

SUPPLEMENTARY TABLES

Self-reported depression and anxiety and healthcare professional interactions regarding smoking cessation and nicotine vaping: Findings from 2018 International Tobacco Control (ITC) Four Country Smoking and Vaping Survey

Supplementary table 1. Mental health condition and covariates by healthcare professional interactions regarding smoking cessation and nicotine vaping. Cross-sectional International Tobacco Control Four Country Smoking and Vaping (ITC 4CV) Survey, 2018.

| Variable | Categories | Visiting a health professional (n*= 11040) | | | Advice to quit smoking from health professional (n*= 8319) | | | Discussion about nicotine vaping products (n*= 8280) | | | Positive recommendation to use nicotine vaping products (n*= 859) | | |
|---------------------------------|---------------------------------|--|-------------|--------------------|--|-------------|--------------------|--|-----------|--------------------|---|------------|--------------------|
| | | No | Yes | Refused/don't know | No | Yes | Refused/don't know | No | Yes | Refused/don't know | No | Yes | Refused/don't know |
| TOTAL | | 2599* (25.2**) | 8319 (74) | 122 (0.7) | 4087 (51.2) | 4101 (47) | 131 (1.7) | 7341 (93.1) | 859 (6.1) | 80 (0.8) | 562 (65.1) | 288 (32.7) | 9 (2.1) |
| Gender | Male | 1523 (30.6) | 3777 (68.5) | 72 (0.9) | 1775 (49.5) | 1940 (48.5) | 62 (2) | 3232 (92.3) | 488 (6.7) | 41 (1) | 313 (60.1) | 170 (36.9) | 5 (2.9) |
| | Female | 1076 (18.9) | 4542 (80.5) | 50 (0.6) | 2312 (53) | 2161 (45.5) | 69 (1.5) | 4109 (93.9) | 371 (5.5) | 39 (0.6) | 249 (71.4) | 118 (27.6) | 4 (1.1) |
| Age group (years) | 18-24 | 683 (33.2) | 1427 (65) | 57 (1.8) | 794 (62.6) | 610 (35.8) | 23 (1.6) | 1135 (90.2) | 262 (8.5) | 21 (1.2) | 168 (65.4) | 93 (34.6) | 1 (0.1) |
| | 25-39 | 757 (32.7) | 1617 (66.5) | 32 (0.8) | 881 (56.1) | 708 (41.5) | 28 (2.3) | 1373 (92.3) | 215 (6.6) | 22 (1.1) | 129 (53.9) | 83 (43.3) | 3 (2.8) |
| | 40-54 | 650 (23.3) | 2198 (75.9) | 24 (0.8) | 1077 (51.2) | 1088 (47.4) | 33 (1.4) | 1979 (93.4) | 187 (5.8) | 21 (0.8) | 128 (72.3) | 58 (26.8) | 1 (0.9) |
| | 55 and up | 509 (15.4) | 3077 (84.4) | 9 (0.2) | 1335 (43.6) | 1695 (54.9) | 47 (1.5) | 2854 (94.4) | 195 (5.3) | 16 (0.4) | 137 (71.1) | 54 (25.4) | 4 (3.5) |
| Ethnicity | Minority group | 438 (27) | 1168 (71.7) | 30 (1.3) | 547 (48.2) | 603 (50) | 18 (1.8) | 952 (89.9) | 190 (8.1) | 20 (2) | 124 (66.5) | 66 (33.5) | 0 (0) |
| | Majority group | 2161 (25) | 7151 (74.4) | 92 (0.6) | 3540 (51.7) | 3498 (46.6) | 113 (1.7) | 6389 (93.6) | 669 (5.8) | 60 (0.6) | 438 (64.9) | 222 (32.6) | 9 (2.5) |
| Education | Low | 861 (25.3) | 2616 (74) | 42 (0.7) | 1283 (47) | 1283 (50.6) | 50 (2.4) | 2351 (93.9) | 224 (5.2) | 26 (0.9) | 151 (74) | 72 (26) | 1 (0) |
| | Moderate | 1034 (25.3) | 3543 (73.8) | 50 (0.8) | 1723 (51.7) | 1771 (46.9) | 49 (1.4) | 3148 (92.9) | 346 (6.4) | 35 (0.7) | 244 (64.1) | 97 (32.1) | 5 (3.8) |
| | High | 704 (24.9) | 2160 (74.6) | 30 (0.5) | 1081 (56.3) | 1047 (42) | 32 (1.7) | 1842 (92.3) | 289 (6.8) | 19 (0.9) | 167 (57.5) | 119 (41.6) | 3 (1) |
| Income | Low | 767 (23.3) | 2725 (76) | 41 (0.7) | 1330 (50) | 1347 (48.4) | 48 (1.6) | 2435 (93.6) | 242 (5.4) | 32 (1.1) | 170 (67.8) | 67 (28.4) | 5 (3.8) |
| | Moderate | 982 (27.1) | 2673 (72) | 51 (0.9) | 1296 (50.8) | 1331 (46.7) | 46 (2.5) | 2360 (93) | 278 (6.1) | 24 (0.9) | 183 (66.7) | 94 (32.5) | 1 (0.8) |
| | High | 728 (24.5) | 2499 (74.8) | 22 (0.7) | 1229 (52.7) | 1239 (46.1) | 31 (1.2) | 2161 (92.6) | 308 (6.9) | 21 (0.5) | 187 (59.8) | 118 (38) | 3 (2.3) |
| | No answer | 122 (28.7) | 422 (70.5) | 8 (0.8) | 232 (53.7) | 184 (45.4) | 6 (0.8) | 385 (93.5) | 31 (6) | 3 (0.5) | 22 (77.4) | 9 (22.6) | 0 (0) |
| Cigarette smoking status | Daily | 1895 (25.1) | 6142 (74.3) | 77 (0.5) | 2797 (47.5) | 3252 (51) | 93 (1.6) | 5451 (93.5) | 611 (5.9) | 49 (0.6) | 380 (64.5) | 227 (34.1) | 4 (1.4) |
| | Non-daily | 488 (29.5) | 1143 (68.3) | 37 (2.2) | 671 (66.4) | 455 (31.3) | 17 (2.3) | 939 (90.2) | 181 (8) | 19 (1.7) | 132 (68.4) | 48 (31.5) | 1 (0.2) |
| | Former | 216 (21.2) | 1034 (78.2) | 8 (0.6) | 619 (63.1) | 394 (34.7) | 21 (2.3) | 951 (93.3) | 67 (5.4) | 12 (1.2) | 50 (65.2) | 13 (24.1) | 4 (10.7) |
| Problematic alcohol use | No | 1458 (23) | 5451 (76.5) | 42 (0.5) | 2633 (50.3) | 2735 (48.1) | 83 (1.7) | 4865 (93.3) | 501 (5.7) | 58 (1) | 336 (70.2) | 160 (28.4) | 5 (1.4) |
| | Yes | 1009 (28.5) | 2599 (70.6) | 61 (0.9) | 1298 (52.8) | 1263 (45.3) | 38 (1.8) | 2229 (92.4) | 340 (7.2) | 19 (0.4) | 216 (57) | 120 (39.6) | 4 (3.4) |
| | No answer | 132 (34) | 269 (63.3) | 19 (2.8) | 156 (55.2) | 103 (42.2) | 10 (2.7) | 247 (95.3) | 18 (4.3) | 3 (0.4) | 10 (66.7) | 8 (33.3) | 0 (0) |
| Mental health status | No depression or anxiety | 2049 (30) | 5279 (69.3) | 65 (0.7) | 2650 (51.9) | 2550 (46.4) | 79 (1.7) | 4738 (93.7) | 459 (5.3) | 56 (1) | 302 (67.2) | 150 (30.6) | 7 (2.2) |
| | Depression only | 137 (15.2) | 763 (84.2) | 18 (0.6) | 312 (42) | 437 (55.6) | 14 (2.4) | 643 (92.2) | 110 (7.3) | 7 (0.5) | 68 (61.2) | 42 (38.8) | 0 (0) |
| | Anxiety only | 162 (17.6) | 662 (80.8) | 20 (1.6) | 333 (55) | 317 (43.4) | 12 (1.7) | 564 (92.9) | 89 (6.9) | 6 (0.3) | 61 (62.9) | 28 (37.1) | 0 (0) |
| | Depression and anxiety | 251 (12.3) | 1615 (87) | 19 (0.7) | 792 (51.9) | 797 (46.6) | 26 (1.5) | 1396 (91.5) | 201 (7.9) | 11 (0.5) | 131 (62.8) | 68 (33.8) | 2 (3.5) |
| Country | Australia | 145 (14.2) | 1222 (85.4) | 5 (0.4) | 553 (45.3) | 650 (52.2) | 19 (2.4) | 1155 (96.7) | 52 (3) | 7 (0.3) | 40 (83.4) | 12 (16.6) | 0 (0) |
| | Canada | 659 (20.6) | 2473 (78.9) | 25 (0.5) | 1285 (54) | 1159 (45) | 29 (1) | 2217 (94.1) | 228 (5.1) | 22 (0.8) | 162 (63.8) | 64 (34.6) | 2 (1.6) |
| | England | 1325 (32.6) | 2822 (66.4) | 70 (1) | 1539 (57.1) | 1242 (41.6) | 41 (1.3) | 2385 (90.9) | 389 (8.4) | 31 (0.7) | 216 (58.7) | 166 (37.6) | 7 (3.6) |
| | US | 470 (24.5) | 1802 (74.8) | 22 (0.8) | 710 (41.9) | 1050 (55.1) | 42 (3) | 1584 (92.7) | 190 (5.9) | 20 (1.4) | 144 (75.2) | 46 (24.8) | 0 (0) |

* n is unweighted frequency, total number of respondents who were asked this survey question

+ Unweighted frequency of respondents who responded to the outcome

++ Weighted proportion of respondents who responded to the outcome. Denominator is frequency of respondents who responded 'Yes' and 'No' to the outcome, including refused and don't know responses

Supplementary Table 2. Odds ratios, with 95% CI for all independent variables and covariates for all of the logistic regression models, for each outcome measure.

- Model 1: unadjusted model with mental health condition as the only independent variable
- Model 2: model adjusted for country, sex, age, education, ethnicity, and income
- Model 3 (fully adjusted): adjusted for country, sex, age, education, ethnicity, and income, cigarette smoking status and problematic alcohol use
- Model 4 (country-differences): adjusted for country, gender, age, education, income, ethnicity, cigarette smoking status, problematic alcohol use, and mental health*country interaction term

RQ1: Visiting a health professional

Supplementary Table 2a

Model 1

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|------|------|--------------|--------------|---------|
| | (Intercept) | 0.84 | 2.31 | 2.20 | 2.42 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.88 | 2.40 | 1.98 | 2.93 | 0.000 |
| | Anxiety only | 0.69 | 2.00 | 1.64 | 2.44 | 0.000 |
| | Depression and anxiety | 1.12 | 3.08 | 2.65 | 3.58 | 0.000 |

Supplementary Table 2b

Model 2

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.63 | 0.53 | 0.42 | 0.67 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.96 | 2.62 | 2.15 | 3.23 | 0.000 |
| | Anxiety only | 0.73 | 2.08 | 1.70 | 2.57 | 0.000 |
| | Depression and anxiety | 1.31 | 3.71 | 3.17 | 4.36 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | 0.68 | 1.98 | 1.79 | 2.18 | 0.000 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.09 | 1.09 | 0.93 | 1.28 | 0.287 |
| | 40-54 | 0.67 | 1.96 | 1.66 | 2.31 | 0.000 |
| | 55 and up | 1.35 | 3.84 | 3.22 | 4.58 | 0.000 |

| | | | | | | |
|-----------|----------------|-------|------|------|------|-------|
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.07 | 0.94 | 0.81 | 1.07 | 0.339 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.24 | 1.27 | 1.14 | 1.42 | 0.000 |
| | High | 0.29 | 1.33 | 1.16 | 1.53 | 0.000 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.11 | 1.11 | 0.99 | 1.25 | 0.083 |
| | High | 0.23 | 1.26 | 1.11 | 1.43 | 0.000 |
| | No answer | -0.09 | 0.91 | 0.73 | 1.14 | 0.418 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 1.19 | 3.30 | 2.77 | 3.95 | 0.000 |
| | Canada | 0.65 | 1.91 | 1.69 | 2.15 | 0.000 |
| | US | 0.43 | 1.54 | 1.35 | 1.75 | 0.000 |

Supplementary Table 2c

Model 3 (fully adjusted)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.57 | 0.57 | 0.45 | 0.72 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.98 | 2.65 | 2.17 | 3.27 | 0.000 |
| | Anxiety only | 0.73 | 2.08 | 1.70 | 2.57 | 0.000 |
| | Depression and anxiety | 1.32 | 3.74 | 3.19 | 4.40 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | 0.67 | 1.95 | 1.77 | 2.15 | 0.000 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.06 | 1.06 | 0.90 | 1.24 | 0.468 |
| | 40-54 | 0.66 | 1.93 | 1.63 | 2.29 | 0.000 |
| | 55 and up | 1.32 | 3.75 | 3.14 | 4.49 | 0.000 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.07 | 0.93 | 0.81 | 1.07 | 0.305 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.24 | 1.27 | 1.13 | 1.42 | 0.000 |
| | High | 0.27 | 1.31 | 1.14 | 1.50 | 0.000 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.10 | 1.10 | 0.98 | 1.24 | 0.109 |

| | | | | | | |
|-------------------------------|---------------|-------|------|------|------|-------|
| | High | 0.22 | 1.25 | 1.10 | 1.42 | 0.001 |
| | No answer | -0.08 | 0.92 | 0.74 | 1.15 | 0.471 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 1.19 | 3.27 | 2.75 | 3.91 | 0.000 |
| | Canada | 0.63 | 1.88 | 1.67 | 2.12 | 0.000 |
| | US | 0.40 | 1.49 | 1.31 | 1.70 | 0.000 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | -0.08 | 0.93 | 0.84 | 1.02 | 0.133 |
| | No answer | -0.37 | 0.69 | 0.55 | 0.87 | 0.002 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.08 | 0.92 | 0.80 | 1.06 | 0.257 |
| | Former | 0.35 | 1.42 | 1.21 | 1.67 | 0.000 |

Supplementary Table 2d

Model 4 (country-differences)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.61 | 0.54 | 0.43 | 0.69 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 1.27 | 3.58 | 2.70 | 4.81 | 0.000 |
| | Anxiety only | 0.77 | 2.17 | 1.55 | 3.08 | 0.000 |
| | Depression and anxiety | 1.56 | 4.76 | 3.77 | 6.06 | 0.000 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 1.26 | 3.53 | 2.90 | 4.32 | 0.000 |
| | Canada | 0.73 | 2.08 | 1.82 | 2.38 | 0.000 |
| | US | 0.47 | 1.60 | 1.38 | 1.85 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | 0.67 | 1.96 | 1.78 | 2.16 | 0.000 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.06 | 1.06 | 0.90 | 1.24 | 0.484 |
| | 40-54 | 0.65 | 1.92 | 1.62 | 2.28 | 0.000 |
| | 55 and up | 1.32 | 3.75 | 3.13 | 4.49 | 0.000 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.07 | 0.93 | 0.81 | 1.07 | 0.296 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.23 | 1.26 | 1.13 | 1.41 | 0.000 |

| | | | | | | |
|--|-------------------------------------|-------|------|------|------|-------|
| | High | 0.27 | 1.31 | 1.14 | 1.51 | 0.000 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.10 | 1.11 | 0.98 | 1.25 | 0.100 |
| | High | 0.23 | 1.25 | 1.10 | 1.43 | 0.001 |
| | No answer | -0.07 | 0.93 | 0.75 | 1.16 | 0.518 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | -0.08 | 0.92 | 0.84 | 1.02 | 0.123 |
| | No answer | -0.38 | 0.68 | 0.54 | 0.86 | 0.001 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.09 | 0.91 | 0.79 | 1.05 | 0.209 |
| | Former | 0.34 | 1.41 | 1.20 | 1.66 | 0.000 |
| Mental health*country interaction term | No depression/anxiety*England (ref) | | 1.00 | | | |
| | Depression only*Australia | -0.59 | 0.55 | 0.28 | 1.18 | 0.103 |
| | Anxiety only*Australia | -0.65 | 0.52 | 0.27 | 1.05 | 0.060 |
| | Depression and anxiety*Australia | 0.08 | 1.09 | 0.58 | 2.21 | 0.802 |
| | Depression only*Canada | -0.62 | 0.54 | 0.32 | 0.92 | 0.021 |
| | Anxiety only*Canada | -0.11 | 0.89 | 0.54 | 1.49 | 0.659 |
| | Depression and anxiety*Canada | -0.64 | 0.53 | 0.36 | 0.78 | 0.001 |
| | Depression only*US | -0.63 | 0.53 | 0.31 | 0.91 | 0.020 |
| | Anxiety only*US | 0.24 | 1.27 | 0.72 | 2.27 | 0.412 |
| | Depression and anxiety*US | -0.44 | 0.64 | 0.44 | 0.95 | 0.027 |

Likelihood-ratio test between Model 3 (fully adjusted) and Model 4 (country-differences): p=0.002

RQ2: Advice to quit smoking from health professional

Supplementary Table 2e

Model 1

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.11 | 0.89 | 0.85 | 0.94 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.39 | 1.48 | 1.27 | 1.74 | 0.000 |
| | Anxiety only | -0.13 | 0.88 | 0.74 | 1.05 | 0.152 |

| | | | | | | |
|--|------------------------|------|------|------|------|-------|
| | Depression and anxiety | 0.00 | 1.00 | 0.90 | 1.12 | 0.951 |
|--|------------------------|------|------|------|------|-------|

Supplementary Table 2f

Model 2

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.57 | 0.57 | 0.45 | 0.72 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.46 | 1.58 | 1.34 | 1.86 | 0.000 |
| | Anxiety only | -0.05 | 0.95 | 0.80 | 1.14 | 0.601 |
| | Depression and anxiety | 0.14 | 1.15 | 1.02 | 1.30 | 0.022 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.09 | 0.91 | 0.83 | 1.00 | 0.043 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.25 | 1.29 | 1.08 | 1.54 | 0.005 |
| | 40-54 | 0.49 | 1.63 | 1.37 | 1.96 | 0.000 |
| | 55 and up | 0.80 | 2.23 | 1.87 | 2.68 | 0.000 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.22 | 0.81 | 0.70 | 0.92 | 0.002 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | -0.02 | 0.98 | 0.88 | 1.09 | 0.737 |
| | High | -0.25 | 0.78 | 0.69 | 0.89 | 0.000 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.05 | 1.05 | 0.94 | 1.18 | 0.365 |
| | High | 0.00 | 1.00 | 0.89 | 1.13 | 0.986 |
| | No answer | 0.02 | 1.02 | 0.82 | 1.26 | 0.876 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 0.46 | 1.58 | 1.37 | 1.83 | 0.000 |
| | Canada | 0.12 | 1.13 | 1.01 | 1.26 | 0.040 |
| | US | 0.55 | 1.73 | 1.52 | 1.96 | 0.000 |

Supplementary Table 2g

Model 3 (fully adjusted)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|-------------------------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.35 | 0.71 | 0.55 | 0.90 | 0.006 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.45 | 1.58 | 1.34 | 1.86 | 0.000 |
| | Anxiety only | -0.06 | 0.94 | 0.79 | 1.12 | 0.493 |
| | Depression and anxiety | 0.14 | 1.14 | 1.01 | 1.29 | 0.031 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.11 | 0.89 | 0.81 | 0.98 | 0.016 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.16 | 1.17 | 0.98 | 1.41 | 0.090 |
| | 40-54 | 0.34 | 1.40 | 1.17 | 1.69 | 0.000 |
| | 55 and up | 0.65 | 1.92 | 1.60 | 2.31 | 0.000 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.23 | 0.79 | 0.69 | 0.91 | 0.001 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.03 | 1.03 | 0.92 | 1.14 | 0.627 |
| | High | -0.14 | 0.87 | 0.76 | 0.99 | 0.039 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.05 | 1.05 | 0.94 | 1.18 | 0.367 |
| | High | 0.04 | 1.04 | 0.92 | 1.18 | 0.515 |
| | No answer | 0.06 | 1.07 | 0.86 | 1.33 | 0.570 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 0.46 | 1.58 | 1.36 | 1.82 | 0.000 |
| | Canada | 0.16 | 1.17 | 1.05 | 1.32 | 0.007 |
| | US | 0.60 | 1.82 | 1.60 | 2.08 | 0.000 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.00 | 1.00 | 0.90 | 1.10 | 0.939 |
| | No answer | -0.20 | 0.82 | 0.63 | 1.06 | 0.129 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.72 | 0.49 | 0.42 | 0.57 | 0.000 |
| | Former | -0.67 | 0.51 | 0.44 | 0.60 | 0.000 |

Supplementary Table 2h

Model 4 (country-differences)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|--|-------------------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -0.32 | 0.73 | 0.56 | 0.93 | 0.013 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.59 | 1.81 | 1.41 | 2.32 | 0.000 |
| | Anxiety only | -0.18 | 0.84 | 0.58 | 1.19 | 0.330 |
| | Depression and anxiety | 0.01 | 1.01 | 0.82 | 1.23 | 0.954 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | 0.31 | 1.37 | 1.14 | 1.64 | 0.001 |
| | Canada | 0.14 | 1.15 | 1.00 | 1.32 | 0.047 |
| | US | 0.64 | 1.90 | 1.62 | 2.23 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.11 | 0.89 | 0.81 | 0.98 | 0.017 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.14 | 1.15 | 0.96 | 1.38 | 0.130 |
| | 40-54 | 0.33 | 1.39 | 1.16 | 1.67 | 0.000 |
| | 55 and up | 0.64 | 1.90 | 1.58 | 2.29 | 0.000 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.22 | 0.80 | 0.70 | 0.92 | 0.002 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.02 | 1.02 | 0.92 | 1.14 | 0.689 |
| | High | -0.14 | 0.87 | 0.76 | 1.00 | 0.048 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.05 | 1.05 | 0.94 | 1.18 | 0.408 |
| | High | 0.04 | 1.04 | 0.92 | 1.17 | 0.566 |
| | No answer | 0.05 | 1.05 | 0.84 | 1.31 | 0.667 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.00 | 1.00 | 0.91 | 1.11 | 0.968 |
| | No answer | -0.20 | 0.82 | 0.63 | 1.06 | 0.131 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.72 | 0.49 | 0.42 | 0.57 | 0.000 |
| | Former | -0.67 | 0.51 | 0.44 | 0.60 | 0.000 |
| Mental health*country interaction term | No depression/anxiety*England (ref) | | 1.00 | | | |

| | | | | | | |
|--|----------------------------------|-------|------|------|------|-------|
| | Depression only*Australia | 0.17 | 1.19 | 0.73 | 1.94 | 0.490 |
| | Anxiety only*Australia | 0.76 | 2.15 | 1.20 | 3.89 | 0.011 |
| | Depression and anxiety*Australia | 0.36 | 1.44 | 1.01 | 2.04 | 0.044 |
| | Depression only*Canada | -0.30 | 0.74 | 0.49 | 1.12 | 0.150 |
| | Anxiety only*Canada | 0.16 | 1.17 | 0.74 | 1.87 | 0.508 |
| | Depression and anxiety*Canada | 0.18 | 1.20 | 0.89 | 1.62 | 0.235 |
| | Depression only*US | -0.56 | 0.57 | 0.36 | 0.92 | 0.020 |
| | Anxiety only*US | -0.21 | 0.81 | 0.49 | 1.35 | 0.420 |
| | Depression and anxiety*US | 0.12 | 1.13 | 0.82 | 1.55 | 0.468 |

Likelihood-ratio test between Model 3 (fully adjusted) and Model 4 (country-differences): p=0.009

RQ3: Discussion about nicotine vaping products

Supplementary Table 2i

Model 1

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -2.87 | 0.06 | 0.05 | 0.06 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.33 | 1.40 | 1.02 | 1.88 | 0.032 |
| | Anxiety only | 0.27 | 1.30 | 0.92 | 1.81 | 0.126 |
| | Depression and anxiety | 0.42 | 1.52 | 1.22 | 1.89 | 0.000 |

Supplementary Table 2j

Model 2

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -1.99 | 0.14 | 0.09 | 0.21 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.36 | 1.44 | 1.04 | 1.95 | 0.023 |
| | Anxiety only | 0.37 | 1.45 | 1.01 | 2.03 | 0.036 |
| | Depression and anxiety | 0.50 | 1.65 | 1.30 | 2.09 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |

| | | | | | | |
|-----------|----------------|-------|------|------|------|-------|
| | Female | -0.31 | 0.73 | 0.61 | 0.88 | 0.001 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | -0.14 | 0.87 | 0.64 | 1.21 | 0.399 |
| | 40-54 | -0.28 | 0.76 | 0.55 | 1.05 | 0.093 |
| | 55 and up | -0.29 | 0.75 | 0.54 | 1.05 | 0.092 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.39 | 0.68 | 0.53 | 0.87 | 0.002 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.00 | 1.00 | 0.80 | 1.26 | 0.988 |
| | High | 0.09 | 1.09 | 0.83 | 1.44 | 0.531 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.06 | 1.06 | 0.83 | 1.35 | 0.654 |
| | High | 0.32 | 1.38 | 1.07 | 1.77 | 0.012 |
| | No answer | 0.10 | 1.11 | 0.68 | 1.71 | 0.668 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -1.13 | 0.32 | 0.22 | 0.46 | 0.000 |
| | Canada | -0.53 | 0.59 | 0.46 | 0.74 | 0.000 |
| | US | -0.43 | 0.65 | 0.50 | 0.84 | 0.001 |

Supplementary Table 2k

Model 3 (fully adjusted)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -2.06 | 0.13 | 0.08 | 0.20 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.36 | 1.44 | 1.04 | 1.95 | 0.023 |
| | Anxiety only | 0.37 | 1.45 | 1.01 | 2.03 | 0.037 |
| | Depression and anxiety | 0.49 | 1.63 | 1.29 | 2.06 | 0.000 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.29 | 0.75 | 0.62 | 0.91 | 0.004 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | -0.11 | 0.89 | 0.65 | 1.24 | 0.501 |
| | 40-54 | -0.25 | 0.78 | 0.56 | 1.10 | 0.149 |
| | 55 and up | -0.24 | 0.78 | 0.56 | 1.11 | 0.163 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.41 | 0.67 | 0.52 | 0.86 | 0.002 |

| | | | | | | |
|-------------------------------|---------------|-------|------|------|------|-------|
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | -0.01 | 0.99 | 0.79 | 1.25 | 0.938 |
| | High | 0.08 | 1.09 | 0.82 | 1.43 | 0.556 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.05 | 1.05 | 0.82 | 1.34 | 0.698 |
| | High | 0.31 | 1.36 | 1.06 | 1.75 | 0.016 |
| | No answer | 0.12 | 1.12 | 0.70 | 1.75 | 0.615 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -1.11 | 0.33 | 0.22 | 0.47 | 0.000 |
| | Canada | -0.54 | 0.58 | 0.46 | 0.74 | 0.000 |
| | US | -0.41 | 0.67 | 0.51 | 0.86 | 0.002 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.14 | 1.15 | 0.94 | 1.39 | 0.180 |
| | No answer | -0.40 | 0.67 | 0.34 | 1.19 | 0.210 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | 0.16 | 1.18 | 0.89 | 1.54 | 0.240 |
| | Former | -0.12 | 0.89 | 0.64 | 1.20 | 0.462 |

Supplementary Table 2I

Model 4 (country-differences)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|-------|------|--------------|--------------|---------|
| | (Intercept) | -2.10 | 0.12 | 0.08 | 0.19 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.45 | 1.57 | 1.02 | 2.34 | 0.033 |
| | Anxiety only | 0.73 | 2.07 | 1.21 | 3.39 | 0.005 |
| | Depression and anxiety | 0.40 | 1.50 | 1.06 | 2.09 | 0.019 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -1.04 | 0.35 | 0.21 | 0.56 | 0.000 |
| | Canada | -0.49 | 0.61 | 0.46 | 0.82 | 0.001 |
| | US | -0.42 | 0.66 | 0.47 | 0.92 | 0.015 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.29 | 0.75 | 0.62 | 0.91 | 0.004 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | -0.10 | 0.91 | 0.66 | 1.26 | 0.562 |
| | 40-54 | -0.23 | 0.80 | 0.57 | 1.12 | 0.178 |

| | | | | | | |
|--|-------------------------------------|-------|------|------|------|-------|
| | 55 and up | -0.22 | 0.80 | 0.57 | 1.14 | 0.207 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | -0.40 | 0.67 | 0.52 | 0.87 | 0.002 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.00 | 1.00 | 0.79 | 1.26 | 0.990 |
| | High | 0.10 | 1.11 | 0.84 | 1.46 | 0.481 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.04 | 1.04 | 0.81 | 1.32 | 0.768 |
| | High | 0.30 | 1.34 | 1.05 | 1.73 | 0.021 |
| | No answer | 0.13 | 1.14 | 0.70 | 1.76 | 0.585 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.15 | 1.16 | 0.95 | 1.41 | 0.150 |
| | No answer | -0.41 | 0.67 | 0.34 | 1.18 | 0.200 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | 0.17 | 1.18 | 0.89 | 1.55 | 0.227 |
| | Former | -0.12 | 0.88 | 0.64 | 1.19 | 0.434 |
| Mental health*country interaction term | No depression/anxiety*England (ref) | | 1.00 | | | |
| | Depression only*Australia | 0.33 | 1.39 | 0.47 | 3.67 | 0.519 |
| | Anxiety only*Australia | -1.47 | 0.23 | 0.01 | 1.22 | 0.159 |
| | Depression and anxiety*Australia | -0.14 | 0.87 | 0.34 | 2.06 | 0.758 |
| | Depression only*Canada | -0.36 | 0.70 | 0.27 | 1.59 | 0.417 |
| | Anxiety only*Canada | -0.49 | 0.61 | 0.26 | 1.37 | 0.240 |
| | Depression and anxiety*Canada | 0.07 | 1.07 | 0.60 | 1.88 | 0.806 |
| | Depression only*US | -0.40 | 0.67 | 0.24 | 1.63 | 0.404 |
| | Anxiety only*US | -0.57 | 0.57 | 0.22 | 1.37 | 0.222 |
| | Depression and anxiety*US | 0.37 | 1.44 | 0.82 | 2.53 | 0.202 |

Likelihood-ratio test between Model 3 (fully adjusted) and Model 4 (country-differences): p=0.415

RQ4: Positive recommendation to use nicotine vaping products

Supplementary Table 2m

Model 1

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|----------|------|--------------|--------------|---------|
| | (Intercept) | -0.78697 | 0.46 | 0.37 | 0.55 | 0.000 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.329851 | 1.39 | 0.87 | 2.21 | 0.166 |
| | Anxiety only | 0.259387 | 1.30 | 0.76 | 2.17 | 0.331 |
| | Depression and anxiety | 0.167331 | 1.18 | 0.83 | 1.67 | 0.343 |

Supplementary Table 2n

Model 2

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|---------------|-----------------------------|----------|------|--------------|--------------|---------|
| | (Intercept) | -0.78584 | 0.46 | 0.22 | 0.92 | 0.029 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.328175 | 1.39 | 0.83 | 2.30 | 0.204 |
| | Anxiety only | 0.06195 | 1.06 | 0.60 | 1.86 | 0.831 |
| | Depression and anxiety | 0.247724 | 1.28 | 0.86 | 1.90 | 0.218 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.4939 | 0.61 | 0.45 | 0.83 | 0.002 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.354833 | 1.43 | 0.87 | 2.37 | 0.164 |
| | 40-54 | -0.49003 | 0.61 | 0.36 | 1.05 | 0.073 |
| | 55 and up | -0.32982 | 0.72 | 0.42 | 1.24 | 0.233 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | 0.252891 | 1.29 | 0.83 | 2.01 | 0.259 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.196878 | 1.22 | 0.82 | 1.82 | 0.334 |
| | High | 0.556871 | 1.75 | 1.10 | 2.78 | 0.019 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.023276 | 1.02 | 0.68 | 1.54 | 0.911 |
| | High | 0.17508 | 1.19 | 0.78 | 1.82 | 0.417 |

| | | | | | | |
|---------|---------------|----------|------|------|------|-------|
| | No answer | -0.31529 | 0.73 | 0.30 | 1.62 | 0.457 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -1.28757 | 0.28 | 0.12 | 0.56 | 0.001 |
| | Canada | -0.04017 | 0.96 | 0.65 | 1.42 | 0.841 |
| | US | -0.5582 | 0.57 | 0.37 | 0.89 | 0.013 |

Supplementary Table 2o

Model 3 (fully adjusted)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|-------------------------------|-----------------------------|----------|------|--------------|--------------|---------|
| | (Intercept) | -0.76783 | 0.46 | 0.22 | 0.98 | 0.045 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | 0.307861 | 1.36 | 0.81 | 2.26 | 0.240 |
| | Anxiety only | 0.020313 | 1.02 | 0.57 | 1.81 | 0.945 |
| | Depression and anxiety | 0.238358 | 1.27 | 0.85 | 1.89 | 0.240 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.4655 | 0.63 | 0.45 | 0.87 | 0.005 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.250262 | 1.28 | 0.77 | 2.15 | 0.338 |
| | 40-54 | -0.63619 | 0.53 | 0.30 | 0.92 | 0.024 |
| | 55 and up | -0.40505 | 0.67 | 0.38 | 1.17 | 0.159 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | 0.19366 | 1.21 | 0.78 | 1.90 | 0.393 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.264145 | 1.30 | 0.87 | 1.96 | 0.201 |
| | High | 0.726933 | 2.07 | 1.28 | 3.36 | 0.003 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.008834 | 1.01 | 0.67 | 1.53 | 0.966 |
| | High | 0.092974 | 1.10 | 0.71 | 1.69 | 0.674 |
| | No answer | -0.41987 | 0.66 | 0.27 | 1.49 | 0.333 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -1.20143 | 0.30 | 0.13 | 0.62 | 0.002 |
| | Canada | 0.095251 | 1.10 | 0.73 | 1.65 | 0.645 |
| | US | -0.45725 | 0.63 | 0.40 | 0.99 | 0.048 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.332198 | 1.39 | 0.98 | 1.97 | 0.061 |

| | | | | | | |
|--------------------------|-------------|----------|------|------|------|-------|
| | No answer | 0.23702 | 1.27 | 0.41 | 3.55 | 0.661 |
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.49388 | 0.61 | 0.38 | 0.96 | 0.038 |
| | Former | -0.45376 | 0.64 | 0.34 | 1.13 | 0.133 |

Supplementary Table 2p

Model 4 (country-differences)

| Variable | Category | beta | OR | Lower 95% CI | Upper 95% CI | p-value |
|-------------------------------|-----------------------------|----------|------|--------------|--------------|---------|
| | (Intercept) | -0.68906 | 0.50 | 0.23 | 1.08 | 0.081 |
| Mental health | No depression/anxiety (ref) | | 1.00 | | | |
| | Depression only | -0.12952 | 0.88 | 0.44 | 1.72 | 0.709 |
| | Anxiety only | 0.358144 | 1.43 | 0.63 | 3.28 | 0.392 |
| | Depression and anxiety | 0.288494 | 1.33 | 0.76 | 2.34 | 0.316 |
| Country | England (ref) | | 1.00 | | | |
| | Australia | -2.09746 | 0.12 | 0.03 | 0.40 | 0.002 |
| | Canada | 0.207044 | 1.23 | 0.73 | 2.05 | 0.430 |
| | US | -0.5784 | 0.56 | 0.30 | 1.02 | 0.064 |
| Gender | Male (ref) | | 1.00 | | | |
| | Female | -0.54273 | 0.58 | 0.41 | 0.81 | 0.002 |
| Age | 18-24 (ref) | | 1.00 | | | |
| | 25-39 | 0.229897 | 1.26 | 0.75 | 2.14 | 0.392 |
| | 40-54 | -0.58543 | 0.56 | 0.32 | 0.99 | 0.044 |
| | 55 and up | -0.40161 | 0.67 | 0.38 | 1.20 | 0.173 |
| Ethnicity | Minority group | | 1.00 | | | |
| | Majority group | 0.151895 | 1.16 | 0.74 | 1.85 | 0.514 |
| Education | Low (ref) | | 1.00 | | | |
| | Moderate | 0.256897 | 1.29 | 0.85 | 1.98 | 0.232 |
| | High | 0.70506 | 2.02 | 1.23 | 3.35 | 0.006 |
| Income | Low (ref) | | 1.00 | | | |
| | Moderate | 0.038565 | 1.04 | 0.68 | 1.60 | 0.859 |
| | High | 0.085482 | 1.09 | 0.70 | 1.71 | 0.708 |
| | No answer | -0.47473 | 0.62 | 0.25 | 1.44 | 0.285 |
| Problematic alcohol use (Y/N) | No | | 1.00 | | | |
| | Yes | 0.360392 | 1.43 | 1.00 | 2.06 | 0.050 |
| | No answer | 0.26229 | 1.30 | 0.41 | 3.77 | 0.638 |

| | | | | | | |
|--|-------------------------------------|----------|-------|------|----------------------------|-------|
| Cigarette smoking status | Daily (ref) | | 1.00 | | | |
| | Non-daily | -0.55277 | 0.58 | 0.35 | 0.92 | 0.025 |
| | Former | -0.45563 | 0.63 | 0.34 | 1.16 | 0.149 |
| Mental health*country interaction term | No depression/anxiety*England (ref) | | 1.00 | | | |
| | Depression only*Australia | 2.801618 | 16.47 | 2.47 | 136.18 | 0.005 |
| | Anxiety only*Australia | -10.774 | 0.00 | NA | 22769453165899200000000000 | 0.979 |
| | Depression and anxiety*Australia | 0.719362 | 2.05 | 0.15 | 19.32 | 0.538 |
| | Depression only*Canada | 0.933002 | 2.54 | 0.61 | 10.56 | 0.196 |
| | Anxiety only*Canada | -1.54585 | 0.21 | 0.04 | 0.93 | 0.052 |
| | Depression and anxiety*Canada | -0.34615 | 0.71 | 0.27 | 1.80 | 0.471 |
| | Depression only*US | 0.381836 | 1.46 | 0.22 | 7.51 | 0.663 |
| | Anxiety only*US | 0.195571 | 1.22 | 0.24 | 5.52 | 0.804 |
| | Depression and anxiety*US | 0.118814 | 1.13 | 0.41 | 3.09 | 0.818 |

Likelihood-ratio test between Model 3 (fully adjusted) and Model 4 (country-differences): p=0.064

© 2023 Tildy B. E. et al.