*\*  | -0.83\*\*  | -0.07\*  | -0.09\*\*  | -0..004 | -0.08\*\*  | 0.85\*\*  | 0.35\*\*  | 1.00  |

†expressed as mean(SD)

‡MUFAs: monounsaturated fatty acids, which includes C14:1n5, C16:1n7, C16:1n9, C18:1n7, C18:1n9, C20:1n9, C22:1n9 and C24:1n9 in this study

§n3PUFAs: n-3 polyunsaturated fatty acids, which includes C18:3n3, C20:3n3, C20:5n3, C22:3n3, C22:5n3 and C22:6n3

|| n6PUFAs: n-6 polyunsaturated fatty acids, which includes C18:2n6, C18:3n6, C20:2n6, C20:3n6, C20:4n6, C22:2n6, C22:4n6 and C22:5n6 in this study

\**P*-value < 0.05; \*\**P*-value < 0.001

**Supplemental Table 3. The associations of VLCSFAs and prevalence of metabolic syndrome at baseline**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Q1  | Q2 | Q3  | Q4 |  *P* trend |
| C20:0 |  |  |  |  |  |
| N MetS/non-MetS | 326/291 | 101/291 | 80/291 | 58/291 |  |
| Model 1 | 1 | 0.30 (0.23, 0.40) | 0.25 (0.18, 0.33) | 0.18 (0.13, 0.25) | <0.001 |
| Model 2 | 1 | 0.43 (0.32, 0.58) | 0.40 (0.29, 0.54) | 0.28 (0.20, 0.40) | <0.001 |
| Model 3 | 1 | 0.39 (0.29, 0.52) | 0.35 (0.26, 0.48) | 0.26 (0.18, 0.37) | <0.001 |
| Model 4 | 1 | 0.45 (0.33, 0.61) | 0.44 (0.32, 0.61) | 0.38 (0.26, 0.54) | <0.001 |
| Model 5 | 1 | 0.41 (0.30, 0.55) | 0.36 (0.26, 0.49) | 0.32 (0.23, 0.46) | <0.001 |
| Model 6 | 1 | 0.37 (0.28, 0.49) | 0.33 (0.24, 0.45) | 0.28 (0.19, 0.39) | <0.001 |
| Model 7 | 1 | 0.30 (0.23, 0.40) | 0.25 (0.18, 0.33) | 0.18 (0.13, 0.25) | <0.001 |
| C22:0 |  |  |  |  |  |
| N MetS/non-MetS | 248/291 | 153/291 | 98/291 | 66/291 |  |
| Model 1 | 1 | 0.58 (0.44, 0.75) | 0.38 (0.28, 0.50) | 0.26 (0.18, 0.35) | <0.001 |
| Model 2 | 1 | 0.88 (0.66, 1.19) | 0.69 (0.50, 0.95) | 0.51 (0.36, 0.73) | <0.001 |
| Model 3 | 1 | 0.72 (0.54, 0.96) | 0.54 (0.39, 0.73) | 0.41 (0.29, 0.58) | <0.001 |
| Model 4 | 1 | 1.00 (0.74, 1.34) | 0.82 (0.59, 1.14) | 0.73 (0.50, 1.05) | 0.06 |
| Model 5 | 1 | 0.71 (0.54, 0.94) | 0.52 (0.38, 0.70) | 0.43 (0.30, 0.60) | <0.001 |
| Model 6 | 1 | 0.73 (0.55, 0.96) | 0.56 (0.41, 0.76) | 0.49 (0.34, 0.69) | <0.001 |
| Model 7 | 1 | 0.58 (0.44, 0.75) | 0.38 (0.28, 0.50) | 0.26 (0.18, 0.36) | <0.001 |
| C24:0 |  |  |  |  |  |
| N MetS/non-MetS | 260/291 | 160/291 | 90/291 | 55/291 |  |
| Model 1 | 1 | 0.55 (0.42, 0.71) | 0.30 (0.22, 0.40) | 0.19 (0.13, 0.26) | <0.001 |
| Model 2 | 1 | 0.59 (0.44, 0.79) | 0.45 (0.32, 0.62) | 0.31 (0.21, 0.45) | <0.001 |
| Model 3 | 1 | 0.50 (0.37, 0.66) | 0.33 (0.24, 0.46) | 0.23 (0.16, 0.33) | <0.001 |
| Model 4 | 1 | 0.59 (0.44, 0.78) | 0.43 (0.31, 0.59) | 0.32 (0.22, 0.47) | <0.001 |
| Model 5 | 1 | 0.56 (0.42, 0.74) | 0.32 (0.24, 0.44) | 0.23 (0.16, 0.32) | <0.001 |
| Model 6 | 1 | 0.56 (0.42, 0.73) | 0.36 (0.27, 0.50) | 0.27 (0.19, 0.38) | <0.001 |
| Model 7 | 1 | 0.51 (0.39, 0.66) | 0.27 (0.20, 0.37) | 0.17 (0.12, 0.24) | <0.001 |
| Total VLCSFAsa |  |  |  |  |  |
| N MetS/non-MetS | 312/291 | 130/291 | 70/291 | 53/291 |  |
| Model 1 | 1 | 0.38 (0.29, 0.50) | 0.21 (0.15, 0.29) | 0.16 (0.11, 0.22) | <0.001 |
| Model 2 | 1 | 0.53 (0.40, 0.71) | 0.35 (0.25, 0.49) | 0.30 (0.21, 0.43) | <0.001 |
| Model 3 | 1 | 0.47 (0.35, 0.63) | 0.29 (0.21, 0.40) | 0.23 (0.16, 0.32) | <0.001 |
| Model 4 | 1 | 0.58 (0.43, 0.77) | 0.40 (0.28, 0.55) | 0.37 (0.25, 0.53) | <0.001 |
| Model 5 | 1 | 0.48 (0.36, 0.64) | 0.29 (0.21, 0.40) | 0.23 (0.16, 0.33) | <0.001 |
| Model 6 | 1 | 0.49 (0.37, 0.65) | 0.30 (0.21, 0.41) | 0.25 (0.17, 0.36) | <0.001 |
| Model 7 | 1 | 0.39 (0.30, 0.51) | 0.21 (0.15, 0.29) | 0.16 (0.11, 0.22) | <0.001 |

Logistic regression was used to estimate the ORs and CIs. VLCSFAs were classified into four group based on the quartiles of VLCSFAs in subjects without MetS: 0.18, 0.20 and 0.23 for C20:0; 0.59, 0.70 and 0.84 for C22:0; 0.46, 0.61 and 0.73 for C24:0; 1.32,1.51 and 1.72 for total VLCSFAs.

Model 1: adjusted for sex, age, agricultural work, education, smoking, alcohol drinking, physical activity

Model 2: additionally adjusted for n-6 PUFAs

Model 3: additionally adjusted for C16:0

Model 4: additionally adjusted for MUFAs

Model 5: additionally adjusted for C18:0

Model 6: additionally adjusted for C18:3n3

Model 7: additionally adjusted for C22:6n3

**Supplemental Table 4. Levels of VLCSFAs according to the scores of metabolic syndrome at baseline\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MetS scores  | ≤2 | 3 | 4 | 5 | *P*trend |
| C20:0 | 0.21 (0.04) | 0.18 (0.04) | 0.18 (0.04) | 0.17 (0.04) | <0.0001 |
| C22:0 | 0.73 (0.20) | 0.59 (0.17) | 0.69 (0.22) | 0.62 (0.18) | <0.0001 |
| C24:0 | 0.60 (0.21) | 0.58 (0.17) | 0.36 (0.13) | 0.36 (0.14) | <0.0001 |
| Total VLCSFAs | 1.53 (0.32) | 1.35 (0.34) | 1.23 (0.29) | 1.15 (0.24) | <0.0001 |

\*Levels of VLCSFAs were expressed as mean (SD)

**Supplemental Table 5.** **The associations of VLCSFAs and metabolic syndrome components**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Quartile 1**  | **Quartile 2** | **Quartile 3**  | **Quartile 4** | ***P*trend** |
| C20:0 |  |  |  |  |  |
| N high vs low | 432/ 186 | 229/ 163 | 204/ 167 | 141/ 208 |  |
| WC high vs low | 1 | 0.89 (0.66, 1.20) | 0.78 (0.57, 1.05) | 0.47 (0.34, 0.64) | <0.0001 |
| N high vs low | 312/ 306 | 56/ 336 | 38/ 333 | 26/ 323 |  |
| TG high vs low | 1 | 0.19 (0.13, 0.26) | 0.11 (0.07, 0.17) | 0.11 (0.07, 0.17) | <0.0001 |
| N low vs high | 196/ 422 | 76/ 316 | 81/ 290 | 52/ 297 |  |
| HDL low vs high | 1 | 0.93 (0.66, 1.32) | 1.22 (0.86, 1.74) | 0.87 (0.58, 1.29) | 0.83 |
| N high vs low | 447/ 170 | 251/ 141 | 224/ 147 | 159/ 190 |  |
| BP high vs low | 1 | 0.80 (0.60, 1.09) | 0.76 (0.56, 1.03) | 0.44 (0.32, 0.60) | <0.0001 |
| N high vs low | 203/ 415 | 95/ 297 | 90/ 281 | 79/ 270 |  |
| FBG high vs low | 1 | 0.81 (0.60, 1.10) | 0.87 (0.63, 1.19) | 0.89 (0.63, 1.24) | 0.47 |
| C22:0 |  |  |  |  |  |
| N high vs low | 355/ 185 | 292/ 152 | 222/ 167 | 137/ 220 |  |
| WC high vs low | 1 | 1.15 (0.85, 1.55) | 0.89 (0.65, 1.21) | 0.46 (0.33, 0.63) | <0.0001 |
| N high vs low | 260/ 280 | 95/ 349 | 49/ 340 | 28/ 329 |  |
| TG high vs low | 1 | 0.24 (0.17, 0.32) | 0.14 (0.10, 0.21) | 0.10 (0.06, 0.16) | <0.0001 |
| N low vs high | 154/ 386 | 120/ 324 | 80/ 309 | 51/ 306 |  |
| HDL low vs high | 1 | 1.32 (0.95, 1.83) | 1.08 (0.75, 1.55) | 0.86 (0.57, 1.27) | 0.41 |
| N high vs low | 379/ 386 | 309/ 135 | 234/ 155 | 159/ 198 |  |
| BP high vs low | 1 | 1.07 (0.80, 1.44) | 0.79 (0.58, 1.07) | 0.43 (0.31, 0.58) | <0.0001 |
| N high vs low | 139/ 401 | 139/ 305 | 103/ 286 | 86/ 271 |  |
| FBG high vs low | 1 | 1.61 (1.19, 2.17) | 1.46 (1.05, 2.01) | 1.45 (1.03, 2.05) | 0.05 |
| C24:0 |  |  |  |  |  |
| N high vs low | 332/ 219 | 285/ 167 | 229/ 152 | 160/ 186 |  |
| WC high vs low | 1 | 1.21 (0.90, 1.62) | 1.30 (0.95, 1.78) | 0.82 (0.60, 1.13) | 0.46 |
| N high vs low | 235/ 316 | 136/ 316 | 44/ 337 | 17/ 329 |  |
| TG high vs low | 1 | 0.57 (0.42, 0.77) | 0.17 (0.11, 0.24) | 0.07 (0.04, 0.12) | <0.0001 |
| N low vs high | 190/ 361 | 106/ 346 | 65/ 316 | 44/ 302 |  |
| HDL low vs high | 1 | 0.64 (0.47, 0.88) | 0.58 (0.40, 0.83) | 0.55 (0.37, 0.82) | 0.0004 |
| N high vs low | 273/ 278 | 290/ 161 | 273/ 108 | 245/ 101 |  |
| BP high vs low | 1 | 1.98 (1.50, 2.62) | 3.21 (2.36, 4.40) | 3.28 (2.38, 4.55) | <0.0001 |
| N high vs low | 142/ 409 | 120/ 332 | 93/ 288 | 112/ 234 |  |
| FBG high vs low | 1 | 1.09 (0.81, 1.48) | 1.09 (0.78, 1.53) | 1.80 (1.29, 2.53) | 0.002 |
| Total VLCSFAs |  |  |  |  |  |
| N high vs low | 421/ 183 | 238/ 183 | 189/ 172 | 158/ 186 |  |
| WC high vs low | 1 | 0.71 (0.53, 0.96) | 0.75 (0.55, 1.02) | 0.55 (0.40, 0.76) | 0.0004 |
| N high vs low | 308/ 296 | 86/ 335 | 26/ 335 | 12/ 332 |  |
| TG high vs low | 1 | 0.28 (0.20, 0.38) | 0.09 (0.06, 0.14) | 0.04 (0.02, 0.07) | <0.0001 |
| N low vs high | 214/ 390 | 87/ 334 | 53/ 308 | 51/ 293 |  |
| HDL low vs high | 1 | 0.70 (0.50, 0.96) | 0.60 (0.41, 0.88) | 0.70 (0.47, 1.03) | 0.02 |
| N high vs low | 386/ 217 | 266/ 155 | 214/ 147 | 215/ 129 |  |
| BP high vs low | 1 | 1.20 (0.90, 1.60) | 1.11 (0.82, 1.52) | 1.28 (0.93, 1.76) | 0.17 |
| N high vs low | 172/ 432 | 120/ 301 | 77/ 284 | 98/ 246 |  |
| FBG high vs low | 1 | 1.29 (0.95, 1.74) | 0.96(0.68, 1.35) | 1.47 (1.05, 2.07) | 0.07 |

Logistic regression was used to estimate the ORs and CIs. All the ORs was adjusted for sex, age, and agricultural work. The five components were adjusted in the models, except for itself. The five components were classified into high/low group according to the cut-off in metabolic syndrome definition.

BP: blood pressure, FBG: fast blood glucose, HDL: high density lipoprotein, TG: triglyceride, WC: waist circumference