## Supplementary tables

Supplementary Table 1. Baseline characteristics of participants included in the analysed sample compared with those who were excluded

|  | Excluded $(n=3007)$ | Included $(n=6425)$ | $p$ |
| :---: | :---: | :---: | :---: |
| Age in years, mean (SD) | 65.60 (13.28) | 65.88 (9.34) | 0.229 |
| Sex, \% (n) |  |  |  |
| Men | 40.7 (1223) | 45.2 (2902) | <0.001 |
| Women | 59.3 (1784) | 54.8 (3523) | - |
| Ethnicity, \% (n) |  |  |  |
| White | 95.0 (2847) | 98.8 (6345) | <0.001 |
| Non-white | 5.0 (149) | 1.2 (80) | - |
| Wealth quintile, \% ( $n$ ) |  |  |  |
| 1 (poorest) | 28.8 (643) | 14.6 (940) | <0.001 |
| 2 | 24.0 (536) | 18.5 (1188) | - |
| 3 | 18.0 (403) | 20.8 (1338) | - |
| 4 | 15.3 (341) | 22.3 (1432) | - |
| 5 (richest) | 14.0 (313) | 23.8 (1527) | - |
| Alcohol intake, \% ( $n$ ) |  |  |  |
| Never/rarely | 23.6 (406) | 18.9 (1213) | <0.001 |
| Regularly | 42.4 (728) | 45.3 (2909) | - |
| Frequently | 34.0 (585) | 35.8 (2303) | - |
| BMI, mean (SD) | 17.72 (14.48) | 27.91 (4.87) | <0.001 |
| Fair/poor self-rated health ${ }^{1}$, \% ( $n$ ) | 35.1 (1008) | 24.5 (1575) | <0.001 |
| Limiting long-standing illness ${ }^{1}$, \% ( $n$ ) | 40.9 (1230) | 32.9 (2111) | <0.001 |
| Coronary heart disease ${ }^{1}$, \% ( $n$ ) | 9.9 (299) | 8.6 (553) | 0.035 |
| Stroke ${ }^{1}$, \% ( $n$ ) | 5.1 (153) | 2.4 (152) | <0.001 |
| Cancer ${ }^{1}$, \% ( $n$ ) | 6.9 (208) | 7.7 (496) | 0.167 |
| Chronic lung disease ${ }^{1}$, \% ( $n$ ) | 7.4 (223) | 7.3 (466) | 0.777 |
| Clinically relevant depressive symptoms ${ }^{1}$, \% ( $n$ ) | 20.3 (565) | 13.5 (860) | <0.001 |
| Smoking status, \% ( $n$ ) |  |  |  |
| Never smoker | 36.1 (1085) | 37.2 (2387) | <0.001 |
| Former smoker | 44.6 (1341) | 48.9 (3141) | - |
| Current smoker | 19.2 (578) | 14.0 (897) | - |
| Level of physical activity, \% ( $n$ ) |  |  |  |
| High | 53.5 (1536) | 65.9 (4233) | <0.001 |
| Low | 46.5 (1336) | 34.1 (2192) | - |

$\mathrm{BMI}=$ body mass index; SD = standard deviation. Note: due to missing data, numbers do not sum to the total and percentages do not sum to 100 for the group of excluded participants for some variables.

Supplementary Table 2. Bayes factors for multiplicative interactions between smoking status and physical activity

|  | Large effects (RR=3) |  | Medium effects (RR=2) |  | Small effects (RR=1.5) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | BF | Interpretation | BF | Interpretation | BF | Interpretation |
| Fair/poor self-rated health | 0.23 | Moderate evidence for HO | 0.36 | Data were insensitive | 0.56 | Data were insensitive |
| Limiting long-standing illness | 0.28 | Moderate evidence for HO | 0.43 | Data were insensitive | 0.65 | Data were insensitive |
| Coronary heart disease | 0.48 | Data were insensitive | 0.68 | Data were insensitive | 0.88 | Data were insensitive |
| Stroke | 0.62 | Data were insensitive | 0.84 | Data were insensitive | 1.02 | Data were insensitive |
| Cancer | 0.30 | Moderate evidence for HO | 0.45 | Data were insensitive | 0.65 | Data were insensitive |
| Chronic lung disease | 0.04 | Strong evidence for HO | 0.06 | Strong evidence for H0 | 0.11 | Moderate evidence for H0 |
| Clinically relevant depressive symptoms | 0.29 | Moderate evidence for H 0 | 0.43 | Data were insensitive | 0.65 | Data were insensitive |

$\mathrm{BF}=$ Bayes factor, $\mathrm{HO}=$ null hypothesis, $\mathrm{RR}=$ relative risk.

Supplementary Table 3. Main effects of smoking status and physical activity and the interaction between smoking status and physical activity for risks of incident health problems over 12-year follow-up: imputed outcome data for participants who dropped out before Wave 8

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Fair/poor self-rated health |  |  |  |  |  |  |  |
| \% ( $n$ ) | 48.9 (1168) | 58.5 (1839) | 69.7 (625) | 48.9 (2071) | 71.2 (1562) | - | - |
| RR [95\% CI] | 1 | 1.20 [1.09-1.32] | 1.42 [1.25-1.63] | 1 | 1.46 [1.33-1.60] |  |  |
| $p$ |  | <0.001 | <0.001 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.15 [1.02-1.30] | 1.52 [1.27-1.81] | 1 | 1.23 [1.05-1.44] | 0.95 [0.78-1.15] | 0.97 [0.74-1.27] |
| $p$ |  | 0.023 | <0.001 |  | 0.012 | 0.567 | 0.810 |
| Limiting long-standing illness |  |  |  |  |  |  |  |
| \% ( $n$ ) | 62.8 (1499) | 69.8 (2192) | 72.9 (654) | 62.1 (2630) | 78.2 (1715) | - | - |
| RR [95\% CI] | 1 | 1.11 [1.01-1.22] | 1.16 [1.03-1.31] | 1 | 1.26 [1.16-1.37] |  |  |
| $p$ |  | 0.025 | 0.019 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.08 [0.96-1.21] | 1.18 [1.00-1.39] | 1 | 1.11 [0.96-1.28] | 0.98 [0.82-1.17] | 1.06 [0.82-1.37] |
| $p$ |  | 0.195 | 0.053 |  | 0.166 | 0.786 | 0.666 |
| Coronary heart disease |  |  |  |  |  |  |  |
| \% ( $n$ ) | 14.1 (335) | 20.3 (639) | 25.3 (227) | 14.0 (594) | 27.7 (607) | - | - |
| RR [95\% CI] | 1 | 1.45 [1.20-1.75] | 1.79 [1.32-2.44] | 1 | 1.97 [1.71-2.27] |  |  |
| $p$ |  | <0.001 | 0.001 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.21 [0.96-1.53] | 2.05 [1.43-2.94] | 1 | 1.37 [1.02-1.82] | 1.04 [0.71-1.54] | 1.05 [0.69-1.61] |
| $p$ |  | 0.098 | <0.001 |  | 0.034 | 0.829 | 0.810 |
| Stroke |  |  |  |  |  |  |  |
| \% ( $n$ ) | 13.7 (327) | 18.4 (579) | 23.3 (209) | 13.4 (567) | 25.0 (547) | - | - |
| RR [95\% CI] | 1 | 1.34 [1.04-1.73] | 1.70 [1.30-2.22] | 1 | 1.86 [1.55-2.24] | - |  |
| $p$ |  | 0.027 | 0.001 |  | <0.001 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.20 [0.89-1.63] | 2.03 [1.42-2.92] | 1 | 1.42 [1.03-1.97] | 0.87 [0.60-1.25] | 1.01 [0.67-1.53] |
| $p$ |  | 0.216 | <0.001 |  | 0.035 | 0.441 | 0.963 |

$\mathrm{Cl}=$ confidence interval; $\mathrm{RR}=$ relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

Supplementary Table 3. (continued)

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Cancer |  |  |  |  |  |  |  |
| \% ( $n$ ) | 18.0 (430) | 21.9 (688) | 24.6 (221) | 17.7 (749) | 26.9 (589) | - | - |
| RR [95\% CI] | 1 | 1.22 [1.06-1.40] | 1.36 [1.07-1.73] | 1 | 1.52 [1.21-1.90] |  |  |
| $p$ |  | 0.006 | 0.013 |  | 0.002 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.13 [0.93-1.37] | 1.57 [1.15-2.16] | 1 | 1.34 [0.98-1.83] | 0.96 [0.69-1.32] | 0.95 [0.56-1.61] |
| $p$ |  | 0.207 | 0.006 |  | 0.065 | 0.792 | 0.831 |
| Chronic lung disease |  |  |  |  |  |  |  |
| \% ( $n$ ) | 6.9 (164) | 14.1 (443) | 32.5 (292) | 9.0 (382) | 23.6 (517) | - | - |
| RR [95\% CI] | 1 | 2.05 [1.56-2.72] | 4.76 [3.10-7.32] | 1 | 2.61 [1.79-3.81] |  |  |
| $p$ |  | <0.001 | <0.001 |  | 0.001 | - | - |
| RRadj $[95 \% \mathrm{Cl}]$ | 1 | 2.14 [1.42-3.24] | 6.27 [3.88-10.09] | 1 | 2.66 [1.65-4.27] | 0.74 [0.49-1.12] | 0.63 [0.40-0.99] |
| $p$ |  | 0.001 | <0.001 |  | <0.001 | 0.157 | 0.044 |
| Clinically relevant depressive symptoms |  |  |  |  |  |  |  |
| \% ( $n$ ) | 52.8 (1259) | 58.0 (1823) | 62.9 (564) | 52.4 (2219) | 65.1 (1428) | - | - |
| RR [95\% CI] | 1 | 1.10 [0.98-1.24] | 1.19 [1.02-1.39] | 1 | 1.24 [1.13-1.36] | - | - |
| $p$ |  | 0.111 | 0.029 |  | <0.001 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.10 [0.96-1.26] | 1.18 [0.98-1.43] | 1 | 1.07 [0.91-1.27] | 1.01 [0.84-1.22] | 1.09 [0.82-1.43] |
| $p$ |  | 0.184 | 0.087 |  | 0.396 | 0.905 | 0.556 |

$\mathrm{Cl}=$ confidence interval; RR = relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

Supplementary Table 4. Main effects of smoking status and physical activity and the interaction between smoking status and physical activity for risks of incident health problems over 12-year follow-up: sample restricted to participants with data at Wave 2 and Wave 8

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Fair/poor self-rated health |  |  |  |  |  |  |  |
| \% ( $n$ ) | 31.5 (351) | 39.0 (494) | 45.4 (129) | 32.9 (668) | 47.9 (306) | - | - |
| RR [95\% CI] | 1 | 1.24 [1.06-1.45] | 1.44 [1.14-1.84] | 1 | 1.45 [1.24-1.71] |  |  |
| $p$ |  | 0.008 | 0.003 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.16 [0.96-1.41] | 1.53 [1.13-2.05] | 1 | 1.19 [0.90-1.56] | 1.06 [0.74-1.52] | 1.11 [0.65-1.91] |
| $p$ |  | 0.134 | 0.005 |  | 0.223 | 0.734 | 0.693 |
| Limiting long-standing illness |  |  |  |  |  |  |  |
| \% ( $n$ ) | 47.5 (488) | 52.6 (599) | 50.0 (135) | 48.2 (915) | 57.1 (307) | - | - |
| RR [95\% CI] | 1 | 1.11 [0.96-1.28] | 1.05 [0.83-1.33] | 1 | 1.18 [1.01-1.39] |  |  |
| $p$ |  | 0.166 | 0.662 |  | 0.040 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.09 [0.92-1.30] | 1.08 [0.82-1.43] | 1 | 1.07 [0.82-1.38] | 0.98 [0.69-1.39] | 1.18 [0.69-2.02] |
| $p$ |  | 0.321 | 0.572 |  | 0.626 | 0.926 | 0.543 |
| Coronary heart disease |  |  |  |  |  |  |  |
| \% ( $n$ ) | 5.7 (73) | 7.9 (114) | 8.6 (32) | 6.1 (138) | 9.6 (81) | - | - |
| RR [95\% CI] | 1 | 1.39 [1.03-1.88] | 1.52 [0.99-2.35] | 1 | 1.56 [1.17-2.07] |  |  |
| $p$ |  | 0.033 | 0.056 |  | 0.002 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.20 [0.82-1.76] | 1.72 [0.99-2.98] | 1 | 1.12 [0.66-1.88] | 1.37 [0.72-2.63] | 0.94 [0.38-2.35] |
| $p$ |  | 0.359 | 0.053 |  | 0.677 | 0.339 | 0.893 |
| Stroke |  |  |  |  |  |  |  |
| \% ( $n$ ) | 5.4 (72) | 6.5 (100) | 8.1 (32) | 5.6 (131) | 7.9 (73) | - | - |
| RR [95\% CI] | 1 | 1.21 [0.89-1.65] | 1.50 [0.98-2.31] | 1 | 1.43 [1.06-1.92] | - |  |
| $p$ |  | 0.234 | 0.065 |  | 0.019 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.02 [0.69-1.51] | 1.42 [0.78-2.57] | 1 | 1.07 [0.63-1.81] | 1.15 [0.58-2.27] | 1.59 [0.64-3.92] |
| $p$ |  | 0.918 | 0.247 |  | 0.812 | 0.682 | 0.315 |

$\mathrm{Cl}=$ confidence interval; $\mathrm{RR}=$ relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

Supplementary Table 4. (continued)

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Cancer |  |  |  |  |  |  |  |
| \% ( $n$ ) | 9.8 (125) | 11.6 (173) | 11.5 (44) | 10.1 (228) | 12.9 (114) | - | - |
| RR [95\% CI] | 1 | 1.19 [0.93-1.51] | 1.17 [0.82-1.68] | 1 | 1.28 [1.01-1.62] |  |  |
| $p$ |  | 0.162 | 0.388 |  | 0.044 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.22 [0.91-1.64] | 1.20 [0.74-1.94] | 1 | 1.38 [0.93-2.06] | 0.82 [0.49-1.39] | 1.07 [0.51-2.25] |
| $p$ |  | 0.192 | 0.460 |  | 0.111 | 0.467 | 0.864 |
| Chronic lung disease |  |  |  |  |  |  |  |
| \% (n) | 2.6 (34) | 5.0 (75) | 14.4 (52) | 3.4 (78) | 9.4 (83) | - | - |
| RR [ $95 \% \mathrm{Cl}$ ] | 1 | 1.94 [1.28-2.93] | 5.54 [3.54-8.66] | 1 | 2.75 [2.00-3.78] |  | - |
| $p$ |  | 0.002 | <0.001 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 2.67 [1.41-5.03] | 7.02 [3.49-14.12] | 1 | 4.09 [2.01-8.32] | 0.47 [0.20-1.09] | 0.45 [0.18-1.13] |
| $p$ |  | 0.002 | <0.001 |  | <0.001 | 0.077 | 0.088 |
| Clinically relevant depressive symptoms |  |  |  |  |  |  |  |
| \% ( $n$ ) | 43.7 (283) | 44.7 (334) | 48.8 (104) | 42.9 (480) | 49.3 (241) | - | - |
| RR [ $95 \% \mathrm{Cl}$ ] | 1 | 1.02 [0.84-1.24] | 1.12 [0.85-1.47] | 1 | 1.15 [0.95-1.39] | - |  |
| $p$ |  | 0.832 | 0.430 |  | 0.147 | - |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.06 [0.84-1.33] | 0.98 [0.68-1.41] | 1 | 1.01 [0.74-1.38] | 1.02 [0.67-1.55] | 1.37 [0.77-2.41] |
| $p$ |  | 0.639 | 0.917 |  | 0.965 | 0.931 | 0.284 |

$\mathrm{Cl}=$ confidence interval; $\mathrm{RR}=$ relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

Supplementary Table 5. Main effects of smoking status and physical activity and the interaction between smoking status and physical activity for risks of incident health problems over 12-year follow-up: excluding current smokers with low levels of nicotine dependence (<15 cigarettes/day)

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Fair/poor self-rated health |  |  |  |  |  |  |  |
| \% ( $n$ ) | 40.9 (529) | 49.0 (744) | 63.8 (134) | 42.2 (946) | 59.3 (461) | - | - |
| RR [95\% CI] | 1 | 1.20 [1.05-1.37] | 1.56 [1.23-1.98] | 1 | 1.41 [1.22-1.61] |  |  |
| $p$ |  | 0.008 | <0.001 |  | <0.001 |  |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.14 [0.97-1.35] | 1.75 [1.29-2.36] | 1 | 1.19 [0.94-1.49] | 0.99 [0.74-1.34] | 0.99 [0.58-1.67] |
| $p$ |  | 0.115 | <0.001 |  | 0.144 | 0.953 | 0.955 |
| Limiting long-standing illness |  |  |  |  |  |  |  |
| \% ( $n$ ) | 57.1 (720) | 62.7 (905) | 70.8 (148) | 58.2 (1282) | 69.2 (491) | - | - |
| RR [95\% CI] | 1 | 1.10 [0.97-1.24] | 1.24 [0.99-1.56] | 1 | 1.19 [1.04-1.36] |  |  |
| $p$ |  | 0.143 | 0.067 |  | 0.012 | ${ }^{-}$ |  |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.07 [0.93-1.24] | 1.36 [1.03-1.79] | 1 | 1.07 [0.86-1.32] | 0.97 [0.73-1.29] | 0.97 [0.58-1.63] |
| $p$ |  | 0.348 | 0.032 |  | 0.548 | 0.847 | 0.908 |
| Coronary heart disease |  |  |  |  |  |  |  |
| \% ( $n$ ) | 8.8 (117) | 11.7 (176) | 14.9 (34) | 9.0 (200) | 14.9 (127) | - | - |
| RR [ $95 \% \mathrm{Cl}$ ] | 1 | 1.33 [1.04-1.70] | 1.70 [1.13-2.55] | 1 | 1.65 [1.30-2.09] | - | - |
| $p$ |  | 0.023 | 0.011 |  | <0.001 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.13 [0.82-1.55] | 1.94 [1.10-3.41] | 1 | 1.20 [0.79-1.83] | 1.19 [0.70-2.02] | 1.15 [0.49-2.69] |
| $p$ |  | 0.459 | 0.021 |  | 0.392 | 0.533 | 0.750 |
| Stroke |  |  |  |  |  |  |  |
| \% ( $n$ ) | 8.2 (113) | 9.9 (159) | 12.6 (30) | 7.9 (182) | 13.1 (120) | - | - |
| RR [95\% CI] | 1 | 1.22 [0.95-1.56] | 1.53 [1.00-2.35] | 1 | 1.65 [1.29-2.10] |  |  |
| $p$ |  | 0.129 | 0.049 |  | <0.001 |  | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.12 [0.80-1.57] | 1.69 [0.87-3.26] | 1 | 1.41 [0.93-2.13] | 0.81 [0.47-1.39] | 1.59 [0.65-3.89] |
| $p$ |  | 0.498 | 0.121 |  | 0.109 | 0.437 | 0.306 |

$\mathrm{Cl}=$ confidence interval; $\mathrm{RR}=$ relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

Supplementary Table 5. (continued)

|  | Smoking status |  |  | Physical activity |  | Interaction ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never smoker | Former smoker | Current smoker | High active | Low active | Former smoker x low active | Current smoker x low active |
| Cancer |  |  |  |  |  |  |  |
| \% ( $n$ ) | 13.4 (178) | 15.8 (247) | 19.8 (48) | 13.8 (309) | 18.4 (164) | - | - |
| RR [95\% CI] | 1 | 1.18 [0.96-1.45] | 1.48 [1.05-2.10] | 1 | 1.33 [1.08-1.63] | - |  |
| $p$ |  | 0.112 | 0.027 |  | 0.006 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.11 [0.85-1.43] | 1.85 [1.18-2.91] | 1 | 1.29 [0.91-1.82] | 1.01 [0.65-1.57] | 0.81 [0.39-1.67] |
| $p$ |  | 0.446 | 0.008 |  | 0.149 | 0.974 | 0.565 |
| Chronic lung disease |  |  |  |  |  |  |  |
| \% ( $n$ ) | 3.3 (44) | 7.8 (120) | 26.3 (61) | 5.0 (111) | 13.0 (114) | - | - |
| RR [ $95 \% \mathrm{Cl}$ ] | 1 | 2.34 [1.65-3.34] | 7.89 [5.22-11.91] | 1 | 2.60 [1.98-3.41] | - | - |
| $p$ |  | <0.001 | <0.001 |  | <0.001 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 2.80 [1.64-4.79] | 11.40 [6.10-21.31] | 1 | 3.49 [1.87-6.50] | 0.57 [0.27-1.17] | 0.40 [0.17-0.93] |
| $p$ |  | <0.001 | <0.001 |  | <0.001 | 0.123 | 0.033 |
| Clinically relevant depressive symptoms |  |  |  |  |  |  |  |
| \% ( $n$ ) | 53.5 (418) | 56.4 (535) | 63.0 (104) | 52.4 (668) | 62.5 (389) | - | - |
| RR [95\% CI] | 1 | 1.06 [0.90-1.24] | 1.18 [0.90-1.55] | 1 | 1.19 [1.02-1.40] | - | - |
| $p$ |  | 0.512 | 0.236 |  | 0.028 | - | - |
| $\mathrm{RR}_{\text {adj }}[95 \% \mathrm{Cl}]$ | 1 | 1.10 [0.90-1.34] | 1.18 [0.82-1.70] | 1 | 1.09 [0.84-1.41] | 0.95 [0.68-1.34] | 1.11 [0.64-1.95] |
| $p$ |  | 0.370 | 0.375 |  | 0.527 | 0.783 | 0.705 |

$\mathrm{Cl}=$ confidence interval; $\mathrm{RR}=$ relative risk from bivariate models; $\mathrm{RR}_{\text {adj }}=$ relative risk adjusted for age, sex, ethnicity, wealth, alcohol intake, body mass index, and physical activity (for smoking status) or smoking status (for physical activity).
${ }^{1}$ Multiplicative interaction between smoking status and physical activity. Results can be interpreted as the difference in RR between high active and low active former/current smokers, relative to the difference in RR between high and low active never smokers. Thus, an interaction term above 1 indicates the disparity between high and low active groups was greater for former/current smokers than never smokers, and an interaction term below 1 indicates the disparity between high and low active groups was smaller for former/current smokers than never smokers.
Note: For each outcome, the sample is restricted to those who did not report the presence of the outcome at baseline. Results therefore indicate the prevalence and relative risk of new-onset health problems over the follow-up period.

