



Comparisons of childhood trauma, alexithymia, and defensive styles in patients with psychogenic non-epileptic seizures vs. epilepsy: Implications for the etiology of conversion disorder



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ABSTRACT

Background: It has been theorized that conversion disorder is the result of emotion that cannot be experienced consciously as feeling states or put into words (i.e., alexithymia), but there is little confirming empirical evidence. We sought to characterize subjects with conversion disorder compared to subjects with a distinct medical illness, using the model of psychogenic non-epileptic seizures (PNES) vs. epilepsy (ES), on measures of childhood traumatic experience, alexithymia and maturity of psychological defensive strategies. **Methods:** All subjects admitted to the Epilepsy Monitoring Unit of the University of Cincinnati Medical Center were offered self-report questionnaires (Childhood Trauma Questionnaire, Toronto Alexithymia Scale-20 and Response Evaluation Measure-71) at the outset of evaluation. Diagnosis of each subject was confirmed by video-EEG and we compared subjects with PNES to those with ES on these measures.

Results: 82 subjects had ES AND 96 had PNES. Those with PNES were significantly more likely to have experienced childhood trauma in all domains ($p = .005$ to $p = .05$), and were significantly more likely to have alexithymia ($p = .0267$). There was a significant difference in the capacity to identify feelings, and a trend towards significance in capacity to describe feelings. There were no differences in defensive styles between the two groups.

Conclusions: PNES diagnosis was associated with female sex, higher alexithymia scores and higher rates of childhood trauma, but not with differences in defensive styles compared to ES. These findings add empirical evidence for theories regarding the cause of conversion disorder and may aid in the design of prospective treatment trials in patients with conversion disorder.

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Introduction

Any medical illness is affected by one's psychic state, and psychosomatic processes dictate the subjective experience of even entirely "organic" illnesses. For instance, individuals with epilepsy may be more likely to have seizures, or individuals with coronary artery disease may sustain myocardial infarction when they are under stress. Conversion disorder assumes that there is no "organic" illness but symptoms are produced entirely by brain mechanisms as a way of expressing distress when psychic means are unavailable. In modern psychiatric nosology,¹ conversion disorder refers to the development of pseudo-neurologic

symptoms without an organic basis. It is the heir to Freud and Breuer's concept of hysteria, first published in 1895 [1,2] which proposed that conversion disorder symptoms were the result of a response to a precipitating trauma that could not be dealt with by psychic means.

Childhood trauma is the most robust empirically demonstrated correlate of conversion disorder [3,4]. Conversion disorder symptoms may seem to mimic a traumatic experience, e.g., an incest victim who develops psychogenic non-epileptic seizures (PNES) with prominent pelvic thrusting and moaning that suggest intercourse. Conversion disorder symptoms may also symbolize psychological defense against the trauma, e.g., an individual angry at having tolerated repeated abuses by a parent but who fears abandonment if that anger is expressed, develops paralysis that protects against retaliation. Patients with conversion disorder have higher scores on several trauma scales and measures of dissociation [5–10] and show evidence of hypervigilance to threat compared to healthy controls [11].

The concept of alexithymia, first coined by Sifneos [12], refers to difficulty perceiving, identifying and describing feeling states, difficulty

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¹ DSM-V nosology has removed all vestiges of the historical basis for somatoform disorders, as the focus turns from theoretical distinctions among these disorders to patient preoccupation with illness, maladaptive behaviors related to illness, and loss of healthy functioning caused by the symptom(s).

distinguishing between feeling states and bodily experiences of emotional arousal, constricted capacity for emotional thought and fantasy development, and an externally oriented cognitive style. Alexithymia implies problems in the capacity for mentalization (the ability to understand that one has one's own thoughts and feelings, separate from others' thoughts and feelings, and that those mental processes motivate behavior in oneself and in others) [13] and associated psychic expression of affect. Instead of identifying internal feeling states creating tension or distress, the alexithymic individual attributes experience to external situations (e.g., physical illness).

Since conversion disorder symptoms appear to function as a defensive strategy that prevents awareness of psychic distress, most conversion disorder patients are unaware of psychic conflict that might be related to the symptom and do not seek psychological consultation in the face of unexplained physical symptoms. Those who are referred for psychological treatments often doubt that their symptoms are related to internal psychic processes. Individuals who develop conversion disorder symptoms would seem likely to use less mature defensive approaches (e.g., anticipation, sublimation, or suppression) to fend off psychic conflict, since theoretically they would be less capable of using psychic defense mechanisms for protection.

The authors hypothesized that individuals with conversion disorder would more likely have histories of early childhood trauma, alexithymia, and immature defensive styles, compared to those without conversion disorder, and that those with PNES would have greater childhood trauma and higher levels of alexithymia, and use less mature defenses than individuals with epileptic seizures (ES) only.

Methods

The authors administered self-report measures to all patients admitted to the Epilepsy Monitoring Unit (EMU) of the University of Cincinnati Medical Center from October 2009 until April 2012, according to a protocol approved by the IRB of the University of Cincinnati (# 09-01-07-02EE). Participation was entirely voluntary and was limited to subjects capable of reading and responding to the questionnaires without assistance. No payment was offered, and answers were entirely anonymous and confidential. All instruments were administered to subjects before completion of video-EEG monitoring so that the diagnosis at the time of instrument completion was unknown.

All subjects underwent inpatient video-EEG monitoring with the intention of recording simultaneous video and EEG of typical seizure-like events. All diagnoses were made by a neurologist with special training in epilepsy-EEG on the faculty of the University of Cincinnati Medical Center Department of Neurology. Subjects' diagnosis on discharge from the EMU was then recorded as ES, PNES, probable ES + PNES (individuals with documented PNES during this EMU stay and a history consistent with epileptic seizures), or no diagnosis. The EMU has monitored up to 300 patients per year for the past 25 years, and has well-established criteria for distinguishing ES from PNES especially in complex cases in which surface EEG alone is not diagnostic [14]. Any subjects found to have neither ES nor PNES were excluded from analysis. A chart review was conducted for all subjects without a clear diagnosis at the end of the EMU stay to determine whether subsequent testing or evaluation up to two years afterwards would clarify the final diagnosis.

Practical considerations (in order to comply with the IRB requirements for avoiding use of a consent form) made only self-report measure feasible and no face-to-face interviews were conducted. The Childhood Trauma Questionnaire [15], the Toronto Alexithymia Scale-20 [16] and the Response Evaluation Measure-71 [17] were each utilized to characterize differences between groups with ES and groups with PNES.

Instruments

The Childhood Trauma Questionnaire (CTQ) is a well-validated 28-item self-report inventory that identifies 5 types of trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. There is a 3-item minimization/denial scale to identify false-negative responses. Each item is answered with a 5-point Likert scale that includes never true, rarely true, sometimes true, often true and very often true. Item scores are summed to produce scale scores that quantify the severity of maltreatment. Cutoff scores for detecting the presence or absence of abuse/neglect are available.

The Toronto Alexithymia Scale-20 (TAS-20) is a well-validated 20-item self-report survey that identifies the presence or absence and the degree of alexithymia. Items are scored on a 5-point Likert scale ranging from strongly agree to strongly disagree. Items describe functioning on one of three components of emotional processing: identifying feelings, describing feelings, and externally-oriented thinking. Seven items correlate with difficulty identifying feelings, 5 items with difficulty describing feelings and 8 items with externally oriented thinking. A cutoff score of 61 or higher is correlated with high alexithymia/presence of alexithymia and a cutoff score of 51 or lower is correlated with low alexithymia/absence of alexithymia.

The Response Evaluation Measure (REM-71) is a 71 item self-report measure designed to identify the defensive style typically used by an individual. It has been well-validated and each item is scored on a 5-point Likert scale from strongly agree to strongly disagree. The REM-71 yields scores adjusted for subjects' age (adolescent, 20–39, and 40+) comparing factor 1/immature/less adaptive defenses with factor 2/mature/more adaptive defenses.

Statistical analysis

Quantitative data are described using various summary statistics (mean, standard deviation [SD], median and range). Categorical variables are summarized using frequency and proportions. Age and gender differences were compared between the PNES and ES groups using unpaired *t*-test and Fisher's exact test respectively. Further, logistic regression analysis was carried out to examine the effect of various scores in classifying the diagnosis (PNES versus ES). The variables reaching a 10% level of significance in the univariate logistic regression analysis were included in the multivariable logistic regression model. We carried out a stepwise multivariable logistic regression model. In the stepwise regression model the criteria for inclusion and exclusion of variables were fixed at 10% and 5%, respectively. The results of logistic regression analyses were presented using odds ratio (OR) with a 95% confidence interval (CI) and *p*-value. *p*-Values less than or equal to a 5% level of significance were considered as significant results. Statistical analyses were carried out using SAS 9.3 (SAS Institute Inc., Cary, NC, USA).

Results

Two hundred and twenty-one subjects turned in responses on the CTQ and TAS-20. Because the REM-71 was added several months after data collection began, and because not all subjects completed all measures, only a total of 126 subjects completed the REM-71. The final diagnosis was ES for 82 subjects (37.1%), PNES for 96 subjects (43.44%) and PNES + ES for 9 subjects (4.07%). Twenty-nine subjects (13.2%) had no definite diagnosis at discharge. Five subjects did not have ES or PNES (i.e., another medical cause for spells was identified) and were excluded from further analysis. Subject age ranged from 18 to 72 years with a mean of 40 years (SD: 12.93), and there was no difference in age of subjects according to diagnosis (*p* = .6715). Of the total study population, 171 (77.38%) subjects were females. The majority of female subjects were in the PNES diagnosis group (89.6%) [Table 1].

We compared the CTQ, TAS and REM-71 measures according to the different diagnosis groups (unknown, ES, PNES and ES + PNES). We analyzed the results by adding the PNES + ES subjects to the PNES group and comparing with subjects with ES only. We also carried out analysis after excluding unknown and ES + PNES diagnoses. Results were found to be consistent. Thus, we report comparisons by diagnosis of PNES vs. ES only (*n* = 178). Since it is not clear how individuals with both ES and PNES or individuals with other non-seizure-like manifestations of conversion disorder compare

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