**Supplementary material**

**Identification of menstrual psychosis cases using electronic health records**

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*Supplementary table 1. Comparison of cases and controls with follow-up data. SD - standard deviations, IMD - index of multiple deprivation, IQR – interquartile range. Groups were compared using t-test for age and IMD score, Chi squared test for Ethnicity and Diagnosis, and Mann-Whitney U test for Admissions, Contacts and Bed days.*

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| --- | --- | --- | --- |
|  | **Case (n=33)** | **Control (n=107)** | **P value** |
| **Age, mean (SD)** | 22.7 (10.8) | 24.5 (10.7) | p=0.165 |
| **Ethnicity, number** |  |  |  |
| Asian | 2 (6.1%) | 4 (3.8%) | p=0.943 |
| Black | 14 (42.2%) | 41 (38.1%) |  |
| Missing | 2 (6.1%) | 9 (8.4%) |  |
| Mixed race | 2 (6.1%) | 4 (3.7%) |  |
| Other | 1 (3.0%) | 5 (4.7%) |  |
| White | 12 (36.4%) | 44 (41.1%) |  |
| **Diagnosis, number** |  |  |  |
| Acute and transient psychotic disorders | 9 (27.3%)  | 30 (28.0%) | p=0.957 |
| Bipolar disorder | 12 (36.4%) | 32 (29.9%) |  |
| Depressive disorder | 2 (6.1%) | 7 (6.5%) |  |
| Nonorganic psychosis | 6 (18.2%) | 25 (23.4%) |  |
| Schizophrenia | 4 (12.1%) | 13 (12.1%) |  |
|  |  |  |  |
| **IMD score, mean (SD)** | 23.2 (8.9) | 26.0 (10.4) | p=0.168 |
|  |  |  |  |
| **Clinical outcomes** |  |  |  |
| Admissions, median (IQR) | 2 (2) | 2 (4) | p=0.660 |
| Contacts, median (IQR) | 54 (124) | 46 (122) | p=0.547 |
| Bed days, median (IQR) | 131 (118) | 101 (242) | p=0.971 |

Supplementary table 2. Logistic regression of symptom domains by case-control status. P values are corrected for multiple comparisons using the Benjamini-Hochberg procedure. OR – odds ratio, 95% CI – 95% confidence interval. \*indicates statistical significance at false discovery rate of 5%. Proportion of cases with Disturbances of affect reduced to 0.99 to allow calculation of OR.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Symptom domain** | **Proportion** | **OR** | **95% CI** | **Corrected p value** |
| **Cases****(n=38)** | **Controls****(n=112)** |
| Disturbances of affect | 0.99 | 0.96 | 3.5 | 0.37 – 466.5 | 0.628 |
| Disorders of perception | 0.74 | 0.79 | 0.76 | 0.33 - 1.85 | 0.736 |
| Disorders of drive and psychomotor activity | 0.61 | 0.69 | 0.7 | 0.33 - 1.51 | 0.649 |
| Formal thought disorders | 0.58 | 0.42 | 1.9 | 0.91 - 4.06 | 0.305 |
| Sleep disturbance | 0.58 | 0.62 | 0.86 | 0.41 - 1.83 | 0.755 |
| Delusions | 0.53 | 0.39 | 1.72 | 0.82 - 3.63 | 0.337 |
| Disorders of consciousness | 0.47 | 0.16 | 4.7 | 2.1 - 10.73 | <0.001\* |
| Worries and compulsions | 0.47 | 0.72 | 0.34 | 0.16 - 0.73 | 0.033\* |
| Disturbances of attention and memory | 0.37 | 0.44 | 0.75 | 0.35 - 1.58 | 0.718 |
| Ego disturbances | 0.24 | 0.21 | 1.2 | 0.48 - 2.82 | 0.755 |
| Disturbances of disorientation | 0.21 | 0.11 | 2.22 | 0.8 - 5.89 | 0.305 |

Supplementary table 3. Logistic regression of individual symptoms by case-control status. P values are corrected for multiple comparisons using the Benjamini-Hochberg procedure. OR – odds ratio, 95% CI – 95% confidence interval. \*indicates statistical significance at false discovery rate of 5%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Symptom** | **Proportion** | **OR** | **95% CI** | **Corrected p value** |
| **Cases (n=38)** | **Controls (n=112)** |
| Clouded consciousness | 0.45 | 0.16 | 4.23 | 1.88 - 9.65 | 0.019\* |
| Disorientation to situation | 0.16 | 0.09 | 1.91 | 0.61 - 5.57 | 0.576 |
| Disturbed concentration | 0.34 | 0.44 | 0.67 | 0.3 - 1.42 | 0.594 |
| Disturbed short-term memory | 0.03 | 0.07 | 0.35 | 0.02 - 2.01 | 0.594 |
| Retarded thinking | 0.13 | 0.07 | 1.97 | 0.56 - 6.33 | 0.587 |
| Pressured thinking | 0.29 | 0.23 | 1.35 | 0.57 - 3.04 | 0.672 |
| Flight of ideas | 0.08 | 0.12 | 0.65 | 0.14 - 2.17 | 0.706 |
| Tangential thinking | 0.34 | 0.23 | 1.72 | 0.76 - 3.81 | 0.501 |
| Incoherence/derailment | 0.24 | 0.05 | 5.48 | 1.83 - 17.57 | 0.037\* |
| Suspiciousness | 0.45 | 0.71 | 0.32 | 0.15 - 0.69 | 0.037\* |
| Delusions of reference | 0.11 | 0.11 | 0.98 | 0.26 - 3.03 | 0.982 |
| Delusions of persecution | 0.37 | 0.29 | 1.46 | 0.66-3.15 | 0.594 |
| Delusions of grandiosity | 0.13 | 0.13 | 0.98 | 0.3 - 2.75 | 0.982 |
| Other delusions | 0.29 | 0.19 | 1.77 | 0.74 - 4.07 | 0.501 |
| Auditory verbal hallucinations | 0.68 | 0.73 | 0.79 | 0.36 - 1.81 | 0.709 |
| Visual hallucinations | 0.37 | 0.29 | 1.46 | 0.66 - 3.15 | 0.594 |
| Bodily hallucinations | 0.08 | 0.12 | 0.6 | 0.13 - 1.97 | 0.67 |
| Olfactory and gustatory hallucinations | 0.08 | 0.04 | 1.83 | 0.36 - 7.87 | 0.656 |
| Thought broadcasting | 0.08 | 0.09 | 0.87 | 0.19 - 3.05 | 0.946 |
| Other feelings of alien influence | 0.13 | 0.1 | 1.39 | 0.41 - 4.13 | 0.709 |
| Perplexity | 0.34 | 0.21 | 2.01 | 0.88 - 4.51 | 0.392 |
| Blunted affect | 0.29 | 0.22 | 1.42 | 0.6 - 3.21 | 0.656 |
| Depressed mood | 0.39 | 0.76 | 0.21 | 0.09 - 0.45 | <0.001\* |
| Hopelessness | 0.13 | 0.25 | 0.45 | 0.14 - 1.19 | 0.473 |
| Anxiety | 0.63 | 0.67 | 0.85 | 0.4 - 1.85 | 0.814 |
| Euphoria | 0.5 | 0.38 | 1.67 | 0.79 - 3.52 | 0.501 |
| Irritability | 0.47 | 0.57 | 0.67 | 0.32 - 1.41 | 0.594 |
| Inner restlessness | 0.08 | 0.17 | 0.42 | 0.09 - 1.33 | 0.501 |
| Feelings of inadequacy | 0.18 | 0.11 | 1.88 | 0.65 - 5.11 | 0.565 |
| Exaggerated self-esteem | 0.18 | 0.14 | 1.35 | 0.48 - 3.49 | 0.706 |
| Incongruent affect | 0.18 | 0.14 | 1.35 | 0.48 - 3.49 | 0.706 |
| Affective lability | 0.63 | 0.36 | 3.09 | 1.45 - 6.76 | 0.037 |
| Lack of drive | 0.05 | 0.29 | 0.14 | 0.02 - 0.49 | 0.063 |
| Increased drive | 0.11 | 0.19 | 0.51 | 0.14 - 1.46 | 0.576 |
| Motor restlessness | 0.5 | 0.46 | 1.15 | 0.55 - 2.42 | 0.825 |
| Parakinesia | 0.13 | 0.09 | 1.55 | 0.45 - 4.69 | 0.671 |
| Mutism | 0.21 | 0.07 | 3.47 | 1.18 - 10.2 | 0.123 |
| Logorrhoea | 0.08 | 0.09 | 0.87 | 0.19 - 3.05 | 0.946 |
| Social withdrawal | 0.16 | 0.24 | 0.59 | 0.21 - 1.48 | 0.594 |
| Aggressiveness | 0.34 | 0.43 | 0.69 | 0.31 - 1.47 | 0.594 |
| Suicidal behaviour | 0.21 | 0.57 | 0.2 | 0.08 - 0.46 | <0.001\* |
| Self-harm | 0.13 | 0.38 | 0.24 | 0.08 - 0.62 | 0.048 |
| Lack of insight | 0.34 | 0.18 | 2.39 | 1.03 - 5.46 | 0.199 |
| Need for care | 0.18 | 0.18 | 1.04 | 0.38 - 2.6 | 0.982 |
| Attacks of anxiety | 0.13 | 0.12 | 1.06 | 0.32 - 3.01 | 0.982 |
| Acceleration of thinking | 0.39 | 0.19 | 2.83 | 1.26 - 6.34 | 0.068 |
| Impulsivity | 0.29 | 0.21 | 1.49 | 0.63 - 3.39 | 0.594 |
| Difficulty falling asleep | 0.18 | 0.34 | 0.44 | 0.17 - 1.04 | 0.355 |
| Interrupted sleep | 0.24 | 0.27 | 0.85 | 0.34 - 1.95 | 0.825 |
| Shortened sleep | 0.29 | 0.23 | 1.35 | 0.57 - 3.04 | 0.672 |
| Early morning wakening | 0.05 | 0.1 | 0.51 | 0.08 - 2.02 | 0.652 |
| Tiredness | 0.03 | 0.12 | 0.21 | 0.01 - 1.09 | 0.473 |
| Decreased appetite | 0.18 | 0.32 | 0.48 | 0.18 - 1.13 | 0.444 |
| Menstrual disturbances | 0.05 | 0.05 | 0.98 | 0.14 - 4.48 | 0.982 |
| Head pressure | 0.16 | 0.08 | 2.15 | 0.67 - 6.42 | 0.501 |
| Increased libido | 0.13 | 0.12 | 1.06 | 0.32 - 3.01 | 0.982 |