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Review

Psychiatric comorbidity in psychogenic nonepileptic seizures compared with epilepsy

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ABSTRACT

Objectives: Psychogenic nonepileptic seizures (PNESs) are closely linked with psychological distress, but their etiology is not well-understood. We reviewed psychiatric comorbidity in PNESs and epileptic seizures (ESs) with an aim to assist understanding, diagnosis, and management of PNESs.
Methods: A search of Web of Science, MEDLINE (PubMed), PsycINFO, and Scopus identified 32 relevant studies on the prevalence of psychiatric comorbidity in PNESs. We used meta-analysis to compare psychiatric comorbidity between PNESs and ESs.
Results: Samples with PNESs had high rates of psychiatric comorbidity overall (53–100%), notably including posttraumatic stress disorder (PTSD), depression, and personality and anxiety disorders. Compared with ESs, samples with PNESs had more psychiatric comorbidity overall (RR: 1.30, 95% CI: 1.14–1.48, $p < 0.0001$) with significantly elevated risks found for PTSD, personality disorder, and anxiety but not depression.
Conclusions: Psychiatric disorders are more common in PNESs than ESs. Because of methodological limitations of available studies, causality cannot be established; prospective longitudinal designs are required.

1. Introduction

The International League Against Epilepsy defines an epileptic seizure (ES) as a *transient occurrence of signs and/or symptoms due to abnormal, excessive, or synchronous neuronal activity in the brain* [1]. Conversely, psychogenic nonepileptic seizures (PNESs) are episodes that superficially resemble ESs but lack any electrophysiological evidence of abnormal neuronal activity [2]. Up to 40% of patients in tertiary epilepsy centers have seizures that are attributable to PNESs [3], while estimates of population prevalence vary widely between 2/100,000 and 33/100,000 [4].

Since being first described by the Egyptians in 1900 BCE [5], PNESs have been associated with psychological distress [6]. Janet, Charcot, and Freud all linked PNESs to psychosocial stressors in some way, with the latter's psychological constructs of conversion and dissociation continuing to underpin PNES theories today [6]. Although these concepts remain largely unchanged, the range of terminology is considerable, with PNES being the preferred term and more historical terms such as hysteroepilepsy and pseudoseizure considered pejorative [7].

Given psychosocial contributors, it is unsurprising that people with PNESs have high rates of psychiatric comorbidity. Available evidence indicates that adults with PNESs have poorer prognosis than those with ESs, with 40% of patients with PNESs and 60–80% of patients with ESs achieving seizure-free remission within 5 years of diagnosis [8]. Importantly, psychiatric comorbidity is associated with worse outcomes in both PNESs and ESs [9,10].

Asadi-Pooya and Sperling recently reviewed the literature regarding the diagnosis, incidence, demographics, prognosis, and mortality associated with PNESs; however, they did not examine rates of psychiatric comorbidity [11]. Other authors have identified PNES comorbidity with particular psychiatric disorders but did not consider psychiatric diagnosis more generally. For example, Fiszman et al. [12] critically reviewed the relationship between posttraumatic stress disorder (PTSD) and PNESs but not other psychiatric disorders. Accordingly, the aim of this review was to synthesize the results of studies that investigate the prevalence of psychiatric comorbidity in PNESs and, where possible, compare this with groups with ESs. As far as we could ascertain, this topic is yet to be reviewed in the literature.

2. Method

Searches were carried out on 13 December 2015 using Web of Science, MEDLINE (PubMed), PsycINFO, and Scopus with the following terms in the abstract field: *(comorbid* OR co-morbid* OR psychiatric profile OR depression OR mood disorder OR PTSD OR posttraumatic stress disorder OR post-traumatic stress disorder OR anxiety disorder OR personality disorder) AND (hysterical seizures OR conversion seizures OR*

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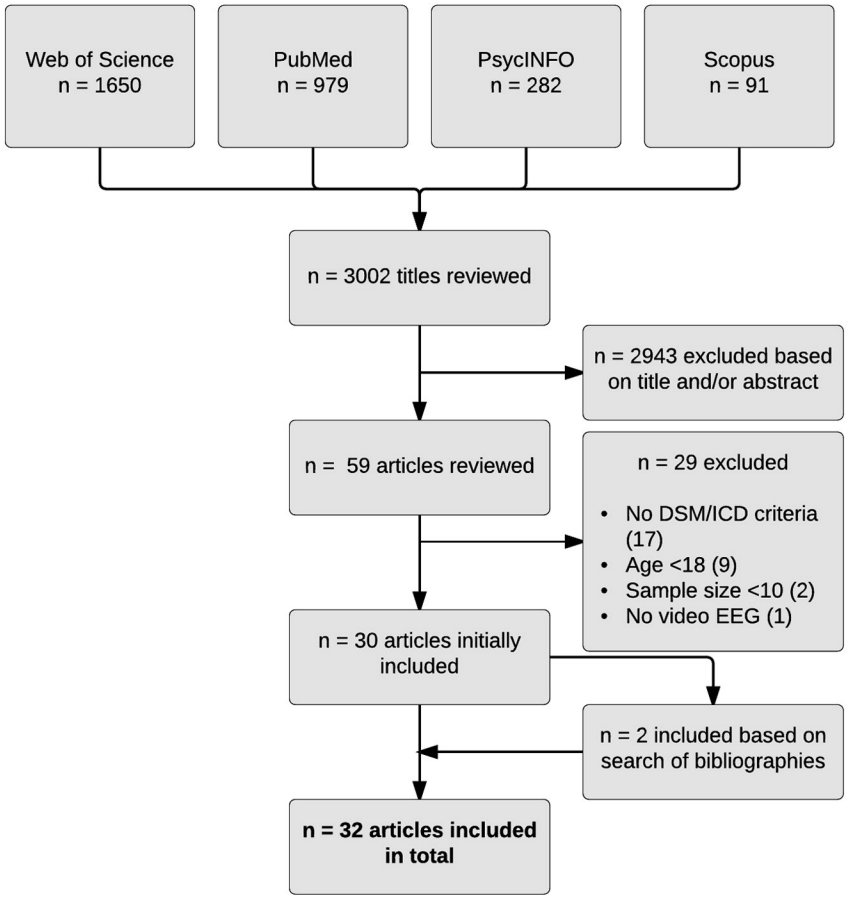

Fig. 1. Identifying studies.

functional seizures OR pseudoseizures OR dissociative convulsions OR psychogenic seizures OR psychogenic nonepileptic seizures OR psychogenic non-epileptic seizures OR nonepileptic seizures OR non-epileptic seizures OR nonepileptic attacks OR non-epileptic attacks OR PNES). There was no restriction on year of publication. As outlined in Fig. 1, this search strategy returned 3002 publications. Titles and abstracts were screened, and all studies describing the psychiatric profile of patients with PNESs were provisionally included. Studies were excluded if (i) the study population was less than 18 years old; (ii) video-electroencephalography (vEEG) monitoring was not used to confirm diagnosis of PNES; (iii) the Diagnostic Statistical Manual of Mental Disorders (DSM) or the International Classification of Diseases (ICD) were not used for the diagnosis of psychiatric comorbidity; and (iv) there were less than ten participants with PNESs. Studies including participants with intellectual disabilities or psychogenic movement disorders were not excluded. As outlined in Fig. 1, 59 studies met initial inclusion criteria, and 29 of these were excluded: 17 because DSM or ICD criteria were not used; nine because of age; two because of sample size; and one because vEEG was not used. A hand search of the bibliographies of collated articles identified an additional two studies, making a total of 32. We used RevMan [13] to compare rates of psychiatric comorbidity between groups with PNESs and groups with ESs. Studies that

Table 1
Included studies of psychiatric findings in samples with PNESs.

Study year	Author	Country	No. with PNESs	Diagnostic criteria	Compared with ESs	Psychiatric comorbidity (%)	PTSD (%)	Depression[a] (%)	Other psychiatric disorder (%)	Personality disorder (%)
2015	Obrien [14]	Ireland	20	DSM-IV	No	53	NR	NR	Somatoform/conversion (100)	42
2014	Rodriquez-Urrutia [14]	Spain	53	DSM-IV	No	73.6	NR	32.1	Anxiety (28.3) Other conversion (26.4) Adjustment (20.8)	15.1
2013	Alessi [15]	Brazil	102	DSM-IV	No	NR	NR	48.0	Somatoform disorder (31.4) Anxiety disorder (27.5) Alcoholism or other substance abuse (9.8) Suicide attempts (7.8) Psychosis (6.9) Bipolar disorder (3.9)	9.8
2013	Patidar [16]	India	63	DSM-IV	No	NR	NR	90.2	Anxiety disorder (62.3) Somatoform disorder (27.9) Dissociative disorder (3.3)	NR