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Research Paper

Neuropsychiatric involvement in epilepsy surgery pathways in the UK

Faye Stanage [a,b,c,e], Maria Oto [f,g,e], Ana Miorelli [a,b,c,e], Manny Bagary [e,h], Bruce Tamilson [a,b,c,d,e,*], Niruj Agrawal [a,b,c,e]

[a] Atkinson Morley Wing, St George's Hospital, London, UK
[b] South West London and St George's Mental Health Trust, London, UK
[c] Neuroscience Department, City St George's University, London, UK
[d] Division of Psychiatry, University College of London, UK
[e] Faculty of Neuropsychiatry, Royal College of Psychiatrists, UK
[f] Institute of Neurological Sciences, Southern General Hospital in Glasgow, UK
[g] Greater Glasgow and Clyde NHS Foundation Trust, Glasgow, UK
[h] Birmingham and Solihull Mental Health NHS Foundation Trust, UK

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ABSTRACT

Background: Epilepsy surgery is an effective treatment for drug-refractory epilepsy. Epilepsy surgery multidisciplinary team involves a number of professionals, yet the role of neuropsychiatric care in surgical programs remains inconsistent. Despite the known psychiatric risks associated with epilepsy and its surgical interventions, there is no standardised approach to neuropsychiatric care in epilepsy surgery. This study evaluates the current level of neuropsychiatric involvement in epilepsy surgery centres across the UK, identifying current gaps and makes the consensus recommendation for optimal neuropsychiatric input.

Methods: A self-administered questionnaire was developed by the Royal College of Psychiatrists (RCPsych) Neuropsychiatry Faculty epilepsy surgery working group. It was distributed to all epilepsy surgical centres in the UK both in 2013 and 2021–22. The survey focused on service provision, available resources, operational aspects, and clinicians' perspectives on neuropsychiatric involvement in epilepsy surgery. Data from the two surveys were analysed to assess the prevalent practice and identify barriers to the provision of neuropsychiatric care.

Results: A total of 12 responses were received in each survey out of a total of 15 centres. Findings indicate considerable variability in neuropsychiatric involvement, with inconsistent preoperative and postoperative assessments across centres. While most centres acknowledged the importance of neuropsychiatric input, resource constraints and a lack of formalised pathways result in fragmented service provision.

Conclusion: The findings emphasise the need for standardised neuropsychiatric care in epilepsy surgery programs. Routine pre-operative and post-operative assessments should be integrated into epilepsy surgery pathways. Establishing national guidelines and increasing funding for neuropsychiatric services are crucial steps toward ensuring consistent and equitable care for epilepsy surgery patients across the UK.

1. Introduction

Epilepsy is a common neurological condition, affecting approximately 1 % of the population in the United Kingdom (UK). Over one third of people with epilepsy attending specialist epilepsy clinics do not respond to two or more anti-seizure medications and are classed as having drug refractory epilepsy [1]. Recent advancements in neuroimaging and surgical technologies have made epilepsy surgery an effective and recommended treatment option. The ILAE (International League Against Epilepsy) Surgical Therapies Commission recommends that all patients under 70 years of age with drug-resistant epilepsy be promptly referred for evaluation of surgical treatment options. In the UK, 15 regional neuroscience centres are dedicated to providing epilepsy surgery for adults. Designated by the NHS as specialist hubs, these centres offer surgical interventions for epilepsy. Each one delivers expert, comprehensive care across defined geographical areas. Together, they ensure equitable access to specialised epilepsy surgery for the entire adult population.

People with epilepsy have a significantly higher risk of developing psychiatric disorders, with reports indicating that 1 in 2 epileptic

* Corresponding author at: Atkinson Morley Wing, St George's Hospital, London, UK.
E-mail address: btamilso@sgul.ac.uk (B. Tamilson).

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patients receive a lifetime mental health diagnosis [2]. Several factors may link epilepsy to psychopathology, including shared neuropathology, genetic vulnerability, and developmental issues. Additionally, the effects of seizures, metabolic changes around the epileptic focus, the emergence of new epileptic sites, and alterations in receptor sensitivity may contribute. In addition, unrelated psychiatric conditions, disturbances in neurotransmission, and the psychological impact of managing epilepsy can also play a role in the development of mental health disorders [3]. Common psychiatric conditions in epilepsy include depression (prevalence of 23.1 %) [4], anxiety (pooled prevalence of 20.2 %) [5], and psychotic disorders (5.6 %) [6], and anti-epileptic medications themselves can cause neuropsychiatric side effects. Psychosis is significantly more common in individuals with temporal lobe epilepsy (TLE). There is also a notable co-occurrence of functional seizures and epilepsy. Research indicates that 12 % of people with epilepsy also experience functional seizures, while 22 % of individuals with functional seizures also have epilepsy [4]. Furthermore, people with epilepsy face a significantly increased risk of suicidality and completed suicide, higher than those in the general population [5,6]. Despite the high prevalence of psychiatric comorbidities, multiple barriers prevent people with epilepsy from accessing mental health support. A lack of training, education and awareness among psychiatrists and neurologists is one major obstacle. Additionally, misconceptions about the psychiatric aspects of epilepsy, psychotropic medications, and poor communication between healthcare professionals further contribute to these barriers. Cultural stigma, as well as insufficient resources and service provisions, also limit access to mental health care for people with epilepsy.

Epilepsy surgery may indeed itself increase the need for psychiatric support. A systematic review by Macrodimitris et al. (2011) found that, whilst the most likely outcome of surgery is an improvement in mental health and overall quality of life, there is a risk of developing psychiatric conditions postoperatively [7]. The study reported that the incidence of de novo psychiatric conditions following epilepsy surgery ranges from 1.1 % to 18.2 %. Additionally, it highlighted that a pre-operative psychiatric history is a strong predictor of mental health outcomes after surgery. Some studies suggest that nearly 1 in 3 people experience major depression after epilepsy surgery [8,9]. Halley et al. (2010) reported that 32 % of individuals develop de novo anxiety symptoms following surgery, while approximately 3 % experience de novo psychosis [10]. There is growing evidence of risk factors that help predict psychiatric outcomes after surgery, including pre-operative psychiatric comorbidities, the type of surgery and its outcome, and various biopsychosocial factors [3,11,12].

Surgery represents a critical turning point in the psychiatric trajectory of patients with epilepsy. Therefore, neuropsychiatric intervention – both pre- and post-operatively – is essential for providing holistic care. A thorough neuropsychiatric evaluation can help identify risk factors for surgical outcomes, detect de novo psychiatric comorbidities, and guide the treatment of psychiatric conditions. There is an increasing call for routine neuropsychiatric evaluations in all epilepsy surgery candidates – not only to assess surgical suitability but also to ensure ongoing cognitive, psychiatric, and social well-being [13–15]. Currently, there is significant inconsistency in how patients are psychiatrically assessed and monitored in epilepsy surgery programs worldwide [11,16].

A survey by Kanner et al. of 88 epilepsy centres in the USA found that only 21 % routinely conduct psychiatric evaluations for all anterior temporal lobectomy (ATL) candidates. Instead, evaluations are more commonly performed if recommended by neuropsychologists or if the patient has a prior psychiatric history. Additionally, only 26 % of centres have an in-house psychiatrist, while others rely on psychiatrists from consultation-liaison services. Approximately half of the centres surveyed consider post-operative psychiatric complications to be a significant issue that influences their decision to conduct psychiatric assessments. Furthermore, 70 % believe that neuropsychological evaluations alone are insufficient to identify psychiatric risks after surgery [12]. A study conducted by the European Epilepsy Network in 2016 reported that 92 % of epilepsy surgery centres in Europe provide psychiatric services. Of these, 60 % of evaluations are performed exclusively by psychiatrists, while 28 % are conducted jointly by psychiatrists and psychologists [17].

To date in the UK, neuropsychiatric assessments in epilepsy surgery have not been studied. As such, there are currently no widely accepted consensus guidelines or protocols to guide neuropsychiatric assessment in epilepsy surgery candidates in the UK. Our study aims to assess the current involvement of neuropsychiatry in epilepsy surgery centres nationwide, with the findings helping to inform proposals for developing formal national guidelines around the neuropsychiatric evaluation of epilepsy surgery patients.

2. Methods

The details of the epilepsy surgery centres (Table 1) were obtained from the UK Epilepsy Surgery Network and a 19-item self-administered questionnaire sent to the clinicians involved in epilepsy surgery programs in 2013 and 2021–22. The questionnaire focused on service provision, available resources, operational and clinical aspects, and clinicians' perspectives on neuropsychiatric input in epilepsy surgery. The collected data were then compiled and compared.

2.1. The questionnaire

The questionnaire was developed by the epilepsy working group of the RCPsych Faculty of Neuropsychiatry and comprised 19 primarily closed-ended questions, supplemented by optional open-text fields to allow respondents to elaborate on their answers. The questionnaire incorporated a range of question formats, including categorical (Yes/No), multiple-choice, and checkbox items designed to capture both descriptive information and practice-based data. Estimated completion time was 15–20 min. To ensure clarity and relevance, the questionnaire underwent face validation by the epilepsy working group of the RCPsych Faculty of Neuropsychiatry.

The initial section of the survey gathers contextual information regarding whether neuropsychiatric assessments are routinely offered to patients before or after surgery. Respondents are asked to specify their core clinical role and whether they have protected time in their job plan dedicated to epilepsy surgery assessments. This section also examines the presence of other team members involved in the assessment process, the availability of funding for such work, and whether the clinicians see other neuropsychiatric or neurological patients beyond the epilepsy surgery context. It evaluates the operational structure of epilepsy surgery services, including the types of interventions offered, annual patient numbers, and how many are assessed by respondents. Referral pathways are explored. A major focus is the timing, purpose, and scope of psychiatric involvement. Clinicians are asked if they assess all patients pre- and post-operatively, which post-operative time points they cover, and whether they attend MDT meetings. Opinions on whether all patients should be routinely assessed are elicited. Rationales for assessments are detailed: pre-operatively and post-operatively. Respondents describe assessment procedures, time allocation, and tools used. Further sections cover psychiatric contraindications, patient information materials, management strategies when psychiatric issues arise, and conclude with open-ended prompts for additional input or comments.

2.2. The RCPsych Faculty of Neuropsychiatry epilepsy working group

The Faculty of Neuropsychiatry is a part of the Royal College of Psychiatrists (RCPsych) in the UK. Its objective is to advance the understanding and practice of neuropsychiatry and to improve patient care. Within the Faculty, there is an Epilepsy Working Group that specifically focuses on epilepsy-related neuropsychiatric issues. This group comprises several neuropsychiatrists representing major epilepsy neuropsychiatry centres across the UK. The group held discussions

following a review of the results to develop key recommendations.

3. Results

In both 2013 and 2021–2022, a total of 12 responses were received, primarily from neuropsychiatrists. Three centres did not provided responses in both 2013 and 2021.

3.1. Service provision

In both surveys, all centres that participated in the study offer neuropsychiatric assessments for patients undergoing epilepsy surgery, either before or after the procedure. Each centre had a specialist neuropsychiatrist who conducts epilepsy assessments alongside other neuropsychiatry services, except for one centre where a liaison psychiatrist performs the assessments. Most centres offered intracranial monitoring, as well as resective temporal, extratemporal, and neurostimulation surgeries. A few centres also provide other types of epilepsy surgeries. The number of surgeries performed annually varies significantly, ranging from 10 to 200. Almost all centres reported neuropsychiatric involvement in both pre-operative and post-operative assessments, except for a few that do not participate in post-operative assessments, as noted in both surveys. In 2013, half of the centres assessed all patients before surgery. By contrast, in 2021, all but two centres reported assessing every patient pre-operatively (Fig. 1). However, only four or five centres consistently conducted post-operative assessments in both surveys. The main reasons for the lack of post-operative assessments include resource limitations – patients are often initially screened by a psychologist, with neuropsychiatrists becoming involved only when needed. Only four centres had dedicated funding for these services in 2013. By 2021, this number had increased to seven. Funding comes from epilepsy surgery services, neurology services, and, in one case, directly from NHS commissioning.

3.2. Operational aspects

In most cases, assessments are carried out by a consultant neuropsychiatrist. However, in a few centres, psychiatric resident doctors (under supervision) and neuropsychologists are also involved in the assessment of neuropsychiatric / psychiatric conditions. Almost half of the centres report having dedicated time allocated in their job plans for epilepsy surgery assessments. The amount of dedicated clinical time assigned to this work varies, ranging from 0.5 to 2 or more programmed activities (2–8 h/week). According to the 2013 survey, all patients referred underwent a neuropsychiatric assessment. However, by 2021, not all patients received this assessment. In most cases, referrals to neuropsychiatry are made by neurologists. However, in some centres, referrals come from neurosurgeons, neuropsychologists, or epilepsy surgical pathway coordinators. In the 2021 survey, two centres reported that referrals were made through the epilepsy surgery MDT (Multidisciplinary Team). Additionally, two centres noted the possibility of missed referrals, primarily due to long waiting times for neuropsychiatric assessments or a lack of coordination. The timeframe for post-operative assessments varies between 6 and 12 weeks, although the 2021 survey indicated that most centres offer assessments at the three-month mark. These assessments can also be expedited when necessary. The majority of centres reported that pre-operative assessments typically last 60 to 90 min, while post-operative assessments range from 30 to 90 min. In 2013, only two-thirds of centres reported neuropsychiatrists routinely attending MDT or epilepsy surgery meetings. However, by 2021, almost all respondents reported regular neuropsychiatric involvement. In both cases, it was noted that neuropsychiatrists' perspectives are routinely sought and incorporated into the broader epilepsy surgery treatment planning process.

Table 1
Epilepsy surgery centres in the UK.

	Centres	City	2013	2021–2022
1	Queen Elizabeth Hospital	Birmingham	✓	✓
2	Southmead Hospital, part of the North Bristol NHS Trust	Bristol	✓	✓
3	Institute of Neurological Sciences, Queen Elizabeth University Hospital	Glasgow	✓	✓
4	King's College Hospital NHS Foundation Trust	London	✓	✓
5	National Hospital for Neurology and Neurosurgery, University College London Hospitals	London	✓	✓
6	Atkinson Morley regional neuroscience centre, St George's Hospital	London	✓	✓
7	John Radcliffe hospital	Oxford	✓	✓
8	Manchester Centre for Clinical Neurosciences, Salford Royal Hospital	Manchester	✓	✓
9	The Walton Centre NHS Foundation Trust	Liverpool	✓	✓
10	University Hospital Llandough	Cardiff	✓	✓
11	Royal Infirmary of Edinburgh	Edinburgh	✓	✓
12	Wessex Neurological Centre	Southampton	✓	✓
13	Royal Victoria Infirmary	Newcastle upon Tyne	x	x
14	Leeds General Infirmary	Leeds	x	x
15	Royal Hallamshire Hospital	Sheffield	x	x
	Total responses		12	12

3.3. Neuropsychiatric evaluation

The majority of participants reported that pre-operative assessment involves preparatory work, including reviewing medical notes, gathering collateral information, and analysing prior investigations. A comprehensive neuropsychiatric evaluation is then conducted, which includes a Mental State Examination, bedside cognitive testing, risk assessment, and capacity assessment (Table 2). Additionally, the assessment involves evaluating psychiatric comorbidities and formulating a management plan. The evaluation also focuses on the patient's motivation to engage with epilepsy services, medication adherence, and necessary treatment adjustments. Providing both general and patient-specific information is an essential part of the pre-operative assessment. In some cases, rating scales are used, although this is relatively uncommon. The assessment further includes evaluating patient expectations and addressing concerns related to neuropsychiatric aspects. In certain situations, the process may also involve reviewing psychotropic medications, liaising with the MDT, and referring patients to other services. Although the use of rating scales was rare, some centres utilise specific questionnaires, including GAD-7, HADS, BDI, NDDI-E, the Illness Perception Questionnaire, BAI, SCID, QOLIE-31, the Alcohol Screening Questionnaire, and SF-36. The survey reports that two-thirds of epilepsy surgery programs provide general information leaflets, most of which include some details about psychiatric aspects. However, half of the participants stated that they never used patient information leaflets themselves, and most centres do not have their own designed materials.

Almost all participants reported that when a psychiatric problem is detected pre-operatively or post-operatively, they followed up and provided treatment. In a few cases, their involvement was limited to offering advice and referring the patient to the appropriate mental health team.

3.4. Perspectives on neuropsychiatric input

In the 2013 survey, all participating centres agreed that every patient should be routinely assessed before surgery. However, in the 2021 survey, this was no longer the case in two of those centres. Furthermore,

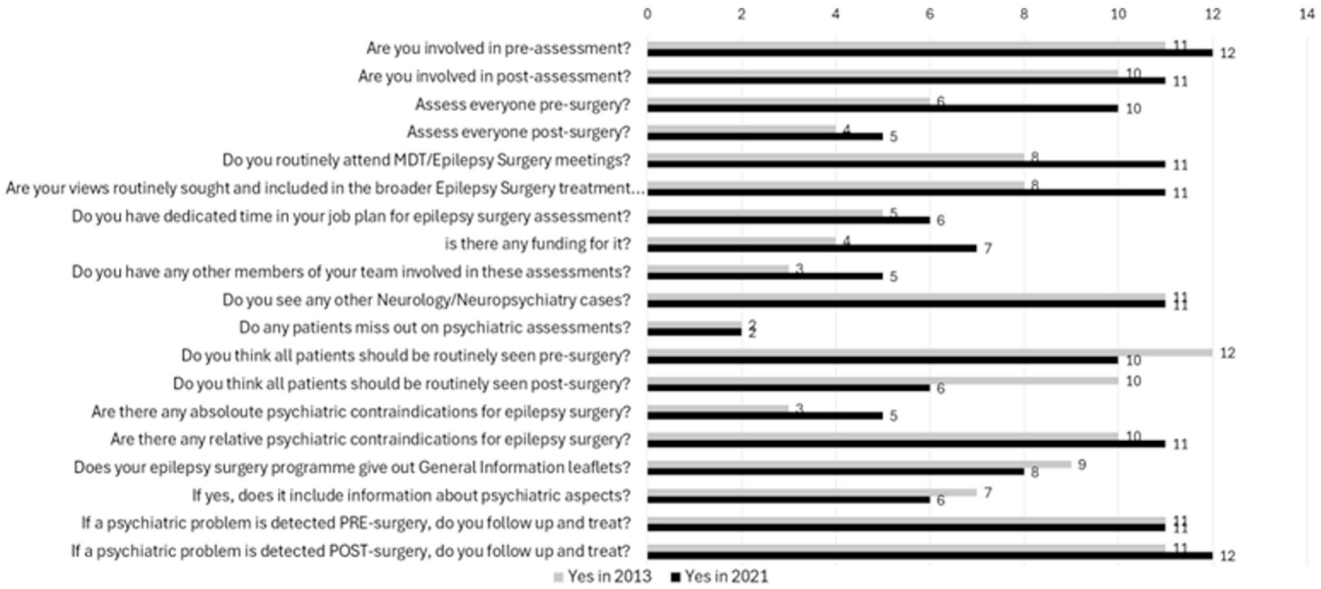

Fig. 1. Neuropsychiatric care in epilepsy centres in the UK.

Table 2
Reported role of the neuropsychiatrist in epilepsy surgery pathways

Reported role of the neuropsychiatrist in epilepsy surgery pathways
■ Evaluating a patient's suitability for surgery
■ Assessing a patient's motivation for surgery
■ Assessing psychiatric contraindications or concerns
■ Providing information on psychiatric aspects of epilepsy surgery
■ Assisting the multidisciplinary team in managing patient expectations
■ Advising the team on potential patient challenges
■ Assessing capacity to provide informed consent
■ Conducting a baseline psychiatric evaluation before surgery
■ Guiding MDT interactions with the patient
■ Supporting an improved quality of life post-operatively
■ Identifying psychiatric comorbidities before and after surgery
■ Managing psychiatric comorbidities in both pre- and post-operative stages
■ Developing a management plan to minimise the risk of post-operative psychopathology
■ Helping the team manage patient and family post-operative expectations
■ Involved routinely in broader epilepsy surgery treatment planning
■ To educate wider MDT on neuropsychiatric aspect of epilepsy surgery

only half of the respondents believed that all patients should be routinely assessed post-operatively. The majority of participants identified several key reasons for pre-operative neuropsychiatric assessment, including evaluating the patient's suitability for surgery, providing information, and helping the team in managing patient expectations (Table 2). The assessment also plays a crucial role in advising the team on potential patient challenges, obtaining a baseline evaluation before surgery, supporting the assessment of capacity around neurosurgical intervention, and guiding interactions with the patient. Additionally, it promotes a good quality of life post-surgery, facilitates the identification and diagnosis of psychiatric illness, and supports treatment. Developing a treatment plan to minimise the risk of post-operative psychopathology is another key objective. Routinely assessing the patient's motivations for surgery is also considered important, along with advising on any psychiatric contraindications or other factors relevant to the treatment decision.

Most participants indicated that the primary goals of post-operative assessment are to identify and manage neuropsychiatric symptoms following surgery, support the treating team in setting realistic expectations for patients and families, address any post-operative mental health concerns, and promote a good quality of life for the patient after the procedure. Additionally, some participants believe that providing information and advising the team on how to interact with the patient post-operatively are also important aspects of these assessments.

3.5. Perspective on contraindications

Two-thirds of participants believe that there is no absolute psychiatric contraindication for epilepsy surgery. However, some did consider certain conditions as such – including dementia or a dementing process, serious comorbid mental illness such as acute psychosis (unrelated to seizures), catatonia, and acute intoxication from any substance. Almost all participants agreed that there are several relative psychiatric contraindications for surgery, including active major mental illness, severe personality disorder, interictal psychosis, severe substance misuse problems, and co-morbid functional seizures.

3.6. Proposals for improvement

When asked about additional input that they would like to provide, the centres expressed a desire to offer routine pre- and post-operative neuropsychiatric care for all patients undergoing epilepsy surgery. Other proposed improvements included attending pre-operative meetings, conducting educational sessions for staff, using validated questionnaires, and creating patient information leaflets. There was a proposal for routine follow-ups at six months and then annually for three

years. There was also a call for a standardised assessment protocol or consensus guideline to be implemented nationwide, alongside a central database for research. Additionally, it was acknowledged that increased funding would likely be required to support this pathway.

4. Discussion

This study represents the first comprehensive exploration of neuropsychiatric care in epilepsy surgery within the UK. We aimed to collect data from neuropsychiatrists or liaison psychiatrists at all 15 adult epilepsy surgery centres in both 2013 and 2021. Although the response rate was not universal, a two third response rate was reasonable. Centres which did not respond anecdotally did not have neuropsychiatry involvement at that point in time. The overall data demonstrates consistency in responses from several centres, with some variations in participation over time. Notably, there have been significant changes in multiple aspects of neuropsychiatric care within epilepsy surgery, highlighting both progress and ongoing challenges.

A key finding of this study is the inconsistency in neuropsychiatric input across epilepsy surgery centres in the UK. There is growing concern that neuropsychiatric aspects of epilepsy surgery remain underemphasised, despite the well-established link between refractory epilepsy, epilepsy surgery and psychiatric disorders. This issue is not unique to the UK but is observed globally. Similar studies conducted in Europe, Australia, Canada, India, and the United States have reported comparable findings [7,11,12,15,17]. Epilepsy surgery is a recognised treatment for drug-resistant epilepsy; however, epilepsy itself increases the risk of psychiatric comorbidities, and the surgery carries its own psychiatric risks postoperatively. Ploesser et al. (2023) conducted a systematic review and *meta*-analysis examining psychiatric outcomes following temporal lobe epilepsy surgery in patients with pre-existing psychiatric disorders. Their findings were mixed, with 43 % of patients showing improvement, while 33 % experienced a worsening of their condition [18]. This research underscores the necessity of enhanced pre-operative psychiatric risk assessments and counselling to optimise patient outcomes. Several international studies advocate for routine neuropsychiatric input in epilepsy surgery due to various factors, including the risk of post-surgical de novo psychiatric disorders, the impact of pre- and post-operative psychiatric conditions on seizure outcomes, and the influence of epilepsy surgery on pre-existing psychiatric disorders. Kanner (2016) emphasized the need for mandatory psychiatric assessments during pre-operative evaluations, given the complex psychiatric needs of surgical candidates and the potential for post-operative psychiatric complications [12,19,20].

Despite the recognised importance of neuropsychiatric input, several barriers hinder its implementation in the UK. In addition to under-recognition and limited awareness, systemic challenges persist – such as fragmented service lines, where distinct clinical pathways or specialties operate in isolation without effective integration or coordination, and complex funding structures are marked by disjointed commissioning processes. The traditional separation of mental and physical healthcare services further complicates coordinated care. Even where neuropsychiatric input is available in epilepsy surgery, there is no universally recognised guideline or standardised protocol. The role of neuropsychiatrists in multidisciplinary epilepsy surgery teams varies across the UK, although the majority of centres acknowledge their importance. Operational aspects such as the duration of assessments, follow-up intervals, and service provisions are often determined by local practices and availability of resources. Most centres offering post-operative care provide a three-month follow-up, which aligns with existing literature suggesting that de novo psychiatric disorders are most likely to emerge within the first six months post-surgery.

In 2013, all participants agreed on the necessity of routine pre-operative assessment in epilepsy surgery. However, by 2021, two of the participating centres no longer felt that this was necessary. It is unclear whether this shift reflects individual clinical judgment, institutional limitations such as resource constraints, or a broader sense of therapeutic nihilism. Further research is needed to determine whether a risk stratification framework could facilitate more consistent and evidence-based selective assessment of high-risk groups. Regarding post-surgical evaluation, data from 2021 indicated that approximately half of the participants did not consider it essential. This perspective may arise from the belief that pre-operative assessments are sufficient to predict post-operative outcomes and identify risk groups, or it may similarly reflect resource-related challenges. Nonetheless, the underlying rationale for this view remains ambiguous and warrants further exploration.

There is a general consensus regarding the core components of a neuropsychiatric pre-operative assessment, which typically includes a mental state examination, bedside cognitive testing, risk assessment, and involvement in the evaluation of the patient's capacity to consent to surgery. However, the role of the neuropsychiatrist extends beyond these domains, encompassing psychiatric diagnosis, treatment, and risk management. Given the heightened risk of suicide following epilepsy surgery [21], comprehensive psychiatric evaluation by appropriately trained professionals is crucial. One notable gap in epilepsy surgery care is the underestimation of the importance of informing patients about potential psychiatric outcomes. Kanner reported that only 12 % of epilepsy surgery centres explicitly discuss psychiatric risks as part of pre-operative patient education [12,19]. This raises ethical concerns regarding informed decision-making. Additionally, psychometric questionnaires are not routinely used in neuropsychiatric evaluations, as neuropsychiatrists often prefer historical and holistic formulations. Whilst psychometric tools can detect mild symptoms, they are typically condition-specific and focus on recent symptomatology. This underscores the limitations of relying solely on neuropsychological assessments rather than comprehensive neuropsychiatric evaluations.

One in three participants considered there are absolute contraindications to epilepsy surgery, with many considering dementia to be one of them. Other absolute contraindications include acute psychosis unrelated to seizures, catatonia, severe comorbid mental illness, and acute intoxication. The survey also identified several relative psychiatric contraindications, such as active major mental illness, severe personality disorder, interictal psychosis, severe substance misuse, and co-morbid functional seizures. However, there is a paucity of published evidence examining the specific features of these contraindications and their relationship to epilepsy burden or outcome of epilepsy surgery on those cohort. Further research and discussion is required in order to establish guidelines regarding psychiatric contraindications for epilepsy surgery.

A significant gap in epilepsy surgery care is the absence of standardised guidelines for neuropsychiatric assessment and management. This results in inconsistent and – at times – inadequate care for patients undergoing epilepsy surgery. Beyond being a matter of poor practice, the lack of structured neuropsychiatric input poses potential patient safety risks [20]. The findings of this study strongly support the need for consensus guidelines to ensure standardised neuropsychiatric service provision across all epilepsy surgery centres. All neuropsychiatrists who responded to the survey expressed the need for standardised service provision and neuropsychiatric assessments. Additionally, increased advocacy from stakeholders is needed to secure funding and develop structured pathways for neuropsychiatric services in epilepsy surgery.

Given the limited existing research in this field, there is a strong call for the establishment of a central database to collect more robust evidence on neuropsychiatric care in epilepsy surgery. Following the surveys, the epilepsy working group considered the results and there was a consensus that it would be desirable to have more centralised database across epilepsy surgery centres that could yield substantial clinical, research, and operational benefits. This could result in the development of standardised assessment practices, facilitate shared learning across centres, and ultimately contribute to quality improvement. Furthermore, such a database would serve as a valuable resource for training, guideline development, and policy planning. It would enable healthcare

systems to make evidence-based decisions regarding resource allocation for integrated neuropsychiatric services and help identify regional disparities in access to and outcomes of neuropsychiatric care.

4.1. Impact of the current state of services

The UK's National Institute for Health and Care Excellence (NICE) guidelines highlight the role of neuropsychiatry in epilepsy care. Yet commissioning of such services in the UK remains inconsistent leading on to major inequities. The resultant geographical variability has led to a few well-resourced centres benefitting from integrated MDTs with embedded neuropsychiatric expertise, while under-resourced areas often lack even the basic infrastructure to meet NICE standards. A recent *meta*-analysis by Bush et al. 2024 shows epilepsy incidence and outcomes stratified by socioeconomic status. Patients from deprived backgrounds experience higher seizure burden, poorer outcomes, and reduced access to mental health care [22]. The gap in epilepsy care is structural as well as clinical, reflecting entrenched inequalities. In the absence of standardised commissioning, regional variability continues to disadvantage vulnerable groups. Depression and anxiety are often underdiagnosed in people with refractory epilepsy, and post epilepsy surgery neuropsychiatric complications are not uncommon. Without comprehensive pre- and post-operative neuropsychiatric evaluation, these risks remain unmanaged, undermining recovery and long-term outcomes. Surgical success is often accompanied by complex psychological sequelae, yet many centres lack the neuropsychiatric infrastructure to address them. This could result in suboptimal risk–benefit assessments, delayed decision making, and poor delivery of care. Clinicians in under-resourced settings often informally report frustration, moral distress, and burnout when unable to deliver guideline-concordant care. Our survey reveals substantial variation in neuropsychiatric involvement in epilepsy surgery in the UK. However, there is a lack of research examining the impact of this variation. Future studies should prioritise this area to better understand its implications and the extent of inequalities in adverse outcomes.

4.2. Study limitations

This study focuses on adults and is limited to the UK. A key limitation is the suboptimal response rate, as some centres did not participate in either survey, potentially affecting the representativeness of the data. Additionally, the study relies on self-reported questionnaires, which may introduce response bias and limit the accuracy of the findings. Another limitation is that the survey did not collect specific data on the prevalence or burden of psychiatric conditions among epilepsy surgery patients. It is also important to note that the study primarily reflects the perspectives of expert neuropsychiatrists, rather than incorporating input from the broader multidisciplinary team or patients themselves. This may lead to an incomplete understanding of the challenges and perspectives across different stakeholders involved in epilepsy surgery care. Nevertheless, it is clear that further work is required and that the information collected presents a good starting point.

4.3. Recommendations

The RCPsych Faculty of Neuropsychiatry Epilepsy Working Group – based on this data and available global evidence – engaged in a series of consensus building discussions and there was universal agreement that neuropsychiatry should be an integral component of all epilepsy surgery centres in the UK and globally. Main drivers underpinning the recommendation are listed in the (Table 3). It was strongly recommended that:

1. Neuropsychiatry is an essential component of the epilepsy surgical MDT; Neuropsychiatrists should play a key role in the epilepsy surgery decision-making process to ensure comprehensive evaluation and management of psychiatric comorbidities.
2. All patients undergoing epilepsy surgery should have access to neuropsychiatric services to address both pre-existing and potential post-operative psychiatric complications.
3. A standardised preoperative neuropsychiatric assessment should be conducted for all surgical candidates, followed by post-operative neuropsychiatric reviews at three months and twelve months to monitor and manage ongoing or emerging psychiatric issues.
4. There is a critical need for the establishment of standardised guidelines for neuropsychiatric care in epilepsy surgery to ensure consistency and best practices across all centres.

These recommendations aim to enhance patient safety, optimise surgical outcomes, and improve the overall quality of epilepsy surgery services.

Abbreviations	
ATL	Anterior temporal lobectomy
BAI	Beck's Anxiety Inventory
BDI	Beck's Depression Inventory
DBS	Deep brain stimulation
GAD-7	Generalized Anxiety Disorder Questionnaire –7 items
HADS	Hospital Anxiety and Depression Scale
MDT	Multidisciplinary Team
NDDI-E	Neurological Disorders Depression Inventory for Epilepsy
NHS	National Health Service
PAs	Programmed Activities
RCpsych	Royal College of Psychiatrists
QOLIE-31	Quality of Life in Epilepsy questionnaire – 31 items
SCID	Structured Clinical Interview for DSM disorders
SF-36	Short Form survey – 36 items
TLE	Temporal Lobe Epilepsy
VNS	Vagus Nerve Stimulation

CRediT authorship contribution statement

Faye Stanage: Writing – review & editing, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Maria Oto:** Writing – review & editing, Visualization, Validation, Conceptualization. **Ana Miorelli:** Writing – review & editing, Visualization, Methodology, Investigation, Data curation, Conceptualization. **Manny Bagary:** Visualization, Conceptualization. **Bruce Tamilson:** Writing – review & editing, Writing – original draft, Visualization, Validation, Formal analysis. **Niruj Agrawal:** Writing – review & editing, Supervision, Methodology, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Table 3
Main drivers underpinning neuropsychiatric involvement in epilepsy surgery pathway.

- To advise the epilepsy surgery MDT about suitability of patient for epilepsy surgery from Neuropsychiatric perspective.
- Provide appropriate neuropsychiatric information to the patient to allow them to make a fully informed decision.
- Recognise and treat any pre-existing neuropsychiatric conditions that may help improve epilepsy surgery outcomes.
- Help the Epilepsy surgery MDT with complex issues such as expectation management, complex communications or with mental capacity issues.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.yebeh.2025.110726.

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