**Additional file 1. Men and women participants’ general characteristics**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Depression(men)** | | | | | | |
|  |  | **Total** | | **Yes** | | **No** | |  |
|  |  | **N** | **(%)** | **N** | **(%)** | **N** | **(%)** | **p-value** |
| **Sitting time(hours)** | |  |  |  |  |  |  |  |
|  | <5 | 432 | (25.96) | 25 | (5.79) | 407 | (94.21) | 0.1137 |
|  | 5-7 | 454 | (27.28) | 23 | (5.07) | 431 | (94.93) |  |
|  | 8-10 | 445 | (26.74) | 34 | (7.64) | 411 | (92.36) |  |
|  | >10 | 333 | (20.01) | 30 | (9.01) | 303 | (90.99) |  |
| **Age(year)** | |  |  |  |  |  |  |  |
|  | 20-29 | 164 | (9.86) | 14 | (8.54) | 150 | (91.46) | 0.3433 |
|  | 30-39 | 290 | (17.43) | 25 | (8.62) | 265 | (91.38) |  |
|  | 40-49 | 278 | (16.71) | 17 | (6.12) | 261 | (93.88) |  |
|  | 50-59 | 308 | (18.51) | 18 | (5.84) | 290 | (94.16) |  |
|  | 60-69 | 322 | (19.35) | 15 | (4.66) | 307 | (95.34) |  |
|  | 70+ | 302 | (18.15) | 23 | (7.62) | 279 | (92.38) |  |
| **Household income level** | |  |  |  |  |  |  |  |
|  | Low | 280 | (16.83) | 42 | (15.00) | 238 | (85.00) | <.0001 |
|  | Lower middle | 396 | (23.80) | 26 | (6.57) | 370 | (93.43) |  |
|  | Upper middle | 512 | (30.77) | 22 | (4.30) | 490 | (95.70) |  |
|  | High | 476 | (28.61) | 22 | (4.62) | 454 | (95.38) |  |
| **Educational levels** | |  |  |  |  |  |  |  |
|  | Middle school or below | 495 | (29.75) | 42 | (8.48) | 453 | (91.52) | 0.0801 |
|  | High school | 561 | (33.71) | 39 | (6.95) | 522 | (93.05) |  |
|  | Above college | 608 | (36.54) | 31 | (5.10) | 577 | (94.90) |  |
| **Occupation** | |  |  |  |  |  |  |  |
|  | White collar | 463 | (27.82) | 17 | (3.67) | 446 | (96.33) | 0.0003 |
|  | Pink collar | 155 | (9.31) | 16 | (10.32) | 139 | (89.68) |  |
|  | Blue collar | 586 | (35.22) | 33 | (5.63) | 553 | (94.37) |  |
|  | Unemployed, housewife or students | 460 | (27.64) | 46 | (10.00) | 414 | (90.00) |  |
| **Marital status** | |  |  |  |  |  |  |  |
|  | Single | 274 | (16.47) | 28 | (10.22) | 246 | (89.78) | 0.0016 |
|  | Married | 1292 | (77.64) | 72 | (5.57) | 1220 | (94.43) |  |
|  | Separated | 98 | (5.89) | 12 | (12.24) | 86 | (87.76) |  |
| **Practice of aerobic exercise per week** | |  |  |  |  |  |  |  |
|  | No | 715 | (42.97) | 52 | (7.27) | 663 | (92.73) | 0.4437 |
|  | Yes | 949 | (57.03) | 60 | (6.32) | 889 | (93.68) |  |
| **Obesity (BMI, kg/m2)** | |  |  |  |  |  |  |  |
|  | Low weight (< 18.5) | 45 | (2.70) | 9 | (20.00) | 36 | (80.00) | 0.0011 |
|  | Normal (18.5- 24.9) | 1004 | (60.34) | 60 | (5.98) | 944 | (94.02) |  |
|  | High weight ( ≥ 25.0) | 615 | (36.96) | 43 | (6.99) | 572 | (93.01) |  |
| **Current Smoking status** | |  |  |  |  |  |  |  |
|  | No | 1025 | (61.60) | 52 | (5.07) | 973 | (94.93) | 0.0006 |
|  | Yes | 639 | (38.40) | 60 | (9.39) | 579 | (90.61) |  |
| **Alcohol use** | |  |  |  |  |  |  |  |
|  | No | 483 | (29.03) | 31 | (6.42) | 452 | (93.58) | 0.7449 |
|  | Yes | 1181 | (70.97) | 81 | (6.86) | 1100 | (93.14) |  |
| **Number of chronic diseases\*** | |  |  |  |  |  |  |  |
|  | 0 | 862 | (51.80) | 53 | (6.15) | 809 | (93.85) | 0.2327 |
|  | 1 | 539 | (32.39) | 35 | (6.49) | 504 | (93.51) |  |
|  | ≥ 2 | 263 | (15.81) | 24 | (9.13) | 239 | (90.87) |  |
| **Total** |  | 1664 | (100.00) | 112 | (6.73) | 1552 | (93.27) |  |

\* Number of chronic diseases: Hypertension, dyslipidemia, stroke, myocardial infarction, angina, arthritis, rheumatoid arthritis, asthma, thyroid gland disorder, chronic renal failure, hepatitis B.

**Additional file 1. Men and women participants’ general characteristics (continued)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Depression(women)** | | | | | | |
|  |  | **Total** | | **Yes** | | **No** | |  |
|  |  | **N** | **(%)** | **N** | **(%)** | **N** | **(%)** | **p-value** |
| **Sitting time(hours)** | |  |  |  |  |  |  |  |
|  | <5 | 627 | (25.27) | 61 | (9.73) | 566 | (90.27) | 0.0067 |
|  | 5-7 | 741 | (29.87) | 84 | (11.34) | 657 | (88.66) |  |
|  | 8-10 | 707 | (28.50) | 102 | (14.43) | 605 | (85.57) |  |
|  | >10 | 406 | (16.36) | 65 | (16.01) | 341 | (83.99) |  |
| **Age(year)** | |  |  |  |  |  |  |  |
|  | 20-29 | 258 | (10.40) | 39 | (15.12) | 219 | (84.88) | 0.0002 |
|  | 30-39 | 463 | (18.66) | 44 | (9.50) | 419 | (90.50) |  |
|  | 40-49 | 450 | (18.14) | 39 | (8.67) | 411 | (91.33) |  |
|  | 50-59 | 498 | (20.07) | 59 | (11.85) | 439 | (88.15) |  |
|  | 60-69 | 436 | (17.57) | 63 | (14.45) | 373 | (85.55) |  |
|  | 70+ | 376 | (15.16) | 68 | (18.09) | 308 | (81.91) |  |
| **Household income level** | |  |  |  |  |  |  |  |
|  | Low | 479 | (19.31) | 115 | (24.01) | 364 | (75.99) | <.0001 |
|  | Lower middle | 634 | (25.55) | 79 | (12.46) | 555 | (87.54) |  |
|  | Upper middle | 702 | (28.30) | 66 | (9.40) | 636 | (90.60) |  |
|  | High | 666 | (26.84) | 52 | (7.81) | 614 | (92.19) |  |
| **Educational levels** | |  |  |  |  |  |  |  |
|  | Middle school or below | 944 | (38.05) | 154 | (16.31) | 790 | (83.69) | <.0001 |
|  | High school | 771 | (31.08) | 89 | (11.54) | 682 | (88.46) |  |
|  | Above college | 766 | (30.87) | 69 | (9.01) | 697 | (90.99) |  |
| **Occupation** | |  |  |  |  |  |  |  |
|  | White collar | 464 | (18.70) | 33 | (7.11) | 431 | (92.89) | <.0001 |
|  | Pink collar | 345 | (13.91) | 37 | (10.72) | 308 | (89.28) |  |
|  | Blue collar | 403 | (16.24) | 43 | (10.67) | 360 | (89.33) |  |
|  | Unemployed, housewife or students | 1269 | (51.15) | 199 | (15.68) | 1070 | (84.32) |  |
| **Marital status** | |  |  |  |  |  |  |  |
|  | Single | 290 | (11.69) | 38 | (13.10) | 252 | (86.90) | <.0001 |
|  | Married | 1777 | (71.62) | 187 | (10.52) | 1590 | (89.48) |  |
|  | Separated | 414 | (16.69) | 87 | (21.01) | 327 | (78.99) |  |
| **Practice of aerobic exercise per week** | |  |  |  |  |  |  |  |
|  | No | 1253 | (50.50) | 176 | (14.05) | 1077 | (85.95) | 0.0256 |
|  | Yes | 1228 | (49.50) | 136 | (11.07) | 1092 | (88.93) |  |
| **Obesity (BMI, kg/m2)** | |  |  |  |  |  |  |  |
|  | Low weight (< 18.5) | 126 | (5.08) | 24 | (19.05) | 102 | (80.95) | 0.0711 |
|  | Normal (18.5- 24.9) | 1648 | (66.42) | 198 | (12.01) | 1450 | (87.99) |  |
|  | High weight ( ≥ 25.0) | 707 | (28.50) | 90 | (12.73) | 617 | (87.27) |  |
| **Current Smoking status** | |  |  |  |  |  |  |  |
|  | No | 2383 | (96.05) | 288 | (12.09) | 2095 | (87.91) | 0.0003 |
|  | Yes | 98 | (3.95) | 24 | (24.49) | 74 | (75.51) |  |
| **Alcohol use** | |  |  |  |  |  |  |  |
|  | No | 1503 | (60.58) | 195 | (12.97) | 1308 | (87.03) | 0.458 |
|  | Yes | 978 | (39.42) | 117 | (11.96) | 861 | (88.04) |  |
| **Number of chronic diseases\*** | |  |  |  |  |  |  |  |
|  | 0 | 1377 | (55.50) | 143 | (10.38) | 1234 | (89.62) | <.0001 |
|  | 1 | 594 | (23.94) | 75 | (12.63) | 519 | (87.37) |  |
|  | ≥ 2 | 510 | (20.56) | 94 | (18.43) | 416 | (81.57) |  |
| **Total** |  | 2481 | (100.00) | 312 | (12.58) | 2169 | (87.42) |  |

\* Number of chronic diseases: Hypertension, dyslipidemia, stroke, myocardial infarction, angina, arthritis, rheumatoid arthritis, asthma, thyroid gland disorder, chronic renal failure, hepatitis B.

**Additional file 2. Subgroup analysis of sitting-time and major depressive disorder according to physical activity**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Depression** | | | **Depression(men)** | | | **Depression (women)** | | |
|  |  |  |  | **OR** | **95% CI** | | **OR** | **95% CI** | | **OR** | **95% CI** | |
| **Physical activity (min/week)** | | **Sitting time(hours)** | |  |  |  |  |  |  |  |  |  |
|  | No (0-149) |  | <5 | 1.00 |  |  | 1.00 |  |  | 1.00 |  |  |
|  |  |  | 5-7 | 1.13 | (0.73- | 1.75) | 1.04 | (0.35- | 3.10) | 1.16 | (0.71- | 1.89) |
|  |  |  | 8-10 | 1.78 | (1.17- | 2.70) | 3.04 | (1.15- | 8.01) | 1.56 | (0.97- | 2.51) |
|  |  |  | >10 | 1.57 | (0.98- | 2.50) | 3.43 | (1.26- | 9.35) | 1.23 | (0.71- | 2.14) |
|  |  |  | P for trend | 0.009 |  |  | 0.003 |  |  | 0.209 |  |  |
|  | Yes (≥150) |  | <5 | 1.00 |  |  | 1.00 |  |  | 1.00 |  |  |
|  |  |  | 5-7 | 1.07 | (0.69- | 1.66) | 0.93 | (0.42- | 2.06) | 1.26 | (0.73- | 2.16) |
|  |  |  | 8-10 | 1.35 | (0.86- | 2.11) | 1.03 | (0.44- | 2.40) | 1.64 | (0.94- | 2.85) |
|  |  |  | >10 | 1.94 | (1.19- | 3.15) | 1.68 | (0.71- | 4.00) | 2.27 | (1.23- | 4.21) |
|  |  |  | P for trend | 0.006 |  |  | 0.286 |  |  | 0.006 |  |  |

Adjusted for age, household income level, educational level, marital status, occupation, obesity, current smoking status, alcohol use and number of chronic diseases.