**Supplementary materials**

**Supplementary table 1: Additional population characteristics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** |  | **Total (n=143)** | **QRISK ≥10% (n=28)** | **QRISK <10% (n=115)** | **P value** |
| Ethnicity | White (%) | 80 (55.9) | 19 (67.9) | 61 (53.0) | 0.275 |
| Indian (%) | 3 (2.1) | 1 (3.6) | 2 (1.7) | - |
| Pakistani (%) | 1 (0.7) | 1 (3.60 | 0 (0) | - |
| Bangladeshi (%) | 1 (0.7) | 0 (0) | 1 (0.9) | - |
| Other Asian (%) | 10 (7.0) | 2 (7.1) | 8 (7.0) | - |
| Black Caribbean (%) | 3 (2.1) | 0 (0) | 3 (2.6) | - |
| Black African (%) | 33 (23.1) | 3 (10.7) | 30 (26.1) | - |
| Other ethnic group (%) | 12 (8.4) | 2 (7.1) | 10 (8.7) | - |
| Migraines (%) | 1 (0.7) | 0 (0) | 1 (0.9) | 1.00 |
| Rheumatoid arthritis (%) | 1 (0.7) | 0 (0) | 1 (0.9) | 1.00 |
| SLE (%) |  | 0 (0) | 0 (0) | 0 (0) | - |
| Severe mental illness\* | Total (%) | 95 (66.4) | 18 (64.3) | 77 (67.0) | 0.788 |
| Anxiety disorder (%) | 31 (21.7) | 2 (7.1) | 29 (25.2) | **0.037** |
| Bipolar disorder (%) | 11 (7.7) | 3 (10.7) | 8 (7.0) | 0.450 |
| Depression (moderate/severe) (%) | 16 (11.2) | 3 (10.7) | 13 (11.3) | 1.00 |
| Hypomania (%) | 5 (3.5) | 1 (3.6) | 4 (3.5) | 1.00 |
| Obsessive compulsive disorder (%) | 5 (3.5) | 0 (0) | 5 (4.3) | 0.583 |
| Psychosis (%) | 23 (16.1) | 4 (14.3) | 19 (16.5) | 1.00 |
| Affective disorder (%) | 7 (4.9) | 1 (3.6) | 6 (5.2) | 1.00 |
| PTSD (%) | 5 (3.5) | 0 (0) | 5 (4.3) | 0.583 |
| Schizophrenia (%) | 11 (7.7) | 4 (14.3) | 7 (6.1) | 0.226 |
| Schizoaffective disorder (%) | 7 (4.9) | 3 (10.7) | 4 (3.5) | 0.136 |
| Atypical anti-psychotic | Total (%) | 88 (61.5) | 17 (60.7) | 71 (61.7) | 0.920 |
| Amisulpride (%) | 4 (2.8) | 1 (3.6) | 3 (2.6) | 1.00 |
| Aripiprazole (%) | 25 (17.5) | 4 (14.3) | 21 (18.3) | 0.784 |
| Clozapine (%) | 2 (1.4) | 1 (3.6) | 1 (0.9) | 0.354 |
| Olanzapine (%) | 20 (14.0) | 1 (3.6) | 19 (16.5) | 0.125 |
| Quetiapine (%) | 11 (7.7) | 3 (10.7) | 8 (7.0) | 0.450 |
| Lurasidone (%) | 1 (0.7) | 0 (0) | 1 (0.9) | 1.00 |
| Risperidone (%) | 28 (19.6) | 6 (21.4) | 22 (19.1) | 0.783 |
| Sulpiride (%) | 2 (1.4) | 1 (3.6) | 1 (0.9) | 0.354 |
| Regular steroids (%) | 1 (0.7) | 0 (0) | 1 (0.9) | 1.00 |
| BMI (SD) | 30.7 (8.9) | 30.1 (8.2) | 30.8 (9.1) | 0.721 |
| Obese BMI ≥30 (%) | 61 (42.7) | 13 (48.1) | 48 (49.5) | 0.902 |
| BMI category | Underweight BMI <18.5 (%) | 6 (4.2) | 1 (3.7) | 5 (5.2) | 0.432 |
| Normal BMI 18.5-24.9 (%) | 28 (19.6) | 8 (29.6) | 20 (20.6) | - |
| Overweight BMI 25-29.9 (%) | 29 (20.3) | 5 (18.5) | 24 (24.7) | - |
| Obese Class I BMI 30-34.9 (%) | 32 (22.4) | 5 (18.5) | 27 (27.8) | - |
| Obese Class II BMI 35-39.9 (%) | 12 (8.4) | 5 (18.5) | 7 (7.2) | - |
| Obese Class III BMI ≥40 (%) | 17 (11.9) | 3 (11.1) | 14 (14.4) | - |

\*Severe mental illness defined according to QRISK-3 study, which includes schizophrenia, bipolar disorder and moderate/severe depression.

Abbreviations: BMI – body mass index; PTSD – post traumatic stress disorder; SLE – systemic lupus erythematosus

**Table 2: Relationship between age and elevated QRISK-3 score**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **QRISK >10% (n=28)** | **QRISK ≤10% (n=115)** | **Odds ratio (95% CI)** | **P value** |
| Age 25-34 (%) | 1 (3.6) | 51 (44.3) | Ref. | - |
| Age 35-44 (%) | 1 (3.6) | 33 (28.7) | 1.5 (0.1-25.6) | 1.00 |
| Age 45-54 (%) | 4 (14.3) | 18 (15.7) | 11.3 (1.2-108.2) | 0.200 |
| Age 55-64 (%) | 8 (28.6)\* | 13 (11.3) | 31.4 (3.6-273.8) | **<0.001** |
| Age ≥65 (%) | 14 (50.0)\*†‡ | 0 (0) | - | **<0.001** |

\*p<0.05 relative to age 35-44; †p<0.05 relative to age 45-54; ‡p<0.05 relative to age 55-64

Abbreviations: CI – confidence interval

**Supplementary table 3:**

**Comparison of participants with severe mental illness defined as bipolar disorder, schizophrenia and psychotic disorders versus those without**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** |  | **Severe mental illness (n=45)** | **No severe mental illness (n=98)** | **P value** |
| Learning disability | Mild (%) | 31 (68.9) | 42 (42.9) | **0.013** |
| Moderate (%) | 6 (13.3) | 30 (30.6) | - |
| Severe (%) | 8 (17.8) | 26 (26.5) | - |
| Age (SD) |  | 44.9 (14.6) | 42.6 (14.9) | 0.391 |
| Sex | Female (%) | 23 (51.1) | 44 (44.9) | 0.489 |
|  | Male (%) | 22 (48.9) | 54 (55.1) | - |
| Ethnicity | White (%) | 22 (48.9) | 58 (59.2) | 0.522 |
|  | Indian (%) | 1 (2.2) | 2 (2.0) | - |
|  | Pakistani (%) | 0 (0) | 1 (1.0) | - |
|  | Bangladeshi (%) | 1 (2.2) | 0 (0) | - |
|  | Other Asian (%) | 3 (6.7) | 7 (7.1) | - |
|  | Black Caribbean (%) | 2 (4.4) | 1 (1.0) | - |
|  | Black African (%) | 13 (28.9) | 20 (20.4) | - |
|  | Other ethnic group (%) | 3 (6.7) | 9 (9.2) | - |
| Diabetes | None (%) | 38 (84.4) | 86 (87.8) | 0.427 |
|  | Type 1 (%) | 0 (0) | 2 (2.0) | - |
|  | Type 2 (%) | 7 (15.6) | 10 (10.2) | - |
| Chronic kidney disease (stage 3, 4, or 5) (%) | 2 (4.4) | 5 (5.1) | 1.00 |
| Atrial fibrillation (%) | 2 (4.4) | 0 (0) | 0.098 |
| Anti-hypertensives (%) | 12 (26.7) | 22 (22.4) | 0.582 |
| Migraines (%) | 1 (2.2) | 0 (0) | 0.315 |
| Rheumatoid arthritis (%) | 0 (0) | 1 (1.0) | 1.00 |
| SLE (%) | 0 (0) | 0 (0) | - |
| Severe mental illness | Total (%) | 45 (100) | 50 (51.0) | **<0.001** |
| Anxiety disorder (%) | 8 (17.8) | 23 (23.5) | 0.443 |
| Bipolar disorder (%) | 11 (24.4) | 0 (0) | **<0.001** |
| Depression (moderate/severe) (%) | 7 (15.6) | 9 (9.2) | 0.262 |
| Hypomania (%) | 0 (0) | 5 (5.1) | 0.326 |
| Obsessive compulsive disorder (%) | 0 (0) | 5 (5.1) | 0.326 |
| Psychosis (%) | 23 (51.1) | 0 (0) | **<0.001** |
| Affective disorder (%) | 0 (0) | 7 (7.1) | 0.098 |
| PTSD (%) | 3 (6.7) | 2 (2.0) | 0.179 |
| Schizophrenia (%) | 11 (24.4) | 0 (0) | **<0.001** |
| Schizoaffective disorder (%) | 0 (0) | 7 (7.1) | 0.098 |
| Atypical anti-psychotic | Total (%) | 35 (77.8) | 53 (54.1) | **0.007** |
| Amisulpride (%) | 4 (8.9) | 0 (0) | **0.009** |
| Aripiprazole (%) | 12 (26.7) | 13 (13.3) | 0.050 |
| Clozapine (%) | 1 (2.2) | 1 (1.0) | 0.532 |
| Olanzapine (%) | 7 (15.6) | 13 (13.3) | 0.714 |
| Quetiapine (%) | 4 (8.9) | 7 (7.1) | 0.741 |
| Lurasidone (%) | 1 (2.2) | 0 (0) | 0.315 |
| Risperidone (%) | 8 (17.8) | 20 (20.4) | 0.713 |
| Sulpiride (%) | 1 (2.2) | 1 (1.0) | 0.532 |
| Regular steroids (%) | 0 (0) | 1 (1.0) | 1.00 |
| Statin (%) | 14 (31.1) | 10 (10.2) | **0.002** |
| Cholesterol/HDL ratio (SD) | 3.53 (1.08) | 3.62 (1.56) | 0.751 |
| Systolic blood pressure (%) | 123.1 (14.5) | 122.1 (14.8) | 0.715 |
| SD systolic blood pressure (SD) | 9.40 (4.25) | 9.81 (5.10) | 0.668 |
| BMI (SD) | 33.0 (9.7) | 29.6 (8.2) | **0.045** |
| Obese BMI ≥30 (%) | 26 (63.4) | 35 (42.2) | **0.026** |
| BMI category | Underweight BMI <18.5 (%) | 2 (4.9) | 4 (4.8) | 0.379 |
| Normal BMI 18.5-24.9 (%) | 6 (14.6) | 22 (26.5) | - |
| Overweight BMI 25-29.9 (%) | 7 (17.1) | 22 (26.5) | - |
| Obese Class I BMI 30-34.9 (%) | 14 (34.1) | 18 (21.7) | - |
| Obese Class II BMI 35-39.9 (%) | 5 (12.2) | 7 (8.4) | - |
| Obese Class III BMI ≥40 (%) | 7 (17.1) | 10 (12.0) | - |
| QRISK score ≥10% (%) | 11 (24.4) | 17 (17.3) | 0.321 |
| QRISK score (LD population) (SD) | 7.51 (9.04) | 5.76 (8.91) | 0.279 |
| QRISK score (reference) (SD) | 3.30 (4.70) | 3.29 (6.08) | 0.989 |
| Relative risk (SD) | 3.54 (5.60) | 3.49 (7.76) | 0.970 |

\*Severe mental illness defined according to QRISK-3 study, which includes schizophrenia, bipolar disorder and moderate/severe depression.

Abbreviations: BMI – body mass index; HDL – high density lipoprotein; LD – learning disability; PTSD – post traumatic stress disorder; SD – standard deviation; SLE – systemic lupus erythematosus