**Supplementary Appendices**

**Appendix S1: Measures for prior mental health disorder and positive/negative life events**

**Table 1.1 Question items for prior mental health disorder and positive/negative life events**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Question** | **Response options** | **Code** |
| **Prior mental health disorder** | Have you had the experience of being diagnosed with any mental health issues (e.g., depression/anxiety/PTSD) previously? | Yes/No | Prior mental health disorder (Yes/No) |
| **Experience of life events** | Due to the COVID-19 outbreak, have the following events happened at some point? (Please select all that apply)  | Death of a spouse/ partner/ close relative or friend | Negative  |
|  |  | Major health event for you or a loved one requiring hospitalisation | Negative  |
|  |  | You or your partner losing your job | Negative  |
|  |  | Gaining new employment | Positive  |
|  |  | Change in financial status for the better (e.g. earning more money) | Positive  |
|  |  | Change in financial status for the worse (e.g. hours of employment reduced) | Negative  |
|  |  | Change in living conditions for the better  | Positive  |
|  |  | Change in living conditions for the worse | Negative  |
|  |  | Change in personal relations for the better | Positive  |
|  |  | Change in personal relations for the worse | Negative  |
|  |  | None of the above | N/A |

**Appendix S2: Results from univariable regressions**

**Table 2.1 Regression models showing associations between demographic explanatory variables and depression and anxiety scores at Time 3**

|  |  |  |
| --- | --- | --- |
|  | **Depression total score at Time 3a** | **Anxiety total score at Time 3 a** |
|  | **Mean difference (95%CI), *p*** | **Mean difference (95%CI), *p***  |
| Age (per decade) | -0.21(-0.26, -0.15), <.001 | -0.23 (-0.28, -0.17), <.001 |
| Female (yes/no) | 0.14 (-0.07, 0.34), .20 | 0.15 (-0.07, 0.37), .17 |
| BAME background (yes/no) | 0.03 (-0.28, 0.35), .83 | 0.01 (-0.32, 0.34), .94 |
| Key-worker (yes/no) | 0.11 (-0.04, 0.26), .14 | 0.16 (0.01, 0.32), .040 |
| Prior mental health disorder (yes/no) | 0.72 (0.57, 0.87), <.001 | 0.73 (0.58, 0.89), <.001 |
| Risk Groupb |  |  |
| Most at Risk  | 0.55 (0.12, 0.99), .014 | 0.50 (0.04, 0.95), .032 |
| Increased Risk | 0.15 (-0.03, 0.34), .10 | 0.16 (-0.03, 0.35), .10 |
| Living alone (yes/no) | 0.15 (-0.06, 0.35), .16 | -0.17 (-0.39, 0.04), .11 |
| Pandemic-related positive life event (per unit) | -0.09 (-0.20, 0.01), .089 | -0.13 (-0.24, -0.02), .026 |
| Pandemic-related negative life event (per unit) | 0.31 (0.23, 0.39), <.001 | 0.25 (0.17, 0.34), <.001 |
| **Adjust R2** | **0.24** | **0.23** |
| **N** | **869** | **869** |

a A square-root transformation was applied to the dependent variable.

b Comparison reference group “I am in neither risk category”.

**Appendix S3: Sensitivity analysis:**

**Table 3.1 Estimated means, categories and ‘cases’ of depression and anxiety symptoms weighted to UK population distributiona**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **Baseline** | **Time 2** | **Time 3** |
| **Depression (PHQ-9**b**)** |  |  |  |  |
| **Overall estimated mean (95%CI)** |  | 6.71 (6.14, 7.01) | 4.99 (4.64, 5.33) | 5.84 (5.41, 6.27) |
| **Estimated categories**  | No-Minimal Depression (0-4) | 45.2% | 57.1% | 50.3% |
|  | Mild Depression (5-9) | 28.6% | 25.6% | 28.1% |
|  | Moderate Depression (10-14) | 14.3% | 12.5% | 12.9% |
|  | Moderately Severe Depression (15-19) | 7.4% | 4.6% | 6.3% |
|  | Severe Depression (20-27) | 4.4% | 1.2% | 2.4% |
| **Estimated ‘cases’c** | ‘Non-cases’ (0-9) | 73.8% | 82.7% | 78.4% |
|  | ‘Cases’ (10-27) | 26.2% | 17.3% | 21.6% |
| **Estimated ‘case’ incidence and improvementd** | *Incidence* | NR | NR | 3.4% |
|  | *Improvement* | NR | NR | 12.5% |
| **Anxiety (GAD-7b)** |  |  |  |  |
| **Overall estimated mean (95%CI)** |  | 5.56 (5.31, 5.80) | 4.21 (3.90, 4.51) | 4.57 (4.21, 4.92) |
| **Estimated categories**  | No-Minimal Anxiety (0-4) | 52.7% | 63.7% | 58.6% |
|  | Mild Anxiety (5-9) | 26.6% | 23.7% | 26.1% |
|  | Moderate Anxiety (10-14) | 10.9% | 8.7% | 8.9% |
|  | Severe Anxiety (15-21) | 9.8% | 4.0% | 6.3% |
| **Estimated ‘cases’c**  | ‘Non-cases’ (0-7) | 72.4% | 81.6% | 78.3% |
|  | ‘Cases’ (8-21) | 27.6% | 18.4% | 21.7% |
| **Estimated ‘case’ incidence and improvementd**  | *Incidence* | NR | NR | 2.9% |
|  | *Improvement* | NR | NR | 13.1% |

a Overall means, categories, and cases weighted to mid-year population distribution of the UK for 2019/2020

b PHQ-9, the 9-item Patient Health Questionnaire;19 GAD-7, the 7-item Generalized Anxiety Disorder Scale.20

cA ‘case’ is defined as the PHQ-9 score greater or equal to 10, or the GAD-7 score greater or equal to 8, at which level someone would qualify for high intensity psychological support in the National Health Service.

d An ‘incidence’ is defined as becoming a ‘case’ at Time 2 or 3 among participants who were ‘non-cases’, ‘Improvement’ is defined as becoming a ‘non-case’ at Time 2 or 3 among participants who were ‘cases’.

NR not reported or not available.

**Table 3.2 Regression models showing associations between sociodemographic and psychological explanatory variables and depression and anxiety scores and Time 3 weighted to UK population distributiona**

|  |  |  |
| --- | --- | --- |
|  | **Depression total score at Time 3a** | **Anxiety total score at Time 3a** |
|  | **Mean difference (95%CI), *p*** | **Mean difference (95%CI), *p***  |
| Age groups (weighted) | **-0.07 (-0.10, -0.04), <.001\*\*\*** | **-0.08 (-0.12, -0.05), <.001\*\*\*** |
| Female (yes/no, weighted) | 0.01 (-0.17, 0.19), .91 | 0.12 (-0.09, 0.32), .26 |
| BAME background (yes/no) | -0.31 (-0.67, 0.05), .09 | -0.16 (-0.55, 0.23), .42 |
| Key-worker (yes/no) | **0.28 (0.08, 0.48), .005\*\*** | 0.20 (-0.04, 0.44), .10 |
| Prior mental health disorder (yes/no) | **0.53 (0.33, 0.74), <.001\*\*\*** | **0.58 (0.34, 0.82), <.001\*\*\*** |
| Risk Groupb |  |  |
| Most at Risk  | 0.19 (-0.29, 0.67), .44 | 0.26 (-0.19, 0.71), .25 |
| Increased Risk | **0.29 (0.08, 0.50), .008\*\*** | 0.13 (-0.08, 0.34), .23 |
| Living alone (yes/no) | **-0.25 (-0.48, -0.02), .03\*** | **-0.45 (-0.72, -0.18), .001\*\*** |
| Pandemic-related positive life event (per unit) | 0.01 (-0.14, 0.16), .90 | -0.03 (-0.16, 0.11), .70 |
| Pandemic-related negative life event (per unit) | **0.20 (0.10, 0.30), <.001\*\*\*** | 0.06 (-0.07, 0.19), .35 |
| Baseline perceived loneliness (per unit) | **0.12 (0.07, 0.16), <.001\*\*\*** | **0.05 (0.001, 0.10), .048\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.10, -0.05), <.001\*\*\*** | **-0.08 (-0.11, -0.05), <.001\*\*\*** |
| Baseline perceived risk of COVID-19 (per unit) | -0.01 (-0.05, 0.03), .50 | 0.04 (-0.02, 0.09), .18 |
| Baseline COVID-19worryc |  |  |
| No worry | -0.03 (-0.27, 0.20), .79 | -0.23 (-0.48, 0.01), .07 |
| Much of time | 0.04 (-0.34, 0.42), .83 | -0.03 (-0.41, 0.34), .87 |
| Most of time | -0.16, -0.81, 0.49), .63 | 0.02 (-0.65, 0.70), .94 |
| **N** | **717** | **717** |

a Overall means weighted to mid-year population distribution of the UK for 2019/2020

a A square-root transformation was applied to the dependent variable.

b Comparison reference group “I am in neither risk category”.

c Comparison reference group “I occasionally worry about getting COVID-19”.

**Table 3.3: Logistic regression models showing associations between explanatory variables and incidence or improvement of depression and anxiety ‘cases’ a weighted to UK population distributionb**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Incident depression ‘cases’ c** | **Incident anxiety ‘cases’ c** | **Improved depression ‘cases’ d** | **Improved anxiety ‘cases’ d** |
|  | **Odd Ratio (95% CI), *p*** | **Odd Ratio (95% CI), *p*** | **Odd Ratio (95% CI), *p*** | **Odd Ratio (95% CI), *p*** |
| Age group (weighted) | 1.03 (0.94, 1.13), .54 | **0.90 (0.83, 0.99), .30** | 1.03 (0.92, 1.14), .68  | 1.07 (0.99, 1.16), .07 |
| Prior mental health disorder (yes/no) | **4.01 (1.76, 9.11), .001\*\*** | **3.49 (1.56, 7.82), .002** | 1.48 (0.77, 2.89), .23 | **0.39 (0.20, 0.75), .005\*\*** |
| Live alone (yes/no) | 0.34 (0.11, 1.06), .06 | **0.44 (0.11, 1.82), .26** | 1.56 (0.62, 4.02), .36 | **5.11 (1.59, 16.47), .007\*\*** |
| Pandemic-related negative life events (per unit) | **1.58 (1.18, 2.11), .002\*\*** | **1.19 (0.72, 1.96), .49** | 0.73 (0.51, 1.05), .09 | 0.97 (0.69, 1.37), .86 |
| Baseline perceived loneliness (per unit) | **1.38 (1.17, 1.64), <.001\*\*\*** | 1.13 (0.95, 1.35), .18 | **0.84 (0.75, 0.94), .002\*\*** | **0.74 (0.64, 0.85), <.001\*\*\*** |
| Baseline positive mood (per unit) | **0.88 (0.79, 0.98), .021\*** | **0.88 (0.82, 0.94), 001\*\*\*** | 1.08 (0.98, 1.19), .11 | 0.96 (0.87, 1.06), .41 |
| **N** | **651** | **637** | **152** | **177** |

\*\*\* *p*<0.001, \*\* *p*<0.01, \* *p*<0.05

a A ‘case’ is defined as the PHQ-9 score greater or equal to 10 for depression, or the GAD-7 score greater or equal to 8 for anxiety, at which level someone would qualify for high intensity psychological support in the National Health Service.

b Proportions weighted to mid-year population distribution of the UK for 2019/2020

c Incidence refers to individuals who were ‘non-cases’ at baseline and subsequently became ‘cases’ at Time 2 or 3. The comparison groups were non-cases of depression at all time and non-cases of anxiety at all 3 time, respectively.

d Improvement refers to individuals who were ‘cases’ at baseline and subsequently became ‘non-cases’ at Time 2 or 3. The comparison groups were non-cases of depression at all time and non-cases of anxiety at all time, respectively.

**Table 3.4 Regression models showing associations between sociodemographic and psychological explanatory variables and depression or anxiety scores at Time 3 controlling for depression and anxiety s scores at baseline**

|  |  |  |
| --- | --- | --- |
|  | **Depression total score at Time 3a** | **Anxiety total score at Time 3a** |
|  | **Mean difference (95%CI), *p*** | **Mean difference (95%CI), *p***  |
| Age (per decade) | **-0.05 (-0.11, -0.00), 0.045\*** | **-0.08 (-0.14, -0.03), 0.004\*\*** |
| Female (yes/no) | -0.01 (-0.20, 0.17), 0.91 | -0.00 (-0.20, 0.19), 0.97 |
| BAME background (yes/no) | 0.01 (-0.28, 0.30), 0.95 | -0.07 (-0.37, 0.23), 0.65 |
| Key-worker (yes/no) | -0.02 (-0.17, 0.13), 0.79 | 0.07 (-0.08, 0.22), 0.37 |
| Prior mental health disorder (yes/no) | **0.39 (0.25, 0.53), <0.001\*\*\*** | **0.35 (0.21, 0.50), <0.001\*\*\*** |
| Risk Groupb |  |  |
| Most at Risk  | 0.15 (-0.23, 0.54), 0.43 | 0.25 (-0.16, 0.66), 0.23 |
| Increased Risk | 0.10 (-0.07, 0.26), 0.27 | 0.07 (-0.11, 0.25), 0.44 |
| Living alone (yes/no) | -0.18 (-0.37, 0.01), 0.069 | **-0.23 (-0.43, -0.02), 0.032\*** |
| Pandemic-related Positive life event (per unit) | -0.07 (-0.18, 0.03), 0.16 | -0.07 (-0.18, 0.04), 0.20 |
| Pandemic-related negative life event (per unit) | **0.19 (0.12, 0.26), <0.001\*\*\*** | **0.18 (0.10, 0.26), <0.001\*\*\*** |
| Perceived loneliness (per unit) | 0.02 (-0.02, 0.05), 0.30 | 0.01 (-0.02, 0.04), 0.52 |
| Positive mood (per unit) | **-0.02 (-0.04, -0.01), 0.011\*** | -0.01 (-0.03, 0.01), 0.18 |
| Perceived risk of COVID-19 (per unit) | -0.00 (-0.03, 0.03), 0.96 | -0.01 (-0.05, 0.02), 0.55 |
| COVID-19worryc |  |  |
| No worry | -0.09 (-0.27, 0.09), 0.32 | -0.04 (-0.24, 0.15), 0.65 |
| Much of time | -0.06 (-0.28, 0.15), 0.58 | -0.06 (-0.29, 0.17), 0.63 |
| Most of time | -0.13 (-0.61, 0.35), 0.60 | -0.16 (-0.67, 0.34), 0.53 |
| Baseline depression total score (per unit) | **0.54 (0.45, 0.62), <0.001\*\*\*** | N/A |
| Baseline anxiety total score (per unit) | N/A | **0.55 (0.47, 0.63), <0.001\*\*\*** |
| **Adjusted R2** | **0.50** | **0.46** |
| **N** | **717** | **717** |

a A square-root transformation was applied to the dependent variable.

b Comparison reference group “I am in neither risk category”.

c Comparison reference group “I occasionally worry about getting COVID-19”.

**Table 3.5 Backwards stepwise regression models showing associations between sociodemographic and psychological explanatory variables and depression scores at Time 3**

|  |  |
| --- | --- |
|  | **Depression total score at Time 3a** |
|   | **Mean difference (95%CI), *p*** |
| **Step 1** b |  |
| Age (per 10 year increase) | **-0.14 (-0.20, -0.09), <0.001\*\*\*** |
| Female (yes/no) | 0.04 (-0.16, 0.25), 0.67 |
| BAME background (yes/no) | -0.18 (-0.49, 0.14), 0.27 |
| Key-worker (yes/no) | 0.09 (-0.07, 0.25), 0.28 |
| Prior mental health disorder (yes/no) | **0.56 (0.41, 0.72), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.24 (-0.18, 0.67), 0.26 |
| Increased Risk | 0.14 (-0.04, 0.33), 0.14 |
| Living alone (yes/no) | -0.16 (-0.37, 0.06), 0.15 |
| Pandemic-related negative life event (per unit) | **0.24 (0.16, 0.32), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.04, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.10, -0.06), <0.001\*\*\*** |
| Baseline perceived risk of COVID-19 (per unit) | 0.01 (-0.02, 0.05), 0.47 |
| Baseline COVID-19worryc |  |
| No worry | -0.05 (-0.25, 0.15), 0.64 |
| Much of time | 0.10 (-0.14, 0.33), 0.42 |
| Most of time | -0.11 (-0.63, 0.42), 0.70 |
| **Adjusted R2** | **0.39** |
| **N** | **717** |
| **Step 2** b |  |
| Age (per 10 year increase) | **-0.14 (-0.19, -0.09), <0.001\*\*\*** |
| Female (yes/no) | 0.05 (-0.15, 0.25), 0.63 |
| BAME background (yes/no) | -0.18 (-0.49, 0.14), 0.27 |
| Key-worker (yes/no) | 0.08 (-0.07, 0.24), 0.30 |
| Prior mental health disorder (yes/no) | **0.56 (0.41, 0.72), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.26 (-0.16, 0.68), 0.23 |
| Increased Risk | 0.15 (-0.04, 0.33), 0.12 |
| Living alone (yes/no) | -0.16 (-0.37, 0.06), 0.15 |
| Pandemic-related negative life event (per unit) | **0.24 (0.16, 0.32), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.04, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.10, -0.06), <0.001\*\*\*** |
| Baseline perceived risk of COVID-19 (per unit) | 0.02 (-0.02, 0.05), 0.34 |
| **Adjusted R2** | **0.39** |
| **N** | **717** |
| **Step 3** b |  |
| Age (per 10 year increase) | **-0.14 (-0.19, -0.09), <0.001\*\*\*** |
| BAME background (yes/no) | -0.18 (-0.50, 0.13), 0.25 |
| Key-worker (yes/no) | 0.09 (-0.07, 0.25), 0.27 |
| Prior mental health disorder (yes/no) | **0.57 (0.41, 0.72), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.26 (-0.16, 0.69), 0.22 |
| Increased Risk | 0.15 (-0.04, 0.33), 0.12 |
| Living alone (yes/no) | -0.15 (-0.37, 0.06), 0.15 |
| Pandemic-related negative life event (per unit) | **0.24 (0.16, 0.32), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.04, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.10, -0.06), <0.001\*\*\*** |
| Baseline perceived risk of COVID-19 (per unit) | 0.02 (-0.02, 0.05), 0.35 |
| **Adjusted R2** | **0.39** |
| **N** | **717** |
| **Step 4** b |  |
| Age (per 10 year increase) | **-0.14 (-0.19, -0.09), <0.001\*\*\*** |
| BAME background (yes/no) | -0.16 (-0.44, 0.13), 0.28 |
| Key-worker (yes/no) | 0.13 (-0.00, 0.26), 0.050 |
| Prior mental health disorder (yes/no) | **0.54 (0.40, 0.67), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.22 (-0.18, 0.61), 0.28 |
| Increased Risk | 0.13 (-0.03, 0.30), 0.12 |
| Living alone (yes/no) | -0.11 (-0.30, 0.09), 0.28 |
| Pandemic-related negative life event (per unit) | **0.24 (0.17, 0.31), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.05, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.09, -0.06), <0.001\*\*\*** |
| **Adjusted R2** | **0.39** |
| **N** | **869** |
| **Step 5** b |  |
| Age (per 10 year increase) | **-0.15 (-0.19, -0.10), <0.001\*\*\*** |
| BAME background (yes/no) | -0.17 (-0.45, 0.11), 0.24 |
| Key-worker (yes/no) | **0.13 (0.00, 0.27), 0.045\*** |
| Prior mental health disorder (yes/no) | **0.53 (0.39, 0.67), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.22 (-0.17, 0.61), 0.28 |
| Increased Risk | 0.13 (-0.04, 0.30), 0.13 |
| Pandemic-related negative life event (per unit) | **0.23 (0.16, 0.31), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.07 (0.04, 0.10), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.09, -0.06), <0.001\*\*\*** |
| **Adjusted R2** | **0.39** |
| **N** | **869** |
| **Step 6** b |  |
| Age (per 10 year increase) | **-0.14 (-0.18, -0.09), <0.001\*\*\*** |
| BAME background (yes/no) | -0.16 (-0.44, 0.12), 0.26 |
| Key-worker (yes/no) | 0.12 (-0.01, 0.25), 0.07 |
| Prior mental health disorder (yes/no) | **0.53 (0.40, 0.67), <0.001\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.24 (0.16, 0.31), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.05, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.09, -0.06), <0.001\*\*\*** |
| **Adjusted R2** | **0.39** |
| **N** | **869** |
| **Step 7** b |  |
| Age (per 10 year increase) | **-0.13 (-0.17, -0.09), <0.001\*\*\*** |
| Key-worker (yes/no) | 0.12 (-0.01, 0.25), 0.08 |
| Prior mental health disorder (yes/no) | **0.54 (0.41, 0.68), <0.001\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.24 (0.17, 0.31), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.05, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.09, -0.06), <0.001\*\*\*** |
| **Adjusted R2** | **0.39** |
| **N** | **870** |
| **Step 8** b |  |
| Age (per 10 year increase) | **-0.14 (-0.18, -0.09), <0.001\*\*\*** |
| Prior mental health disorder (yes/no) | **0.55 (0.41, 0.68), <0.001\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.24 (0.17, 0.31), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.08 (0.05, 0.10), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.08 (-0.09, -0.06), <0.001\*\*\*** |
| **Adjusted R2** | **0.38** |
| **N** | **870** |

a A square-root transformation was applied to the dependent variable.

b Step 1 reports the regression model excluding the least significant independent variable from the original model (i.e., main analysis).

c Comparison reference group “I am in neither risk category”.

d Comparison reference group “I occasionally worry about getting COVID-19”.

**Table 3.6 Backwards stepwise regression models showing associations between sociodemographic and psychological explanatory variables and anxiety scores at Time 3**

|  |  |
| --- | --- |
|  | **Anxiety total score at Time 3a** |
|  | **Mean difference (95%CI), *p***  |
| **Step 1** b |  |
| Age (per 10 year increase) | **-0.15 (-0.21, -0.09), <0.001\*\*\*** |
| Female (yes/no) | 0.11 (-0.11, 0.33), 0.33 |
| BAME background (yes/no) | -0.10 (-0.44, 0.23), 0.55 |
| Key-worker (yes/no) | 0.11 (-0.06, 0.27), 0.22 |
| Prior mental health disorder (yes/no) | **0.51 (0.35, 0.68), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.11 (-0.34, 0.56), 0.64 |
| Increased Risk | 0.07 (-0.13, 0.27), 0.48 |
| Living alone (yes/no) | **-0.44 (-0.67, -0.22), <0.001\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.19 (0.11, 0.28), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.05 (0.02, 0.09), 0.004\*\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.09, -0.06), <0.001\*\*\*** |
| Baseline perceived risk of COVID-19 (per unit) | 0.01 (-0.03, 0.05), 0.58 |
| Baseline COVID-19worryc |  |
| No worry | -0.11 (-0.33, 0.10), 0.30 |
| Much of time | 0.25 (-0.00, 0.50), 0.052 |
| Most of time | 0.16 (-0.40, 0.72), 0.58 |
| **Adjusted R2** | **0.33** |
| **N** | **717** |
| **Step 2** b |  |
| Age (per 10 year increase) | **-0.17 (-0.22, -0.11), <0.001\*\*\*** |
| Female (yes/no) | 0.09 (-0.11, 0.29), 0.37 |
| BAME background (yes/no) | -0.15 (-0.45, 0.15), 0.32 |
| Key-worker (yes/no) | **0.17 (0.03, 0.31), 0.019\*** |
| Prior mental health disorder (yes/no) | **0.55 (0.41, 0.70), <0.001\*\*\*** |
| Risk Groupb |  |
| Most at Risk  | 0.15 (-0.27, 0.57), 0.48 |
| Increased Risk | 0.12 (-0.05, 0.30), 0.17 |
| Living alone (yes/no) | **-0.40 (-0.60, -0.19), <0.001\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.18 (0.11, 0.26), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.07 (0.04, 0.10), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.08, -0.05), <0.001\*\*\*** |
| Baseline COVID-19worryc |  |
| No worry | -0.14 (-0.33, 0.04), 0.13 |
| Much of time | **0.25 (0.03, 0.47), 0.027\*** |
| Most of time | 0.17 (-0.31, 0.65), 0.48 |
| **Adjusted R2** | **0.35** |
| **N** | **869** |
| **Step 3** b |  |
| Age (per 10 year increase) | **-0.16 (-0.21, -0.11), <0.001\*\*\*** |
| Female (yes/no) | 0.09 (-0.11, 0.29), 0.39 |
| BAME background (yes/no) | -0.15 (-0.45, 0.15), 0.33 |
| Key-worker (yes/no) | **0.16 (0.02, 0.30), 0.026\*** |
| Prior mental health disorder (yes/no) | **0.56 (0.41, 0.70), <0.001\*\*\*** |
| Living alone (yes/no) | **-0.39 (-0.60, -0.19), 0.00\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.18 (0.11, 0.26), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.07 (0.04, 0.11), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.08, -0.05), <0.001\*\*\*** |
| Baseline COVID-19worryc |  |
| No worry | -0.15 (-0.33, 0.04), 0.11 |
| Much of time | **0.26 (0.04, 0.48), 0.021\*** |
| Most of time | 0.16 (-0.32, 0.64), 0.52 |
| **Adjusted R2** | **0.35** |
| **N** | **869** |
| **Step 4** b |  |
| Age (per 10 year increase) | **-0.16 (-0.21, -0.11), <0.001\*\*\*** |
| BAME background (yes/no) | -0.16 (-0.46, 0.14), 0.31 |
| Key-worker (yes/no) | **0.17 (0.03, 0.31), 0.021\*** |
| Prior mental health disorder (yes/no) | **0.56 (0.41, 0.70), <0.001\*\*\*** |
| Living alone (yes/no) | **-0.39 (-0.59, -0.18), 0.00\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.18 (0.11, 0.26), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.07 (0.04, 0.10), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.08, -0.05), <0.001\*\*\*** |
| Baseline COVID-19worryc |  |
| No worry | -0.15 (-0.33, 0.04), 0.12 |
| Much of time | **0.26 (0.04, 0.48), 0.020\*** |
| Most of time | 0.16 (-0.32, 0.64), 0.52 |
| **Adjusted R2** | **0.35** |
| **N** | **869** |
| **Step 5** b |  |
| Age (per 10 year increase) | **-0.15 (-0.20, -0.10), <0.001\*\*\*** |
| Key-worker (yes/no) | **0.16 (0.02, 0.30), 0.024\*** |
| Prior mental health disorder (yes/no) | **0.57 (0.42, 0.71), <0.001\*\*\*** |
| Living alone (yes/no) | **-0.40 (-0.60, -0.19), 0.00\*\*\*** |
| Pandemic-related negative life event (per unit) | **0.19 (0.11, 0.26), <0.001\*\*\*** |
| Baseline perceived loneliness (per unit) | **0.07 (0.04, 0.10), <0.001\*\*\*** |
| Baseline positive mood (per unit) | **-0.07 (-0.08, -0.05), <0.001\*\*\*** |
| Baseline COVID-19worryc |  |
| No worry | -0.15 (-0.33, 0.04), 0.12 |
| Much of time | **0.27 (0.04, 0.49), 0.019\*** |
| Most of time | 0.17 (-0.31, 0.64), 0.49 |
| **Adjusted R2** | **0.35** |
| **N** | **870** |

a A square-root transformation was applied to the dependent variable.

b Step 1 reports the regression model excluding the least significant independent variable from the original model (i.e., main analysis).

c Comparison reference group “I am in neither risk category”.

d Comparison reference group “I occasionally worry about getting COVID-19”.

**Table 3.7 Number of missing data for each variable of interest**

|  |  |
| --- | --- |
| **Variable**  | **Number of missing** |
| Age | 2 |
| Gender | 3 |
| Ethnicity | 5 |
| Prior mental health disorder (yes/no) | 1725 |
| Pandemic-related positive life event | 2010 |
| Pandemic-related negative life event | 2010 |
| Depression (time 2) | 1710 |
| Anxiety (time 2) | 1710 |
| Depression (time 3) | 2010 |
| Anxiety (time 3) | 2010 |

**Table 3.8 Regression models showing associations between sociodemographic and psychological explanatory variables and depression or anxiety scores at Time 3 with 70 imputed datasets**

|  |  |  |
| --- | --- | --- |
|  | **Depression total score at Time 3a** | **Anxiety total score at Time 3a** |
|  | **Mean difference (95%CI), *p*** | **Mean difference (95%CI), *p***  |
| Age (per 10-years increase) | **-0.15 (-0.19, -0.11), <.001** | **-0.17 (-0.22, -0.13), <.001** |
| Female (yes/no) | 0.14 (-0.01, 0.29), .071 | **0.17 (0.01, 0.33), .040** |
| BAME background (yes/no) | 0.03 (-0.19, 0.25), .76 | 0.01 (-0.22, 0.23), .96 |
| Key-worker (yes/no) | 0.01 (-0.11, 0.13), .89 | 0.05 (-0.06, 0.15), .39 |
| Prior mental health disorder (yes/no) | **0.57 (0.44, 0.70), <.001** | **0.61 (0.47, 0.75), <.001** |
| Risk Groupb |  |  |
| Most at Risk  | 0.22 (-0.09, 0.53), .17 | 0.03 (-0.29, 0.36), .85 |
| Increased Risk | 0.06 (-0.09, 0.21), .40 | 0.09 (-0.07, 0.25), .29 |
| Living alone (yes/no) | -0.04 (-0.20, 0.12), .66 | -0.25 (-0.42, -0.09), .003 |
| Pandemic-related positive life event (per unit) | **-0.20 (-0.26, -0.13), <.001** | **-0.16 (-0.23, -0.09), <.001** |
| Pandemic-related negative life event (per unit) | **0.13 (0.09, 0.18), <.001** | **0.11 (0.06, 0.16), <.001** |
| Perceived loneliness (per unit) | **0.08 (0.05, 0.11), <.001** | **0.08 (0.05, 0.11), <.001** |
| Positive mood (per unit) | **-0.07 (-0.09, -0.06), <.001** | **-0.06 (-0.08, -0.05), <.001** |
| COVID-19worryc |  |  |
| No worry | -0.03 (-0.18, 0.12), .68 | -0.16 (-0.33, 0.01), .067 |
| Much of time | -0.01 (-0.18, 0.16), .92 | 0.12 (-0.07, 0.30), .21 |
| Most of time | 0.15 (-0.19, 0.49), .40 | **0.40 (0.04, 0.75), .027** |
| **N** | **3094** | **3094** |

a A square-root transformation was applied to the dependent variable.

b Comparison reference group “I am in neither risk category”.

c Comparison reference group “I occasionally worry about getting COVID-19”.

**Appendix S4: Flow of participants**

Recruited

n=3097

Time 2

n=1385 (45%)

Time 3

n=1087 (35%)

Died n=2

No responses n=2008

Withdrew n=14

No responses n=1698

n=206 non-completers of Time 2 survey completed Time 3 survey

**Figure 4.1 Flow of participants across three surveys**