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Emotion Processing and Psychogenic Non-epileptic Seizures – a cross-sectional comparison of patients and healthy controls

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Running Head: Emotion Processing in PNES

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ABSTRACT

Purpose: This exploratory study aimed to examine emotion-processing styles in patients with psychogenic non-epileptic seizures (PNES), compared to healthy individuals, and to explore associations of emotion processing with other psychological measures and seizure frequency, using the new Emotional Processing Scale (EPS-25), which had not previously been used in this patient group.

Methods: Fifty consecutive patients with PNES referred for psychotherapy completed a set of self-report questionnaires, including the Emotional Processing Scale (EPS-25), Clinical Outcome in Routine Evaluation (CORE-10), Short Form–36 (SF-36), Patient Health Questionnaire (PHQ-15), and Brief Illness Perception Questionnaire (BIPQ). Responses on the EPS-25 were compared to data from 224 healthy controls.

Results: Patients with PNES had greater emotion processing deficits across all dimensions of the EPS-25 than healthy individuals (suppression / unprocessed emotion / unregulated emotion / avoidance / impoverished emotional experience). Impaired emotion processing was highly correlated with psychological distress, more frequent and severe somatic symptoms, and a more threatening understanding of the symptoms. Emotion processing problems were also associated with reduced health-related quality of life on the mental health (but not the physical health) component of the SF-36. The unregulated emotions sub-scale of the EPS was associated with lower seizure frequency.

Conclusion: The results showed clear impairments of emotion processing in patients with PNES compared to healthy individuals, which were associated with greater psychological distress and reduced mental health functioning. These findings seem to support the face validity of the EPS-25 as a measure for PNES patients and its potential as a tool to assess the effectiveness of psychological interventions.

Keywords: Avoidance, Dissociative disorder, Emotion processing, Health-related quality of life, Non-epileptic seizures, Somatic symptoms

INTRODUCTION

Psychogenic non-epileptic seizures (PNES) are episodes of alteration of consciousness and disturbance of sensory, motor, autonomic or cognitive functions that superficially resemble epileptic seizures. They are not caused by abnormal electrical discharges in the brain but are thought to represent an experiential and behavioural response to psychological distress perceived by patients as involuntary [1]. Most fulfil the diagnostic criteria of a conversion or somatic symptom disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [2] or of dissociative convulsions in the International Classification of Diseases (ICD-10) [3].

Within the current bio-psycho-social model, PNES are explained as resulting from the interaction of multiple predisposing, precipitating and perpetuating factors, including a dysfunctional family environment, childhood abuse or other traumatic experiences [1]. The association with early life adversity and traumatic experiences means that PNES could be linked to abnormal emotion processing [4]. Emotion processing can broadly be defined as the way in which individuals process and absorb emotional disturbances associated with adverse life events [5, 6]. Emotion processing is multifaceted, and there has been considerable ambiguity in the conceptualisation of its association to related constructs such as emotion regulation, emotion expressiveness, emotion intelligence, emotion control or alexithymia [7, 8]. In particular, there seems to be an overlap between the concepts of emotion regulation, described as "the processes responsible for the monitoring, evaluating, and modifying of emotional reactions to accomplish one's goals" [9], alexithymia or difficulties in understanding and expressing emotions [10] and emotion processing.

Baker et al. [7] developed a model of emotion processing which integrates the different emotion-related concepts. According to this model, emotion processing consists of an input in the form of an event that is consciously or unconsciously registered, followed by rapid and unconscious appraisal of the event and subsequent emotional experience, which is central to the processing of emotion and includes awareness of emotions, experiencing emotions as psychological wholes, identifying and labelling of emotions and linking them to relevant causal events. The final output stage is an appropriate expression of emotions. Incomplete processing characterised by prolonged or excessive avoidance and/or inhibition of negative emotions can result in intrusive or obsessive thoughts, disturbances of behaviour and experience, and further prevents the integration and resolution of negative emotional experiences [7, 11]. Abnormal emotion processing has been associated with the development and maintenance of a number of psychological disorders, including Posttraumatic Stress Disorder [12], panic [6], depression [13] and psychosomatic conditions [14], such as fibromyalgia [15], chronic fatigue syndrome [16] and chronic pain [17].

An adapted form of this model has been applied to PNES, suggesting that PNES might actually be conceptualised as manifestations of abnormal emotion processing [11]. A number of experimental and self-report studies have investigated different concepts related to emotion processing in PNES and described abnormalities in relation to healthy controls, patients with epilepsy or healthy controls with a history of trauma [4, 18-22]. As PNES are characterised by a heterogeneous aetiology and comorbid psychopathology, the studies have also explored the possibility that there may be

several clinically distinct subpopulations of patients with PNES using cluster analysis [4, 20, 21]. The results suggest that there may be at least two clusters of PNES patients characterised by higher or lower levels of emotion dysregulation and higher or lower levels of abnormality in terms of psychopathology or personality profiles. These studies indicate that, while levels of emotion dysregulation may be higher in PNES than in the healthy population, the nature and extent of emotion dysregulation may depend on interactions with other psychological factors present in the disorder.

"Alexithymia" is one particular emotion-processing problem, which has been studied more extensively in patients with PNES: A recent study has found a 36.9% prevalence of alexithymia in patients with PNES. Alexithymia was associated with symptoms of psychological trauma, including intrusive experiences and defensive avoidance, and cynicism [23]. This corresponds with earlier findings of Tojek et al. who reported high alexithymia scores in approximately 30% of patients with PNES [24]. Bewley et al. found considerably higher levels of alexithymia in patients with PNES (90.5%); however, levels of alexithymia in that study did not differentiate between patients with PNES, patients with epilepsy and healthy controls when co-morbid anxiety and depression were accounted for [10].

Another specific aspect of emotion processing which has received particular attention in patients with PNES is avoidance (including avoidance of emotions). Several self-report and experimental studies have revealed evidence of increased levels of avoidance in patients with PNES and have demonstrated a positive correlation between avoidance and PNES frequency and a negative correlation between avoidance and Health Related Quality of Life (HRQoL) [25-29].

Given that PNES can be interpreted as an externalised form of abnormal emotion processing, there is a clear need for further research that would shed more light on emotion generation, perception, regulation and expression processes in patients with PNES as well as the interaction of emotion processing problems with other psychological factors. This exploratory study therefore aims to describe emotion processing styles of patients with PNES compared to healthy individuals, using the new Emotional Processing Scale (EPS-25) [30] developed on the basis of the integrative model of emotion processing described above, encompassing a broader range of different emotional processing deficits than other emotion scales. As a secondary aim, this study sought to explore the clinical utility of the EPS-25 as a measure to assess patients with PNES in the planning stage of therapeutic interventions or as a process measure before and after treatment.

METHODS

Subjects

Patients with PNES were recruited consecutively from those referred to the Neurology Psychotherapy Service at the Royal Hallamshire Hospital and Barnsley Hospital for psychotherapy. All patients had been diagnosed by experienced Consultant Neurologists with a specialist interest in seizure disorder based at the Sheffield Teaching Hospitals NHS Foundation Trust on the basis of all clinical information available (including video-EEG recordings of typical events in most cases). All patients provided written informed consent.

Demographic and Emotional Processing Scale (EPS-25) data from 224 healthy controls provided by the developers of the EPS were used for comparison [30, 31]. The healthy controls were recruited from a range of community sources and workplaces. They were matched in age and gender with the PNES group.

Design and Procedure

This is a prospective, cross-sectional study. The study has been approved by the Sheffield Local Research Ethics Committee on 1st May 2009. The study was undertaken at the Sheffield Teaching Hospitals NHS Foundation Trust Department of Neurology.

Information concerning the study was sent to patients when they were invited in for their initial assessment session with a psychotherapist. In the assessment session, patients were screened for serious psychiatric conditions, suicide risk and suitability for psychotherapy, the diagnosis of PNES was further explained, and they were introduced to a range of self-help strategies. They were also given another copy of the patient information form and invited to join the study at the end of the assessment session. Written informed consent was taken at this point. Patients who agreed to take part were asked to complete a set of self-report measures after this initial session but before their first therapy session (approximately three months after the initial assessment).

Measures

Demographic and referral questionnaires

Demographic and clinical information was collected on questionnaires completed by patients and the referring neurologists. The frequency of PNES was calculated as the number of attacks per month. In addition, given the non-normal distribution of the data, seizure frequency was further examined by categorising the data into four categories: (1) more than one seizure per year but less than one seizure per month, (2) more than one seizure per month but less than one seizure per week, (3) more than one seizure per week but less than one seizure per day, (4) more than one seizure per day but less than one seizure per hour, (5) more than one seizure per hour.

Clinical Outcome in Routine Evaluation (CORE-10)

The CORE-10 is a brief self-report questionnaire measuring global psychological distress, using ten items drawn from the 34-item CORE-OM (Outcome Measure) [32]. Each item is scored on a five-point scale ranging from 0 to 4 with higher scores indicating a greater level of distress. The CORE-OM has been validated in large clinical and non-clinical samples and correlates closely with different measures of psychological distress, including Beck Depression Inventory [33] and Beck Anxiety Inventory [34].

Response values of the ten items were added to produce a total clinical score (α = .915). For subjects with one item missing, the total score was computed as a mean of the completed items multiplied by the number of all items, as suggested by the user manual. Subjects with more than one item missing were excluded from the analyses (*N* = 2).

Short form-36 (SF-36)

The SF-36 is a 36-item self-report questionnaire providing one multi-item scale measure of eight areas of HRQoL: physical functioning, role limitation - physical, bodily pain, general health, vitality, social functioning, role limitation – emotional, and mental health. Items are scored on scales offering two to six answers.

Missing data were replaced by the mean of the completed data in the sub-scale, as recommended by the user manual [35]. Subjects with more than a half of the items on any sub-scale missing were excluded from the analyses (N = 1). The scores on the eight sub-scales were re-coded, standardised using norm-based scoring and combined into physical (PHS, α = .797) and mental (MHS, α = .780) health scales, following a previously described procedure [35, 36].

Patient Health Questionnaire (PHQ-15)

The PHQ-15 comprises 15 physical symptoms, extracted from the Patient Health Questionnaire, which forms part of the self-administered PRIME-ED diagnostic instrument for common mental disorders [37]. Symptoms over the last four weeks are rated on a three-point scale as 0 ('not bothered at all'), 1 ('bothered a little') or 2 ('bothered a lot') [38].

A total score is calculated as a sum of scores on the 15 items of the PHQ-15. There was a considerable number of missing data on item 4 in our sample (N missing = 11), addressing menstrual problems and item 11 (N missing = 6), addressing problems with sexual intercourse. As these questions may not have been applicable to a proportion of participants, the items were excluded. For the remaining 13 items, two or fewer missing data per subject were replaced by median scores (resulting total score α = .849).

Brief Illness Perception Questionnaire (BIPQ)

The BIPQ is a nine-item scale designed to assess the cognitive and emotional representations of illness. The nine items represent dimensions of illness perceptions including consequences, timeline, personal control, treatment control, identity, illness concern, coherence, emotional representation and perceived causes [39]. All items apart from item 9, which is an open-ended question, are scored on an eleven-point scale, ranging from 0 to 10.

The relevant items of the scale were reverse-coded and the eight items were added to produce total score representing the degree to which the condition is perceived as threatening (α = .732). For subjects with one item missing, the total score was computed as a mean of the completed items multiplied by the number of all items, as recommended by the scoring instructions. Subjects with more than one item missing were excluded from the analyses (N = 3).

Emotional Processing Scale (EPS-25)

The 25-item EPS is a self-administered questionnaire developed to identify and quantify different emotional processing styles and deficits [30, 31]. The scale has been derived from the 38-item EPS [7]. The EPS-25 contains five subscales: suppression, signs of unprocessed emotion, unregulated emotion, avoidance and impoverished emotional experience and it has been shown to have satisfactory reliability, test-retest reliability and to correlate well with the Toronto Alexithymia Scale (TAS-20) and the Courtauld Emotional Control Scale [7].

Responses of the PNES group to individual questions were combined into the five sub-scales and assessed for internal consistency reliability. The reliability of the subscales was acceptable to excellent (suppression α = .940, unprocessed emotion α = .926, unregulated emotion α = .746, avoidance α = .772 and impoverished emotional experience α = .865). The five sub-scales were combined into a total score (α = .921). Missing data on one item was replaced by the mean of the completed data in the sub-scale, as recommended in the Administrator's manual of the EPS [7, 31]. Subjects with more than one item missing were excluded from the analysis (*N* = 1).

Statistical analyses

Data were analysed using SPSS (version 19; SPSS Inc., Chicago, IL, U.S.A.). The Shapiro-Wilk test was carried out to assess the normality of the distribution of the data. The distributions of the scores on PHQ-15, MHC and PHS scale of the SF-36 as well as the compound EPS were found not to be normal. In view of this, non-parametric Spearman's correlational analyses were performed to examine possible relationships between emotional processing and the other self-report measures in the PNES group. To consider differences in emotional processing between the PNES patient group and healthy controls, Mann-Whitney *U*-Tests were performed.

In view of the fact that this is an exploratory study, no adjustments were made for multiple comparisons. Two-sided p-values of <0.05 were considered statistically significant.

RESULTS

Subjects

Of 55 patients with PNES recruited to this study, 50 (14% male) returned a complete set of questionnaires and were included in the analyses. Their responses on the EPS were compared to those from 224 (13.8% male) healthy controls. Subjects in the PNES group ranged in age from 17 – 74 years (median = 39, interquartile range = 24.00). The group of healthy controls ranged from 17 – 78 years (median = 32, interquartile range = 22.00). There was no significant difference in age or gender distribution between the two groups (*p* > .05).

Comparison of the PNES and healthy control groups

Comparisons of the measure of emotional processing (EPS) were made between patients with PNES (*N* = 49) and the healthy control group (*N* = 224).

The Mann-Whitney *U*-Test showed that the total EPS scores as well as all of the scores on the EPS sub-scales were significantly higher in the PNES group than in the healthy control group (Figure 1).

---Insert Figure 1 here---

Correlational analyses within the PNES group

Examination of the associations between the individual EPS subscales using Spearman's correlation showed significant positive moderate to high relationships between all of the EPS sub-scales (Table 1).

---Insert Table 1 here---

The relationships between seizure frequency and the EPS scores are detailed in Table 2. Only one subject fell in the categories 'more than one seizure per year but less than one seizure per month' and 'more than one seizure per hour'. These two extreme cases were excluded as outliers.

--Insert Table 2 here--

The differences in EPS scores between the remaining three seizure frequency categories were assessed using Kruskal-Wallis test. The only significant difference was found in the unregulated emotion sub-scale (X^2 = 6.04, p = .049).

Table 3 provides information about the scores of the 50 patients in the PNES group on the other self-report measures used in this study.

--Insert Table 3 here--

Given that all of the EPS sub-scales were significantly correlated with each other and with the total score, the associations of the EPS with the other self-report measures are only reported for the compound EPS score. Spearman's correlation showed a significant positive relationship between the compound EPS score (higher scores signify more dysfunctional emotion processing) and somatic symptoms as measured by the PHQ-15. The EPS was also correlated positively with psychological distress as measured by the CORE-10, and overall illness perceptions as measured by the BIPQ (reflecting a more threatening view of the illness).

There was a strongly negative correlation between the EPS and the Mental Health Scale but not the Physical Health Scale of the health-related quality of life measure (SF-36) (lower values on the SF-36 sub-scales indicate lower quality of life). For correlation coefficients see Table 4.

--Insert Table 4 here--

The patients with the lowest EPS scores in this study reported very low psychological distress, demonstrating their lack of insight into the aetiology of their seizures. All the patients were subsequently seen for psychotherapy by one of the authors (SH) who experienced most of this group as emotionally 'flat' and inaccessible rather than emotionally healthy. Indeed, the Administrator's Manual of the EPS [31] highlights that while high scores clearly indicate emotional processing deficits, significantly low scores should not imply healthy functioning, but may represent a poor understanding of one's emotional life. While there was no obvious single factor uniting this group, three of the ten lowest scorers were wheelchair-bound and seemed to have settled into a life of disability and dependence. Three of the group had suffered from frequent accidents affecting their mobility and periods of hospitalisation as children, which resulted in them receiving extra attention from their parents. In two of these cases PNES started immediately after their mobility had been restored. This may be an area that warrants further study.

DISCUSSION

This study was intended to increase our understanding of emotion processing in PNES patients using the EPS-25, a five-factor measure, which has been validated in patients with a range of physical health problems, mental health problems, and patients suffering from pain, including fibromyalgia, rheumatoid arthritis and chronic lower back pain [30] but has not previously been used in patients with PNES. This study showed that, compared to healthy individuals, people with PNES have greater deficits in all five dimensions of emotional processing described by the EPS. This indicates that, as a

group, patients with PNES have a strong tendency to suppress emotions and avoid situations that may evoke them. However, despite their best efforts, they experience emotions as overwhelming and uncontrollable at times. This suggests that it may be the fear of intolerable emotions that underlies the tendency to avoid experiencing and processing them, and conversely, that emotions that are not faced, recognised and processed may build up until they are uncontrollable. This is in keeping with the abnormal patterns of emotional experience and expression found by Roberts et al. as well as with the clinical experience of practitioners offering psychological treatment of PNES and previous studies demonstrating the importance of avoidance in this patient group [25-28].

Impaired emotion processing was highly correlated with greater levels of psychological distress measured by the CORE-10. This could reflect a reciprocally causative and reinforcing relationship between the two, whereby people experiencing high levels of emotional distress are more likely to have a tendency to avoid painful emotions, but therefore never develop the ability to alleviate the distress by processing their feelings.

The examination of the relationship between the EPS and the PHQ-15 showed that the impaired emotion processing in the PNES group was also associated with more severe somatic symptoms. In superficial contrast with this finding, deficits in emotion processing were associated with reduced HRQoL as measured by the mental health component but not the physical health component of the SF-36, i.e. subjects felt it was emotional rather than physical factors that impinged on their quality of life. This finding is in keeping with previous studies showing an association between emotional avoidance and reduced HRQoL [29].

The discrepancy between the correlation of impaired emotion processing with somatic symptoms and the lack of correlation with physical functioning could stem from the different types of physical difficulties that these two scales capture. While the PHQ-15 assesses more stress-related or autonomic symptoms such as pounding heart, tiredness, dizziness or pain that may be highly relevant to the experience of PNES, the physical functioning measured by the SF-36 is more focussed on mobility and physical activities such as walking, bending or bathing, which may not be the main source of disability in PNES patients. Patients with PNES may be more affected by subjective physical symptoms and by the emotional issues relating to their seizures than the absolute limitations of physical functioning they may cause.

Although emotion-processing problems were associated with a more threatening and pessimistic understanding of the symptoms as measured by the BIPQ, self-reported emotion processing deficits were not related to greater seizure frequency. Conversely, the unregulated emotions sub-scale of the EPS was associated with lower frequency of PNES. Unregulated emotions refers to the presence of powerful emotional feelings 'e.g. I felt the urge to smash something' and how much control is felt over the feelings. E.g. 'I reacted too much to what people said or did'. It is connected to problems in emotional expression. Those with the lowest frequency of seizures have a poorer (higher) EPS score, i.e. they have more powerful feelings, which they do not feel in control of. Conversely those with most seizures feel more control. This may suggest seizures operate as a method of dealing with powerful emotions and give the person a sense of greater control. This finding resonates with the results of a study by Dimaro et al., which compared explicit and implicit anxiety and self-esteem in patients with PNES, those with epilepsy and healthy controls [25]. Dimaro et al. found discrepancies between explicit and implicit anxiety and self-esteem measures in the PNES but not the other two

participant groups. They interpreted their findings as indicating that PNES may serve a protective function: whilst patients with PNES (explicitly) self-reported high levels of anxiety and low levels self-esteem, the Implicit Relational Assessment Procedure (IRAP) measures suggested that their self-image was not characterised by elevated anxiety or reduced self-esteem [25, 40].

Limitations

The cross-sectional design of this study means that it is not possible to draw any conclusive inferences about causality from the associations identified. There is a need for prospective studies to explore the associations further and to assess the sensitivity of this measure to change in this patient group.

There are limitations associated with the use of self-report measures, which can only measure explicitly recognised experiences rather than unconscious implicit experiences, which are not accessible to self-report. Discrepancies between explicit and implicit emotion awareness may well be particularly relevant in this patient group experiencing extreme abnormalities of emotional processing [11, 25].

PNES are a very heterogeneous disorder and it is possible that some of our unexpected findings are accounted for by a subgroup of PNES patients in this study who scored very low on the EPS. Low scores could be consistent with very good emotional adjustment but may reflect extreme limitations of self-reflective insight or reporting bias associated with particularly marked emotion processing problems. Ideally future studies using self-report measures should include the prospective collection of additional data (for instance physiological or implicit measures) to gain a better understanding of this issue.

It would also be of interest, in future studies, to compare emotion processing deficits in patients with PNES with those seen in patients with epilepsy, i.e. an pathogenetically different seizure disorder. Ideally such a study would subdifferentiate between patients with different types of epilepsy and include additional measures to exploring the aetiology of emotion processing deficits (which is likely to be different in PNES and epilepsy).

CONCLUSION

In conclusion, this study shows clear differences in emotion processing as represented by the EPS scores between patients with PNES and healthy controls. Impaired emotion processing in patients with PNES correlates highly with emotional distress, a negative view of their illness, and a greater number and severity of physical symptoms in addition to their seizures. Whilst emotion-processing deficits were strongly associated with reduced mental health functioning, there was no correlation between the overall degree of self-reported emotion processing abnormalities and PNES frequency or physical functional impairment. The findings suggest that in most cases it is the over-control rather than lack of control of emotions that is associated with physical symptomatology.

Whilst there are clear differences in EPS scores between patients with PNES and healthy controls and whilst the positive correlations with measures of distress and the negative correlations with the mental health component of the HRQoL measure used in this study support the face validity of the EPS as a measure in this patient group, this cross-sectional study cannot determine whether the EPS provides much additional information about patients with PNES. However, given that all recently

described psychotherapies for PNES specifically target emotion processing as an area for improvement [41], the EPS could provide a useful tool for the effectiveness of psychological intervention.
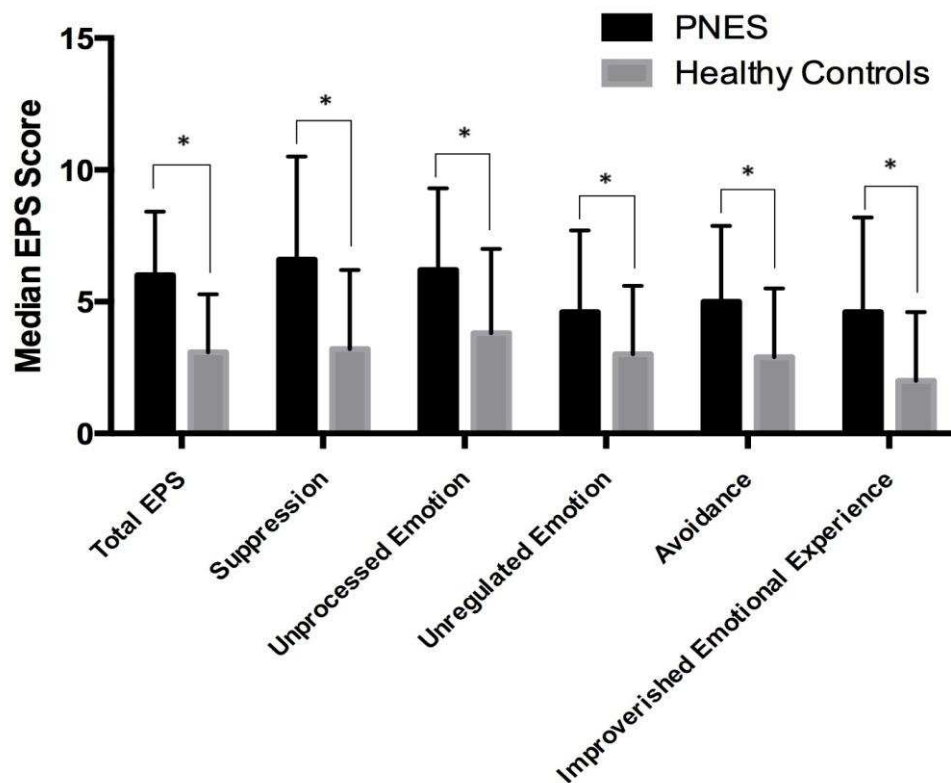
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Figures

Figure 1. *Significant differences between the PNES and healthy control group in the median values of the total EPS scores and scores on the five EPS sub-scales (*differences are significant at p<0.001)*

Tables

Table 1. *Correlation matrix of the EPS sub-scales in PNES*

		1	2	3	4	5	6
1	Suppression						
2	Unprocessed Emotion	.627*					
3	Unregulated Emotion	.424*	.733*				
4	Avoidance	.588*	.709*	.681*			
5	Impoverished Emotional Experience	.693*	.661*	.562*	.638*		
6	Total EPS	.789*	.853*	.779*	.819*	.848*	

Note. * Correlation is significant at the 0.01 level.

Table 2. *Median EPS scores in the different seizure frequency categories*

	Seizure Category			P-values
	More than 1 seizure/month but less than 1 seizure/week M (IQR)	More than 1 seizure/week but less than 1 seizure/day M (IQR)	More than 1 seizure/day but less than 1 seizure/hour M (IQR)	
N	15	15	12	
Suppression	7.2 (3.00)	5.80 (6.60)	7.30 (2.70)	*n.s.*
Unprocessed Emotion	6.4 (2.20)	5.00 (6.80)	6.70 (2.35)	*n.s.*
Unregulated Emotion	5.60 (2.60)	4.40 (5.00)	3.80 (1.45)	*.049*
Avoidance	6.40 (3.40)	4.80 (3.40)	6.20 (2.25)	*n.s.*
Impoverished Emotional Experience	5.00 (3.00)	3.80 (5.40)	5.20 (3.40)	*n.s.*
Total EPS	6.12 (2.16)	4.32 (5.70)	6.20 (1.91)	*n.s.*

Note. M = median, IQR = interquartile range.

Table 3. *Median values and interquartile ranges of the outcome measures including somatic symptom severity (PHQ-15), health-related quality of life (SF-36), psychological distress (CORE-10), illness perceptions (BIPQ) and seizure frequency in the PNES group.*

Outcome Measure	N	M	IQR
PHQ-15	50	13.00	11.25
SF - 36			
Physical Health Scale	49	31.98	15.99
Mental Health Scale	49	30.28	16.75
CORE-10	48	20.50	14.50
BIPQ	47	52.00	17.00
Seizure Frequency (attacks/month)	45	8.00	27.25

Note. *N* = number of subjects; *M* = median; *IQR* = interquartile range. Variation in sample sizes indicates missing data for certain variables.

	EPS	PHQ-15	CORE-10	BIPQ	SF-36 MHS	SF-36 PHS
EPS						
PHQ-15	.473*					
CORE-10	.723*	.591*				
BIPQ	.475*	.582*	.723*			
SF-36 MHS	-.702*	-.478*	-.809*	-.697*		
SF-36 PHS	-0.088	-.476*	-0.085	-.442*	0.031	

Table 4. *Correlation matrix showing the correlations between the compound EPS score and the other scales, including the PHQ-15, CORE-10, BIPQ, and the MHS and PHS summary sub-scales of the SF-36.*

Note. * Correlation is significant at the 0.01 level.