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Letter

Identification of menstrual psychosis cases using electronic health records

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Keywords
Psychotic disorders and schizophrenia; bipolar type I or II disorders; case–control study; bioinformatics; diagnosis and classification.

Menstrual psychosis is a rare condition characterised by acute episodes of psychosis occurring in synchrony with the menstrual cycle, with complete recovery between episodes.[1] To date, it has been described in case reports only. We systematically identified cases of menstrual psychosis by examining electronic health records (EHRs) from a large secondary care mental health trust and compared the clinical features with those of a matched control group.

We used the Clinical Record Interactive Search (CRIS) system to search the South London and Maudsley NHS Foundation Trust EHRs.[2] The project was conducted with CRIS ethical approval (Oxfordshire Research Ethics Committee, reference 23/SC/0257). Keywords were used to search the free-text fields of clinical records, for example (premenstrual, menstrual, catamenial, menses) combined with (psychosis, psychotic, mania, manic, bipolar, schizophrenia, schizoaffective). Free-text fields for individuals with ICD-10 diagnostic codes for psychotic disorders were also searched.

Cases were included if they met Brockington's criteria[1] for menstrual psychosis: (a) acute psychotic episodes; (b) of less than 2 weeks in duration; (c) in synchrony with the cycle; (d) with full recovery between episodes. Patients with menstrual exacerbations of a chronic psychotic disorder (worsening of psychosis associated with the cycle but not discrete psychotic episodes) were excluded.

Demographic data and clinical outcomes were automatically extracted from structured fields in the health record. Individual symptoms and symptom domains were extracted through manual inspection of the clinical record, using the Association for Methodology and Documentation in Psychiatry (AMDP) symptom checklist.[3] Up to four controls were identified for each case, from the same set of EHRs. All controls were female, and they were matched by ethnicity, age at illness onset (within a 2-year period) and primary ICD-10 diagnosis.

The binary presence or absence of individual symptoms was compared between groups using logistic regression. To reduce the large number of symptoms which were absent from both cases and controls, any symptom with near zero variance was excluded from the analysis.[4] Symptom domains were pre-specified, taken from the AMDP system. To control for multiple comparisons, the false discovery rate was set at 5% using the Benjamini–Hochberg procedure.[5]

The clinical record search returned 544 unique patient records between 2006 and 2024. Of these, 421 were excluded: 322 had no evidence of psychotic symptoms, 70 had no link of symptoms with the menstrual cycle and 29 were irrelevant records. Of the 123 records in which a patient, family member or clinician reported a link between symptoms and the cycle, 77 involved an exacerbation of an underlying mental disorder, four probably represented premenstrual dysphoric disorder or premenstrual syndrome, four provided insufficient information, and 38 met criteria for menstrual psychosis (diagnosed across 20 different clinical services); these formed the case group for further analyses. There were no statistically significant differences in matching variables, or in Index of Multiple Deprivation scores (Supplementary Table 1 available at https://doi.org/10.1192/bjp.2025.95).

Cases had a modal age at onset of 14 years and a median of 17 years (interquartile range: 14–26). The median number of psychotic episodes associated with the cycle was 3 (interquartile range: 2–4). The most common ethnicity was Black ($n = 15$, 39.5%), with most individuals in the case group being Black and minority ethnic ($n = 23$, 60.5%). The total number of individual symptoms was similar between groups (cases: mean 14.6, s.d. 7.2; controls: mean 14.8, s.d. 6.6; $P = 0.840$). Removal of symptoms with near-zero variance reduced the total number of symptoms from 153 to 56.

In terms of symptom domains (defined by the presence of at least one individual symptom in that domain), cases had a higher proportion of disorders of consciousness (odds ratio 4.7, 95% CI: 2.1–10.73) but a lower proportion of worries and compulsions (odds ratio 0.34, 95% CI: 0.16–0.73) relative to controls, as shown in Fig. 1. In cases, the most common symptoms were auditory verbal hallucinations ($n = 26$, 68.4%), affective lability ($n = 24$, 63.2%), anxiety ($n = 24$, 63.4%), euphoria ($n = 19$, 50%) and motor restlessness ($n = 19$, 50%). After correction for multiple comparisons, cases were more likely to present with incoherence/derailment (odds ratio 5.48, 95% CI: 1.83–17.57), clouded consciousness (odds ratio 4.23, 95% CI: 1.88–9.65) and labile affect (odds ratio 3.09, 95% CI: 1.45–6.76). Conversely, they were less likely to present with suicidal behaviour (odds ratio 0.2, 95% CI: 0.08–0.46), depressed mood (odds ratio 0.21, 95% CI: 0.09–0.45), self-harm (odds ratio 0.24, 95% CI: 0.08–0.62) or suspiciousness (odds ratio 0.32, 95% CI: 0.15–0.69). The full results for both individual symptoms and symptom domains are provided in the Supplementary Material.

Follow-up information was available for 33 (86.8%) cases and 107 (95.5%) controls. There were no group differences in the total number of in-patient admissions, number of in-patient bed-days or number of clinical contacts (Supplementary Table 1).

This EHR study identified 38 possible cases of menstrual psychosis, a condition which had previously only been described in single case reports or small case series. Although the most frequently recorded symptom in cases was auditory verbal

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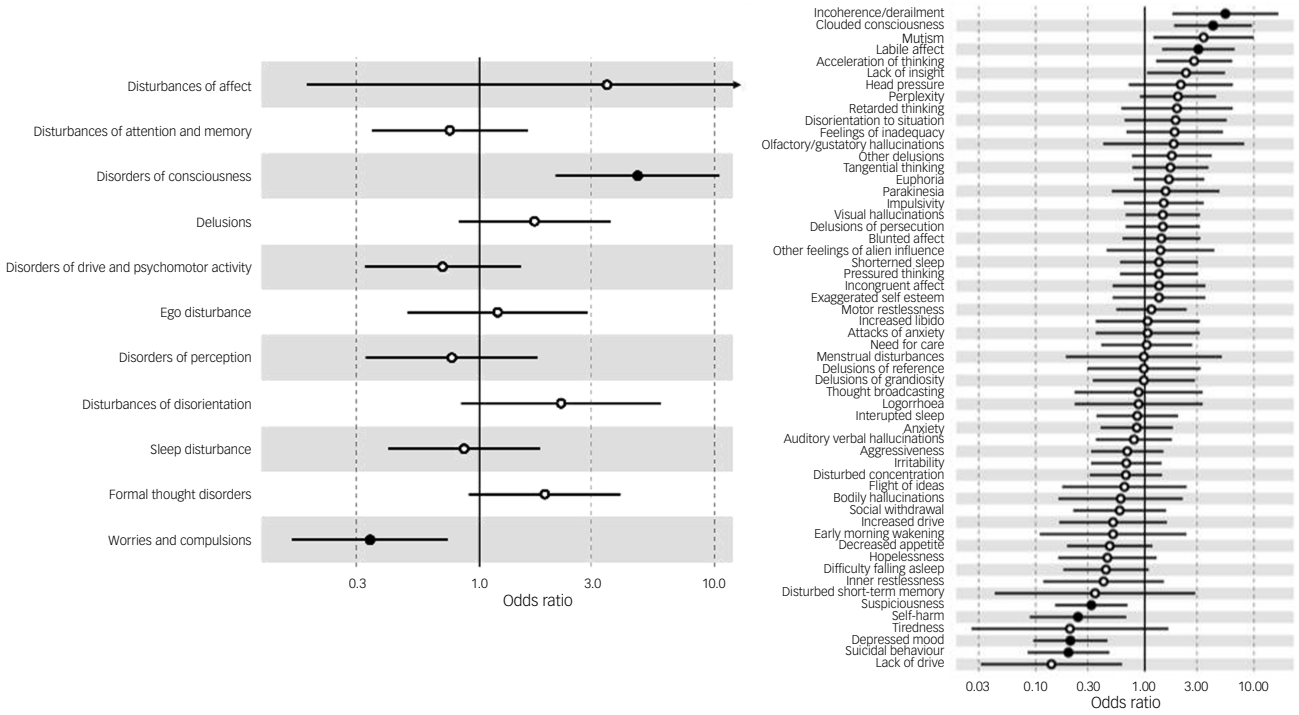

Fig. 1 Forest plot of the association of symptom domains (left) and individual symptoms (right) with case–control status. An odds ratio >1 indicates a higher proportion in cases; an odds ratio <1 indicates a higher proportion in controls. Black circles indicate statistical significance corrected at a false discovery rate of 5%.

hallucinations, the features that most distinguished cases from matched controls were incoherence/derailment, clouded consciousness and affective lability. Despite these differences in clinical presentation, cases did not differ from matched controls in clinical outcomes.

The timing of episodes in relation to the menstrual cycle was determined by information documented by clinicians in the health record and was therefore dependent on the clinician being aware that symptoms may be related to the cycle. Thus, it is likely that the number of cases identified was an underestimate and does not reflect the true prevalence of menstrual psychosis. The median number of episodes was small; Brockington[1] classified cases with 3–4 episodes linked to the cycle as 'possible' rather than 'confirmed' cases. Although we drew controls from the same population and excluded potential controls with evidence of menstrual exacerbation in their records, we cannot rule out the possibility that some controls had menstrual worsening that was not detected or recorded.

In conclusion, menstrual psychosis is a rare condition which typically emerges in early adolescence, has an episodic course, and is associated with an affective and confusional presentation. Clinicians assessing female patients with psychosis should consider whether the menstrual cycle could be a contributing factor, particularly in cases with early age at onset. Further prospective research into the effects of the menstrual cycle in psychosis is warranted.

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Supplementary material

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Data availability

Data are owned by a third party, the Maudsley Biomedical Research Centre CRIS tool, which provides access to anonymised data derived from SLaM electronic medical records. These data can only be accessed by permitted individuals from within a secure firewall (i.e. the data cannot be sent elsewhere), as accessed by the authors. For more information please contact: cris.administrator@slam.nhs.uk.

Author contributions

T.J.R. designed the study, completed manual data extraction, conducted the statistical analysis and drafted the manuscript. E.C. contributed to the study design, manual data extraction and interpretation of findings. A.A.D. contributed to study design and interpretation of findings. A.J. conducted the electronic record search and automated data extraction. A.E.C. contributed to study design and interpretation of findings. D.O. contributed to study design and data analysis. P.M. contributed to study design and interpretation of findings, and supervised the study. All authors contributed to revision of the manuscript and approved its final version.

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Declaration of interest

T.J.R., A.A.D. and P.M. are members of the *BJPsych* editorial board. They did not take part in the review or decision-making process for this paper.

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