REVIEW ARTICLE

Dissociative Seizures: a Challenge for Neurologists and Psychotherapists

Kurt Fritzsche, Kathrin Baumann, Katrin Götz-Trabert, Andreas Schulze-Bonhage

SUMMARY

Background: The prevalence of dissociative seizures is between 2 and 33 sufferers per 100 000 persons. 70% of sufferers are women. Dissociative seizures markedly impair quality of life. Their close superficial resemblance to epileptic seizures makes them hard to diagnose.

Methods: Selective literature search in PubMed and PsycINFO.

Results: Persons with dissociative seizures constitute a mixed group with a wide variety of predisposing, precipitating, and maintaining factors. Some 90% have comorbid psychiatric disorders such as depression, anxiety, somatoform disorders, personality disorders, or post-traumatic stress disorder. Video-EEG monitoring enables highly reliable diagnosis. Psychotherapy is considered the treatment of first choice; in prospective studies, it has been found to lower the frequency of dissociative seizures by at least 50%, or to eliminate them completely, in 50% to 80% of patients. An individually tailored combination of behavioral therapeutic, imagery-based, and psychodynamic approaches seems reasonable. For the treatment of psychiatric comorbidities, psychotherapy is indicated, in combination with psychoactive drugs if necessary. Before any treatment is provided, the diagnosis should be communicated to the patient in an appropriate way, ideally by both the neurologist and the psychotherapist, so that the patient can develop an alternative disease model.

Conclusion: When the diagnosis of dissociative seizures has been made, psychotherapy is indicated, possibly in combination with psychoactive medication, in the setting of long-term treatment provided in collaboration by the neurologist, psychiatrist, psychotherapist, and family physician. Further randomized trials are needed to determine which treatments are best for which subgroups of patients.

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Department of Psychosomatic Medicine, University Medical Center Freiburg: Prof. Dr. med. Fritzsche, Dr. med. Baumann, Dr. med. Götz-Trabert

Section for Epileptology, University Medical Center Freiburg: Prof. Dr. med. Schulze-Bonhage

Dissociative seizures resemble epileptic seizures but have no electrophysiological correlate. Their manifestations may include alterations of consciousness such as trance or stupor, amnesia, and/or hypermotor seizures with more or less rhythmic movements of the head and trunk, muscle stiffness, and tremor-like movements. In the current diagnostic manuals (DSM-IV, ICD-10), they are considered a manifestation of a dissociative or conversion disorder (e1). Dissociative seizures are not under the patient's voluntary control and are thought to represent the patient's involuntary response to emotional stress (1, e2, e3).

Some 90% of patients with dissociative seizures have a comorbid psychiatric disorder (2, 3) *(Table)*.

Some 10% of patients with dissociative seizures have epileptic seizures, whose onset almost always precedes that of the dissociative seizures (e4). In the USA, 2 to 33 of every 100 000 persons suffer from dissociative seizures (e5, e6), and about 70% are women. The prognosis is considered to be unfavorable: Two years after the onset of dissociative seizures, some 40% of patients still have seizures at the same or higher frequency than at first (4). About 20% attempt suicide within 18 months of receiving the diagnosis (5).

Methods

We selectively searched the PubMed and PsycINFO databases for original articles and reviews published from 1966 to 2011 and containing the key words "psychogenic non-epileptic seizures," "dissociative disorder," "conversion disorder," "pseudo-seizures," "psychopathology," "treatment," "treatment outcome," "psychotherapy," "psychosocial interventions," and "clinical trial."

A systematic Cochrane review published in 2009 was also considered (6).

This review focuses on the results of studies regarding the communication of the diagnosis and psychotherapeutic approaches.

Results

20% to 30% of patients referred to an epilepsy center for refractory epilepsy receive the diagnosis of dissociative seizures (e7). There is an average delay of seven years before dissociative seizures are correctly diagnosed (e8). The potential complications of such diagnostic delays include the adverse effects of antiepileptic medications, iatrogenic complications (e.g.,

CASE ILLUSTRATION

A 57-year-old nurse was admitted to an epilepsy center because of seizures of an unclear nature. During each seizure, she lay prone and called for her husband while making panting and whimpering noises. Her husband reported seeing her twitch in all four limbs simultaneously, mainly in the arms. During the seizures, she did not respond to her name, to being shaken, or to a pinch in the arm. Video electroencephalography yielded no evidence of epilepsy, and dissociative seizures were suspected as the leading diagnosis. The patient had been taken away from her biological mother at birth and adopted at the age of six months by a "very good" foster family, from which she was separated at age 12, when she was sent to boarding school. Four years before the seizures began, she changed jobs after having spent 14 years on a pediatric inpatient ward ("like a family to me") and began working in an outpatient oncology practice. There, she was exposed to intense emotional stress: Patients telephoned her at home to tell her about their problems, she attended patients' funerals, and she could not internally separate herself from her work. Time and again, she was forced to deal with her patients' deaths, and this led to her repeatedly reliving the separation stress that she had experienced in early childhood. She lost more than 10 kg of weight in this period and developed a depressive state, with social wtihdrawal, loss of drive, and anhedonia. The "seizures" arose about once a week, mainly just before a separation from her husband, e.g., in the morning of a planned business trip that was due to last a few days, or the evening before.

vocal-cord injury during intubation or pneumothorax during central venous catheterization when the patient is in status pseudoepilepticus) (e9), the costs of unnecessary hospitalization and absence from work, delayed referral for psychotherapy, and other problems and limitations, both at work and at home (e10).

Diagnostic evaluation

The suspicion of a dissociative disorder is aroused by the history, physical examination, and initial psychopathological exploration, particularly centered on current and chronic stress factors. The major differential diagnoses are epileptic seizures and syncope. Important points in the clinical history include specific emotional triggers for seizures such as stress and excitement, pain, certain patterns of movement (head-shaking or irregular, asynchronous limb movements), noises, and light. The circumstances in which seizures arise may also be suggestive, e.g., in the family doctor's or hospital waiting room, or during the physical examination (e11). Linguistic studies have shown that dissociative seizures can be distinguished from epileptic seizures by the terms with which patients describe them (7, e12).

The following behavioral patterns and clinical findings should arouse suspicion of dissociative seizures:

- the seizures start and end gradually
- pseudosleep (long-lasting nonreactive state resembling sleep, with closed eyes, from which the patient cannot be awakened by external stimuli, without any sleep pattern on EEG)
- discontinuous (intermittent), irregular, or asynchronous movements of the limbs, head-shaking, pelvic thrusting, contraction of the extensor muscles of the back with marked retroflexion of the head and hyperextension of the trunk and limbs (opisthotonus), crying
- forced eye closure during seizure
- change of behavior when an observer is present (e.g., turning away from the observer)
- retained consciousness and interaction with the observer despite bilateral motor activity
- after the seizure, whispering and other persistent, low-intensity motor phenomena.

In a prospective study (8), six features of dissociative seizures were identified that distinguish them from epileptic seizures. Dissociative seizures are typified by retained consciousness, eye flutter, and changes in the intensity of the seizure induced by bystanders. Epileptic seizures, on the other hand, are typified by an abrupt start, open or wide open eyes during the seizure, and sleep or confusion afterward.

No single feature of dissociative seizures is pathognomonic; for example, retained consciousness and interaction with observers can be seen in frontal-lobe epilepsy as well.

Electroencephalography (EEG)

The misinterpretation of physiological EEG variants or artefacts is a major reason for the misdiagnosis of dissociative seizures as epilepsy (e13, e14). Video electroencephalography (VEEG) enables highly reliable diagnosis and is considered the diagnostic gold standard for dissociative seizures (e15, e16). In the technique of video electroencephalography, the seizures are captured on video while the EEG is simultaneously recorded, so that the course of the seizure can be analyzed in detail and the presence of underlying epileptic discharges in the EEG can be ruled out. The coexistence of dissociative seizures and epileptic seizures in some patients presents a special diagnostic challenge (9).

Communicating the diagnosis to the patient

Telling the patient the diagnosis is difficult for the physician and the patient alike because dissociative seizures superficially resemble epileptic seizures and because many patients have been treated for presumed

epilepsy for a long time (though, of course, generally without success). Patients are ashamed of their seizures and afraid of them. They can often describe them no more than vaguely or fragmentarily, though many report flashback-like experiences or nightmarish scenarios that they live through during seizures.

Confusion, anger, denial, and suicidal thoughts have been reported as reactions to the receipt of a diagnosis of dissociative seizures (5, e17–e20). Many patients strongly resist the notion that their seizures might be caused by emotional stress, e.g., from interpersonal problems (e21). The physician and the patient must establish a shared understanding of the diagnosis from a combination of the neurological, psychiatric, and psychotherapeutic points of view (10, 11, e22, e23).

Proper communication of the diagnosis has been reported to lower the frequency of seizures by more than half (12) and to lessen the patient's utilization of health-care resources (4, 13, 14, e19, e24–e26). A direct referral for psychotherapy is a difficult matter, however, and is only rarely accepted by the patient (15). Intermediate steps are needed, based on collaboration of the neurologist and psychotherapist. Proper communication of the diagnosis can ease the patient's acceptance of psychotherapy (12, e27).

There are a number of publications about how this is best accomplished (14, 16, 17). The steps involved in communicating the diagnosis are listed in *Box 1*.

A potential history of sexualized violence should not be asked about directly, as experience has shown that the unprepared exploration of traumatic events may lead to uncontrollable, stressful emotional and dissociative states. The neurologist must proceed with delicacy and flexibility if the patient expresses (verbally or non-verbally) any resistance to, or skepticism about, psychotherapy.

In an uncontrolled study (16), when the diagnosis was communicated as recommended to 50 patients, 14% had no more seizures three months later, and 63% had seizures less than half as frequently as before. Only 4% were angered by the diagnosis. 86% were able to accept that psychological factors might play a role in the causation of their seizures. The patients were also given an explanatory brochure that was some 20 pages in length, and the neurologists remained available for further questions; 95% of patients viewed these resources positively. Similar results were obtained by Aboukasm et al. 1998 (12) using the diagnosis communication protocol of Shen et al. 1990 (14) in 61 outpatients, whose course was analyzed retrospectively.

Future studies should address the following issues:

- Who should tell the patient the diagnosis (13, e28)?
- Does the particular name given to the diagnosis (e.g., nonepileptic seizures versus dissociative seizures) affect the patient's further course (e29–e32)?
- At what point in time should antiepileptic medication be discontinued (e33)?

Although the frequency of seizures diminishes after the diagnosis has been communicated in the recommended manner, it has been found to rise again over the long term. Thus, once the patient has been told the diagnosis, psychotherapy should be given as the treatment of choice (4, 18).

TABLE

Psychiatric comorbidity of dissociative seizures*

Type of disorder	12-month prevalence
Somatoform disorder	22–84%
Other dissociative disorders	22–91%
Post-traumatic stress disorder	35–49%
Depressive disorders	57–85%
Anxiety disorders	11–50%
Personality disorders	25–67%

*modified from (2, 3)

Psychotherapeutic approaches

The factors involved in the generation and maintenance of dissociative seizures differ from patient to patient, depending on:

- sex (18)
- age (e34)
- history of sexualized violence (e35)
- cognitive impairment (e35)
- the cause ascribed by the patient, and
- illness behavior (e23, e36–e38).

Some patients are hospitalized frequently because of their seizures (mainly with status pseudoepilepticus), while others have seizures only occasionally, e.g., during phases of particularly intense conflicts or other stressful situations. The causes of dissociative seizures being manifold, the goals and methods of treatment must be adapted to each patient's needs (19). Studies have been published about the results of cognitive behavioral therapy, psychodynamic psychotherapy, and hypnosis (*Box 2*).

Overview of studies on the efficacy of psychotherapy

For the purposes of this paper, only randomized controlled trials and prospective studies (with or without a control group) are considered (24–33) *(eTable 1)*. Prospective studies have shown that psychotherapy leads to a reduction of the frequency of seizures by at least half in 50% to 80% of patients. Cognitive behavioral approaches in an interdisciplinary treatment setting seem to be the most effective form of treatment, according to the current state of the evidence.

Only two randomized controlled trials have been published (24, 28). Ataoglu et al. 2003 (24) found

BOX 1

Porcedure for communicating the diagnosis and for motivating the patient to change*

- **Communicating the diagnosis**
  - Take the seizures seriously; they are menacing and cause impairment
  - It may be useful for the physician and the patient to watch a videotaped seizure together
  - The seizures should be called "dissociative seizures"
  - It should be stressed that other patients suffer from the same condition
- **Psychoeducation**
  - These are not epileptic seizures
  - Antiepileptic drugs do not work and can be discontinued
  - Precipitating factors may include emotionally laden events or other stresses
  - Creation of an individual disease model incorporating current psychosocial factors
- **Motivation to change**
  - Psychotherapy is effective
  - Consultation of a psychotherapist
  - Giving hope that the seizures can be reduced in frequency or eliminated

*modified from (14, 16, 17)

BOX 2

Psychotherapeutic interventions

- **Cognitive behavioral interventions (20)**
  - Determining early warning signs on the cognitive, emotional, somatic, and behavioral levels by keeping a symptom diary
  - Increasing control over dissociation by diverting attention to strong sensory stimuli
  - Lowering emotional vulnerability by a healthful diet and adequate exercise and sleep
  - Improving emotional control by learning strategies for regulating feelings and tension
  - Communicating problem-solving techniques, training social competence
  - Exposure and stimulus discrimination to reduce avoidance behavior
- **Psychodynamic interventions (21–23)**
  - Working on unconscious interpersonal conflicts, both past and present
  - Therapeutic work on structural impairments
  - Specifically addressing traumatic experiences, e.g., with psychodynamic imagery-based trauma therapy (23)
  - Working on and changing dysfunctional interpersonal relationship patterns from the patient's past and present
  - Establishing links between present unpleasant feelings and past negative experiences
  - Explaining the connection of dysfunctional relationship patterns to the manifestations of the seizures
  - Making use of the therapeutic relationship (transference, countertransference)
  - Promoting transference for the treatment of seizures of neurotic origin, limiting transference in the treatment of seizures of traumatic origin

that the frequency of seizures after treatment was significantly lower in the intervention group than in the control group, but this trial was flawed in terms of method: There were only 15 patients in each treatment arm, and those in the intervention group were inpatients, while the controls were outpatients.

In the trial by Goldstein et al. (28), whose methods were of high quality, the intervention group had a significantly larger reduction in the frequency of seizures than the control group by the end of treatment (from 12.0 to 2.0 per month, compared to from 8.0 to 6.75 per month; $p = 0.002$), with a medium-to-high effect strength ($d = 0.75$). Six months after treatment, the treated patients had 1.5 seizures per month, while the control patients had 5.0, but this difference was no longer significant.

The evidence suggests that the patients who stand to benefit most from psychotherapy are those who accept the diagnosis (2, 5) and those who have had a seizure acutely triggered by exogenous stress, but are otherwise in good mental and physical health (2, 4, 28, e10).

Treatment with psychoactive drugs

Very often, these patients' psychiatric comorbidities require treatment with psychoactive drugs. The following recommendations can be given (e39): The drugs of first choice for panic disorders are selective serotonin reuptake inhibitors (SSRIs) and selective serotonin-norepinephrine reuptake inhibitors, such as venlafaxine. Sleep disorders can be treated either with low-potency antipsychotic drugs or with antidepressants such as trimipramine or mirtazapine. The long-term administration of benzodiazepines aggravates dissociative symptoms (34) and should be avoided. Depression can be effectively treated with SSRIs, such as sertraline, or with venlafaxine or mirtazapine if these are ineffective; further useful drugs for depression include tricyclic drugs and monoamine oxidase inhibitors. For patients with borderline disorder, whose marked affect instability puts them at risk of self-injury, the recommended treatment is with atypical antipsychotic drugs such as olanzapine (35, 36, e40) or aripiprazole (37, e41), possibly in combination with SSRIs or mood-elevating drugs such as lamotrigine or valproate. Psychoactive drugs should only be given in combination with psychotherapy and as part of a well-defined overall treatment plan (e39).

Recommendations

Although very little evidence is available to date from systematic controlled therapeutic trials, there is nonetheless a consensus that psychotherapy is the treatment of choice (2, 22, 38). The treatment should proceed in the following three steps (38, e42):

- communication of the diagnosis, enabling the patient to develop an alternative disease model, and encouraging the patient to consider psychosomatic consultation followed by psychotherapy

- cognitive behavioral interventions to abort an attack
- addressing internal conflicts, depending on the underlying cause (e.g. history of being abused as a child, acutely stressful experiences) and the patient's ability to cope with stressful life events; recognizing and treating comorbid psychiatric disorders.

At present, however, insufficient evidence is available to say which types of psychotherapy are indicated under which circumstances, nor is there adequate evidence for any potential predictive factors for the success or treatment or other important procedural aspects. This is hardly surprising, as dissociative seizures have widely varying causes (unconscious neurotic conflicts exerting their effects at the psychodynamic level, trauma, conditioned learning) and are often accompanied by comorbid psychiatric disorders. In all likelihood, different types of psychotherapy, individually tailored to the patient's problem and its underlying cause, offer the best prospects of lowering the frequency of seizures over the long term while improving the patient's overall emotional state and quality of life (e43, e44).

Further randomized controlled trials of treatment for dissociative seizures need to be performed. There is also a need for empirical determination of the specific interventions that are most suitable for each subgroup of patients (acute vs. chronic, with or without trauma, with or without mental retardation): this is the question of differential indications. The primary endpoints of future studies should be the frequency and intensity of seizures and the patients' quality of life, while the secondary endpoints should include psychiatric comorbidities such as anxiety and depression, social integration, ability to work, number of hospitalizations, motivation for psychotherapy, and satisfaction with treatment.

Conflict of interest statement
Prof. Schulze-Bonhage has received research support and payment for the preparation of a DVD on dissociative seizures from Novartis.

The other authors state that no conflict of interest exists.

KEY MESSAGES

- Dissociative seizures resemble epileptic seizures but have no electrophysiological correlate.
- Patients with dissociative seizures often have comorbid psychiatric disorders.
- Proper communication of the diagnosis lowers the frequency of seizures and is beneficial for the further course of the illness.
- As dissociative seizures have many causes, psychotherapy must be individually tailored for each patient.
- Cognitive behavioral therapy in a multidisciplinary treatment setting has the best prospect of success.

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Corresponding author
Prof. Dr. med. Kurt Fritzsche
Abteilung für Psychosomatische Medizin und Psychotherapie am Universitätsklinikum Freiburg
Hauptstr. 8
79104 Freiburg, Germany
kurt.fritzsche@uniklinik-freiburg.de

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eTABLE

Overview of treatment studies

Study Country Setting	Psychiatric diagnosis	Study design Number of patients Intervention group Age: mean (SD) Percent female	Treatment in the intervention group Dose	Control group yes/no Treatment in the control group	Endpoints Instruments	Results Follow-up
Ataoglu et al. 2003; (24) Turkey Psychiatry service of academic hospital Inpatient	No psychodiagnostic interview	randomized/ controlled 15 pts. 23 (16–30) 100%	3 weeks of inpatient psychotherapy 2 sessions daily paradoxical intention (PI) (logotherapy as described by V. Frankl)	15 pts. Diazepam 5–15 mg Outpatient	Primary endpoint: HRSA anxiety score Secondary endpoint: seizure frequency	Follow-up at 6 weeks: anxiety score significantly better in PI group compared to control group (z = 2.34; p= 0.015); significantly greater reduction of seizure frequency in PI group than in control group (t = 2.27; p = 0.034)
Betts et al. 1992 (25) England Hospital psychiatry service Inpatient	No psychodiagnostic interview	prospective 82 pts., 46 of whom also had epilepsy No sociodemographic data	Psychotherapy involving a combination of CBT, psychotherapeutic counseling, family therapy, and tranquilizers in a multidisciplinary setting No information about dose	No	Seizure frequency	On discharge: 63% no seizures, 24% less frequent/shorter seizures, 13% no change or worse Follow-up at 2 years: 31% no seizures, 14% partial improvement, 34% no change or worse than before treatment, 13% missing data, 8% diagnosis of epilepsy
Buchanan et al. 1993 (26) Australia Epilepsy center Outpatient	No psychodiagnostic interview Clinical diagnoses in the chronic seizure group (32 pts.): personality disorders (14), anxiety disorders (7), major depression (4), somatoform disorders (2), artificial disorder (1), adaptation disorder (1), intellectual retardation (1)	prospective 50 pts. (adults and children) 23.5 (10.5) 72%	Acute group (18 pts.): direct communication of diagnosis, psychotherapeutic support, family therapy Chronic group (32 pts.): communication of diagnosis, supportive psychotherapy	No	Seizure frequency Psychiatric symptoms Ability to work/ attend school Quality of life	Follow-up at 3.1 years (SD 2.3): Acute group: 15/18 (83%) no seizures, 3/18 markedly fewer seizures Chronic group: 9/32 no seizures, 1 1/32 markedly fewer seizures, 8/32 no change
Goldstein et al. 2004 (27) England Neuropsychiatric service of general hospital Outpatient	3 pts. with PD, 2 of whom also had major depression	prospective 16 pts. 87.5%	12 sessions of CBT once per week, 2 hours for the first session	No	Seizure frequency WASAS, Fear Questionnaire HADS, MHLC, IPQ	Follow-up at 6 months: 81% with reduction of seizure frequency by at least half, 44% no seizures Improvement in psychosocial variables
Goldstein et al. 2010 (28) England Neuropsychiatric service of general hospital Outpatient	About 50% with comorbid psychiatric diagnoses	randomized/ controlled 33 pts. 37.4 (12.6) 73%	12 sessions of CBT once per week, 2 hours for the first session	33 pts. Standard neuropsychiatric care, no CBT	Primary endpoint: seizure frequency Secondary endpoints: WASAS, HADS, Client Service Receipt Inventory	Follow-up at 6 months: significantly greater reduction of seizure frequency in the intervention group at the end of treatment (from 12.0 to 2.0 per month compared to from 8.00 to 6.75 per month in the control group, p = 0.002), persistent but statistically insignificant difference at 6 months (p = 0.082). Both groups improved in social parameters and incurred lower health-care costs. No change in emotional well-being

Study Country Setting	Psychiatric diagnosis	Study design Number of patients Intervention group Age: mean (SD) Percent female	Treatment in the intervention group Dose	Control group yes/no Treatment in the control group	Endpoints Instruments	Results Follow-up
Kuyk et al. 2008 (29) Netherlands Epilepsy center Inpatient treatment with weekend home leave	No psychodiagnostic interview	prospective 24 pts. 30.6 (10.8) 77.3%	4-week diagnostic phase Multidisciplinary treatment: cognitive restructuring, trauma therapy, stimulus differentiation, coping skills, stress management, individual and group therapy, family therapy	No	Seizure frequency, antiepileptic drugs, SCL-90, BDI, STAI, UCL, DISQ	Follow-up at 6 months: 81% with reduction of seizure frequency by at least half, 16 (44%) no seizures, reduced emotional stress and improved quality of life
la France et al. 2009 (30) USA Neuro-psychiatric service of epilepsy center Outpatient	SCID SID-P affective disorders 66.7% anxiety disorders 52.4% somatoform disorders (other than dissociative) 14.3% obsessive-compulsive disorder (cluster C) 28.6% Impulsivity (cluster B) 4.8%	prospective 21 pts., 3 of whom had epilepsy 36 (10.4) 81%	12 individual therapy sessions of CBT	No	Seizure frequency, BDI, MHRSD, DTS, DES, BIS, FAD, SCL-90, GAF, OHS, LIFE-RIFT, WoC, QOLIE	Follow-up at 4, 8, and 12 months: reduction of seizure frequency by at least half in 16 patients, improvement in all psychosocial variables
Mayor et al. 2010 (31) England Neurology service of general hospital Outpatient	No psychodiagnostic interview	prospective 47 pts. 45 (20–68) 70.2%	20 sessions of psychodynamic interpersonal therapy (PIT)	No	Seizure frequency, health-care costs, PHQ, (CORE-OM), SF-36	Follow-up at 12 to 65 months: 25.5% no seizures 40.4% with reduction of seizure frequency by at least half. Working was the only predictor of freedom from seizures. Health-care costs lowered
McDade et al. 1992 (32) England Epilepsy center Inpatient	No psychodiagnostic interview	18 pts., 9 of whom had epilepsy 34.1 38%	Individual supportive psychotherapy of mainly cognitive-behavioral type, art/music therapy, physiotherapy, family involvement Treatment duration: mean 12 weeks, maximum 6 months	No	Seizure frequency, BDI	Follow-up at up to 1 year: 8 pts. without seizures 3 with occasional seizures 5 no change
Rusch et al. 2001 (33) USA Epilepsy center Outpatient	No psychodiagnostic interview Clinical: depression, anxiety disorders, substance abuse	prospective 26 pts. 33.8 (11.7) 78%	2–30 sessions (mean 9.5, SD 7.8) with exposure training, behavioral strategies for dealing with seizures, family involvement, insight-oriented interventions	No	Seizure frequency	At end of treatment: 21/26 no seizures 5/26 less frequent seizures Follow-up at 6 months: 3 of the initially seizure-free patients had seizures again; these ceased after 2–3 further treatment sessions

BDI: Beck Depression Inventory; BIS: Barret Impulsivity Scale; CBT: cognitive behavioral therapy; CORE-OM: Clinical Outcome in Routine Evaluation; DES: Dissociative Experiences Scale; DISQ: Dissociation Questionnaire; DTS: Davidson Trauma Scale; FAD: Family Assessment Device; GAF: Global Assessment of Functioning; HADS: Hospital Anxiety Depression Scale; HRSA: Hamilton Rating Scale for Anxiety; IPQ: Illness Perception Questionnaire; LIFE-RIFT: Longitudinal Interval Follow-up Evaluation Range of Impaired Functioning; MHLC: Multidimensional Health Locus of Control; MHRSD: Modified Hamilton Rating Scale for Depression; OHS: Oxford Handicapped Scale; PHQ: Patient Health Questionnaire; PD: personality disorders; QOLIE: Quality of Life in Epilepsy 31; SCID: Structured Clinical Interview for DSM-IV ACIS-I; SCL-90: Symptom Checklist 90; SF-36: Self-Perceived Health Related Quality of Life; SID-P: Structured Interview for DSM-IV Personality Disorder; STAI: State-Trade-Inventory; UCL: Utrecht Coping List; WASAS: Work and Social Adjustment Scale; WoC: Ways of Coping