**Supplementary Table 1. Unadjusted and Adjusted Odds Ratios for COVID-19 Vaccination among those with any mental health disorder.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Full | Vaccinated | Unadjusted | Fully Adjusted |
| **Sex** |  |  |  |  |
| Female | 732504 (51.1%) | 603293 (82.4%) | b | b |
| Male | 701310 (48.9%) | 563624 (80.4%) | 0.88 (0.87 - 0.88) | 0.92 (0.91 - 0.93) |
| **Age Bands** |  |  |  |  |
| 80+ | 69745 (4.9%) | 63263 (90.7%) | b | b |
| 70-79 | 139927 (9.8%) | 131327 (93.9%) | 1.56 (1.51 - 1.62) | 1.57 (1.52 - 1.63) |
| 60-69 | 198712 (13.9%) | 184363 (92.8%) | 1.32 (1.28 - 1.36) | 1.45 (1.4 - 1.5) |
| 50-59 | 257166 (17.9%) | 228744 (88.9%) | 0.82 (0.8 - 0.85) | 0.99 (0.96 - 1.03) |
| 40-49 | 242023 (16.9%) | 201523 (83.3%) | 0.51 (0.5 - 0.52) | 0.68 (0.66 - 0.7) |
| 30-39 | 250532 (17.5%) | 181014 (72.3%) | 0.27 (0.26 - 0.27) | 0.39 (0.38 - 0.41) |
| 18-29 | 275708 (19.2%) | 176683 (64.1%) | 0.18 (0.18 - 0.19) | 0.27 (0.26 - 0.28) |
| **Household** |  |  |  |  |
| 1 | 171428 (12.0%) | 144490 (84.3%) | b | b |
| 2 | 314104 (21.9%) | 270818 (86.2%) | 1.17 (1.15 - 1.19) | 1.12 (1.1 - 1.14) |
| 3-4 | 587909 (41.0%) | 481910 (82.0%) | 0.85 (0.84 - 0.86) | 1.17 (1.15 - 1.19) |
| 5+ | 153372 (10.7%) | 107976 (70.4%) | 0.44 (0.44 - 0.45) | 0.73 (0.71 - 0.74) |
| Missing | 207001 (14.4%) | 161723 (78.1%) |  |  |
| **Deprivation** |  |  |  |  |
| Most Deprived | 276734 (19.3%) | 205196 (74.1%) | b | b |
| 2 | 293043 (20.4%) | 232596 (79.4%) | 1.34 (1.33 - 1.36) | 1.12 (1.1 - 1.13) |
| 3 | 293343 (20.5%) | 240691 (82.1%) | 1.59 (1.57 - 1.61) | 1.21 (1.19 - 1.23) |
| 4 | 297232 (20.7%) | 249682 (84.0%) | 1.83 (1.81 - 1.85) | 1.3 (1.28 - 1.32) |
| Least Deprived | 273462 (19.1%) | 238752 (87.3%) | 2.4 (2.36 - 2.43) | 1.55 (1.52 - 1.58) |
| **House Value** |  |  |  |  |
| <74,999 | 262813 (18.3%) | 198538 (75.5%) | b | b |
| 75-99k | 294879 (20.6%) | 229647 (77.9%) | 1.14 (1.13 - 1.15) | 1.22 (1.2 - 1.24) |
| 100-124,999 | 232607 (16.2%) | 189820 (81.6%) | 1.44 (1.42 - 1.46) | 1.45 (1.43 - 1.48) |
| 125-199,999 | 384088 (26.8%) | 328731 (85.6%) | 1.92 (1.9 - 1.95) | 1.81 (1.78 - 1.83) |
| 200-249,999 | 103176 (7.2%) | 90218 (87.4%) | 2.25 (2.21 - 2.3) | 2.09 (2.04 - 2.15) |
| >250,000 | 97852 (6.8%) | 86164 (88.1%) | 2.39 (2.34 - 2.44) | 2.12 (2.07 - 2.18) |
| Missing | 58399 (4.1%) | 43799 (75.0%) | b | b |
| Settlement Band |  |  |  |  |
| Urban | 288136 (20.1%) | 223796 (77.7%) | b | b |
| Intermediate | 668530 (46.6%) | 544803 (81.5%) | 1.27 (1.25 - 1.28) | 1.04 (1.03 - 1.06) |
| Rural | 477147 (33.3%) | 398318 (83.5%) | 1.45 (1.44 - 1.47) | 1.12 (1.11 - 1.14) |
| Prescriptions |  |  |  |  |
| 0 | 807784 (56.3%) | 608279 (75.3%) | b | b |
| 1 | 248418 (17.3%) | 215180 (86.6%) | 2.12 (2.1 - 2.15) | 1.43 (1.41 - 1.45) |
| 2 | 157820 (11.0%) | 141761 (89.8%) | 2.9 (2.85 - 2.95) | 1.61 (1.57 - 1.64) |
| 3 | 102251 (7.1%) | 93043 (91.0%) | 3.31 (3.24 - 3.39) | 1.78 (1.73 - 1.82) |
| 4 | 62598 (4.4%) | 57589 (92.0%) | 3.77 (3.66 - 3.88) | 1.97 (1.91 - 2.04) |
| 5 | 54943 (3.8%) | 51065 (92.9%) | 4.32 (4.18 - 4.46) | 2.26 (2.18 - 2.35) |
| Mental Health |  |  |  |  |
| No | 1166765 (81.4%) | 938819 (80.5%) | b | b |
| Yes | 267049 (18.6%) | 228098 (85.4%) | 1.42 (1.41 - 1.44) | 0.90 (0.89, 0.91) |

**Table 2. Unadjusted and Adjusted Odds Ratios by Type of Mental Disorder**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Anxiolytics** | | **Hypnotics** | | **Anti-depressants** | | **Antipsychotics** | |
|  | Unadjusted OR | Adjusted OR | Unadjusted OR | Adjusted OR | Unadjusted OR | Adjusted OR | Unadjusted OR | Adjusted OR |
| **Sex** |  |  |  |  |  |  |  |  |
| Female | b | b | b | b | b | b | b | b |
| Male | 0.55 (0.54, 0.56) | 0.72 (0.7, 0.74) | 0.61 (0.6, 0.62) | 0.85 (0.83, 0.87) | 0.51 (0.51, 0.52) | 0.52 (0.52, 0.53) | 1.01 (0.99, 1.04) | 1.51 (1.47, 1.55) |
| **Age Bands** |  |  |  |  |  |  |  |  |
| 18-29 | 0.19 (0.18, 0.2) | 1.22 (1.14,1.31) | 0.07 (0.06 0.07) | 0.29 (0.27 0.31) | 0.38 (0.37, 0.39) | 3.19 (3.09 3.29) | 0.73 (0.68 0.79) | 3.34 (3.07 3.63) |
| 30-39 | 0.49 (0.46, 0.51) | 1.83 (1.72 1.93) | 0.12 (0.11, 0.12) | 0.29 (0.27, 0.31) | 0.72 (0.7, 0.74) | 4.43 (4.3, 4.56) | 1.25 (1.17 1.34) | 3.29 (3.04 3.56) |
| 40-49 | 0.72 (0.69, 0.76) | 1.69 (1.6, 1.78) | 0.22 (0.21, 0.23) | 0.37 (0.35, 0.39) | 1.12 (1.1, 1.15) | 5.23 (5.08, 5.38) | 1.71 (1.6, 1.83) | 3.07 (2.85 3.32) |
| 50-59 | 0.87 (0.83, 0.91) | 1.26 (1.2, 1.33) | 0.37 (0.35, 0.38) | 0.44 (0.42,0.46) | 1.52 (1.48, 1.55) | 4.76 (4.63, 4.89) | 2.03 (1.9, 2.17) | 2.44 (2.27 2.62) |
| 60-69 | 0.91 (0.87, 0.95) | 1.05 (1, 1.1) | 0.49 (0.47, 0.5) | 0.5 (0.48, 0.52) | 1.52 (1.49, 1.55) | 3.16 (3.07, 3.24) | 1.82 (1.7, 1.95) | 1.82 (1.69 1.95) |
| 70-79 | 0.93 (0.89, 0.98) | 1.06 (1.01 1.12) | 0.66 (0.63, 0.68) | 0.69 (0.66, 0.71) | 1.17 (1.14, 1.2) | 1.64 (1.59, 1.68) | 1.22 (1.13 1.31) | 1.28 (1.18 1.39) |
| 80+ | b | b | b | b | b | b | b | b |
| **Household** |  |  |  |  |  |  |  |  |
| 1 | b | b | b | b | b | b | b | b |
| 2 | 0.59 (0.57 0.61) | 0.86 (0.83 0.89) | 0.88 (0.86 0.91) | 1.01 (0.97 1.04) | 0.72 (0.71 0.74) | 0.90(0.88,0.91) | 0.47 (0.45 0.49) | 0.68 (0.66 0.71) |
| 3-4 | 0.38 (0.37, 0.39) | 0.79 (0.76, 0.81) | 0.73 (0.71, 0.75) | 0.93 (0.89, 0.96) | 0.55 (0.54, 0.55) | 0.87 (0.86, 0.89) | 0.33 (0.32, 0.34) | 0.56 (0.54, 0.58) |
| 5+ | 0.32 (0.31, 0.34) | 0.82 (0.78, 0.86) | 0.61 (0.59, 0.63) | 0.87 (0.84, 0.9) | 0.41 (0.4, 0.42) | 0.77 (0.75, 0.79) | 0.33 (0.32, 0.35) | 0.56 (0.53, 0.59) |
| Missing |  |  |  |  |  |  |  |  |
| **Deprivation** |  |  |  |  |  |  |  |  |
| Most Deprived | b | b | b | b | b | b | b | b |
| 2 | 0.72 (0.7, 0.74) | 0.96 (0.93, 1) | 0.88 (0.86, 0.91) | 1.01 (0.97, 1.04) | 0.77 (0.76, 0.78) | 0.94 (0.92, 0.95) | 0.67 (0.65, 0.69) | 0.89 (0.86, 0.93) |
| 3 | 0.58 (0.56, 0.59) | 0.93 (0.9, 0.97) | 0.73 (0.71, 0.75) | 0.93 (0.89, 0.96) | 0.67 (0.66, 0.68) | 0.91 (0.9, 0.93) | 0.53 (0.52, 0.55) | 0.84 (0.81, 0.88) |
| 4 | 0.52 (0.51, 0.54) | 1 (0.96, 1.04) | 0.61 (0.59, 0.63) | 0.87 (0.84, 0.9) | 0.6 (0.6, 0.61) | 0.9 (0.89, 0.92) | 0.42 (0.41, 0.44) | 0.78 (0.75, 0.82) |
| Least Deprived | 0.4 (0.38, 0.41) | 0.89 (0.86, 0.94) | 0.53 (0.51, 0.55) | 0.85 (0.82, 0.89) | 0.54 (0.53, 0.55) | 0.88 (0.86, 0.89) | 0.31 (0.3, 0.33) | 0.72 (0.68, 0.76) |
| **House Value** |  |  |  |  |  |  |  |  |
| <74,999 | b | b | b | b | b | b | b | b |
| 75-99k | 0.69 (0.67, 0.71) | 0.93 (0.9, 0.96) | 0.68 (0.66, 0.7) | 0.94 (0.91, 0.97) | 0.74 (0.73, 0.75) | 0.88 (0.86, 0.89) | 0.61 (0.59, 0.63) | 0.86 (0.83, 0.89) |
| 100-124,999 | 0.46 (0.45, 0.48) | 0.81 (0.78, 0.84) | 0.49 (0.48, 0.51) | 0.83 (0.8, 0.86) | 0.57 (0.56, 0.58) | 0.76 (0.75, 0.78) | 0.4 (0.39, 0.42) | 0.76 (0.73, 0.8) |
| 125-199,999 | 0.32 (0.31, 0.33) | 0.68 (0.66, 0.71) | 0.4 (0.39, 0.41) | 0.81 (0.78, 0.84) | 0.45 (0.45, 0.46) | 0.68 (0.67, 0.69) | 0.27 (0.26, 0.28) | 0.7 (0.67, 0.73) |
| 200-249,999 | 0.22 (0.21, 0.24) | 0.61 (0.57, 0.65) | 0.3 (0.29, 0.32) | 0.77 (0.72, 0.82) | 0.34 (0.33, 0.35) | 0.57 (0.56, 0.59) | 0.19 (0.18, 0.21) | 0.61 (0.57, 0.67) |
| >250,000 | 0.18 (0.17, 0.19) | 0.55 (0.51, 0.6) | 0.29 (0.27, 0.3) | 0.84 (0.78, 0.89) | 0.28 (0.27, 0.29) | 0.51 (0.49, 0.52) | 0.16 (0.15, 0.18) | 0.61 (0.56, 0.67) |
| Missing |  |  |  |  |  |  |  |  |
| **Settlement Band** |  |  |  |  |  |  |  |  |
| Urban | b | b | b | b | b | b | b | b |
| Intermediate | 0.80 (0.78, 0.82) | 0.88 (0.85, 0.91) | 1.00 (0.98, 1.03) | 1.14 (1.1, 1.17) | 0.89 (0.88, 0.9) | 0.96 (0.94, 0.97) | 0.78 (0.76, 0.8) | 0.96 (0.93, 0.99) |
| Rural | 0.57 (0.56, 0.59) | 0.83 (0.8, 0.86) | 0.83 (0.81, 0.86) | 1.2 (1.15, 1.24) | 0.67 (0.66, 0.68) | 0.85 (0.83, 0.86) | 0.54 (0.52, 0.56) | 0.95 (0.91, 0.99) |
| **Prescriptions** |  |  |  |  |  |  |  |  |
| 0 | b | b | b | b | b | b | b | b |
| 1 | 5.61 (5.4, 5.84) | 3.57 (3.41, 3.73) | 5.85 (5.62, 6.09) | 3 (2.87, 3.14) | 3.73 (3.68, 3.78) | 3.55 (3.49, 3.6) | 3.67 (3.54, 3.82) | 2.24 (2.14, 2.34) |
| 2 | 9.95 (9.57, 10.35) | 5.11 (4.87, 5.35) | 11.39 (10.95, 11.85) | 4.18 (3.99, 4.38) | 5.86 (5.78, 5.95) | 5.88 (5.78, 5.98) | 5.67 (5.46, 5.89) | 2.65 (2.52, 2.78) |
| 3 | 16.07(15.45,16.71) | 6.5 (6.19, 6.83) | 19.01(18.27,19.77) | 5.27 (5.03, 5.53) | 9.1 (8.96, 9.24) | 9.43 (9.24, 9.62) | 8.01 (7.7, 8.33) | 2.88 (2.74, 3.03) |
| 4 | 22.19 (21.3, 23.11) | 7.67 (7.28, 8.08) | 27.77 (26.67, 28.93) | 6.28 (5.97, 6.61) | 12.38 (12.16, 12.61) | 13.04 (12.74, 13.35) | 10.47 (10.03, 10.92) | 3.12 (2.95, 3.3) |
| 5 | 35.28 (33.93, 36.68) | 9.77 (9.28, 10.29) | 44.38 (42.67,46.16) | 7.85 (7.47, 8.26) | 18.67 (18.32, 19.04) | 19.01 (18.54, 19.49) | 14.14 (13.58, 14.73) | 3.23 (3.05, 3.42) |
| **Anxiolytics** |  |  |  |  |  |  |  |  |
| **No** |  |  | b | b | b | b | b | b |
| Yes |  |  | 19.39(18.93,19.86 | 4.85 (4.71, 4.99) | 13.85  (13.55,14.16) | 3.78 (3.68, 3.89) | 16.9 (16.44, 17.37) | 3.22 (3.11, 3.33) |
| **Hypnotics** |  |  |  |  |  |  |  |  |
| **No** | b | b |  |  | b | b | b | b |
| Yes | 19.39(18.93,19.86 | 4.72(4.58, 4.86) |  |  | 9.53(9.34, 9.72) | 2.94 (2.86, 3.02) | 13.05(12.68,13.4) | 2.84 (2.74, 2.94) |
| **Antidepressants** |  |  |  |  |  |  |  |  |
| **No** | b | b | b | b |  |  | b | b |
| Yes | 13.85(13.55,14.16 | 4.09(3.98, 4.2) | 9.53 (9.34, 9.72) | 3.21 (3.13, 3.3) |  |  | 15.88(15.47, 16.3) | 6.97(6.74, 7.2) |
| **Antipsychotic** | b | b | b | b | b | b |  |  |
| **No** |  |  |  |  |  |  |  |  |
| Yes | 16.9(16.44,17.37) | 3.44 (3.32, 3.56) | 13.0(12.68, 13.42) | 3.2 (3.09, 3.32) | 15.8 (15.47, 16.3) | 6.64 (6.42, 6.87) |  |  |

**Table 3. Unadjusted and Adjusted Odds ratios for under 40 sample**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Full Sample  N % | Vaccinated  N % | Unadjusted OR  (95% CI) | Adjusted  OR (95% CI) | Fully Adjusted  OR (95% CI) |
| **Sex** |  |  |  |  |  |
| Female | 261488 (49.7%) | 183108 (70.0%) | b | b | b |
| Male | 264752 (50.3%) | 174589 (65.9%) | 0.83 (0.82, 0.84) | 0.84 (0.83, 0.85) | 0.84 (0.83, 0.85) |
| **Age Bands** |  |  |  |  |  |
| 18,29 | 275708 (52.4%) | 176683 (64.1%) | b | b | b |
| 30,39 | 250532 (47.6%) | 181014 (72.3%) | 1.46 (1.44, 1.48) | 1.48 (1.46, 1.5) | 1.48 (1.46, 1.5) |
| **Household** |  |  |  |  |  |
| 1 | 32854 (6.2%) | 21839 (66.5%) | b | b | b |
| 2 | 69920 (13.3%) | 47499 (67.9%) | 1.07 (1.04, 1.1) | 1.06 (1.03, 1.09) | 1.04 (1.01, 1.07) |
| 3,4 | 243766 (46.3%) | 172780 (70.9%) | 1.23 (1.2, 1.26) | 1.14 (1.11, 1.17) | 1.12 (1.09, 1.15) |
| 5+ | 81930 (15.6%) | 49088 (59.9%) | 0.75 (0.73, 0.77) | 0.74 (0.72, 0.76) | 0.73 (0.71, 0.75) |
| Missing | 97770 (18.6%) | 66491 (68.0%) |  |  |  |
| **Deprivation** |  |  |  |  |  |
| Most Deprived | 116135 (22.1%) | 68520 (59.0%) | b | b | b |
| 2 | 110323 (21.0%) | 72201 (65.4%) | 1.32 (1.29, 1.34) | 1.13 (1.11, 1.16) | 1.13 (1.11, 1.16) |
| 3 | 106346 (20.2%) | 73380 (69.0%) | 1.55 (1.52, 1.57) | 1.23 (1.2, 1.26) | 1.23 (1.2, 1.25) |
| 4 | 104414 (19.8%) | 74970 (71.8%) | 1.77 (1.74, 1.8) | 1.33 (1.3, 1.36) | 1.32 (1.29, 1.35) |
| Least Deprived | 89023 (16.9%) | 68626 (77.1%) | 2.34 (2.29, 2.38) | 1.68 (1.64, 1.72) | 1.67 (1.63, 1.72) |
| **House Value** |  |  |  |  |  |
| <74,999 | 97128 (18.5%) | 56826 (58.5%) | b | b | b |
| 75,99k | 117620 (22.4%) | 74922 (63.7%) | 1.24 (1.22, 1.27) | 1.24 (1.21, 1.26) | 1.23 (1.21, 1.25) |
| 100,124,999 | 89808 (17.1%) | 62575 (69.7%) | 1.63 (1.6, 1.66) | 1.51 (1.47, 1.54) | 1.5 (1.46, 1.53) |
| 125,199,999 | 132656 (25.2%) | 98575 (74.3%) | 2.05 (2.02, 2.09) | 1.86 (1.82, 1.9) | 1.84 (1.8, 1.88) |
| 200,249,999 | 34571 (6.6%) | 26594 (76.9%) | 2.36 (2.3, 2.43) | 2.08 (2.01, 2.15) | 2.07 (2, 2.14) |
| >250,000 | 31212 (5.9%) | 24167 (77.4%) | 2.43 (2.36, 2.51) | 2.09 (2.02, 2.17) | 2.08 (2.01, 2.16) |
| Missing | 23245 (4.4%) | 14038 (60.4%) |  |  |  |
| **Settlement Band** |  |  |  |  |  |
| Urban | 117270 (22.3%) | 74583 (63.6%) | b | b | b |
| Intermediate | 241701 (45.9%) | 164145 (67.9%) | 1.21 (1.19, 1.23) | 1.04 (1.02, 1.06) | 1.04 (1.02, 1.06) |
| Rural | 167270 (31.8%) | 118969 (71.1%) | 1.41 (1.39, 1.43) | 1.15 (1.12, 1.17) | 1.14 (1.12, 1.17) |
| **Prescriptions** |  |  |  |  |  |
| 0 | 438805 (83.4%) | 293019 (66.8%) | b | b | b |
| 1 | 58714 (11.2%) | 43426 (74.0%) | 1.41 (1.39, 1.44) | 1.38 (1.35, 1.41) | 1.41 (1.38, 1.45) |
| 2 | 17751 (3.4%) | 13065 (73.6%) | 1.39 (1.34, 1.44) | 1.37 (1.31, 1.42) | 1.46 (1.4, 1.52) |
| 3 | 6843 (1.3%) | 5017 (73.3%) | 1.37 (1.3, 1.44) | 1.4 (1.31, 1.48) | 1.57 (1.47, 1.67) |
| 4 | 2703 (0.5%) | 2038 (75.4%) | 1.52 (1.4, 1.66) | 1.52 (1.38, 1.68) | 1.79 (1.62, 1.98) |
| 5 | 1424 (0.3%) | 1132 (79.5%) | 1.93 (1.7, 2.19) | 1.94 (1.68, 2.23) | 2.46 (2.13, 2.84) |
| **Anxiolytics** |  |  |  |  |  |
| No | 518872 (98.6%) | 353507 (68.1%) | b |  | b |
| Yes | 7368 (1.4%) | 4190 (56.9%) | 0.62 (0.59, 0.65) |  | 0.57 (0.53, 0.6) |
| **Hypnotics** |  |  |  |  |  |
| No | 521562 (99.1%) | 354901 (68.0%) | b |  | b |
| Yes | 4678 (0.9%) | 2796 (59.8%) | 0.7 (0.66, 0.74) |  | 0.78 (0.72, 0.84) |
| **Antidepressants** |  |  |  |  |  |
| No | 475949 (90.4%) | 322496 (67.8%) | b |  | b |
| Yes | 50291 (9.6%) | 35201 (70.0%) | 1.11 (1.09, 1.13) |  | 1.07 (1.04, 1.09) |
| **Antipsychotics** |  |  |  |  |  |
| No | 518646 (98.6%) | 353106 (68.1%) | b |  | b |
| Yes | 7594 (1.4%) | 4591 (60.5%) | 0.72 (0.68, 0.75) |  | 0.75 (0.71, 0.8) |

**Table 4. Unadjusted and Adjusted Odds ratios for Second Dose Vaccinations by Unvaccinated and First Dose Vaccinations.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Dose 2 v Unvaccinated | | | Dose 2 v Dose 1 | | |
|  | 1 Dose | 2 Doses | Any Dose | Unadjusted OR | Adjusted OR | Fully adjusted OR | Unadjusted OR | Adjusted OR | Fully adjusted OR |
| **Sex** |  |  |  |  |  |  |  |  |  |
| Female | 40610 (5.5%) | 562683 (76.8%) | 603293 (82.4%) | b | b | b | b | b | b |
| Male | 40167 (5.7%) | 523457 (74.6%) | 563624 (80.4%) | 0.89 (0.88,0.9) | 0.94  (0.93,0.95) | 0.93  (0.93,0.94) | 0.94  (0.93,0.95) | 0.96  (0.95,0.98) | 0.96  (0.94,0.97) |
| **Age Bands** |  |  |  |  |  |  |  |  |  |
| 18,29 | 2810 (4.0%) | 60453 (86.7%) | 63263 (90.7%) | b | b | b | b | b | b |
| 30,39 | 5000 (3.6%) | 126327 (90.3%) | 131327 (93.9%) | 1.43 (1.39,1.47) | 1.41 (1.36, 1.45) | 1.42 (1.38, 1.47) | 1.17 (1.12, 1.23) | 1.12 (1.07, 1.18) | 1.14 (1.09, 1.2) |
| 40,49 | 4439 (2.2%) | 179924 (90.5%) | 184363 (92.8%) | 1.47(1.43, 1.51) | 1.56 (1.52, 1.61) | 1.61 (1.56, 1.65) | 1.88(1.80, 1.98) | 1.83 (1.74, 1.93) | 1.90 (1.81, 2.01) |
| 50,59 | 8237 (3.2%) | 220507 (85.7%) | 228744 (88.9%) | 0.92 (0.90, 0.95) | 1.04(1.01, 1.07) | 1.09 (1.06, 1.12) | 1.24 (1.19, 1.3) | 1.21 (1.15, 1.27) | 1.28(1.21, 1.34) |
| 60,69 | 11197 (4.6%) | 190326 (78.6%) | 201523 (83.3%) | 0.57 (0.55, 0.58) | 0.69 (0.67, 0.71) | 0.73 (0.71, 0.75) | 0.79 (0.76, 0.82) | 0.79 (0.75, 0.83) | 0.84 (0.8, 0.88) |
| 70,79 | 19717 (7.9%) | 161297 (64.4%) | 181014 (72.3%) | 0.28 (0.27, 0.28) | 0.37 (0.36, 0.38) | 0.39 (0.38, 0.4) | 0.38 (0.37, 0.4) | 0.4 (0.38, 0.41) | 0.42 (0.4, 0.44) |
| 80+ | 29377 (10.7%) | 147306 (53.4%) | 176683 (64.1%) | 0.18 (0.17, 0.18) | 0.23 (0.23, 0.24) | 0.24 (0.24, 0.25) | 0.23 (0.22, 0.24) | 0.24 (0.23, 0.25) | 0.25 (0.24, 0.26) |
| **Household** |  |  |  |  |  |  |  |  |  |
| 1 | 8644 (5.0%) | 135846 (79.2%) | 144490 (84.3%) | b | b | b | b | b | b |
| 2 | 14035 (4.5%) | 256783 (81.8%) | 270818 (86.2%) | 1.17 (1.16, 1.19) | 1.13 (1.11, 1.15) | 1.11 (1.1, 1.13) | 1.16 (1.13, 1.2) | 1.13 (1.1, 1.17) | 1.11 (1.08, 1.15) |
| 3,4 | 33015 (5.6%) | 448895 (76.4%) | 481910 (82.0%) | 0.85 (0.83, 0.86) | 1.18 (1.17, 1.2) | 1.16 (1.14, 1.18) | 0.87 (0.84, 0.89) | 1.18 (1.15, 1.21) | 1.15 (1.12, 1.19) |
| 5+ | 11347 (7.4%) | 96629 (63.0%) | 107976 (70.4%) | 0.45 (0.44, 0.45) | 0.75 (0.74, 0.77) | 0.74 (0.72, 0.75) | 0.54 (0.53, 0.56) | 0.9 (0.87, 0.93) | 0.88 (0.85, 0.91) |
| Missing | 13736 (6.6%) | 147987 (71.5%) | 161723 (78.1%) |  |  |  |  |  |  |
| **Deprivation** |  |  |  |  |  |  |  |  |  |
| Most Deprived | 19379 (7.0%) | 185817 (67.1%) | 205196 (74.1%) | b | b | b | b | b | b |
| 2 | 18080 (6.2%) | 214516 (73.2%) | 232596 (79.4%) | 1.34 (1.32, 1.35) | 1.14 (1.13, 1.16) | 1.14 (1.12, 1.16) | 1.24 (1.21, 1.26) | 1.17 (1.14, 1.2) | 1.17 (1.14, 1.2) |
| 3 | 17304 (5.9%) | 223387 (76.2%) | 240691 (82.1%) | 1.56 (1.54, 1.58) | 1.24 (1.23, 1.26) | 1.24 (1.22, 1.26) | 1.35 (1.32, 1.38) | 1.24 (1.21, 1.28) | 1.24 (1.21, 1.27) |
| 4 | 14969 (5.0%) | 234713 (79.0%) | 249682 (84.0%) | 1.84 (1.82, 1.86) | 1.36 (1.34, 1.38) | 1.36 (1.33, 1.38) | 1.64 (1.6, 1.67) | 1.41 (1.38, 1.45) | 1.41 (1.37, 1.45) |
| Least Deprived | 11045 (4.0%) | 227707 (83.3%) | 238752 (87.3%) | 2.43 (2.4, 2.47) | 1.62 (1.59, 1.64) | 1.6 (1.58, 1.63) | 2.15 (2.1, 2.2) | 1.62 (1.57, 1.67) | 1.61 (1.56, 1.66) |
| **House Value** |  |  |  |  |  |  |  |  |  |
| <74,999 | 16786 (6.4%) | 181752 (69.2%) | 198538 (75.5%) | b | b | b | b | b | b |
| 75,99k | 18964 (6.4%) | 210683 (71.4%) | 229647 (77.9%) | 1.12 (1.1, 1.13) | 1.19 (1.17, 1.2) | 1.18 (1.16, 1.19) | 1.03 (1, 1.05) | 1.06 (1.04, 1.09) | 1.05 (1.03, 1.08) |
| 100,124,999 | 13479 (5.8%) | 176341 (75.8%) | 189820 (81.6%) | 1.4 (1.38, 1.42) | 1.41 (1.39, 1.43) | 1.39 (1.37, 1.41) | 1.21 (1.18, 1.24) | 1.19 (1.16, 1.22) | 1.17 (1.14, 1.2) |
| 125,199,999 | 19051 (5.0%) | 309680 (80.6%) | 328731 (85.6%) | 1.86 (1.83, 1.88) | 1.75 (1.72, 1.77) | 1.73 (1.7, 1.75) | 1.5 (1.47, 1.53) | 1.4 (1.36, 1.44) | 1.38 (1.35, 1.42) |
| 200,249,999 | 4759 (4.6%) | 85459 (82.8%) | 90218 (87.4%) | 2.15 (2.11, 2.19) | 2.03 (1.98, 2.07) | 2 (1.96, 2.05) | 1.66 (1.6, 1.71) | 1.57 (1.51, 1.63) | 1.54 (1.48, 1.61) |
| >250,000 | 3884 (4.0%) | 82280 (84.1%) | 86164 (88.1%) | 2.36 (2.31, 2.4) | 2.12 (2.06, 2.17) | 2.09 (2.04, 2.14) | 1.96 (1.89, 2.03) | 1.73 (1.65, 1.8) | 1.7 (1.63, 1.78) |
| Missing | 3854 (6.6%) | 39945 (68.4%) | 43799 (75.0%) |  |  |  |  |  |  |
| **Settlement Band** |  |  |  |  |  |  |  |  |  |
| Urban | 16903 (5.9%) | 206893 (71.8%) | 223796 (77.7%) | b | b | b | b | b | b |
| Intermediate | 35676 (5.3%) | 509127 (76.2%) | 544803 (81.5%) | 1.25 (1.24, 1.27) | 1.03 (1.02, 1.04) | 1.03 (1.01, 1.04) | 1.17 (1.14, 1.19) | 0.98 (0.96, 1) | 0.98 (0.96, 1) |
| Rural | 28198 (5.9%) | 370120 (77.6%) | 398318 (83.5%) | 1.36 (1.34, 1.37) | 1.05 (1.03, 1.06) | 1.04 (1.03, 1.06) | 1.07 (1.05, 1.09) | 0.87 (0.85, 0.9) | 0.87 (0.85, 0.89) |
| **Prescriptions** |  |  |  |  |  |  |  |  |  |
| 0 | 55226 (6.8%) | 553053 (68.5%) | 608279 (75.3%) | b | b | b | b | b | b |
| 1 | 10682 (4.3%) | 204498 (82.3%) | 215180 (86.6%) | 2.14 (2.12, 2.17) | 1.38 (1.36, 1.39) | 1.42 (1.4, 1.43) | 1.91 (1.87, 1.95) | 1.22 (1.19, 1.25) | 1.26 (1.23, 1.29) |
| 2 | 5934 (3.8%) | 135827 (86.1%) | 141761 (89.8%) | 2.84 (2.8, 2.89) | 1.48 (1.45, 1.51) | 1.56 (1.53, 1.59) | 2.29 (2.22, 2.35) | 1.19 (1.15, 1.23) | 1.26 (1.22, 1.31) |
| 3 | 3899 (3.8%) | 89144 (87.2%) | 93043 (91.0%) | 3.13 (3.07, 3.19) | 1.55 (1.51, 1.58) | 1.68 (1.64, 1.72) | 2.28 (2.21, 2.36) | 1.12 (1.08, 1.17) | 1.24 (1.19, 1.29) |
| 4 | 2563 (4.1%) | 55026 (87.9%) | 57589 (92.0%) | 3.35 (3.27, 3.43) | 1.61 (1.57, 1.66) | 1.8 (1.74, 1.85) | 2.14 (2.06, 2.23) | 1.04 (1, 1.09) | 1.18 (1.12, 1.24) |
| 5 | 2473 (4.5%) | 48592 (88.4%) | 51065 (92.9%) | 3.52 (3.43, 3.62) | 1.67 (1.62, 1.72) | 1.94 (1.88, 2) | 1.96 (1.88, 2.04) | 0.93 (0.89, 0.98) | 1.09 (1.04, 1.15) |
| **Anxiolytics** |  |  |  |  |  |  |  |  |  |
| No | 78267 (5.6%) | 1056383 (75.8%) | 1134650 (81.4%) | b |  | b | b |  | b |
| Yes | 2510 (6.3%) | 29757 (74.5%) | 32267 (80.7%) | 0.93 (0.91, 0.95) |  | 0.65 (0.63, 0.67) | 0.88 (0.84, 0.92) |  | 0.74 (0.7, 0.78) |
| **Hypnotics** |  |  |  |  |  |  |  |  |  |
| No | 78445 (5.6%) | 1051608 (75.6%) | 1130053 (81.2%) | b |  | b | b |  | b |
| Yes | 2332 (5.5%) | 34532 (80.9%) | 36864 (86.4%) | 1.37 (1.33, 1.4) |  | 0.87 (0.85, 0.9) | 1.1 (1.06, 1.15) |  | 0.84 (0.8, 0.88) |
| **Antidepressant** |  |  |  |  |  |  |  |  |  |
| No | 68401 (5.7%) | 896262 (74.9%) | 964663 (80.6%) | b |  | b | b |  | b |
| Yes | 12376 (5.2%) | 189878 (80.3%) | 202254 (85.5%) | 1.37 (1.36, 1.39) |  | 0.99 (0.97, 1) | 1.17 (1.15, 1.19) |  | 0.92 (0.9, 0.95) |
| **Antipsychotic** |  |  |  |  |  |  |  |  |  |
| No | 78649 (5.6%) | 1064547 (75.8%) | 1143196 (81.4%) | b |  | b | b |  | b |
| Yes | 2128 (7.1%) | 21593 (71.8%) | 23721 (78.9%) | 0.81 (0.79, 0.83) |  | 0.74 (0.72, 0.77) | 0.75 (0.72, 0.78) |  | 0.76 (0.72, 0.81) |

**Supplementary Figure 1. Data linkage Flow Diagram**

**Emergency Department Data**

**Enhanced Prescribing Data**

**Vaccine Management**

**System**

**Laboratory Data**

**Mortality Data**

**Patient Administration**

**System**

**National Health**

**Authority Information System (NHAIS)**

**NI Population**