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Evaluating Clinical Outcomes in Pregnant Women with Severe Mental Illness: A Retrospective Audit at University Hospitals Birmingham

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Abstract

Background: Severe mental illness (SMI) is a leading preventable cause of maternal death in the postpartum period with suicide and psychiatric illness contributing to over one third of deaths between 6 weeks and one year postpartum. The interplay of SMI and pregnancy confers complex clinical demands and a high-risk profile, necessitating early detection and risk stratification and a multi-disciplinary management approach. **Objective**: This aims to assess the clinical profile, therapeutic approaches and maternal/fetal outcomes of pregnant women with SMI clinically managed at University Hospitals Birmingham (UHB) from July 2021 to July 2024, to informance development of care pathways and strategies to improve the uptake of treatment. **Methods**: A retrospective review was performed using the electronic maternity record system BadgerNet. All pregnant women with SMI who were booked with UHB during the audit timeframe were included. Data collected included demographics, medication status, gestation or referral age to perinatal mental health (PNMH) services, the use of antipsychotics, obstetric monitoring and postnatal outcomes. Qualitative analyses were based on descriptive statistics of the clinical patterns and service gaps. Results: In a cohort of 1,060 pregnant women with a diagnosis of mental illness, 106 (10%) had evidence of SMI. 71 (67%) were receiving antipsychotics prior to pregnancy, whereas 35 (33%) were either medication-naive or data were unavailable. The audit found discrepancies in monitoring rules:

- GTT was performed in 100% of the patients on anti-psychotics.
- Growth scans were inconsistently performed.
- There was suboptimal Lithium and Lamotrigine monitoring: No patient on Lamotrigine had therapeutic levels monitored (0/4).
- There were no patients on Sodium Valproate or Lithium at the time of the audit.
- FMU referrals and psychiatric evaluations were infrequently noted.

Conclusion: Pregnant woman with SMI needs close cross disciplinary care, particularly because of the elevated risks of preterm birth, low birth weight and postnatal relapse. The audit highlights the need for preconception counselling, safe pharmacotherapy, antenatal surveillance and comprehensive postnatal planning. Better compliance to the protocol together with earlier introduction of psychiatric care may result in better maternal and neonatal outcomes.

Introduction

Severe mental illness is defined as a psychiatric disorder that is long-term in duration and functionally deteriorating, including schizophrenia, bipolar affective disorder, and schizoaffective disorder. The co-occurrence of an SMI in pregnancy conveys a multifaceted risk profile to maternal and fetal health, for which the integrated clinical approaches are needed to reduce the risks of morbidity and mortality.

While maternal mental health disorders are a major cause of indirect maternal death in the UK, these deaths are advancing in the late postpartum period. In a report by MBRRACE-UK 2023, around 34% of the maternal deaths between the sixth week and one-year postpartum are as a result of psychiatric causes [1]. The physiological, hormonal, and psychosocial stresses of pregnancy and the postpartum period worsen the endemic prevalence of most pre-existing psychiatric conditions and increase relapse rates, which have been linked to poor engagement with antenatal services.

The pharmacological management of those patients is even more complex. Although antipsychotics and mood stabilizers may decrease the risk of relapse, some are teratogenic, and others have adverse effects on fetal growth and glucose metabolism [2,4]. On the other hand, sudden withdrawal of medications may induce acute psychotic episodes, endangering the life of both mother and fetus.

This clinical audit was undertaken at the University Hospitals Birmingham (UHB) NHS Foundation Trust, one of the largest NHS Trusts in the UK to evaluate current service and clinical management process for pregnant women with a SMI. The purpose of the audit is to determine areas of service needs, conformity with evidence-based guidelines, and promote systemic improvement.

Materials and Methods

The current clinical audit was performed as a retrospective, observational investigation. The research aimed to evaluate the features, treatment, and implementation of pregnant

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women with severe mental illness who were under the guidance of the maternity services at the University Hospitals Birmingham, a principal tertiary care National Health Service Trust in England. The three-year timeframe permitting data review was July 2021-July 2024, with EHRs data monitoring throughout the period.

The primary source of data utilized during this clinical audit was the BadgerNet electronic maternity records system, which is a standard tool used across all NHS Trusts to record detailed obstetric and mental health information. The system enabled the standard and consistent generation of data extraction and provision and reduced the risk of recall bias, increasing the validity of the clinical audit.

Minimally mild to moderate mental illness diagnoses that did not reach the severity threshold for SMI but still affected the patient's functioning were excluded from the present audit. For instance, the inclusion criteria comprised all pregnant females who were booked during the audit period at UHB and carried a confirmed diagnosis of severe mental illness, including but not limited to schizophrenia, bipolar affective disorder, and schizoaffective disorder. These were verified diagnoses that were made by the patient's psychiatrist and were confirmed accordingly in the patient's medical records. Conversely, the exclusion criteria included pregnant patients with mild to moderate mental illness that did not have to be diagnosed references, such as generalized anxiety disorder, mild to moderate depression and SMI occurring across non-psychotic personality disorders.

The audit involved obtaining sociodemographic, clinical, and service utilization variables. These consisted of maternal age, parity, ethnicity, body mass index (BMI), current or previous use of psychotropic medication, smoking history, and drug or alcohol use throughout the antenatal period. Clinical service indicators were referral to PNMH services, adequate booking scans and fetal growth scans, a standard oral glucose tolerance test in antipsychotic-treated patients at 28 weeks, designing modality, and postpartum psychiatric follow-up and relapse avoidance designs.

Descriptive statistics were conducted on Microsoft Excel, and audit results were measured against national set benchmarks, mainly: NICE Clinical Guideline 192: Antenatal and postnatal mental health care CG192. No patient-specific statistics were reported in the results, and, as such, full confidentiality and ethical standards were maintained.

Statistics

Medication Status	Number of Patients	Percentage
On antipsychotics pre-pregnancy	71	67%
No medication or undocumented	35	33%

Monitoring Parameter	Compliant Cases	Notes
GTT at 28 weeks	106	100% of patients on antipsychotics
Growth scans	Variable	Inconsistently implemented
Lamotrigine level monitoring	0/4	None of 4 monitored

Referral Aspect	Status	Comments
Timely referral to PNMH	Variable	Some delays documented
Postnatal care planning	Inconsistent	Plans often lacked documentation

Results

- Cohort: 106 women with SMI (out of 1,060 with any mental health diagnosis).
- Age and Parity: Diverse age distribution; parity varied across the cohort.
- Ethnicity and Risk Factors: High proportion of ethnic minorities; significant rates of smoking and substance misuse.

Medication Status

- 71 on antipsychotics pre-pregnancy.
- 35 had no documented medication or were not on any

Monitoring

- GTT performed at 28 weeks in all patients on antipsychotics.
- Growth scans inconsistently implemented.
- Four patients were on Lamotrigine; none had therapeutic levels monitored

No Sodium Valproate or Lithium use recorded.

Referral & Reviews

- Delays in PNMH referral in some cases.
- Waiting times for first psychiatric review were variable.
- High-risk postnatal plans and continuity of psychiatric care post-delivery were inconsistently documented

Figure 1.

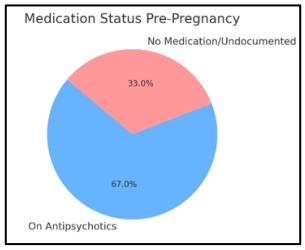

Figure 2.

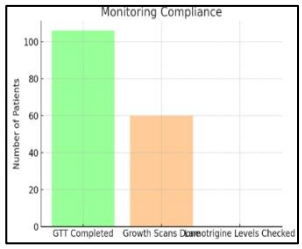

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Figure 3.

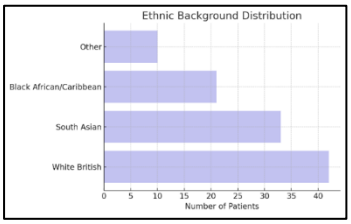
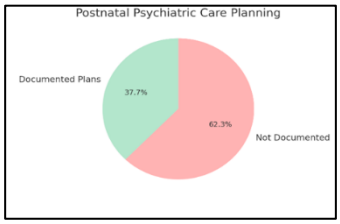


Figure 4.



Explanation of Graphic Representation

1. Medication Status Pre-Pregnancy

A pie chart, in this case, establishes that 67% of women indeed took anti-psychotic medication during the pre-pregnancy period while 33% had no documented usage or were unmedicated. This definitely points to a sizeable portion of those at potential risk of relapse or under-diagnosis.

2. Monitoring Compliance

As per the bar chart, while the level of compliance with GTT screenings was impressive at 100% the lacunas in the consistency in growth scans and an entire absence of Lamotrigine level monitoring are major gaps.

3. Ethnic Background Distribution

A horizontal bar graph denotes that the vast majority of patients were from an ethnic minority. The illustration above highlights the need for culturally competent care in this population.

4. Postnatal Psychiatric Care Planning

The pie chart indicates that only around 38% percent of the total had documented postnatal psych care plans. This is a vital gap to fidelity of care.

Discussion

The audit identifies significant non-compliance gaps in the antenatal and postnatal care of women with SMI. Even though 100% of GTT screening for patients on antipsychotics was adhered to, critical components, including drug level monitoring for mood stabilizers and psychiatric reviews when due, were not observed.

National guidance mandates routine mental health assessments, MDT input and continuity of care [2]. If lithium is maintained during pregnancy, the drug levels need to be monitored closely due to changes in the pharmacokinetic profile and sudden cessation may precipitate decompensation [3].

Postnatal relapse risk is greatest in the first 4–6 weeks post-birth, and routine care and early parenting support are required. Well-defined procedures for psychiatric emergencies and transition of care are essential to minimize risks of relapse and to provide for the bonding of mothers and infants.

Recommendations

❖ **Preconception**

- Comprehensive medication review and switch to safer alternatives where applicable.
- Folic acid supplementation.
- Avoid abrupt medication discontinuation.
- Pre-pregnancy psychiatric evaluation.

❖ **Antenatal**

- MDT-led care involving obstetricians, psychiatrists, and mental health nurses.
- Early referral to PNMH services.
- Growth scans and GTT monitoring.
- Risk assessments for domestic violence and social vulnerabilities.

❖ **Postnatal**

- Immediate psychiatric review within the first week.
- Documented postnatal relapse prevention plan.
- Safe medication uses in breastfeeding.
- Clear crisis management pathway.
- Referral to Mother-Baby Units if needed.

Conclusion

Pregnancy in the women with Severe mental illness (SMI) is a complex clinical conundrum that extends beyond obstetric practice. Patients specifically in this age spanning are liable to a uniquely complex intersection of somatic, psychological, and social risk, that should be addressed with watchful, sensitive, and evidence-based individually and interdisciplinary designed care. The results of this retrospective audit at University Hospitals Birmingham (UHB) highlight a dualistic reality of commendable good practices including universal screening practices for gestational diabetes if on antipsychotics and deplorable discrepancies for practices that are crucial for the welfare of the mother and the baby including mood stabilizer monitoring; psychiatric referrals are delayed and poor quality of postnatal relapse prevention plan documentation.

Lack of standardized therapeutic drug monitoring, poor engagement with perinatal psychiatric services and weak postnatal care pathways place a significant proportion of these women at an increased risk of relapse, poor maternal infant bonding, and poor obstetric outcomes. This is of particular concern as rates of psychiatric decompensation are high in the period immediately postpartum, when coordinated care and timely intervention are most needed.

To combat these system wide deficiencies, there is an immediate need to establish system pathways to structure the engagement of multiple discipline experts, include high risk OBs, perinatal psychiatrists, mental health nurses, social workers and family practitioners. Such protocols should ideally include access to preconception counseling, evidence-based medical management in pregnancy, comprehensive antenatal surveillance, and a review of the patient's wishes for

the postpartum period. Furthermore, these pathways should be informed by national guidelines, such as those funded and published by NICE (CG192) and supported by continuing professional development and prospective audit feedback.

As such, pregnant women with SMI finally should no longer be treated as a marginalized 'special section' of maternity services, but be recognized as a priority group in need of proactive, personalized, and cross-sector commentary. Remedying the deficiencies that have been highlighted in this audit through strategic, system wide interventions, is likely to be a key factor in achieving a reduction in maternal and neonatal outcomes at risk, beyond UHB as an example of best practice across the healthcare system.

Conflict of Interest: NIL

Funding Sources: NIL

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Declarations:

Author's Contribution:

- Conceptualization, and intellectual revisions, Data collection, interpretation, and drafting of manuscript
- The authors agree to take responsibility for every facet of the work, making sure that any concerns about its integrity or veracity are thoroughly examined and addressed

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