Epilepsy & Behavior 88 (2018) 41–48

Contents lists available at ScienceDirect

Epilepsy & Behavior

journal homepage: www.elsevier.com/locate/yebeh

# Psychiatric disorders and trauma history in patients with pure PNES and patients with PNES and coexisting epilepsy

Kirsten Labudda [a,*], Michael Frauenheim [b], Dominik Illies [a,b], Inga Miller [b], Mario Schrecke [b], Nadine Vietmeier [b], Christian Brandt [b], Christian G. Bien [b]

[a] Bielefeld University, Department of Psychology, Bielefeld, Germany
[b] Epilepsy Center Bethel, Krankenhaus Mara, Bielefeld, Germany

ARTICLE INFO

*Article history:*
Received 18 July 2018
Revised 14 August 2018
Accepted 20 August 2018
Available online xxxx

*Keywords:*
PNES
Epilepsy
Posttraumatic stress disorder
Psychiatric disorders
Trauma
Maltreatment

ABSTRACT

Several studies found high prevalence rates of psychiatric disorders in patients with pure psychogenic nonepileptic seizures (PNES). Traumatic experiences were also reported to be elevated in patients with PNES and were discussed as a crucial risk factor for the development of PNES. Much less is known about psychiatric comorbidities and specifically, about trauma history in patients with PNES and coexisting epilepsy. Here, we aimed at directly comparing psychiatric disorders and traumatic life experiences in patients with pure PNES and in patients with PNES and coexisting epilepsy.

We assessed the presence of current axes I and II disorders in 109 patients with either pure PNES (n = 67) or with PNES + epilepsy (n = 42) by using structured clinical interviews. We also compared the trauma histories by using the posttraumatic diagnostic scale (PDS) as an interview and the extent of physical, sexual, and emotional childhood maltreatment measured with the Childhood Trauma Questionnaire (CTQ).

Patients of both groups had very high rates of psychiatric disorders: 79.1% of the patients with pure PNES and 76.2% of the patients with PNES + epilepsy had at least one psychiatric disorder. The frequencies of psychiatric disorders did not differ between groups. However, there was a trend towards higher rates of posttraumatic stress disorder (PTSD) in patients with PNES (32.9%) compared with patients with PNES + epilepsy (16.7%). In both groups, the proportion of patients who recalled traumatic events in the PDS was high (72.6% in the patients with pure PNES, 64.3% in the patients with PNES + epilepsy) and did not differ significantly between groups. The age at first traumatization, the types of trauma events experienced, the number of patients with single traumatization, and those with repeated traumatic experiences also did not differ between groups. We found high frequencies of childhood maltreatment in both groups.

Our findings show that patients with PNES and patients with PNES and coexisting epilepsy could neither be differentiated by the amount of psychiatric additional disorders nor by the nature and extent of trauma and maltreatment experiences. Our results suggest that patients with PNES + epilepsy rather resemble patients with pure PNES than patients with epilepsy in respect to psychopathological characteristics and adverse life experiences. Trauma and maltreatment history are therefore assumed to be predisposing factors to PNES in both patients with pure PNES and patients with PNES and coexisting epilepsy.



## 1. Introduction

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM V) [1], psychogenic nonepileptic seizures (PNES) are classified as a conversion disorder (functional neurological symptom disorder) with attacks or seizures (F44.5). For the diagnosis of PNES, clinical findings have to provide evidence of incompatibility between the seizures and neurological or medical conditions, and the seizures could not be better explained by another medical or mental disorder. Although PNES often resemble epileptic seizures, they are not accompanied by epileptiform discharges [2]. However, 5% [3] to 50% [4] of the patients with PNES also have comorbid epilepsy [5]. Many studies showed highly elevated rates of further psychiatric disorders in patients with pure PNES, even though the extent of disorders varies considerably between studies (see below). Less is known about psychopathology in patients with PNES and coexisting epilepsy as these patients are often excluded from studies on psychosocial and/or psychopathological factors in patients with PNES (e.g., [6–8]). In patients with pure PNES, the prevalence of affective disorders ranges from 9% [9] to 72% [6] and in patients with PNES + epilepsy, from 0% [9] to 74% [10]. The prevalence of

* Corresponding author at: Bielefeld University, Department of Psychology, Clinical Neuropsychology and Epilepsy Research, PO Box 10031, D-33615 Bielefeld, Germany.
*E-mail address:* kirsten.labudda@uni-bielefeld.de (K. Labudda).

https://doi.org/10.1016/j.yebeh.2018.08.027
1525-5050/

anxiety disorders in patients with pure PNES varies between 4.5% [9] to 51% [6] and from 0% [9] to 49% [11] in patients with PNES + epilepsy. In the largest study describing psychiatric disorders in both patients with PNES (n = 324) and patients with PNES + epilepsy (n = 84), the rates of all psychiatric disorders reported appear to be equal [11]. However, the prevalence rates were not compared with each other statistically, and the psychiatric diagnoses reported were not based on a comprehensive psychiatric investigation. In a previous study of our own group, we found a nonsignificant trend towards higher rates of psychiatric disorders in patients with pure PNES compared with patients with PNES + epilepsy, but psychiatric diagnoses were retrieved from the medical records and not analyzed in detail [12]. Kuyk et al. [13] did not find differences of affective and anxiety disorders in 60 patients with pure PNES and 25 patients with PNES + epilepsy. Patients with PNES + epilepsy were diagnosed more often with cluster C (i.e., avoidant, dependent, obsessive–compulsive) personality disorders compared with the group of patients with pure PNES. D'Alessio and colleagues [10] also directly compared psychopathological characteristics of patients with pure PNES and patients with PNES and coexisting epilepsy. Affective, anxiety, and personality disorder rates did not differ between groups, but patients with pure PNES had posttraumatic stress disorder (PTSD) more frequently.

The experience of (early) traumata, specifically sexual abuse, was assumed to be a crucial etiological factor for the development of PNES [8,14,15]. Some authors have studied the amount of traumatic life experiences in patients with pure PNES in more detail. The prevalence of psychological trauma varies from 25% [16] up to 100% [17] in patients with PNES. Between 3.5% and 74% of the patients with pure PNES reported sexual abuse, and physical abuse was confirmed by 5.8% to 63% of the patients with pure PNES (see also the recent review by Beghi et al. [18] who systematically summarized the results of 23 studies). A few other studies compared adverse life experience in terms of early maltreatment in patients with pure PNES and in patients with epilepsy (without PNES). Patients with epilepsy usually reported less traumatic experiences: using the Childhood Trauma Questionnaire (CTQ) [19] to objectify the extent of early maltreatment within the family, Kaplan et al. [20] reported significantly more physical, emotional, and sexual neglect and abuse in patients with PNES compared with patients with epilepsy. Proença and coworkers [21] found significantly higher rates of emotional abuse and neglect when comparing early maltreatment experiences of patients with PNES with those reported by patients with temporal lobe epilepsy.

Although there is good evidence for elevated rates of traumatic experiences, maltreatment, and PTSD in patients with pure PNES, there are almost no data on trauma history in patients with PNES with an additional epilepsy. Studies assessing the different facets of traumatic experiences in patients with PNES + epilepsy in detail are lacking. To our knowledge, only Asadi-Pooya et al. [22] briefly evaluated the trauma history in patients with pure PNES and patients with PNES + epilepsy. The authors asked the patients whether they have a history of abuse as a child, a history of sexual abuse, and/or a history of physical abuse. Patients with additional epilepsy did not differ from patients with pure PNES according to the presence of these types of traumatic experiences.

We aimed at comparing the history of adverse life events by assessing the type and extent of traumatic experiences in more detail. Beyond assessing "classical" trauma types, such as sexual and physical assaults, accidents, or natural disasters, we also assessed maltreatment experiences during childhood and adolescence by using the CTQ. Specifically, emotional neglect and abuse were not assessed when using trauma checklists during interview-based PTSD assessment, although these types of maltreatment experiences are well known to predispose to psychopathology later in life (e.g., [23–25]). We assume that the rate of traumatic experiences as well as the extent of maltreatment is high in both patients with pure PNES and patients with PNES + epilepsy. We also aimed at directly comparing the frequencies and types of psychiatric disorders in both patient groups.

## 2. Materials and methods

### 2.1. Patients

We initially included 124 inpatients with PNES or with PNES + epilepsy of Mara Hospital, Bethel Epilepsy Center, Bielefeld, Germany. Data were either collected during standardized routine psychiatric assessment (see below) within the first days of the hospital stay on the psychotherapy ward between 06/2015 and 08/2017 (n = 80) or as part of a large study on psychopathology in patients with epilepsy and patients with PNES between 01/2011 and 01/2012 (n = 44). All patients were ≥18 years. Exclusion criteria were unclear seizure diagnosis (see below) and intellectual disabilities, either suspected by clinical judgment or proven by a documented diagnosis based on intelligence testing conducted in our hospital or in another institution. The diagnoses of an epilepsy were taken from the medical records and were always given by experienced epileptologists from Mara Hospital. Diagnoses of PNES were also given by experienced epileptologists. For the purpose of this study, we additionally used the classification scheme proposed by LaFrance et al. [2] allowing to classify the degree of diagnostic certainty for PNES into possible, probable, clinically established, and documented. We excluded patients with possible PNES (i.e., no seizure event happened during electroencephalography (EEG) recording, and semiology was never witnessed by an experienced expert in Mara Hospital) from both groups.

Group assignment was conducted as follows: a patient was classified as having pure PNES in the event of 1) having either expert-witnessed PNES or EEG-documented PNES or both and 2) absence of past and current interictal and – if an ictal EEG was recorded – ictal epileptiform discharges. Patients were assigned to the group with PNES + epilepsy in the event of 1) having either expert-witnessed PNES or EEG-documented PNES, 2) presence of an epilepsy diagnosis with epileptic seizures of prototypical epileptic semiology that could be differentiated from the existing PNES, and 3) presence of interictal epileptiform discharges or ictal epileptiform discharges during such a prototypical epileptic seizure. Out of 124 patients originally included, we excluded 15 patients because of unsecure seizure diagnoses: in 9 patients, an epilepsy could not completely be excluded (no ictal EEG was recorded, no interictal discharges, and suspected epileptic seizures were never observed by an expert), and in 6 patients in whom an epilepsy was confirmed, the diagnosis of PNES was possible, but seizures were never seen by an expert. Of the remaining 109 patients, in 56 (30 with pure PNES, 26 with PNES + epilepsy), the PNES diagnosis was confirmed by ictal EEG recordings, and in 53 patients, PNES were classified as probable (semiology witnessed by an experienced clinician and judged as PNES, but no seizure occurred in any of the EEG recording). Sociodemographic and seizure-related information for both groups are summarized in Table 1.

In the group with PNES + epilepsy, the epilepsy diagnoses were as follows: 27 patients had focal epilepsy (6 patients with temporal origin, 7 patients with extratemporal origin, 6 patients with a multilobar origin, and 8 patients with focal epilepsies of unclear origin), 9 patients had generalized epilepsy, and in 6 patients, the epilepsy was unclassifiable (with focal and generalized signs). In all patients, the onset of the epilepsy was prior to the onset of the PNES.

### 2.2. Methods

#### 2.2.1. Clinical interview session

We used the Mini International Neuropsychiatric Interview Plus (Mini, version 5.0.0) [26] for the assessment of current axis I psychiatric disorders based on the DSM IV criteria (see Table 1 for the diagnoses assessed with the Mini). The posttraumatic stress diagnostic scale