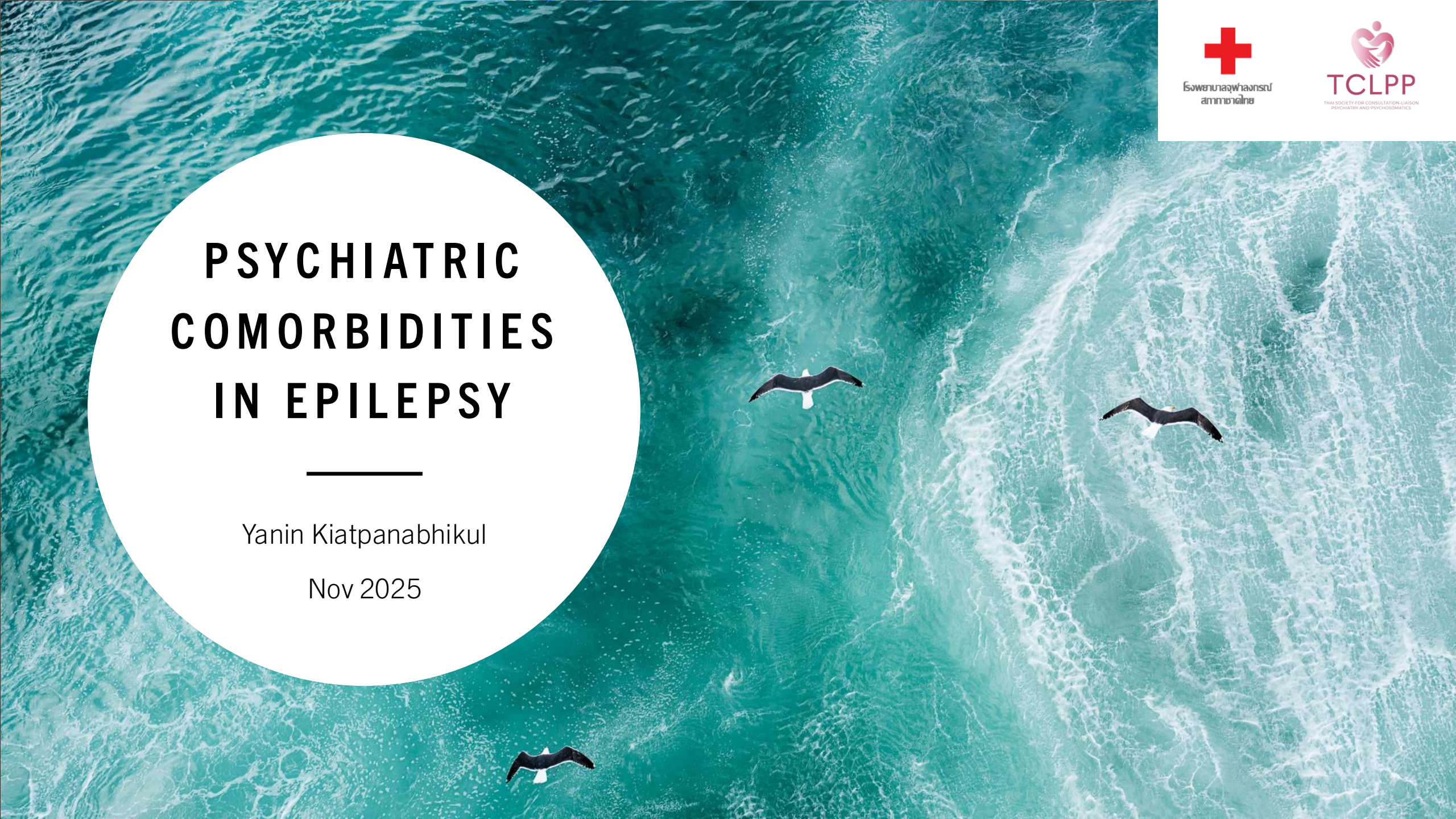


PSYCHIATRIC COMORBIDITIES IN EPILEPSY

Yanin Kiatpanabhikul

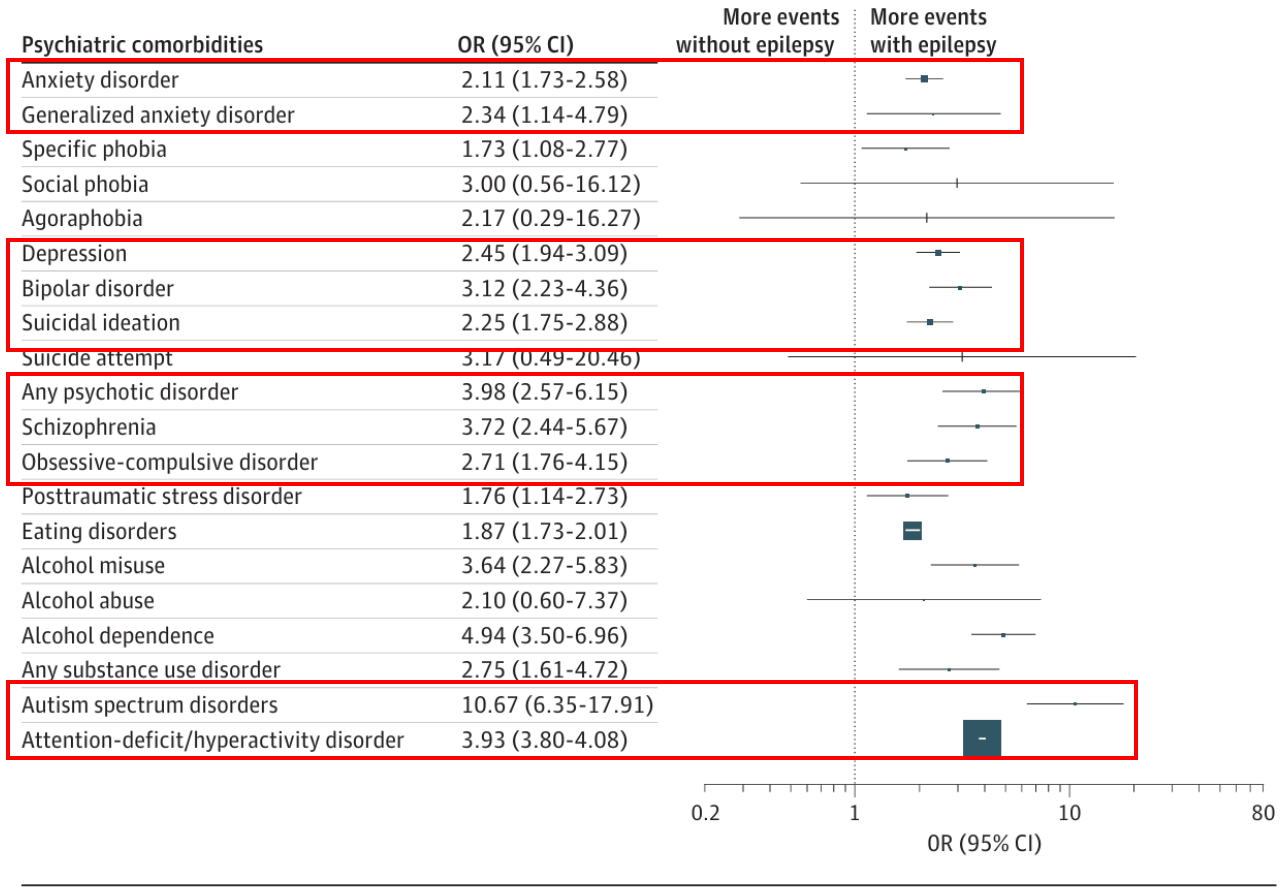
Nov 2025

AGENDA

1. Psychiatric syndromes in people with epilepsy (PWE)
2. Pharmacological management of psychiatric issues in PWE
3. PNES
4. Psychiatric issues in epilepsy surgery

INCREASED RISK OF PSYCHIATRIC DISORDERS IN PWE

Figure. Forest Plot of the Meta-Analyses



The figure demonstrates the results of meta-analyses for each psychiatric comorbidity, showing the overall odds ratio (OR) with 95% CI.

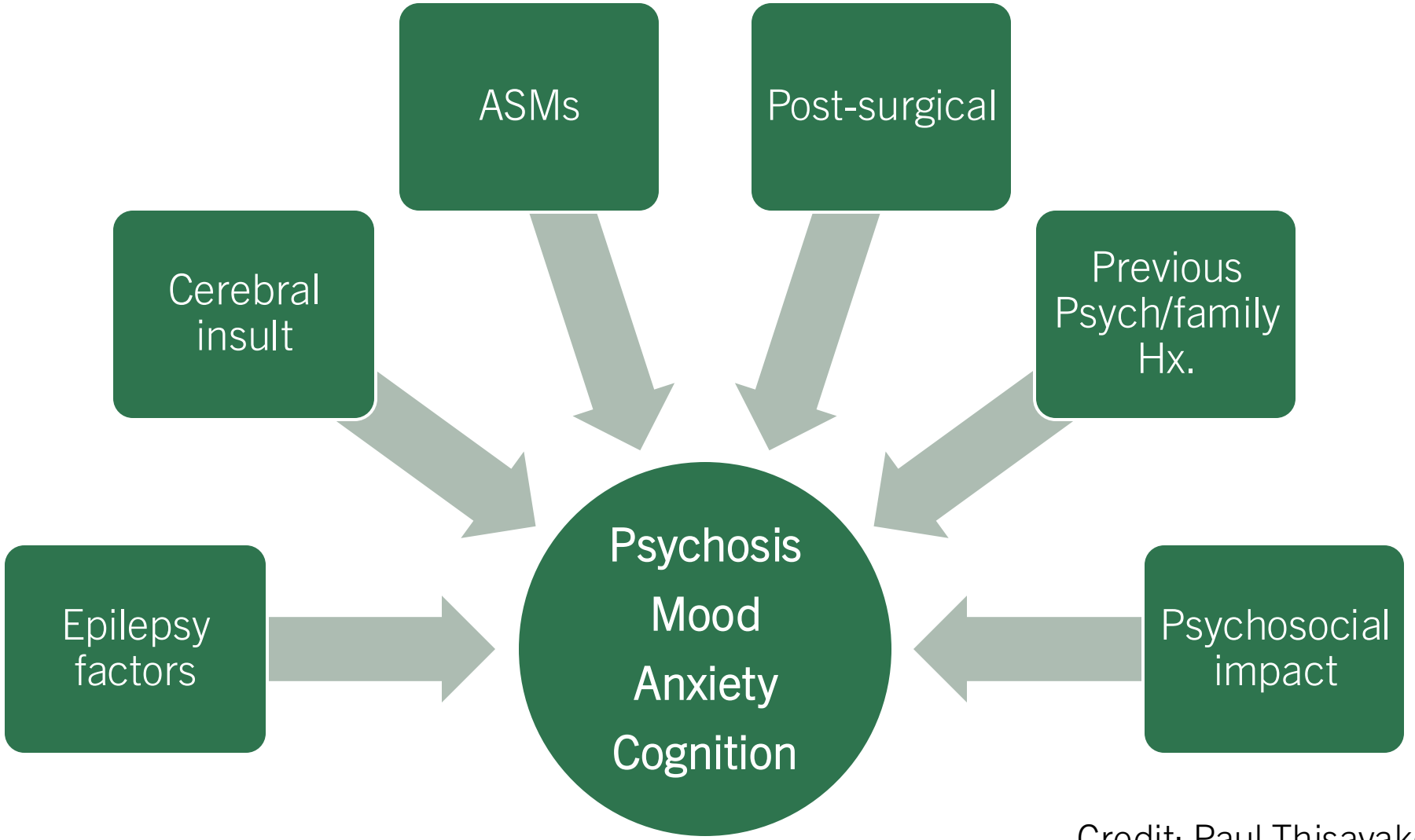
Kwon C et al. Psychiatric Comorbidities in Persons With Epilepsy Compared With Persons Without Epilepsy A Systematic Review and Meta-Analysis. JAMA neurology, 2025

THE BIDIRECTIONAL RELATIONSHIP

- Depression and psychosis is also an independent risk factor for unprovoked seizures
- Patients admitted with schizophrenia have 2-3 fold increased risk for epilepsy, and patients admitted with epilepsy have 4-5 fold increased risk for schizophrenia
- Psychiatric disorders have increased incidence rate ratio both before and after seizure diagnosis
- This points to shared neurobiological mechanisms of both diseases

Mula M et al. Epilepsy and psychosis: navigating through a complex intersection. BJPsych Open, 2025

POTENTIAL RISK FACTORS OF PSYCHIATRIC SYMPTOMS IN PWE



Credit: Paul Thisayakorn, 2024

CONTEXT OF PSYCHIATRIC SYMPTOMS

1. Peri-ictal symptoms: psychiatric symptoms that have a temporal relationship with seizure activity. Include preictal, ictal, and postictal symptoms
2. Interictal symptoms: psychiatric symptoms that do not have a temporal relationship with seizures. May be specific to PWE or identical to DSM-based diagnoses
3. Paraictal symptoms: psychiatric symptoms that appear when seizures are controlled
4. Psychiatric symptoms associated with antiseizure medications (ASM)

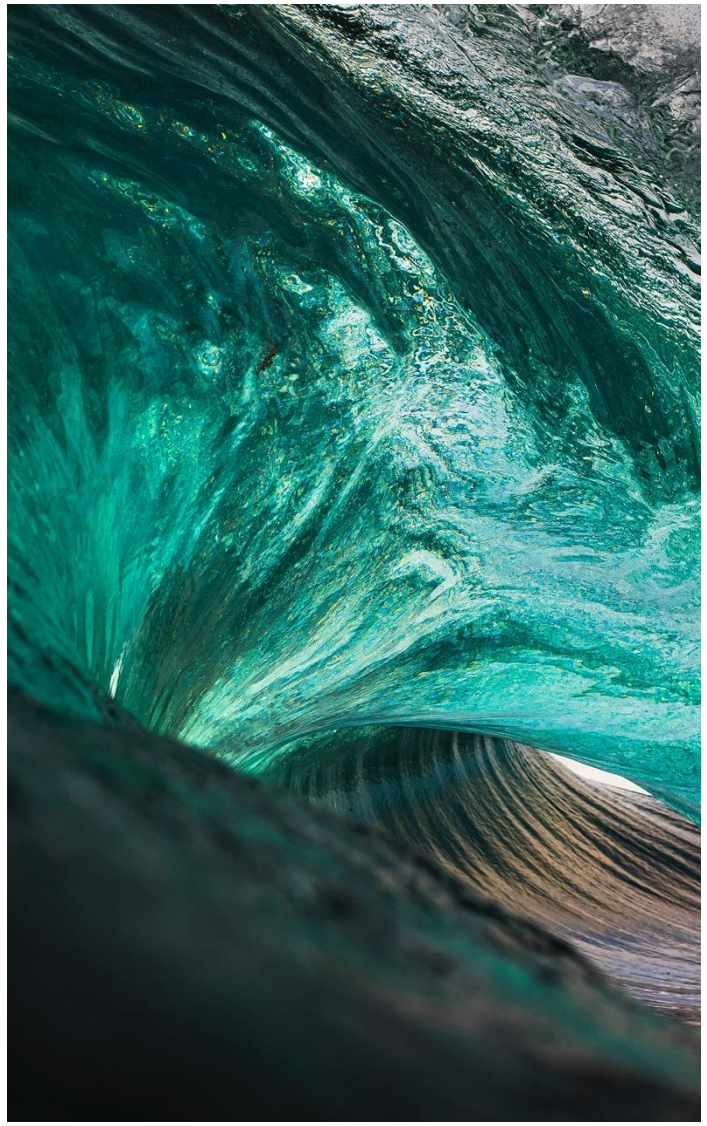
PERI-ICTAL SYMPTOMS

Preictal	Symptoms preceding seizure from few hours up to 2 days. Not associated with EEG changes (not aura). Most common: confusion, anxiety, irritability, mood changes. Mostly in context of TLE
Ictal	Psychiatric manifestations of a seizure such as ictal fear/panic, ictal depression, ictal psychosis. Usually associated with other symptoms of seizures (automaticity, altered consciousness)
Postictal	Postictal psychosis: Subtle onset after lucid interval after seizure. Lasts hours to weeks
	Postictal mood and anxiety symptoms: Often described as postictal worsening of comorbid mood/anxiety disorder. Duration hours- 1 day.

Mula M et al. Psychiatric Comorbidities in People With Epilepsy. Neurology: Clinical Practice April 2021

POSTICTAL PSYCHOSIS

- Typically appear after a ‘lucid interval’ from 12 hours up to 7 days
- Commonly lasts 24-48 hr
- Psychotic episodes characterized by mixed mood, psychomotor agitation, mystic or religious delusions. Confusion/delirium also possible
- High risk of aggression, suicide, or other accidents (28.5% of cases)
- Typically respond to low-dose antipsychotics or benzodiazepines
- ¼ cases progress to a chronic psychosis



Mula M et al. Epilepsy and psychosis: navigating through a complex intersection. BJPsych Open, 2025
Kanner AM and Rivas-Grajales M. Psychosis of epilepsy: a multifaceted neuropsychiatric disorder. CNS Spectrums, 2016

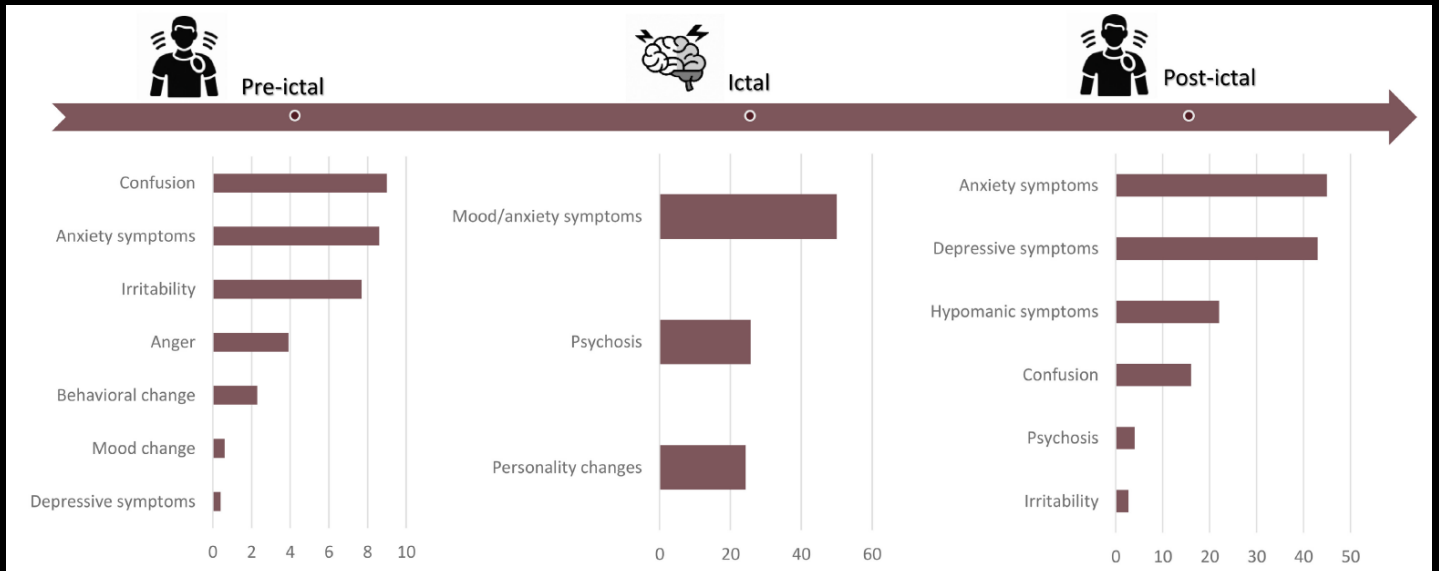


FIGURE 2 Comparative summary of PMs in PWE. Percentage of patients with psychiatric manifestations according to the pre-ictal,

TABLE 2 Prevalence of psychiatric manifestations.

Psychiatric manifestation	Pre-ictal (%)	Ictal (%)	Postictal (%)	No specified (%)
Anxiety symptoms	Anxiety symptoms: 8.6[a]	Mood/anxiety symptoms[b]	Anxiety symptoms: 45.0[c]	NR
Affective symptoms	Depressive symptoms: 0.4[a] Irritability: 7.7[a] Anger: 3.9[a] Mood change: 0.6[a]	NR	Depressive symptoms: 43.0[c] Hypomanic symptoms: 22.0[c] Irritability: 2.7[c]	Rage attacks: 40.6[d]
Psychotic symptoms	NR	Psychosis[b]	Psychosis: 4.0[c]	NR
Behavioral changes	Behavioral change: 2.3[a] Confusion: 9.0[a]	Personality changes[b]	Confusion: 16.0[c]	NR

Note: Prevalence of psychiatric symptoms in epileptic patients according to Diagnostic and Statistical Manual of Mental disorders, Fifth Edition (DSM-5) and the temporality with respect to the ictal manifestation.

[a]Obtained from Besag and Vasey.[29]

[b]Obtained from Gold et al.[31] based on case reports.

[c]Obtained from Subota et al.[30]

[d]Obtained from Corbet et al.[28]

Alva-Diaz C et al. Peri-ictal psychiatric manifestations in people with epilepsy: An umbrella review. Epilepsia Open, 2024

MANAGEMENT OF PERI-ICTAL SYMPTOMS

- Peri-ictal psychiatric symptoms may remit with seizure control
- Post-ictal psychosis can be symptomatically managed with antipsychotics or benzodiazepines due to severity of symptoms and risk of aggression/ suicide
- For short episodes of psychosis (days), the antipsychotic can be tapered in 5 days. For episodes lasting longer than a few days, continue for 1-2 months following complete remission of psychosis and then taper.

Kerr MP et al. Post-ictal psychoses. International consensus clinical practice statements for the treatment of neuropsychiatric conditions associated with epilepsy. Epilepsia, 2011

INTERICTAL SYMPTOMS

Epilepsy-specific	Interictal psychosis: chronic psychosis with preserved affect and without progressive cognitive deterioration Interictal dysphoric disorder: mood swings with irritability with multiple somatic symptoms Interictal personality changes: dysthymic mood with obsessionality, increased philosophical/ religious interests, hyposexuality, and hypergraphia
Comorbid disorders	DSM-based diagnosis

Mula M et al. Psychiatric Comorbidities in People With Epilepsy. Neurology: Clinical Practice April 2021

PSYCHIATRIC COMORBIDITIES

Depression	Anxiety	Delusions and/or hallucinations
• DDx bipolar or unipolar depression: screen for manic symptoms • Comorbid anxiety/ substance use • Mild depression > med or psychotherapy • Mod-severe depression > SSRIs are first line	• DDx major depression with anxious distress • Comorbid depression/ substance use • Mild-mod anxiety > med or psychotherapy • Severe anxiety > SSRIs are first line • BZ adjunct useful in short-term • Consider gabapentin, pregabalin	• DDx schizophrenia, interictal psychosis, delirium, substance-induced psychosis • Suggest risperidone, haloperidol for PWE

Suicide risk?

SUICIDE IN EPILEPSY

- Suicide in PWE is 3 times higher than in the general population, 7% of PWE have attempted suicide
- Risks for completed suicide: substance use, comorbid mood/anxiety/personality disorders, neurodevelopmental disorders, TBI, stroke, drug-resistant epilepsy, TLE
- Cause likely multifactorial and a combination of biological, psychological, and social factors
- Screening can be a first step towards management

Kiriakopoulos ET et al. Psychosocial Burden and Suicidality in Epilepsy: A Public Health Concern. Epilepsy Currents, 2025

USEFUL SCREENING TOOLS

กรมสุขภาพจิต

แบบประเมินโรคซึมเศร้า 9 คำถาม (9Q)

ในช่วง 2 สัปดาห์ที่ผ่านมารวมทั้งวันนี้ ท่านมีอาการเหล่านี้ บ่อยแค่ไหน	ไม่มีเลย	เป็นบางวัน 1-7 วัน	เป็นบ่อย > 7วัน	เป็นทุกวัน
1. เบื่อ ไม่สนใจอยากทำอะไร	0	1	2	3
2. ไม่สบายใจ ซึมเศร้า ท้อแท้	0	1	2	3
3. หลับยากหรือหลับๆตื่นๆหรือหลับมากไป	0	1	2	3
4. เหนื่อยง่ายหรือไม่ค่อยมีแรง	0	1	2	3
5. เบื่ออาหารหรือกินมากเกินไป	0	1	2	3
6. รู้สึกไม่ดีกับตัวเอง คิดว่าตัวเองล้มเหลวหรือครอบครัวผิดหวัง	0	1	2	3
7. สมาธิไม่ดี เวลาทำอะไร เช่น ดูโทรทัศน์ ฟังวิทยุ หรือทำงานที่ต้องใช้ความตั้งใจ	0	1	2	3
8. พูดช้า ทำอะไรช้าลงจนคนอื่นสังเกตเห็นได้ หรือกระสับกระส่ายไม่สามารถอยู่นิ่งได้เหมือนที่เคยเป็น	0	1	2	3
9. คิดทำร้ายตนเอง หรือคิดว่าถ้าตายไปคงจะดี	0	1	2	3
			คะแนนรวมทั้งหมด	

คะแนนรวม	การแปรผล
< 7	**ไม่มี**อาการของโรคซึมเศร้าหรือมีอาการของโรคซึมเศร้าระดับน้อยมาก
7-12	มีอาการของโรคซึมเศร้า **ระดับน้อย**
13-18	มีอาการของโรคซึมเศร้า **ระดับปานกลาง**
≥ 19	มีอาการของโรคซึมเศร้า **ระดับรุนแรง**

Thai Young Mania Rating Scale: TMRS

ชื่อ-นามสกุล.....อายุ.....ปี
วันที่ประเมิน.....
HN.....Diagnosis.....

คำแนะนำการให้คะแนน

วัตถุประสงค์ของการให้คะแนนแต่ละข้อคือการประเมินความรุนแรงของความผิดปกติที่เกิดขึ้นกับผู้ป่วย โดยเลือกให้คะแนนเพียงข้อเดียว

ตัวเลือกที่ให้เป็นเพียงแนวทาง ถ้าจำเป็นอาจจะให้คะแนนโดยไม่ต้องใช้ตัวเลือกสามารถให้คะแนนระหว่างตัวเลือกได้ (1 หรือ ½ คะแนน) ในกรณีที่ระดับความรุนแรงไม่ได้เป็นไปตามตัวเลือกที่ให้ไว้

1. อารมณ์ครื้นเครง

คะแนน=

0. ไม่มี
1. เพิ่มขึ้นเล็กน้อย หรืออาจเพิ่มขึ้นจากการชักถาม
2 อารมณ์ครื้นเครงอย่างชัดเจนโดยความรู้สึกของผู้ป่วย, มองโลกในแง่ดี, มั่นใจตัวเอง, ร่าเริงอารมณ์เหมาะสมกับเนื้อหาเรื่องราว
3. อารมณ์ครื้นเครงมาก, ไม่เหมาะสมกับเนื้อหาเรื่องราว; มีอารมณ์ขันตลอดเวลา
4. สนุกสนานครื้นเครง; หัวเราะอย่างไม่เหมาะสม; ร้องเพลงขึ้นมาไม่สมเหตุผล

แบบประเมินการฆ่าตัวตาย 8 คำถาม (8Q)

ลำดับคำถาม	ระยะเวลา	คำถาม	ไม่มี	มี
1.	ในช่วง 1 เดือนที่ผ่านมารวมวันนี้	**คิดอยากตาย หรือ คิดว่าตายไปจะดีกว่า**	0	1
2.		อยากทำร้ายตัวเอง หรือ ทำให้ตัวเองบาดเจ็บ	0	2
3.		คิดเกี่ยวกับ**การฆ่าตัวตาย**	0	6
		(ถ้าตอบว่าคิดเกี่ยวกับฆ่าตัวตายให้ถามต่อ) .... ท่านสามารถควบคุมความอยากฆ่าตัวตายที่ท่านคิดอยู่นั้นได้หรือไม่ หรือบอกได้ไหมว่าคงจะไม่ทำตามความคิดนั้นในขณะนี้	ได้ 0	ไม่ได้ 8
4.		มีแผนการที่จะฆ่าตัวตาย	0	8
5.		ได้เตรียมการที่จะทำร้ายตนเองหรือเตรียมการจะฆ่าตัวตายโดยตั้งใจว่าจะให้ตายจริง ๆ	0	9
6.		ได้ทำให้ตนเองบาดเจ็บแต่ไม่ตั้งใจที่จะทำให้เสียชีวิต	0	4
7.		ได้พยายามฆ่าตัวตายโดยคาดหวัง/ตั้งใจที่จะให้ตาย	0	10
8.	ตลอดชีวิตที่ผ่านมา	ท่านเคยพยายามฆ่าตัวตาย	0	4
			คะแนนรวมทั้งหมด	

แบบประเมินภาวะวิตกกังวล (GAD-7)

ในช่วงสองสัปดาห์ที่ผ่านมา	ไม่เลย	บางวัน	เกินกว่า 7 วัน ในช่วง 2 อาทิตย์ที่ผ่านมา	เกือบทุกวัน
1. รู้สึกตึงเครียด วิตกกังวล หรือ กระวนกระวาย	0	1	2	3
2. ไม่สามารถหยุดหรือควบคุมความกังวลได้	0	1	2	3
3. กังวลมากเกินไปในเรื่องต่างๆ	0	1	2	3
4. ทำตัวให้ผ่อนคลายได้ยาก	0	1	2	3
5. รู้สึกกระสับกระส่าย จนไม่สามารถนั่งนิ่งๆ ได้	0	1	2	3
6. กลายเป็นคนขี้รำคาญ หรือหงุดหงิดง่าย	0	1	2	3
7. รู้สึกกลัวเหมือนว่า จะมีอะไรร้ายๆ เกิดขึ้น	0	1	2	3

คะแนนรวมตั้งแต่ข้อที่ 1 - 7 (นำคะแนนทั้งหมดที่ได้มาบวกกัน)
0 - 9 คะแนน ท่านมีความวิตกกังวลในระดับเฉลี่ยหรือสูงกว่าเกณฑ์เฉลี่ย เพียงเล็กน้อย
10 - 14 คะแนน ท่านมีความวิตกกังวลในระดับปานกลาง และควรทำแบบประเมินซ้ำในอีก 1 - 2 สัปดาห์
15 - 21 คะแนน ท่านมีความวิตกกังวลในระดับสูง ควรได้รับการประเมิน จากผู้เชี่ยวชาญ

อ้างอิง : กรมสุขภาพจิต

PARAICTAL SYMPTOMS

Forced normalization	Behavioral disturbance of acute/subacute onset including psychosis, significant mood change, anxiety with depersonalization/derealization, or psychogenic nonepileptic attacks AND reduction in the total number of spikes by over 50% in a routine EEG compared with a previous recording performed during a normal mental state
Alternative psychopathology	Behavioral disturbance of acute/subacute onset including psychosis, significant mood change, anxiety with depersonalization/derealization, or psychogenic nonepileptic attacks AND complete cessation of seizures for at least 1 week, corroborated by a relative or carer

Mula M et al. Psychiatric Comorbidities in People With Epilepsy. Neurology: Clinical Practice April 2021

ALTERNATIVE PSYCHOPATHOLOGY / FORCED NORMALIZATION

Behavioral disturbances occurring after reduction of seizure activity

Psychotic symptoms commonly described, but mood disturbances, anxiety, and PNES can also occur

May occur after treatment with ASMs, epilepsy surgery, or vagus nerve stimulation

Mechanism unclear

In patients treated with ASMs, ASM discontinuation or reduction can reduce symptoms

Need shared decision making about treatment options and risk of seizures VS risk of psychiatric symptoms

ASM-RELATED PSYCHIATRIC SYMPTOMS

Psychiatric symptoms may be caused by:

Stopping meds with positive psychiatric effects. . .

Antiepileptics	Positive Psychiatric Effects
Carbamazepine	Bipolar disorder, reduce aggression
Oxcarbazepine	Bipolar disorder, reduce aggression
Valproic acid	Bipolar disorder, reduce aggression
Lamotrigine	Bipolar depression
Topiramate	Alcohol use, Weight gain, Binge eating
Gabapentin	Anxiety disorders, Alcohol use disorder
Pregabalin	Generalized anxiety disorder

Antiepileptics	Negative Psychiatric Effects
Levetiracetam	Irritability, Depression, Psychosis
Zonisamide	Irritability, Depression, Psychosis
Topiramate	Cognitive impairment, Depression
Phenobarbital	Depression, Irritability, Cognitive impairment
Phenytoin	Delirium, Mood change, Psychosis
Perampanel	Hostility, Irritability, Anxiety, Psychosis

. . .or starting meds with negative psychiatric effects.

Chen B et al. Epilepsy Behav. 2017 Nov;76:24-31.
Fogel BS, Greenberg DB. Psychiatric Care of the Medical Patient. 2015.
https://www.fycompa.com/side-effects/

PHARMACOLOGICAL MANAGEMENT OF PSYCHIATRIC ISSUES IN PWE

MEDICATION CONSIDERATIONS WHEN TREATING A PSYCHIATRIC CONDITION IN EPILEPSY

SIDE EFFECTS

- ASMs can contribute to worsening or improvement of behavioral/affective/cognitive symptoms.
- Additive side effects from both psychotropics and ASMs
- Some psychotropics have been reported to increase risk of seizures (usually dose-dependent or related to rapid titration)

PHARMACOKINETIC INTERACTIONS

- Many ASMs are enzyme inducers
- Many psychotropics are metabolized with CYP 1A2, 2D6, 3A4
- Prescriptions of psychotropics may need higher doses than normally expected
- Some antidepressants inhibit CYP 2D6 and 3A4

PHARMACODYNAMIC INTERACTIONS

Psychotropics	AEDs	Side effects
TCAs, sedating ADs/APs	Almost all	Sedation, Cognitive impairment
TCAs, Mirtazapine, Olanzapine	Carbamazepine, Valproic acid	Weight gain
TCAs, Citalopram, Ziprasidone, Clozapine	Felbamate	Arrhythmia
Duloxetine, Chlorpromazine	Carbamazepine, Valproic acid	Hepatic impairment
SSRIs, SNRI, Antipsychotics, Lithium	Carbamazepine, Oxcarbazepine	Hyponatremia
Clozapine, Chlorpromazine	Carbamazepine, Valproic acid	Bone marrow suppression, Bleeding

Mula M. Pharmacol Res. 2016 May;107:147-153.
Levensen JL, Ferrando SJ. Clinical Manual of Psychopharmacology in the Medically Ill. 2nd ed. 2017.

PSYCHOTROPICS AND SEIZURE RISK

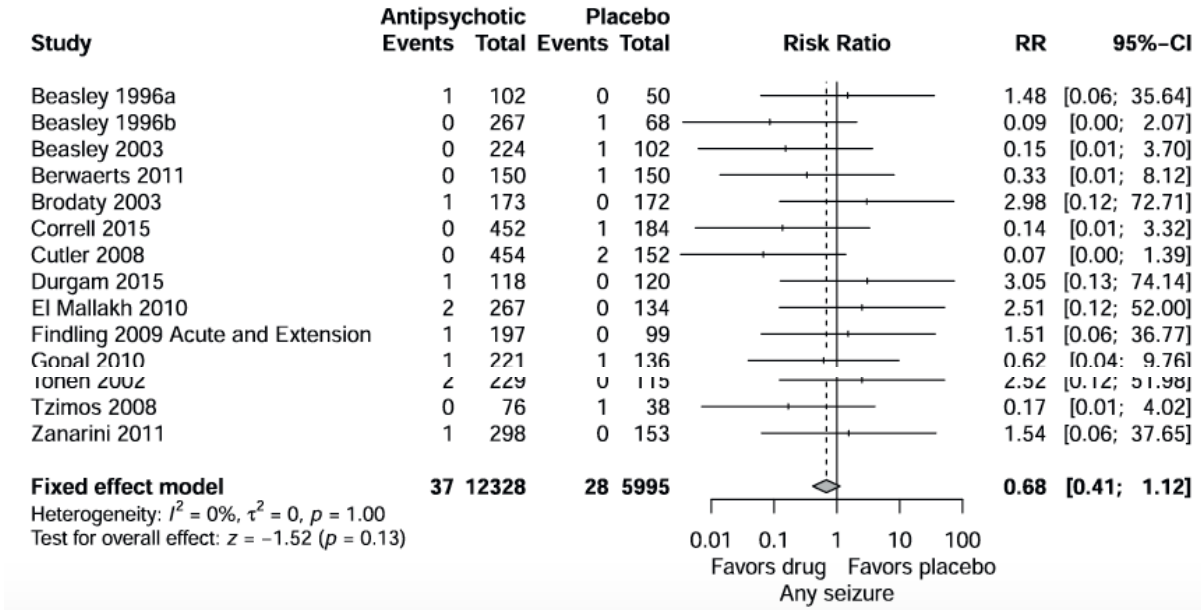
Table 3. Standardized Incidence Ratio (SIR) for Seizure Incidence in Active Drug Arm Relative to Placebo, for Antidepressant, Antipsychotic, and OCD Indication Categories

Indication Category	Number of Patients, Active Drug Arm	Average Trial Duration[b] Years (days) Active Drug Arm	Placebo Seizure Rate (per 100,000 PEY)	Observed Number of Seizures	Expected Number of Seizures[c]	SIR	95% CI
Antidepressant							
All	33,885	0.319 (116 days)	1166.7	60	126.1	.48[a]	(0.36-0.61)
All, excluding bupropion IR	29,466			34	109.6	.31[a]	(0.21-0.43)
Bupropion IR only	4,419			26	16.4	1.58[a]	(1.03-2.32)
Antipsychotic							
All	20,368	0.470 (172 days)	784.3	154	75.1	2.05[a]	(1.74-2.40)
All, excluding clozapine	18,626			93	68.7	1.35[a]	(1.09-1.66)
All, excluding clozapine and olanzapine	16,126			70	59.5	1.18	(0.92-1.49)
All, excluding clozapine, olanzapine, and quetiapine	13,739			52	50.7	1.03	(0.77-1.35)
Clozapine only	1,742			61	6.4	9.50[a]	(7.27-12.20)
Olanzapine only	2,500			23	9.2	2.50[a]	(1.58-3.74)
Quetiapine only	2,387			18	8.8	2.05[a]	(1.21-3.23)
OCD							
All	8,318	0.402 (146 days)	433.4	37	14.5	2.55[a]	(1.80-3.52)
All, excluding clomipramine	4,799			12	8.4	1.44	(.74-2.51)
Clomipramine only	3,519			25	6.1	4.08[a]	(2.64-6.02)

PEY, person exposure years; OCD, obsessive compulsive disorder; SIR, standardized incidence ratio.
[a]Significant at level of $p < .05$.
[b]Average trial duration = (total number of PEY)/(number of subjects), for those trials which provided information on PEY.
[c]Expected number of seizures = (number of patients, active drug arm) × (average trial duration, active drug arm) × (placebo seizure rate).

Alper K et al. Seizure Incidence in Psychopharmacological Clinical Trials: An Analysis of Food and Drug Administration (FDA) Summary Basis of Approval Reports. Biol Psychiatry 2007

PSYCHOTROPICS AND SEIZURE RISK

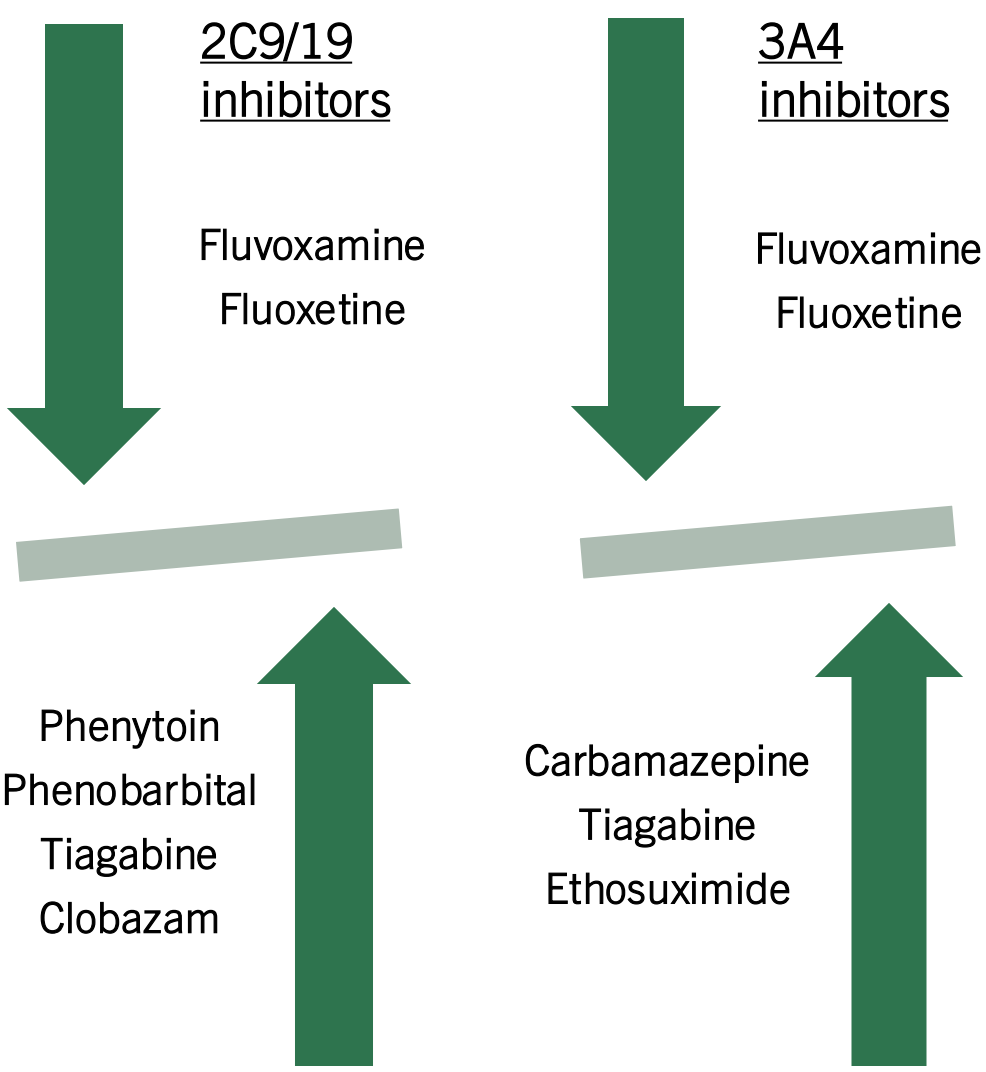


Quetiapine vs. Placebo	**Total**	**53 (3)**	**10**	**5**	**8597 (954)**	**0.06%**	**1136.0**	**4.4**	**1.28 (0.19-8.39)**
	Quetiapine	53	9	4	4886	0.08%	634.3	6.3	
	Placebo	53	10	1	3711	0.03%	501.7	2	
Olanzapine vs. Placebo	**Total**	**68 (15)**	**8**	**19**	**12004 (4394)**	**0.16%**	**1487.7**	**12.8**	**0.80 (0.32-2.00)**
	Olanzapine	68	9	11	7106	0.15%	930.5	11.8	
	Placebo	68	8	8	4898	0.16%	557.2	14.4	

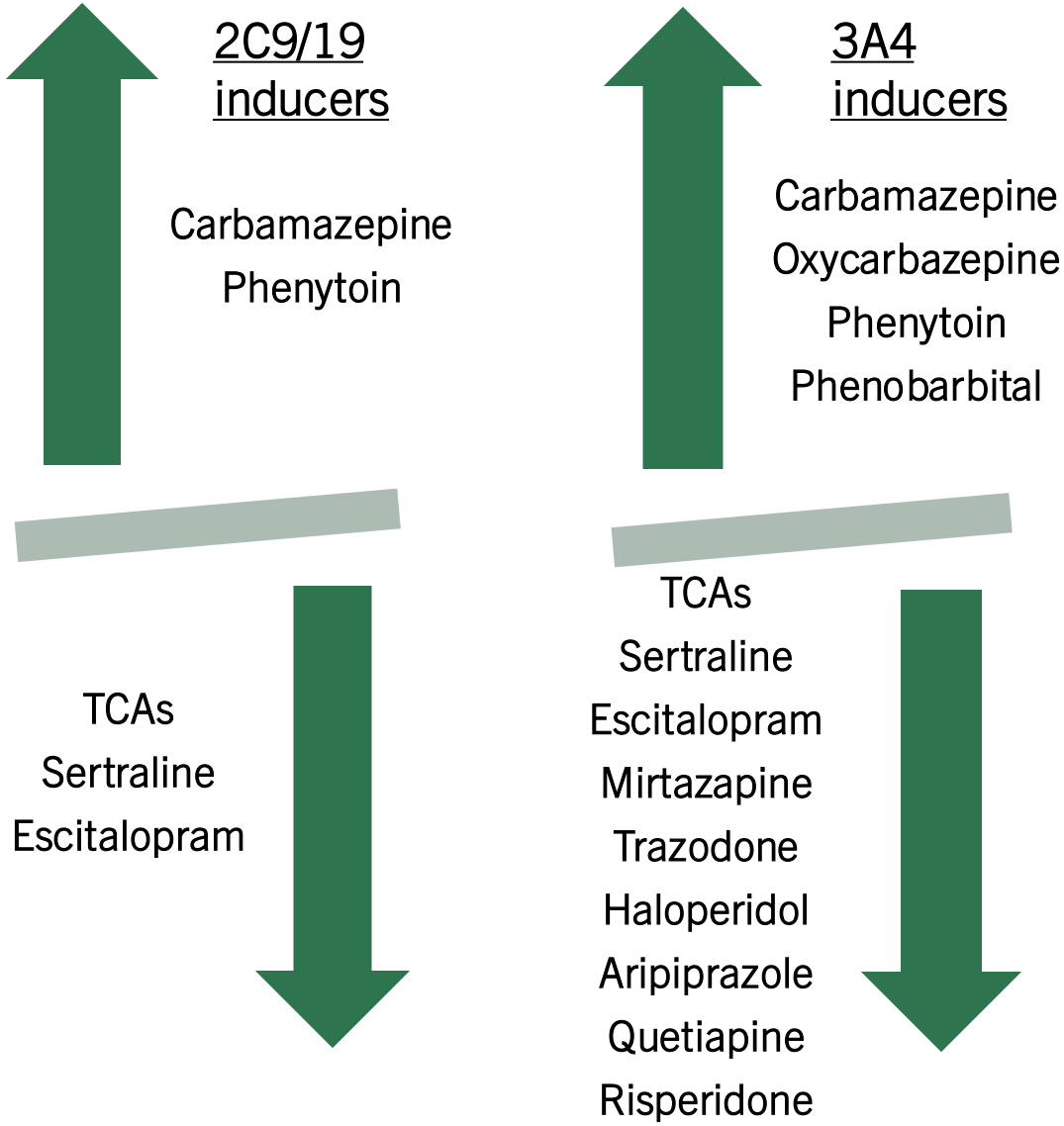
- Psychotropics generally safe
- Psychiatric disorders themselves have seizure risk
- Caution for bupropion, clomipramine, clozapine, chlorpromazine (usually related to high dose/fast titration)
- Quetiapine and olanzapine may carry some risk
- Risperidone, haloperidol, and aripiprazole seem to have lowest risk

Reichelt L et al. Second-generation antipsychotics and seizures – a systematic review and meta-analysis of serious adverse events in randomized controlled trials. European Neuropsychopharmacology, 2023.
Gorska N et al. Antipsychotic drugs in epilepsy. Neurologia, 2019

Psych Drugs on ASMs



ASMs on Psych Drugs



Habibi M, Hart F, Bainbridge J. Curr Neurol Neurosci Rep. 2016 Aug;16(8):71.
Levenson JL. Textbook of Psychosomatic Medicine, 2nd ed. 2011.

PSYCHOTROPIC CHOICE

Disorder	Favorable drugs	Caution
Depression	SSRIs	Amitriptyline, Clomipramine, Maprotiline, Bupropion (dose dependent)
Anxiety	SSRIs Pregabalin also useful	
Psychosis	Risperidone, Haloperidol, Aripiprazole have lowest seizure risk	Chlorpromazine (seizure at very high dose), Clozapine (seizure risk, agranulocytosis)
Bipolar d/o	Valproic acid (mania), Lamotrigine (depression)	Lithium (risk of seizure in overdose)
ADHD	Methylphenidate	

Gorska N et al. Antipsychotic drugs in epilepsy. Neurologia, 2019
Mula M et al. Psychiatric comorbidities in people with epilepsy. Neurology: clinical practice, 2021
Mula M. The pharmacological management of psychiatric comorbidities in patients with epilepsy. Pharmacological research, 2016

PSYCHOGENIC NON-EPILEPTIC SEIZURE

FUNCTIONAL NEUROLOGICAL SYMPTOM DISORDER

A) One or more symptoms of altered voluntary motor or sensory function.

B) Clinical findings provide evidence of incompatibility between the symptom and recognized neurological or medical conditions.

C) The symptom or deficit is not better explained by another medical or mental disorder.

D) The symptom or deficit causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or warrants medical evaluation.

- Specify symptom type; with weakness or paralysis, with abnormal movement, with swallowing symptoms, with speech symptom, with attacks or seizures, with anesthesia or sensory loss, with special sensory symptom, with mixed symptoms.
- Specify if; acute episode vs persistent (>6 months).
- Specify if; with or without the psychological stressor.

Table 1. Summary of evidence that supports the signs used to distinguish between psychogenic nonepileptic seizures (PNES) and epileptic seizures (ES)*

Signs that favor PNES	Evidence from primary studies	Sensitivity (%) for PNES	Specificity (%) for PNES
Long duration	Good	–	–
Fluctuating course	Good	69 (events)	96
Asynchronous movements	Good (frontal lobe partial seizures excluded)	47–88 (patients)	96–100
		44–96 (events)	93–96
		9–56 (patients)	93–100
Pelvic thrusting	Good (frontal lobe partial seizures excluded)	1–31 (events)	96–100
		7.4–44 (patients)	92–100
Side to side head or body movement	Good (convulsive events only)	25–63 (events)	96–100
		15–36 (patients)	92–100
Closed eyes	Good	34–88 (events)	74–100
		52–96 (patients)	97
Ictal crying	Good	13–14 (events)	100
		3.7–37 (patients)	100
Memory recall	Good	63 (events)	96
		77–88 (patients)	90
Signs that favor ES	**Evidence from primary studies**	**Sensitivity for ES**	**Specificity for ES**
Occurrence from EEG-confirmed sleep	Good	31–59 (events)	100
		–	–
Postictal confusion	Good	61–100 (events)	88
		67 (patients)	84
Stertorous breathing	Good (convulsive events only)	61–91 (events)	100
		–	–

LaFrance WC et al. Minimum requirements for the diagnosis of psychogenic nonepileptic seizures: A staged approach. A report from the International League Against Epilepsy Nonepileptic Seizures Task Force. Epilepsia, 2013

Table 2. Overview of proposed diagnostic levels of certainty for psychogenic nonepileptic seizures

Diagnostic Level	History	Witnessed event	EEG
Possible	+	By witness or self-report/description	No epileptiform activity in routine or sleep-deprived *interictal* EEG
Probable	+	By clinician who reviewed video recording or in person, showing semiology typical of PNES	No epileptiform activity in routine or sleep-deprived *interictal* EEG
Clinically established	+	By clinician experienced in diagnosis of seizure disorders (on video or in person), showing semiology typical of PNES, while not on EEG	No epileptiform activity in routine or ambulatory *ictal* EEG during a typical ictus/event in which the semiology would make ictal epileptiform EEG activity expectable during equivalent epileptic seizures
Documented	+	By clinician experienced in diagnosis of seizure disorders, showing semiology typical of PNES, while on video EEG	No epileptiform activity immediately before, during or after ictus captured on *ictal* video EEG with typical PNES semiology

Key: +, history characteristics consistent with PNES; EEG, electroencephalography (as noted in the text, additional tests may affect the certainty of the diagnosis—for instance, self-protective maneuvers or forced eye closure during unresponsiveness or normal postictal prolactin levels with convulsive seizures).

LaFrance WC et al. Minimum requirements for the diagnosis of psychogenic nonepileptic seizures: A staged approach. A report from the International League Against Epilepsy Nonepileptic Seizures Task Force. Epilepsia, 2013

FEATURES SUGGESTIVE OF PNES

- About 75% of cases are women
- Age about 20-30
- 10% of epilepsy have PNES
- 30% of PNES have intellectual disability (ID)
- 70% have another psychogenic disorder
- Event frequency in PNES is higher than ES
- Triggers can include stressful or difficult situations, or physical triggers not usually associated with ES
- Partial or transient response to ASM reported in 40% of cases

LaFrance WC et al. Minimum requirements for the diagnosis of psychogenic nonepileptic seizures: A staged approach. A report from the International League Against Epilepsy Nonepileptic Seizures Task Force. Epilepsia, 2013

TREATMENT

- Good communication of diagnosis can reduce episodes of PNES: 1/3-1/2 of patients report that episodes have stopped at 3-6 months following diagnosis
- However, sustained reduction of symptoms not seen in the long-term
- Prognosis is poorer if patients have comorbid depression, personality disorder, or abuse history
- Continued treatment involves treatment of psychiatric comorbidities and psychotherapy

Table 1. Crib sheet with 14 core points of the strategy for the communication of the diagnosis of PNES

Genuine symptoms
Real attacks—can be frightening or disabling
Label
Give a name for the condition
Give alternative names they may hear
Reassure that this is a *common and recognized condition*
Cause and maintaining factors
Not epilepsy
Predisposing factors—*difficult to find out causes*
Precipitating factors—*can be related to stress/emotions*
Perpetuating factors—vicious cycle – *worry* → *stress* → *attacks* → *worry*
Provide a *model* for the attacks—e.g., brain becomes overloaded and shuts down
Treatment
Antiepileptic drugs are not effective
Evidence that *psychological treatment is effective*
Talk to the patient about *referral to a specialist*
Expectations
Can resolve
Can expect improvement

PNES, psychogenic nonepileptic seizures.

LaFrance WC, Reuber M, and Goldstein LH. Management of Psychogenic Nonepileptic Seizures. Epilepsia, 2013
Hall-Patch L et al. Acceptability and effectiveness of a strategy for the communication of the diagnosis of psychogenic nonepileptic seizures. Epilepsia, 2010

EPILEPSY SURGERY

PSYCHIATRIC ISSUES

Pre-op	Treatment of comorbidities Postictal psychosis/aggression No absolute contraindications
Periop	Post-op delirium Pain, insomnia Benzodiazepine withdrawal
Post-op	Alternative psychopathology Return to work

Mula M et al. Psychiatric Comorbidities in People With Epilepsy. Neurology: Clinical Practice April 2021

POSTOPERATIVE OUTCOMES

- Many studies report improved quality of life and reduction of psychiatric comorbidities
- For patients with depression and anxiety after surgery, the most common risk factor was presurgical psychiatric conditions. Other reported risk factors include a family history of psychiatric illness, older age, male sex, the experience of auras of ictal fear, and poor seizure outcomes.
- Depression occurs as early as one month after surgery and may persist up to 2 years. Anxiety increases immediately after surgery and returns to baseline after 2 years.
- Risk of postoperative psychosis is not clear
- Patients who were treated before surgery tend to do better after surgery. Patients in dysfunctional families may experience “burden of normality”. Employed patients experience better quality of life

Fasano RE and Kanner AM. Psychiatric complications after epilepsy surgery…but where are the psychiatrists? Epilepsy & Behavior, 2019

THANK YOU