



Psychological interventions for psychogenic non-epileptic seizures: A meta-analysis



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ABSTRACT

Purpose: The aim of this meta-analysis is to evaluate and synthesize the available evidence from the previous 20 years regarding the utility of psychological interventions in the management of psychogenic non-epileptic seizures (PNES).

Method: Studies were retrieved from MEDLINE via OvidSP and PsychINFO. Selection criteria included controlled and before-after non-controlled studies including case series, using seizure frequency as an outcome measurement. Studies were required to assess one or more types of psychological intervention for the treatment of PNES in adults. Data from 13 eligible studies was pooled to examine the effectiveness of psychological interventions in treating PNES on two primary outcomes: seizure reduction of 50% or more and seizure freedom. A meta-analysis was conducted with data extracted from 228 participants with PNES.

Results: Interventions reviewed in the analysis included CBT, psychodynamic therapy, paradoxical intention therapy, mindfulness and psychoeducation and eclectic interventions. Meta-analysis synthesized data from 13 studies with a total of 228 participants with PNES, of varied gender and age. Results showed 47% of people with PNES are seizure free upon completion of a psychological intervention. Additional meta-analysis synthesized data from 10 studies with a total of 137 participants with PNES. This analysis found 82% of people with PNES who complete psychological treatment experience a reduction in seizures of at least 50%.

Conclusion: The studies identified for this analysis were diverse in nature and quality. The findings highlight the potential for psychological interventions as a favorable alternative to the current lack of treatment options offered to people with PNES.

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1. Introduction

Psychogenic non-epileptic seizures (PNES) have a debilitating impact on quality of life. This may involve psychological, social, financial and physical consequences including the inability to work, drive or carry out everyday tasks [1,2]. Despite the growing amount of research contributing to our understanding of PNES and its causes, there is little evidence available about successful treatments [3,4].

Prognosis for people with PNES is poor [5]. Diagnosis is often focused on the exclusion of epilepsy and consequently, PNES becomes a non-disease [6]. People with PNES tend to be

marginalized between neurology and psychiatry, with neither profession taking ownership of patient care [7]. As such, many patients are not referred to or do not engage with mental health services [3,4,6]. Once a diagnosis of PNES is made, anti-convulsant therapy is typically ceased and treatment options are unclear and rarely pursued [1,7]. Stigma often surrounds a diagnosis of PNES, fueled by poor understanding, education or support for the condition [1,6]. Research also tells us that, without treatment, the majority of people with PNES continue to have seizures and many experience a worsening of symptoms [8,9,5].

Whilst PNES is a condition defined by physical manifestations, it is understood to be psychological in nature with a wide variety of aetiological factors involved [10,4,11]. Consequently, PNES represent a serious problem for clinicians in developing and implementing evidence-based psychological interventions and there is currently little in the way of quality evidence which can inform clinical treatment decisions [12]. The body of research indicates that psychological interventions for PNES are in the early stages of development. These encompass a number of approaches, the most

Abbreviation: PNES, psychogenic non-epileptic seizures.

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common being cognitive behavioral therapy (CBT), psychoanalytical and psychoeducational therapies.

The majority of the research into psychological interventions for PNES is comprised of observational studies, involving pre-post studies without control groups [12]. Most are small in scale and conducted in hospital or medical facilities, reflective of real life clinical treatment settings [13,14,9,15]. These studies are interspersed with a handful of small scale and pilot randomized controlled trials (RCTs) [16,17,18] providing a promising start in the pursuit of high quality research into PNES interventions. On their own however, they are insufficient in number to allow clinicians to draw conclusions about broader treatment recommendations [3,12,4].

There are several reasons for the limited number of high quality studies in this field. RCT's are typically performed in highly controlled environments where extraneous variables can be controlled. The majority of RCT's do not allow for the presence of co-morbid disorders, common among people with PNES [19], leaving these people unrepresented in the research. RCT's also commonly require a single standardized treatment which is difficult to develop for such a group as diverse as those with PNES which can be a symptom of various affective and psychiatric factors [10,4]. Furthermore, RCT to waiting list or treatment as usual (TAU) is unattractive, and can be deemed unethical for patients who are unwell, when similar treatments are available outside of the research setting [20].

Overall, the individual research studies are suggestive of favorable outcomes in terms of reducing seizures for those who complete psychological treatment. However, as a whole, the literature is laborious to interpret as studies are often published in a variety of different medical, psychological or psychiatric journals, use different methodologies, and are presented in such a way as to make them difficult to compare with one another. As it stands, the evidence is indicative of both the current state of clinical interventions for PNES as they occur in practice, and reflective of the populations they aim to treat. It is also representative of the diversity of approaches required in addressing such a heterogeneous group of patients and presentations [10,4,11,15]. The observational designs utilized by the majority of researchers in this field, whilst of limited methodological quality, have the capacity to evaluate treatment outcomes in people with multiple problems, complex or atypical presentations in real life clinical settings [21]. Naturalistic studies inform clinicians, researchers and other health professionals about treatments, as they would be performed in practice, without exclusions and controlled conditions [22].

To date, there are no meta-analytical reviews of psychological interventions for PNES. This absence may be ascribed to the lack of RCT's, the customary design used for a meta-analytical review and synthesis [23]. However, when considering the high social, psychological and financial costs associated with PNES, there is an imperative to utilize the current body of research to its full extent [22]. Additionally, considering the complex nature of PNES, combined with the difficulty and high cost of RCT's, it is unlikely there will be a sufficient number of RCT's conducted in the near future for this type of meta-analysis to be performed. Meanwhile, uncontrolled and naturalistic treatment evaluations in clinical service-settings provide valuable information in their own right [22]. Increasingly, as in other areas of health research, the combination of large amounts of observational literature and the pressure for timely, accurate clinical information compels researchers to utilize observational studies using meta-analysis [21]. Combining this diffuse body of research will also enable this information to be more readily accessible, and therefore, help educate clinicians of current evidence-based treatments for PNES [23].

The aim of this systematic review and meta-analysis is to evaluate and examine the available evidence from the previous 20 years regarding the effectiveness of psychological interventions in the management of PNES. Using meta-analysis, this study predicts that psychological interventions for PNES will be shown to be associated with both seizure freedom and reductions in seizure frequency of 50% or more.

2. Method

2.1. Protocol

A review protocol for this study was developed in December 2015 and is available upon request from the author (PC).

2.2. Eligibility criteria

Eligible studies were required to be published electronically in peer reviewed science journals in the English language between 1996 and 2016. PNES was defined as the experience of non-epileptic seizures of psychological origin as diagnosed by a neurologist, psychologist or psychiatrist and confirmed by electroencephalogram (EEG) or video-EEG (vEEG). Given the important differences between PNES in adults and children, studies required the inclusion of participants aged 16 years and older (>50% of the participants are ≥ 16 years). Due to the limited amount of research in this area, the search was open to all prospective human studies, including controlled and before-after non-controlled studies including case series. Qualitative single case studies, and retrospective studies were excluded, as were review articles and conference abstracts.

Studies were included if they evaluated the effectiveness of at least one psychological intervention undertaken to lessen the frequency of PNES. An intervention was considered to be psychological in nature if it was based on a psychological theory or model specifically designed to alter psychological processes thought to underlie or significantly contribute to pain, distress, and disability [24].

Additional selection criteria included using seizure frequency as an outcome measure. Regardless of the method of reporting, this criterion was included in the qualitative synthesis. Studies selected as eligible for quantitative synthesis were required to provide sufficient information on the primary outcome of seizure frequency so as to enable the calculation of either seizure reduction and/or seizure freedom rates. Studies were excluded if they examined the effectiveness of non-psychological interventions (i.e. medication) or focused on psychological interventions that targeted other outcomes (i.e. employment status, cost efficacy).

2.3. Search and selection strategy

In order to decide which studies to include in the analyses, an extensive literature search was conducted utilising two online academic databases, MEDLINE via OvidSP and PsychINFO (see Appendix A). To do this, a search strategy was developed using a wide-ranging pool of MeSH/thesaurus terms tailored to each database (see electronic search strategy for MEDLINE via OvidSP database in Table 1). The search was conducted by the author (PC) and included records from 1996 to July 2016. If the article title indicated relevance then the abstract was read. The complete article was read if the abstract indicated the article met the inclusion criteria. Following this, reference lists from selected studies were examined for additional relevant papers. The authors consulted in the event of any queries and discrepancies were resolved by discussion. This search was conducted on 3 June

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