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Original Article

Cognitive Behavioral Differences in Depression between Organic and Non-Organic Epilepsy Comorbid: An Review.

Jinlei Li[1,2], Zhen Chen[1], Jueyan Wang[2], Yu Li[2], Fen Ai[1*]

[1]Department of Emergency Medicine, The Central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430014,China

[2]School of Medicine,Jiang han University, Wuhan 430113, China

[*]Corresponding Author: Fen Ai

Abstract:
Epilepsy-Depression Comorbidity (EDC) is an important challenge in clinical treatment,and there are significant differences in intervention strategies between organic epilepsy and non-organic epilepsy.This article reviews the differences in the efficacy of cognitive behavioral therapy (CBT) and its derivatives (such as mindfulness therapy and digital intervention) in treating depression associated with two types of epilepsy. Studies have shown that CBT has a short-term seizure control rate of 50%-100% for non-organic epilepsy (such as psychogenic non-epileptic seizures),but has no direct effect on the frequency of organic seizures; while depression symptoms are significantly improved in both groups of patients. Digital CBT (e.g. Wellbeing courses) is comparable to traditional treatments, but long-term efficacy remains to be verified.In the future, multicenter randomized controlled trials should be carried out to optimize personalized intervention strategies in combination with biomarkers. Early psychological intervention and establishment of comprehensive evaluation system are the key directions to improve prognosis.

1. Introduction

Depression poses a major public health challenge worldwide. Epidemiological data show that the number of depression patients worldwide has reached 280 million, which is equivalent to 3.8% of the world's total population. It is worth noting that the burden of disability caused by depression has exceeded that of cardiovascular disease. The prevalence of depression increased significantly among epileptic patients.Specifically,people with epilepsy are three to five times more likely to develop depression than the general population. Especially in patients with drug-resistant epilepsy suitable for surgery[1]. More importantly, the lifetime prevalence of depression is as high as 55%. These data suggest a strong association between epilepsy and depression.

Recent advances have revealed pathophysiological mechanisms underlying the comorbidity of epilepsy and depression (Figure 1). Alhashimi's team's latest findings have important implications. Their results suggest that depression may not only be a complication of epilepsy, but may also participate in the onset of epilepsy as an independent risk factor. This discovery presents an important revision of the traditional understanding of disease.

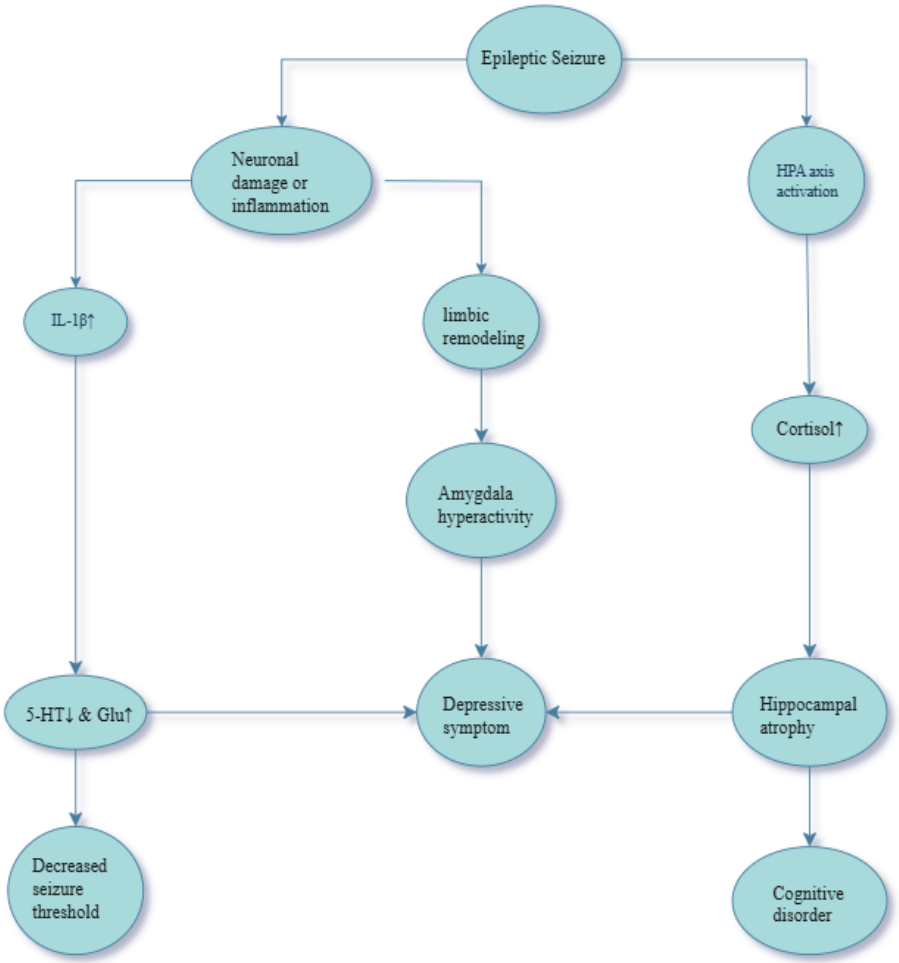
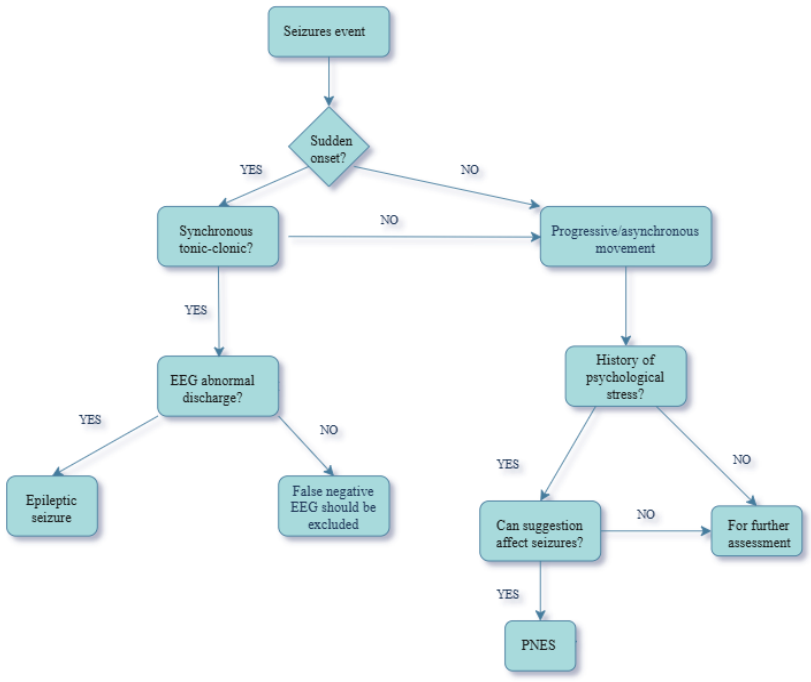


Figure 1

Functional neurologic disorders are a group of symptoms caused by functional abnormalities of the nervous system rather than structural damage. They are mainly characterized by epileptiform seizures without abnormal brain electrical activity. Traditional treatments (such as antiepileptic drugs) are ineffective. Because they are difficult to distinguish from epilepsy, patients are often misdiagnosed as epilepsy (Figure 2). The average misdiagnosis time exceeds 5 years, resulting in unnecessary antiepileptic drug treatment. Guo et al.(2025)[4] developed a novel dual-channel fluorescent probe CBT for the detection of peroxynitrite (ONOO) and lipid droplets (LDs) in epileptic disorders. It provides a novel and promising strategy for early diagnosis of epilepsy. Among PNES patients, depression comorbidity is as high as 50%-70%. So whether it's organic epilepsy or non-organic epilepsy comorbid depression is very common.



Flow chart for diagnosis and differentiation of seizures from psychogenic non-epileptic seizures

Figure 2

Clinical treatment faces several real challenges. First, some antiepileptic drugs (represented by levetiracetam) may induce or aggravate depressive symptoms. Second, clinicians tend to be cautious about the use of antidepressants, mainly because of concerns about possible effects on seizure thresholds. However, a meta-analysis by Maguire et al. provides new evidence that selective serotonin reuptake inhibitor drugs do not generally increase seizure risk. Venlafaxine was particularly prominent among these drugs, showing potential antiepileptic properties[5]. Nevertheless, there are significant limitations to drug therapy, including maintenance of an effective rate of 40-50% and possible adverse reactions.

Cognitive behavioral therapy (CBT) has shown unique advantages in clinical practice. A large number of clinical studies have confirmed that this therapy produces therapeutic effects through a multi-level intervention mechanism. It may have advantages in long-term maintenance therapy due to its lack of drug side effects and may indirectly improve epilepsy by reducing stress. Based on this evidence, the International Alliance Against Epilepsy has recommended cognitive behavioral therapy.

Advances in digital medical technology are driving innovation in treatment models. New interventions such as virtual reality-based exposure therapy and mobile health apps break through the temporal and spatial limitations of traditional treatments. These innovative approaches not only improve access to treatment, but also individualize interventions through real-time monitoring. The latest results of Chen's research team are particularly noteworthy. They combined 10Hz repetitive transcranial magnetic stimulation with cognitive behavioral therapy and achieved good depression improvement results while ensuring safety.

There is a key scientific question in the field of current research: the effect of cognitive behavioral therapy and its derivatives on the frequency of organic seizures has not been fully clarified. Available evidence suggests that the therapy has a significant effect on controlling the frequency of nonorganic seizures, with an effective rate of approximately 50%. However, the effect on the frequency of organic seizures needs to be confirmed by more research. This difference suggests that differentiated treatment options may

be needed depending on the type of epilepsy.

Reducing the seizure frequency of both types of disease is one of the core goals of traditional therapy to reduce brain damage and neurodegeneration, improve patient quality of life, and prevent seizure and non-seizure progression. However, there is still a lack of research on whether cognitive behavioral therapy and its derivatives can help control seizure frequency in patients with organic comorbid depression. The aim of this review is to evaluate the progress of cognitive behavioral therapy and its derivatives in the treatment of depression in patients with comorbid depression. The following five aspects will be discussed: first, the effect of this therapy on improving comorbid depression in patients with organic epilepsy and non-organic epilepsy will be analyzed; second, the effect on seizure frequency in patients with organic epilepsy and non-organic epilepsy will be evaluated. Potential impact; third, compare the differences between traditional therapies and digital interventions; fourth, summarize the characteristics of cognitive behavioral therapy and its derivatives in recent years (Table 1).

Table 1: Characteristics of Cognitive Behavioral Therapy and Its Derivatives

Classify	Name	Core features	Difference from CBT	Contact with CBT
	CBT	Solve psychological problems by identifying and altering cognitive-behavioral-emotional vicious cycles	Basic theoretical framework, no specific scenarios or technical extensions.	The theoretical origin of all derivative therapies.
CBT Mindfulness Fusion Therapy	MBCT	CBT + Mindfulness Meditation with Emphasis on Decentralization	Add mindfulness exercises that focus on "acceptance" rather than pure cognitive reconstruction	Based on the core logic of CBT, expand to the field of mindfulness intervention
	UPLIFT (Modified MBCT)	Adaptive Adaptation of MBCT	The technical details or applicable population are different from MBCT (e.g. simplified mindfulness steps).	Same as MBCT, it belongs to CBT + Mindfulness Branch Therapy.
CBT Forms Innovative Therapies	Modular CBT	CBT technology is divided into independent modules, which can be combined according to needs to realize personalized treatment.	Flexible matching of patient needs with "modularity" breaks the fixed treatment process.	Based entirely on CBT technology, it is a practical form of innovation.
	Internet-based CBT (Emyna)	CBT courses or self-help tools delivered via web platforms	The carriers are Digital tools, which rely on the independent participation of users.	Using the Internet to expand CBT accessibility, content is still based on CBT theory.
	CBT-I by application	Insomnia intervention program via mobile APP	Focus on insomnia scenes, integrate CBT-I technology with APP as carrier	A digital implementation of CBT-I that follows the logic of CBT to solve
	CBT-I	A specialized therapy for insomnia th	Targeted for sleep disorde	CBT is a branch of CBT in the field of insomnia, directly
Mindfulness Related Techniques	20 minutes Mindful Breathing Exercise	Mindfulness training for focused breathing, which develops concentration and awareness, can be practiced independently or as part of therapy.	Single technology, not involving the complete CBT process	It is a component of MBCT, UPLIFT, etc. and assists in achieving the relaxation and cognitive dissociation goals of CBT.
	MBI	A general term for mindfulness-based psychological interventions that may exist independently of CBT.	Some MBIs do not contain CBT elements, and the core goal is stress reduction rather than cognitive change.	It can be combined with CBT (e.g. MBCT) or used as a stand-alone technique to aid in mood regulation in CBT.
Service model/tool	CVT	CBT therapy delivered via videoconferencing, breaking geographical limits	-	-
	Wellbeing Neuro Course	6 sessions of Cognitive Behavioral Therapy (CBT)-based courses offered through an online platform	-	-
For patients with psychogenic nonepileptic seizures (PNES)	CBTip	It is a comprehensive psychotherapy approach based on the principles of cognitive behavioral therapy (CBT), but adapted for patients with psychogenic nonepileptic seizures (PNES). Usually 12 courses (once a week for 3 months)	CBTip compensates for the shortcomings of traditional CBT's insufficient attention to somatic symptoms by integrating PNES-specific modules.	The content is based on CBT theory.
	ReACT	A novel cognitive behavioral therapy for PNES in children/adolescents	ReACT directly targets catastrophic symptom anticipation and lack of symptom control, reshaping symptom responses through "habit reversal training."	The content is based on CBT theory.
	NH-CBT	is a novel treatment for functional neurological disorders/conversion disorders.	NH-CBT emphasizes the role of anti-placebo mechanisms in the development of the condition.	The content is based on CBT theory.
	FiND	is a multidisciplinary outpatient rehabilitation program integrating physical therapy, CBT, self-management, group	Suitable for patients who need full rehabilitation.	The content is based on CBT theory.

Fifthly, it proposes the key direction of future research. By integrating the latest research evidence, this paper hopes to provide reference basis for clinical decision-making and provide ideas for follow-up research.

3. Keywords: epilepsy, seizures, dissociative epilepsy, psychogenic nonepileptic seizures, functional epilepsy, depression

4. Cognitive-behavioral therapy for seizures: Depressive remission versus seizure frequency controversy

This article summarizes the characteristics of cognitive behavioral therapy and its derivatives in the treatment of epilepsy comorbid depression in recent years, and focuses on whether it can help with seizure frequency.

Gandy et al.(2020)[11] demonstrated in a single-arm open-label trial that the Internet intervention program (Wellbeing Neuro Course) had an effect on short-term depression improvement in epilepsy subgroups, but the effect was not sustained after 3 months. Wellbeing Neuro Course was upgraded in 2023[12] as a randomized controlled trial, and the improvement in depression in epilepsy subgroups continued through 3 months of follow-up, with no observed decline in efficacy. In 2024, in the evaluation of cognitive behavior intervention on depression in adult epilepsy patients, it was found that the efficacy of epilepsy patients was limited, but depression improved significantly[13].

Ahorsu et al.(2020)[8] application-based CBT-I treatment of epilepsy patients found significant reductions in sleep quality, insomnia severity, and depression scores, but no statistical difference in total sleep duration. Lai et al.(2021)[9] validated the effect of mindfulness intervention (MBI) on epilepsy patients through randomized controlled trials, and found that depression symptoms, mindfulness level and quality of life were significantly improved in the intervention group, and the effect lasted for more than 6 weeks. In the same year, Spruil et al.[10] conducted a randomized controlled trial of telephone intervention (UPLIFT) for Hispanic patients with epilepsy. The results showed that the incidence of depressive symptoms (PHQ-9≥5) was reduced by 30% at 6 months, but the effect of 12-month follow-up was weakened.

Kim et al.(2023)[14] evaluated cognitive behavioral therapy (CBT) in a Korean population with epilepsy and depression and confirmed significant improvement in depressive symptoms and suicidal ideation, but no reduction in seizure frequency. In the same year, Choudhary et al.[15] included a systematic review of 13 randomized controlled trials that showed that CBT was effective in relieving depression in patients with epilepsy, but had no direct intervention effect on seizures.

Lim et al.(2024)[16] explored the immediate intervention effect of mindfulness breathing exercise in patients with epilepsy, and a single 20-minute training session relieved depressive symptoms, suggesting its potential value in acute emotional crisis. Richards-Bell et al.(2024)[17] analyzed the efficacy of modular CBT in children and adolescents with epilepsy and found that those with higher baseline seizure impact scores were more likely to experience sudden gains, but only 18.6% of patients experienced improvement in epilepsy-specific problems. Meyer et al.(2024)[18] developed Internet CBT (emyna) to improve the quality of life of patients with epilepsy, and the results showed significant improvement in mental status, but the gender distribution of the sample (70% female) may reflect differences in psychosocial support needs.

By analyzing clinical data published between 2019 and 2024, cognitive behavioral therapy and related interventions have shown significant effects in improving depressive symptoms in patients with epilepsy. Both traditional cognitive behavioral therapy and digital intervention platforms, such as Wellbeing courses and emyna systems, have shown good results. However, the researchers did not focus on whether cognitive behavioral therapy for epilepsy comorbid depression helped reduce seizures. This is where future research needs to complement it. Most studies fail to confirm that psychotherapy directly reduces the number of seizures. This difference may be due to the essential difference between the pathophysiological mechanism of seizures and that of depressive symptoms.

The available evidence supports cognitive behavioral therapy as an effective treatment option for patients with comorbid depression. Although these interventions cannot substitute for seizure control with antiepileptic drugs, they can significantly improve psychosocial functioning.

5. Psychological intervention for non-epileptic seizures: short-term effectiveness versus long-term challenges

Non-epileptic seizure (NES) is a kind of disease with clinical manifestation similar to epilepsy, but without abnormal brain electrical activity (normal EEG). Its core features include: consciousness disorders, limb convulsions and other symptoms similar to epilepsy, EEG in the attack period and inter-attack EEG are characterized by no epileptiform discharges. The etiological mechanism is mainly caused by psychological or functional factors. Among them, psychogenic non-epileptic seizures, functional epilepsy and dissociative epilepsy all refer to non-epileptic seizures, but they are different in specific manifestations (Table 2).

Table 2: PNES, Functional Epilepsy, Dissociative Epilepsy Main Distinctions

Term name	PNES	DS	FE
Definition	Psychologically induced seizures are conversion disorders	Emphasized functional neurological disorder	Dissociative disorder.
Key feature	PNES is the most commonly used clinical term	Functional epilepsy is a more neutral expression proposed in recent years	Stress dissociation mechanism may include symptoms such as depersonalization
Common ground	Clinical manifestations resemble seizures, but no abnormal EEG activity (EEG normal)		
Clinical significance	Clear psychological etiology, suitable for psychotherapy	Less stigma, wider applicability	Targeting specific psychological mechanisms

This article discusses the impact of cognitive behavioral therapy and its derivatives on the treatment of non-epileptic comorbid depression in recent years and its association with seizure frequency.

5.1 Dissociative mechanism-dominated epileptiform seizures: effectiveness and limitations of CBT interventions

Goldstein's team launched the first large-scale multicenter randomized controlled trial[19] of dissociated seizures (DS) in 2015 to test the efficacy of cognitive behavioral therapy (CBT) combined with standardized medical care (SMC) compared to SMC alone. This study hypothesized that if CBT significantly improved seizure frequency, it was suggested that it be included in the DS routine treatment system to address the problem of insufficient psychotherapy resources. The data for 2020 showed that the median seizure frequency in CBT+SMC group was lower than that in SMC group, but the difference between groups did not reach statistical significance. The 2021 final study conclusions[20] indicate that DS-specific CBT did not significantly reduce seizure frequency during the 12-month follow-up period, and the incremental cost-effectiveness ratio did not meet the UK standard threshold.

A secondary analysis in 2022[22] revealed the short-term intervention effect: at the end of treatment (6 months), the seizure frequency in the CBT+SMC group was reduced by 28%, and the PHQ-9 score was reduced by 4.2 points, which was significantly better than the SMC group.

However, at 12 months, the difference disappeared and the depression effect size decreased by 56%, indicating that the short-term symptom control advantage of CBT should be combined with long-term SMC maintenance. The analysis further found[23] that patients with baseline seizure frequency ≥22 episodes/month received CBT with a 41% reduction in seizures and a 44% reduction in comorbid psychiatric disorders, and that female patients benefited significantly in improving somatic symptoms (PCS-SF12). The 2024 Mechanism Study[24] confirmed through mediation models that DS-CBT works mainly through behavioral activation and emotional regulation, but has no significant effect on cognitive restructuring.

Cognitive behavioral therapy has demonstrated clear short-term symptom control value for dissociative seizures, especially in patients with high seizure frequency and comorbid mental disorders. Although the long-term maintenance effect is limited, it provides an irreplaceable psychosocial intervention dimension for the comprehensive management of DS by improving seizure tolerance and quality of life.

5.2 Psychotherapy for psychogenic nonepileptic seizures: from mindfulness therapy to remote intervention

In 2020, Baslet et al.[25] conducted a Mindfulness Therapy (MBT) study in patients with psychogenic nonepileptic seizures (PNES). Of the 26 patients who completed 12 treatments, 50% achieved episodic freedom and 70% achieved ≥50% reduction in seizure frequency, suggesting that MBT can be used as an alternative to cognitive behavioral therapy (CBT), especially for patients with ineffective CBT or mood disorders. In 2022, the Baslet team[26] further evaluated the long-term efficacy of MBT and found that 50% of responding patients maintained episodic free status at 3-6 months follow-up, confirming the sustained effectiveness of the intervention for the first time.

Tilahun et al.[27], 2021, retrospectively analyzed data on PNES patients at Cleveland Clinic who received a modified cognitive behavioral therapy protocol (CBTip) from 2015 to 2020. Traditional standard 12-week CBTip regimen, but this article also focuses on patients who have completed only 7-11 treatments or who have been treated for more than 3 months. 64 patients who completed treatment within 3 months had no significant improvement in seizure frequency and depression; while 96 patients with treatment cycle>3 months had 50% seizure reduction ≥50%, PHQ-9 and GAD-7 scores decreased significantly, but there was no statistical difference in quality of life indicators, indicating that prolonged treatment can improve CBTip efficacy. The frequency of treatment can be adjusted according to patient needs.

Fobian et al.[28] published a study of ReACT therapy for PNES in children/adolescents in the same year. 100% of patients in the treatment group were free from attacks within 7 days and 82% were free from attacks for 60 days. The efficacy was significantly better than supportive therapy, filling the gap of child-specific therapy.

In 2024, Richardson et al.[29] developed a novel cognitive behavioral therapy, NH-CBT, for the treatment of nonepileptic seizures (NES), using a serial case series design showing complete remission of symptoms in 93% of participants.

In 2020, the Lafrance team[30] explored the effectiveness of clinical video telemedicine (CVT) in delivering CBT for PNES, demonstrating that the modality significantly reduces seizure frequency and improves anxiety symptoms. Streltzov et al.[31] adapted Project UPLIFT based on CBT and Mindfulness Cognitive Therapy to PNES patients in 2022. Preliminary studies showed a decrease in depression, post-traumatic stress disorder (PTSD), and episode frequency, but the sample size was small and 1 new episode occurred during follow-up.

We can see that cognitive therapy (especially MBT, ReACT, and long-term CBT) has a significant effect on the frequency of PNES episodes, and the short-term episode free rate can reach 50-100%, but the improvement of depressive symptoms needs to be combined with specific interventions (such as extended treatment or integration of mindfulness modules).

5.3 Functional epilepsy: association between multimodal rehabilitation and symptom control.

The Guy[32] team detailed the treatment effects of FiND in a study published in 2024. The program was designed as an 8-week outpatient rehabilitation program consisting of 16 cognitive

behavioral therapy sessions and 16 physical therapy sessions. The results showed that 36% of patients with functional neurological disorders improved significantly after treatment. Among these patients, patients with functional seizures who also had depressive symptoms showed better improvement in psychological scores. The effects of treatment can be sustained through a follow-up period of 3 months. A systematic review completed by Moro[33] et al. in 2024 provides more comprehensive evidence. Their analysis showed that cognitive behavioral therapy was significantly better than standard treatment in helping patients achieve seizure freedom. Although the study found no statistically significant improvement in depressive symptoms, there was a significant positive correlation between seizure freedom and quality of life. This result suggests that controlling symptoms itself may have a positive impact on patients 'mental state. In terms of treatment for pediatric patients, Vassilopoulos[34]'s 2022 study made breakthrough findings. They used habit reversal training to treat children with functional seizures. Treatment results showed that all patients treated completely disappeared within 7 days. At 60 days of follow-up, 82% of patients remained episodic free.

Available data consistently show that cognitive behavioral therapy (CBT) and its derivative interventions have significant control effects on functional seizures (FS), with more significant improvements in comorbid depression and limited improvements in depressive symptoms alone.

6. conclusion and prospect

By comparing the seizure frequency and depression improvement of different types of cognitive behavioral therapy (Table 3), it was found that cognitive behavioral therapy (CBT) had good efficacy on different types of epilepsy comorbid depression, and the efficacy in digital intervention (such as remote CBT) was equivalent to that of traditional methods. Short-term control of non-organic epilepsy is significant (50-100% seizure free), but long-term maintenance requires a combination of standardized medical care. CBT has no direct effect on organic seizure frequency, but may indirectly reduce seizures by improving treatment compliance and stress management.

Table 3:Main Characteristics of Different Cognitive Behavior Therapies on Seizures and Depression

Name	Author, Year	Research technique	Sample	Key interventions	Seizure frequency	Depression improvement
EP	Gandy	RCT	n=18	Wellbeing Neuro	-	Outstanding
	et al.,2020			Course		
	Gandy	RCT	n=34	Wellbeing Neuro	-	Outstanding
	et al.,2023			Course		
	Gandy	Meta-analysis	n=47 to 356	-	-	Outstanding
	et al.,2024		(9 RCTs)			
	Ahorsu	RCT	n=320	CBT-I based	-	HADS-D score decreased significantly
	et al.,2020			on APP		The effect was maintained at 6 months
	Spruil	RCT	n=72	Telephone-based	-	30% improvement at 6 months
	et al.,2021			UPLIFT		
	Lai	RCT	n=28	MBI	-	Reduction,effect sustained
	et al.,2021					through 6 weeks follow-up
	Kim	Quasi-experimental	n=46	CBT	Not significantly changed	Outstanding

	et al.,2023	design				
	Choudhary	Meta-analysis	n=1222	-	No direct effect	PHQ-9 Moderate heterogeneity
	et al.,2024		(13 RCTs)		(only mentioned in 2 studies)	
	Lim	RCT	n=20	Mindful Breathing	Not significantly changed	After 2 weeks
	et al.,2024			for 20 Minutes		the difference was
				Telephone-Based		only marginally significant
				UPLIFT		
	Richards-Bell	Within-group	n=147	Modular CBT	Only 18.6% had sudden gain	-
	et al.,2024	analyses in RCTs				
	Meyer	pRCT	n=438	emyna	-	QOLIE-31 score increased significantly
	et al.,2024					by 4.5 points at 3 months compared
						with control group,QoL difference
						narrowed to 2.4 points at 6 months
PNES	Baslet	Single group before	n=49	MBT	50% of patients were episode free	no statistical difference
	et al.,2020	and after control			at the end of treatment	
					70% had ≥50% reduction	
	Baslet	Single group	n=26	MBT	50% of patients were episodic free at	-
	et al.,2022	before and after			the end of treatment.Most were	
		control			maintained through follow-up	
	Fobian	RCT	n=32	ReACT	After 7 days, it decreased to 0	Scores did not differ between groups
	et al.,2020				after 60 days,82% had no attack	but tended to improve
	Lafrance	Prospective	n=32	CBT Based	The monthly average decreased by	BDI-II score decreased significantly

					45.7%	
	et al.,2020	cohort study		on CVT	after 6 months, it was close to zero	
		(no control group)				
	Tilahun	Retrospective	n=160	CBTip	No significant change observed	Depression did not improve significantly
	et al.,2021	observational			at 3 months	at 3 months.PHQ-9 scores
		analysis			≥50% reduction at>3 months	decreased significantly at>3 months
	Streltzov	Single group	n=6	UPLIFT	3 patients, reduction of	PHQ-9 depression score decreased
	et al.,2022	before and after			3.75 episodes/month at follow-up	by 3.33 points on average
		control			but one episode at follow-up	
DS	Goldstein	RCT	n=368	CBT	Median 4 episodes/month at 12 months	-
	et al.,2020				(SMC 7 episodes/month)	
	Goldstein	Secondary analysis	n=368	-	significantly lower at 6 months	Outstanding
	et al.,2022					
	Goldstein	Mediator analysis	n=368	-	Outstanding	Moderate effect size Decay at 12 months
	et al.,2024					
FE	Vassilopoulos	Review	n=29	ReACT	7 days after treatment: 100% FS	Not significantly changed
	et al.,2022				completely disappeared.60 days	
					follow-up: 82% children were free of attack	
	Guy	Analyzed	n=18	FiND	-	Comorbid patients had more significant improvement
	et al.,2024	retrospectively				in psychological scores
						the efficacy was

						maintained at 3 months
	Moro	Meta-analysis	n=450	-	Seizure free rate improved significantly	Trends are beneficial but not statistically significant
	et al.,2024		(3 RCTs)			
	Richardson	Consecutive	n=10	NH-CBT	7/10 participants were episodic free	-
	et al.,2024	case series			at the end of treatment	
					(6 of them maintained for 6 months)	

Limitations: Many studies (e.g. Richardson's NH-CBT) included only women, while men with epilepsy accounted for 40-50%, limiting extrapolation of conclusions. Most studies were followed for ≤12 months, making it impossible to assess the long-term maintenance effect of CBT.Potential effects of uncontrolled antiepileptic drug types/doses on the efficacy of psychological interventions. Over-reliance on subjective scales and lack of objective biomarker validation.

Outlook: 1.In view of the difficulty of differential diagnosis between organic and non-organic epilepsy, it is necessary to carry out early psychological intervention for patients with seizures (regardless of the final diagnosis type and whether they are comorbid depression). Available evidence suggests that early psychological intervention significantly reduces the incidence of depression and has a positive impact on patients 'long-term prognosis and quality of life by improving disease cognition and treatment compliance. 2.Clinical evaluation should not only use attack frequency as prognostic index, but should adopt multidimensional evaluation system;3. For new cognitive behavior intervention, multi-center RCT should be carried out in future research and long-term effect should be evaluated. More psychotherapy options can be offered to patients.

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