## The Capacity Crunch: Auditing Mental Capacity Assessments in the Emergency Department

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**Aims:** To evaluate the level of documentation and quality of mental capacity assessments (MCA) in the Emergency Department (ED), specifically examining the frequency, documentation methods, and outcomes of capacity assessments for patients presenting with mental health complaints. We hypothesize that most patients who attend with mental health presentations and leave before treatment is completed do not receive formal capacity assessments.

**Methods:** A retrospective audit was conducted of all patients attending ED triaged under the "Mental Health" category during October 2024 (n=81). Data was collected on demographics, presenting complaints, rates of re-attendance, whether formal and informal capacity assessments were carried out, involvement of Liaison Psychiatry and patient outcomes. Formal capacity assessments were defined as those using the MCA form or explicitly documenting the decision in question, reason for doubt, and assessment of the four key criteria (understanding, retaining, weighing, and communicating information).

**Results:** Of 81 patients (49% female, median age 29, range 13–77), the predominant presenting complaints were suicidal ideation (n=33, 41%), overdose (n=9, 11%), and depressed mood (n=8, 10%). 75 patients (92.6%) left before treatment was completed. 16 (21.3%) of those who left before treatment was completed returned within 24 hours.

Only 7.4% (n=6) had formal capacity assessments documented, with 42% (n=34) having informal assessments noted elsewhere. 5 of 6 formal assessments were done by ED staff and one was conducted by Liaison Psychiatry staff. Of all assessments conducted (n=40), 8 patients (20%) lacked of capacity at the time. The majority of patients (92.6%) left before treatment completion. Liaison Psychiatry was involved in 34.6% (n=28) of cases.

**Conclusion:** This audit highlights significant gaps in the formal documentation of capacity assessments in the ED, with few mental health presentations receiving fully documented assessments despite RCEM and MCA guidance. The high rate of patients leaving before treatment completion underscores the need for further investigation into possible reasons, a standardized assessment approach to capacity assessment and focused training for ED staff. Informal assessments may be more common due to time pressures, limited knowledge of the MCA process, or difficulty accessing forms.

## Investigating the Relationship Between Thalamic Volumes, Dementia Risk and Sleep in the PREVENT-Dementia Study

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**Aims:** Sleep dysfunction is common in the prodromal stages of Alzheimer's disease. Several thalamic nuclei are implicated in promoting and maintaining sleep. We investigated the relationship between thalamic nuclei volumes and sleep in people without dementia with respect to dementia family history (FHD) and apolipoprotein e4 allele (APOE4) carriership.

**Methods:** 700 participants aged 40–59 years were recruited into the PREVENT Dementia study. 645 participants underwent T1-weighted 3T MRI scans. The thalamus was segmented into six regions; 1) anterior, 2) lateral, 3) ventral, 4)intralaminar, 5) medial and 6) posterior using Freesurfer 7.1.0 and underwent ComBAT harmonisation. Subjective sleep data was assessed using the Pittsburgh sleep quality index, which quantifies sleep using seven components and a total score. 586 participants were included for analysis with respect to FHD and 590 for APOE4 carriership. Logistic regression or robust linear regression with age, sex, total intracranial volume and depression as covariates and false discovery rate correction (FDR) for multiple comparisons was used.

**Results:** Smaller volumes of the whole thalamus (p=0.0391), posterior region (pFDR=0.042), and within the posterior region the lateral geniculate (pFDR=0.019), and pulvinar anterior (pFDR=0.019) and medial nuclei (pFDR=0.019), were associated with worse perceived quality of sleep in the FHD positive group. Smaller volumes of the thalamus (p=0.041) in the FHD positive group were associated with greater sleep disturbances. We did not find any relationship between thalamic volumes and FHD in predicting total scores, sleep duration, latency, efficiency, use of medications to aid sleep or daytime dysfunction.

However, larger thalamic volumes were associated with a significantly lower total Pittsburgh score, indicating less overall sleep dysfunction (p=0.014) in non-carriers. A similar trend was seen with the lateral, ventral and intralaminar subregions, but they did not survive correction for multiple comparisons. We did not find any association between thalamic volumes and APOE4 carriership in predicting sleep quality, duration, latency, efficiency, sleep disturbances, use of sleep medications or daytime dysfunction.

**Conclusion:** Our results suggest some early sleep changes related to thalamic volume, particularly in individuals with dementia family history. It is possible the thalamus and nuclei within the posterior thalamus may exert beneficial effects in preserving the quality of sleep in this group.

## Immune Dysregulation in Bipolar Disorder: The Role of IL-27 and EBI3

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**Aims:** Bipolar disorder (BD) is a severe psychiatric illness characterized by alternating depressive and manic episodes. The exact cause of BD remains unclear, but inflammatory and immunological processes are believed to play a significant role in its pathophysiology. Immune system dysregulation is a key factor, with pro-inflammatory markers like CRP, TNF-α, and IL-6 being elevated during mood episodes. Interleukin 27 (IL-27), which has both pro-inflammatory and anti-inflammatory properties, has not been extensively studied in BD. This study aims to investigate the levels of IL-27 and its subunit EBI3 in BD patients to better understand their role in the disease.

**Methods:** A cross-sectional study was conducted at Panj-Azar Hospital in Gorgan, Iran, from March 2023 to August 2023. The study included 75 patients with bipolar disorder (depression, mania) and 30 healthy controls. Participants were aged 18–65, diagnosed with bipolar disorder by two psychiatrists using DSM–V criteria, and undergoing treatment with atypical antipsychotics. Exclusion criteria included other psychiatric illnesses, substance use disorder, corticosteroid use, autoimmune/inflammatory diseases, pregnancy/breastfeeding, chronic schizophrenia, and other mental diseases. Blood samples were collected and stored at $-80°C$, and serum levels of IL-27 and EBI3 were measured using high-sensitivity ELISA kits. Descriptive and inferential statistics were applied to analyse the data, including normality tests, one-sample t-tests, independent t-tests, and Pearson correlation. The study followed the STROBE checklist to ensure high-quality reporting of observational studies.

**Ethical consideration**: This study was conducted after obtaining ethical approval (IR.GOUMS.REC.1400.010) from the Golestan University of Medical Sciences. Written and oral informed consent was obtained from patients

**Results:** The study revealed significant changes in the immune system of bipolar disorder (BD) patients, with IL-27 levels showing a notable difference between BD and control groups (p≤0.05). IL-27, which has dual roles in inflammatory reactions, correlated positively with ALP (p=0.05, r=−0.22), FT4 (p=0.01, r=−0.29), and CPK (p=0.03, r=−0.24), and negatively with disease duration (p=0.03, r=−0.26), suggesting its potential as a therapeutic target. EBI3 did not show significant correlations with any variables (p≥0.05).

**Conclusion:** This study highlights the significant role of immune system dysregulation in bipolar disorder (BD), particularly the elevated levels of IL-27 in BD patients compared with controls. The correlations between IL-27 and various clinical parameters suggest its potential as a biomarker and therapeutic target. Although EBI3 did not show significant correlations, the findings underscore the importance of inflammatory and immune markers in understanding BD's pathophysiology. Further research is needed to confirm these results and explore the underlying mechanisms, which could lead to the development of new diagnostic and treatment strategies for BD

# Prevalence of Menstrual Irregularities in Psychiatric Patients and Its Impact on Treatment Adherence: A Cross-Sectional Study

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**Aims:** Menstrual irregularities (MI) are a frequently overlooked yet clinically significant concern among women with psychiatric disorders. Several psychiatric conditions, particularly schizophrenia and bipolar disorder, involve dopaminergic dysregulation, which may contribute to hormonal disturbances. Antipsychotic medications, especially typical antipsychotics, are known to impact menstrual cycles through their effects on dopamine pathways, leading to hyperprolactinemia and subsequent menstrual dysfunction. However, research on the prevalence of MI and its relationship with psychiatric illness and treatment adherence remains limited, particularly in the Indian context. This study aims to assess the prevalence of MI among female psychiatric inpatients and explore its association with socio-clinical factors, antipsychotic medication use, and treatment adherence.

**Methods:** A cross-sectional study was conducted at a tertiary care mental health institute, recruiting 100 female inpatients diagnosed with psychiatric disorders. MI was defined as any deviation from a regular menstrual cycle, including oligomenorrhea, amenorrhea, or irregular bleeding. Menstrual distress was assessed using the MEDI-Q (Menstrual Distress Questionnaire) scale, while treatment adherence was evaluated with the Brief Adherence Rating Scale (BARS). Statistical analysis examined associations between MI, antipsychotic use, prolactin levels, psychiatric diagnosis, and treatment adherence.

**Results:** The mean age of participants was 36.5 years, with an average illness duration of 3.6 years. Psychiatric diagnoses included psychotic disorders (62%), bipolar disorder (22%), depressive disorder (10%), and neurotic disorders (6%). Antipsychotic medication use was recorded in 82% of participants. The overall prevalence of MI was 37%. Among patients with psychotic disorders, 50% exhibited MI, with a significantly higher prevalence in those on typical antipsychotics (80.7%) compared with atypical antipsychotics (27.7%). MI was also observed in 31.5% of bipolar patients on atypical antipsychotics. Patients with poor treatment adherence (<50% on BARS – Brief Adherence Rating Scale) showed significantly higher score for MEDI-Q Total Score (16.51 ± 12.99 vs. 10.86 ± 12.36; p < 0.01) as well as for the subscales MSD (Menstrual Symptom Distress) and MESI (Menstrual Specificity Index). The menstrual distress was associated to being on antipsychotics; in fact, MEDI-Q Total Score was significantly higher in women on antipsychotics as compared with those not on antipsychotics.

**Conclusion:** Menstrual irregularities are prevalent among female psychiatric inpatients, particularly those with psychotic disorders and those on typical antipsychotics. These disturbances negatively impact medication adherence, highlighting the need for routine menstrual health assessments, prolactin monitoring, and personalized treatment approaches to balance psychiatric stability with reproductive health. Addressing patient concerns regarding menstrual side effects may improve adherence and overall treatment outcomes.