**Supplementary Material**

**Supplementary Table 1.** Descriptive statistics for sample at baseline, by country, comparing those with and without COPD

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site |   | Sex (female) | Age | Education |  |  |  |  | Smoking status |  | Physical Activity |  | Hypertension (yes) | T2DM (yes) | Stroke (yes) | Hazardous Alcohol (yes) | Depression (yes) |
|   |   |  |  | None | Some, did not complete primary | Completed primary | Completed secondary | Tertiary | Ex | Current | Fairly often | Very often |  |  |  |  |  |
| Cuba | All | 1905 (64.99) | 75.06 (7.04) | 75 (2.56) | 654 (22.32) | 978 (33.38) | 726 (24.78) | 497 (16.96) | 757 (25.84) | 562 (19.18) | 1253 (42.85) | 721 (24.66) | 2164 (73.93) | 543 (18.56) | 228 (7.78) | 104 (3.57) | 144 (4.91) |
|   | COPD Yes | 50 [65] | 75.06 | 4 | 33 | 36 | 30 | 12 | 32 | 47 | 52 | 21 | 82 [33] | 13 [102] | 12 [102] | 8 [107] | 9 [106] |
|   | COPD No | 1855 [961] | 75.06 | 71 | 621 | 942 | 696 | 485 | 725 | 515 | 1201 | 700 | 2082 [730] | 530 [2281] | 216 [2600] | 96 [2706] | 135 [2681] |
|   | Coefficient | χ2=24.35, p<0.01 | t<0.01, p=0.50 | χ2=5.82, p=0.21 |  |  |  |  | χ2=41.74, p<0.01 |  | χ2=2.74, p=0.25 |  | χ2=0.43, p=0.51 | χ2=4.17, p=0.04 | χ2=1.25, p=0.26 | χ2=4.01, p=0.05 | χ2=2.17, p=0.14 |
| DR | All | 1325 (66.02) | 75.25 (7.51) | 392 (19.69) | 1021 (51.28) | 370 (18.58) | 135 (6.78) | 73 (3.67) | 711 (35.41) | 249 (12.40) | 552 (27.56) | 711 (35.50) | 1536 (76.88) | 280 (13.96) | 175 (8.73) | 234 (11.73) | 278 (13.84) |
|   | COPD Yes | 82 [55] | 75.23 | 33 | 67 | 20 | 9 | 5 | 46 | 29 | 22 | 43 | 97 [39] | 20 [117] | 14 [123] | 18 [115] | 37 [100] |
|   | COPD No | 1243 [637] | 75.64 | 359 | 954 | 350 | 126 | 68 | 665 | 220 | 530 | 668 | 1439 [423] | 260 [1609] | 161 [1706] | 216 [1646] | 241 [1630] |
|   | Coefficient | χ2=2.49, p=0.11 | t=-0.62 p= 0.26 | χ2=2.86, p=0.58 |  |  |  |  | χ2=10.61, p<0.01 |  | χ2=17.46, p<0.01 |  | χ2=2.53, p=0.11 | χ2=0.05, p=0.82 | χ2=0.41, p=0.52 | χ2=0.45, p=0.50 | χ2=21.36, p<0.01 |
| Peru | All | 1177 (61.17) | 74.78 (7.35) | 121 (6.33) | 231 (12.08) | 725 (37.92) | 515 (26.94) | 320 (16.74) | 256 (13.33) | 68 (3.54) | 767 (40.03) | 565 (29.49) | 958 (49.90) | 173 (9.02) | 132 (6.88) | 8 (0.43) | 102 (5.30) |
|   | COPD Yes | 60 [32] | 74.76 | 6 | 6 | 35 | 31 |  | 20 | 6 | 36 | 28 | 52 [40] | 7 [85] | 10 [82] | 0 [89] | 7 [85] |
|   | COPD No | 1117 [715] | 75.25 | 115 | 225 | 690 | 484 |  | 236 | 64 | 731 | 537 | 906 [922] | 166 [1660] | 122 [1705] | 8 [1783] | 95 [1737] |
|   | Coefficient | χ2=0.66, p=0.41 | t=-0.63, p=0.26 | χ2=4.25, p=0.37 |  |  |  |  | χ2=9.46, p<0.01 |  | χ2=0.08, p=0.96 |  | χ2=1.70, p=0.19 | χ2=0.23, p=0.63 | χ2=2.4, p=0.12 | χ2=0.40, p=0.52 | χ2=1.02, p=0.311 |
| Venezuela | All | 1206 (63.34) | 72.40 (6.82) | 153 (8.07) | 440 (23.19) | 951 (50.13) | 264 (13.92) | 89 (4.69) | 617 (32.92) | 211 (11.26) | 877 (46.67) | 341 (18.15) | 1390 (79.79) | 308 (16.23) | 132 (6.97) | 17 (1.48) | 95 (4.99) |
|   | COPD Yes | 76 [53] | 72.18 | 17 | 30 | 60 | 14 | 8 | 50 | 25 | 48 | 10 | 94 [23] | 25 [104] | 18 [111] | 0 [65] | 11 [118] |
|   | COPD No | 1130 [1130] | 75.41 | 136 | 410 | 891 | 250 | 81 | 567 | 186 | 829 | 331 | 1296 [329] | 283 [1486] | 114 [1650] | 17 [1067] | 84 [1691] |
|   | Coefficient | χ2=1.17, p=0.28 | t=-5.22, p<0.01 | χ2=6.45, p=0.17 |  |  |  |  | χ2=17.13, p<0.01 |  | χ2=23.44, p<0.01 |  | χ2=0.02, p=0.88 | χ2=1.01, p=0.32 | χ2=10.40, p<0.01 | χ2=1.03, p=0.31 | χ2=3.65, p=0.06 |
| Mexico  | All | 1268 (63.31) | 74.29 (6.66) | 554 (27.69) | 864 (43.18) | 351 (17.54) | 124 (6.20) | 108 (5.40) | 446 (22.27) | 180 (8.99) | 859 (43.21) | 432 (21.73) | 1259 (62.92) | 435 (21.73) | 141 (7.04) | 20 (1.01) | 92 (4.59) |
|   | COPD Yes | 87 [52] | 74.26 | 42 | 62 | 21 | 8 | 6 | 38 | 6 | 56 | 24 | 87 [52] | 35 [104] | 10 [129] | 4 [134] | 8 [131] |
|   | COPD No | 1181 [683] | 74.76 | 512 | 802 | 330 | 116 | 102 | 408 | 174 | 803 | 408 | 1172 [690] | 400 [1463] | 131 [1733] | 16 [1832] | 84 [1780] |
|   | Coefficient | χ2=0.03, p=0.86 | t= -0.86, p=0.19 | χ2=1.29, p=0.86 |  |  |  |  | χ2=5.35, p=0.07 |  | χ2=3.99, p=0.14 |  | χ2=0.01, p=0.93 | χ2=1.05, p=0.31 | χ2<0.01, p=0.94 | χ2=5.32, p=0.02 | χ2=0.46, p=0.50 |
| China  | All | 1217 (56.29) | 73.21 (6.13) | 811 (37.51) | 267 (12.35) | 562 (25.99) | 380 (17.58) | 142 (6.57) | 123 (5.69) | 498 (23.03) | 727 (33.67) | 337 (15.61) | 1304 (60.45) | 204 (9.44) | 127 (5.87) | 59 (2.73) | 10 (0.46) |
|   | COPD Yes | 21 [31] | 73.17 | 16 | 12 | 13 | 10 | 1 | 11 | 15 | 5 | 7 | 36 [16] | 9 [43] | 8 [44] | 1 [51] | 1 [51] |
|   | COPD No | 1196 [914] | 74.82 | 795 | 255 | 549 | 370 | 141 | 112 | 483 | 722 | 330 | 1268 [837] | 195 [1914] | 119 [1991] | 58 [2052] | 9 [2101] |
|   | Coefficient | χ2=5.48, p=0.02 | t=-1.92, p=0.02 | χ2=7.46, p=0.11 |  |  |  |  | χ2=26.56, p<0.01 |  | χ2=16.5, p<0.01 |  | χ2=1.72, p=0.19 | χ2=3.86, p=0.05 | χ2=8.72, p<0.01 | χ2=0.13, p=0.72 | χ2=2.47, p=0.12 |
| India | All | 1115 (56.09) | 71.96 (5.98) | 1,088 (54.40) | 429 (21.45) | 328 (16.40) | 112 (5.60) | 43 (2.15) | 128 (6.42) | 669 (33.55) | 1286 (64.49) | 402 (20.16) | 1130 (57.22) | 186 (9.30) | 31 (1.55) | 5 (0.27) | 165 (8.25) |
|   | COPD Yes | 35 [59] | 71.93 | 54 | 28 | 9 | 3 | 0 | 7 | 46 | 63 | 7 | 36 [55] | 7 [87] | 1 [93] | 1 [93] | 16 [78] |
|   | COPD No | 1080 [814] | 72.69 | 1034 | 401 | 319 | 109 | 43 | 121 | 623 | 1223 | 395 | 1094 [790] | 179 [1728] | 30 [1877] | 4 [1778] | 149 [1758] |
|   | Coefficient | χ2=14.24, p<0.01 | t=-1.21, p=0.11 | χ2=9.31, p=0.05 |  |  |  |  | χ2=11.55, p<0.01 |  | χ2=14.68, p<0.01 |  | χ2=12.15, p<0.01 | χ2=0.39, p=0.53 | χ2=0.15, p=0.70 | χ2=2.37, p=0.12 | χ2=10.04, p<0.01 |
| Puerto Rico | All | 1347 (67.28) | 76.35 (7.41) | 72 (3.60) | 389 (19.43) | 415 (20.73) | 713 (35.61) | 410 (20.48) | 444 (22.18) | 104 (5.19) | 936 (46.80) | 342 (17.10) | 1501 (80.05) | 642 (32.07) | 168 (8.40) | 28 (1.40) | 46 (2.30) |
|   | COPD Yes | 42 [15] | 76.36 | 6 | 10 | 19 | 12 | 0 | 15 | 4 | 14 | 2 | 53 [2] | 22 [35] | 10 [47] | 1 [56] | 4 [53] |
|   | COPD No | 1305 [640] | 75.93 | 66 | 405 | 694 | 398 | 3 | 429 | 100 | 922 | 340 | 1448 [372] | 620 [1325] | 158 [1786] | 27 [1915] | 42 [1903] |
|   | Coefficient | χ2=1.09, p=0.30 | t=0.43, p=0.67 | χ2=8.41, p=0.14 |  |  |  |  | χ2=1.11, p=0.57 |  | χ2=33.40, p<0.01 |  | χ2=9.44, p<0.01 | χ2=1.15, p=0.28 | χ2=6.38, p=0.01 | χ2=0.05, p=0.82 | χ2=5.822, p=0.02 |

T2DM, type 2 diabetes mellitus. Values in square brackets in gender column are the counts for men; for the hypertension column are for non-hypertension; in the diabetes column non-diabetes for diabetics; in the stroke column for non-stroke; in the hazardous alcohol column for non-hazardous consumption; for depression non-case. Values in brackets () are %.

**Supplementary Table 2.** Associations of COPD with incident 10/66 dementia (competing risk proportional hazards regression), fully-controlled model coefficients: full versus truncated (65-69) age range

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Unadjusted HR |  | SHR |  |  |  | HR |  |  |
| Site |  |  | 95%L | 95%U |  |  | 95%L | 95%U |
| Cuba |  | 1.86 | 1.07 | 3.23\* |  | 5.86 | 1.71 | 20.1\* |
| Dominican Republic |  | 0.80 | 0.41 | 1.56 |  | 0.74 | 0.1 | 5.56 |
| Peru |  | 0.30 | 0.04 | 2.22 |  | <0.01 | <0.01 | 0.56\* |
| Venezuela |  | 1.22 | 0.66 | 2.25 |  | 2.13 | 0.65 | 6.96 |
| Mexico  |  | 0.75 | 0.35 | 1.60 |  | 1.19 | 0.16 | 8.92 |
| China  |  | 1.21 | 0.52 | 2.81 |  | <0.01 | <0.01 | 0.27\* |
| Puerto Rico |  | 0.40 | 0.09 | 1.64 |  | 5.34 | 1.57 | 18.16\* |
| All Pooled  |  | 0.86 | 0.56 | 1.15 |  | - | - | - |
| Higgins (I2) |  | 14 |  |  |  | - | - | - |
| +Demographic adjusted |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 2.16 | 1.25 | 3.74\* |  | 5.34 | 1.57 | 18.16\* |
| Dominican Republic |  | 0.83 | 0.42 | 1.64 |  | 0.72 | 0.09 | 5.8 |
| Peru |  | 0.37 | 0.05 | 2.78 |  | - | - | - |
| Venezuela |  | 0.83 | 0.42 | 1.65 |  | 2.45 | 0.75 | 7.98 |
| Mexico  |  | 0.70 | 0.33 | 1.54 |  | 1.63 | 0.21 | 12.7 |
| China |  | 1.12 | 0.48 | 2.60 |  | <0.01 | <0.01 | 0.17\* |
| Puerto Rico |  | 0.39 | 0.10 | 1.60 |  | <0.01 | <0.01 | 0.21\* |
| All Pooled  |  | 0.81 | 0.52 | 1.1 |  | - | - | - |
| Higgins (I2) |  | 8.6 |  |  |  | - | - | - |
| †Demographic and health adjusted |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 2.13 | 1.23 | 3.72\* |  | 4.63 | 1.27 | 16.8\* |
| Dominican Republic |  | 0.81 | 0.41 | 1.60 |  | 0.73 | 0.09 | 5.97 |
| Peru |  | 0.40 | 0.05 | 2.99 |  | 0.08 | 0.01 | 0.48 |
| Venezuela |  | 0.88 | 0.43 | 1.79 |  | 2.55 | 0.78 | 8.41 |
| Mexico  |  | 0.67 | 0.30 | 1.49 |  | 2.04 | 0.22 | 18.9 |
| China  |  | 1.15 | 0.50 | 2.62 |  | <0.01 | <0.01 | <0.01\* |
| Puerto Rico |  | 0.34 | 0.08 | 1.37 |  | <0.01 | <0.01 | <0.01\* |
| All Pooled  |  | 0.77 | 0.49 | 1.06 |  | - | - | - |
| Higgins (I2) |  | 17.5 |  |  |  | - | - | - |
| ‡Fully adjusted SHR |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 1.95 | 1.07 | 3.54\* |  | 4.81 | 1.33 | 17.32\* |
| Dominican Republic |  | 0.86 | 0.43 | 1.69 |  | 0.63 | 0.06 | 7.1 |
| Peru |  | 0.40 | 0.05 | 2.94 |  | 0.03 | 0 | 0.36\* |
| Venezuela |  | 1.31 | 0.50 | 3.40 |  | 5.16 | 1.2 | 22.22\* |
| Mexico  |  | 0.58 | 0.24 | 1.37 |  | <0.01 | <0.01 | <0.01\* |
| China  |  | 1.14 | 0.50 | 2.60 |  | <0.01 | <0.01 | <0.01\* |
| Puerto Rico |  | 0.33 | 0.08 | 1.31 |  | <0.01 | <0.01 | <0.01\* |
| All Pooled  |  | 0.74 | 0.43 | 1.04 |  | - | - | - |
| Higgins (I2) |  | 7.24 |  |  |  | - | - | - |

SHR, sub-hazard ratio, +Accounting for the competing risk of dementia-free death, and adjusted for age, sex, education level. †Additionally adjusting for smoking, physical activity, and hypertension. ‡Additionally adjusting for depression and hazardous alcohol consumption. \*indicates significance at α<0.05. Pooled results are omitted for truncated age range due to highly unstable models.

**Supplementary Table 3.** Associations of COPD with incident 10/66 dementia competing risk proportional hazards regression versus cox proportional hazards models

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Unadjusted HR |  | SHR |  |  |  | HR |  |  |
| Site |  |  | 95%L | 95%U |  |  | 95%L | 95%U |
| Cuba |  | 1.86 | 1.07 | 3.23\* |  | 1.91 | 1.11 | 3.3\* |
| Dominican Republic |  | 0.80 | 0.41 | 1.56 |  | 0.89 | 0.45 | 1.74 |
| Peru |  | 0.30 | 0.04 | 2.22 |  | 0.31 | 0.04 | 2.27 |
| Venezuela |  | 1.22 | 0.66 | 2.25 |  | 1.33 | 0.72 | 2.46 |
| Mexico  |  | 0.75 | 0.35 | 1.60 |  | 0.76 | 0.35 | 1.63 |
| China  |  | 1.21 | 0.52 | 2.81 |  | 1.24 | 0.54 | 2.87 |
| Puerto Rico |  | 0.40 | 0.09 | 1.64 |  | 0.44 | 0.11 | 1.79 |
| All Pooled  |  | 0.86 | 0.56 | 1.15 |  | 1.16 | 0.87 | 1.55 |
| Higgins (I2) |  | 14 |  |  |  | 31.1 |  |  |
| +Demographic adjusted |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 2.16 | 1.25 | 3.74\* |  | 2.34 | 1.36 | 4\* |
| Dominican Republic |  | 0.83 | 0.42 | 1.64 |  | 0.93 | 0.47 | 1.84 |
| Peru |  | 0.37 | 0.05 | 2.78 |  | 0.39 | 0.05 | 2.97 |
| Venezuela |  | 0.83 | 0.42 | 1.65 |  | 0.99 | 0.51 | 1.92 |
| Mexico  |  | 0.70 | 0.33 | 1.54 |  | 0.71 | 0.33 | 1.56 |
| China  |  | 1.12 | 0.48 | 2.60 |  | 1.07 | 0.46 | 2.48 |
| Puerto Rico |  | 0.39 | 0.10 | 1.60 |  | 0.41 | 0.1 | 1.69 |
| All Pooled  |  | 0.81 | 0.52 | 1.1 |  | 1.15 | 0.58 | 1.53 |
| Higgins (I2) |  | 8.6 |  |  |  | 49 |  |  |
| †Demographic and health adjusted |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 2.13 | 1.23 | 3.72\* |  | 2.28 | 1.33 | 3.91\* |
| Dominican Republic |  | 0.81 | 0.41 | 1.60 |  | 0.88 | 0.45 | 1.74 |
| Peru |  | 0.40 | 0.05 | 2.99 |  | 0.41 | 0.05 | 3.12 |
| Venezuela |  | 0.88 | 0.43 | 1.79 |  | 0.97 | 0.48 | 1.97 |
| Mexico  |  | 0.67 | 0.30 | 1.49 |  | 0.66 | 0.29 | 1.5 |
| China  |  | 1.15 | 0.50 | 2.62 |  | 1.08 | 0.48 | 2.46 |
| Puerto Rico |  | 0.34 | 0.08 | 1.37 |  | 0.36 | 0.09 | 1.43 |
| All Pooled  |  | 0.77 | 0.49 | 1.06 |  | 1.12 | 0.82 | 1.50 |
| Higgins (I2) |  | 17.5 |  |  |  | 51.5 |  |  |
| ‡Fully adjusted SHR |  | SHR |  |  |  | HR |  |  |
| Cuba |  | 1.95 | 1.07 | 3.54\* |  | 2.12 | 1.19 | 3.77\* |
| Dominican Republic |  | 0.86 | 0.43 | 1.69 |  | 0.93 | 0.47 | 1.82 |
| Peru |  | 0.40 | 0.05 | 2.94 |  | 0.41 | 0.05 | 3.08 |
| Venezuela |  | 1.31 | 0.50 | 3.40 |  | 1.62 | 0.65 | 4.05 |
| Mexico  |  | 0.58 | 0.24 | 1.37 |  | 0.57 | 0.24 | 1.36 |
| China  |  | 1.14 | 0.50 | 2.60 |  | 1.07 | 0.47 | 2.43 |
| Puerto Rico |  | 0.33 | 0.08 | 1.31 |  | 0.34 | 0.09 | 1.36 |
| All Pooled  |  | 0.74 | 0.43 | 1.04 |  | 1.13 | 0.83 | 1.56 |
| Higgins (I2) |  | 7.24 |  |  |  | 49.1 |  |  |

SHR, sub-hazard ratio, +Accounting for the competing risk of dementia-free death, and adjusted for age, sex, education level. †Additionally adjusting for smoking, physical activity, and hypertension. ‡Additionally adjusting for depression and hazardous alcohol consumption. \*indicates significance at α<0.05.