

# Psychiatric disease in patients with psychogenic non-epileptic seizures referred from an epilepsy unit in a general hospital

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**Patología psiquiátrica en pacientes con crisis no epilépticas psicogénicas derivados a una unidad de epilepsia en un hospital general**

## Summary

**Introduction.** We evaluate psychiatric disease associated with psychogenic non-epileptic seizures (PNES) and study the role played by previous traumatic experiences, dissociative episodes and personality disorders.

**Method.** After diagnosing PNES in our epilepsy unit, we obtained a sample of 46 patients and carried out a structured psychiatric interview (SCID) following DSM-III-R criteria. We looked for previous dissociative episodes and prepared a questionnaire for traumatic experiences and basic clinical data.

**Results.** The most frequent psychiatric disorders were depression, anxiety and somatoform disorders. Personality disorders were found in 16 patients (34.78%), dissociative episodes in 17 (36.95%), and previous traumatic experiences in 14 (30.43%). No statistically significant differences were found in regards to PNES, with respect to presence or absence of previous traumatic experiences, dissociative episodes, and personality disorders.

**Conclusions.** As in previous studies, our research project confirms the co-existence of PNES with other mental disorders, and although we do find a higher frequency of seizures, the role played by traumatic experiences and dissociative disorders in CNEP remains unclear.

**Key words:** Psychogenic non-epileptic seizures. Psychiatric disorders. Dissociative disorders. Traumatic experiences.

## Resumen

**Introducción.** Se evalúa la patología psiquiátrica que acompaña a las crisis no epilépticas psicógenas (CNEP) y se estudia el papel que desempeñan en ellas las experiencias traumáticas previas, los episodios disociativos y los trastornos de la personalidad.

**Método.** Después del diagnóstico de CNEP en la Unidad de Epilepsia de nuestro centro se realizó en una muestra de 46 pacientes una entrevista psiquiátrica estructurada siguiendo criterios DSM-III-R (SCID). Se evaluó la existencia de episodios disociativos siguiendo criterios DSM-IV, y para las experiencias traumáticas y los datos clínicos de interés se confeccionó un cuestionario ad hoc.

**Resultados.** Los trastornos psiquiátricos más frecuentes fueron los estados depresivos, los de ansiedad y los somatomorfos. Presentaban trastornos de la personalidad 16 pacientes (34,78%), fenómenos disociativos 17 pacientes (36,95%) y 14 pacientes (30,43%) antecedentes de experiencias traumáticas. No se observaron diferencias estadísticamente significativas en relación con las CNEP, respecto a la presencia o ausencia de experiencias traumáticas previas, trastornos disociativos o trastornos de la personalidad.

**Conclusiones.** Como en trabajos previos, en nuestro estudio se confirma la existencia de una gran comorbilidad psiquiátrica en relación con las CNEP, y aunque asociadas a la presencia de un mayor número de crisis, el papel que tienen las experiencias traumáticas y los trastornos disociativos en relación con las CNEP permanece poco claro.

**Palabras clave:** Crisis no epilépticas psicógenas. Trastornos psiquiátricos. Trastornos disociativos. Experiencias traumáticas.

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## INTRODUCTION

Psychogenic non-epileptic seizures (PNES) are sudden changes in behavior that are similar to epileptic seizures, but without organic cause<sup>1</sup>.

Its main difference with epilepsy is absence of electrophysiological changes that accompany epileptic seizures and that may be detected by video-EEG study during the seizures<sup>2</sup>.

Psychogenic non-epileptic seizures account for 17 % to 30 % of the population seen in third level hospital epilepsy units to assess drug treatment resistant seizures<sup>3,4</sup> and most of them are conversion seizures<sup>5</sup>. On the other hand, it has been observed that 10.7 % of the patients with PNES also show epileptic seizures<sup>6,7</sup>.

Patients with PNES are women in 75-99 % of the cases<sup>8,1</sup>, and onset age of the seizures is at about 20-30 years<sup>9,10</sup>, while the patients are generally diagnosed 7.79 years after the onset of the seizures<sup>10</sup>.

High prevalence of multiple psychiatric disorders over a lifetime has been found in patients with PNES, and the simultaneous presence of two or more psychiatric diagnoses has even been observed in 70 % of the patients<sup>11</sup>. Mood state disorders reach 64 %, substance abuse disorders 42 %, post-traumatic stress disorder (PTSD) 49 %, other anxiety disorders reach 47 %, and dissociative disorders appear in 91 % of these patients in isolated studies<sup>1</sup>, while they do not exist in most of the series of patients with PNES<sup>12</sup>.

Presence of personality disorders in patients with PNES according to the series ranges from 30 to 50 %, the most frequent being borderline personality and histrionic disorders<sup>1,13</sup>.

Patients with PNES usually present more background of traumatic experiences than the general population<sup>14</sup>, with values that range from 84 % in patients with PNES who report having suffered traumatic experiences during their childhood or adolescence<sup>1</sup> to 44 % in other more recent studies<sup>15</sup>.

Up to now, an attempt has been made to create an explanatory hypothesis on this complex psychoneurobiological phenomenon based on the different existing clinical data. In this way, and based on the relationship found between the PNES, traumatic experiences (especially sexual abuse) and dissociative disorders, the existence of an interconnected disease spectrum made up of disorders by somatization, conversion states and dissociative episodes<sup>1</sup> that make up a range of pathological responses to the requirements of the setting, that is somatic and psychic manifestations secondary to intense emotional malaise, as occurs when faced with the experience of previous traumatic experiences has been proposed.

The present study objectives are: *a)* assess the presence of psychiatric disorders in a Spanish sample of patients with PNES and *b)* analyze the relationship between traumatic experiences and presentation of PNES, between the dissociative symptoms and the PNES and between the personality disorders and PNES.

## METHOD

### Subjects

A group of 46 patients who came to the Hospital Clínic of Barcelona between March 1996 and January 2002 were studied. The patients were diagnosed of

PNES in the Neurology Service Epilepsy Unit and then referred to the Psychiatry Service. The inclusion criteria were the following: *a)* presence of non-epileptic seizures verified by Video EEG (64-channel video-EEG, BMSI 5000 Nicolett, Madison «Wisconsin») after the family verifies, once they have seen the video of the seizures, that these episodes are the same that the patient experiences; *b)* absence of neurological disease, including epilepsy, and *c)* age between 18 and 65 years.

These criteria have led to the exclusion of six patients who comorbidly present epilepsy and PNES.

## Method

Once PNES was diagnosed by the Neurology Service, the diagnosis was reported to the patients and their family with the steps proposed by Shen and his group<sup>16</sup> and then the patient was referred to the Psychiatry Service.

In the Psychiatry Service, the «Structured clinical interview for DSM-III-R» (SCID-III R)<sup>17</sup> was administered. This is an instrument that examines all the diagnostic criteria of mental disorders included in the «Diagnostic and statistical manual of mental disorders. Revised third edition» (DSM-III-R)<sup>18</sup> both for mental diseases (axis I) as well as personality disorders (axis II), in order to obtain data on the past and present psychiatric background of the patient. Sociodemographic data collecting, frequency of seizures and background of traumatic experiences were systematized with a questionnaire designed for this objective (table 1).

For diagnosis and typifying of PNES and assessment of dissociative disorders or symptoms, clinical criteria were used from the last edition of the «Diagnostic and Statistical Manual of Mental Disorders» (DSM-IV)<sup>19</sup> and the definition of perceptive alterations that are perceived within the person for the pseudohallucination phenomenon<sup>20</sup>.

## Statistical analysis

Psychometric and epidemiological clinical data were analyzed by descriptive statistics: using the calculation of the mean and standard deviation for the quantitative analysis and the calculation of percentages for frequencies. Comparative studies were also performed between quantitative variables with the Student's *t* test for independent samples and Chi squared for dichotomic variables.

## RESULTS

The sample was formed by 46 patients who presented PNES. Their sociodemographic and clinical characteristics are detailed in table 2.

Table 3 shows the diagnoses that these patients had received in other centers, prior to reaching our Epilepsy

**TABLE 1. Data sheet of patient with PNES***Case No.*

Name:

Gender:

Birth date:

Civil status:

Academic level:

Present work occupation:

Date of 1<sup>st</sup> interview:*Traumatic experiences*

Sexual abuse

Yes No

Physical ill-treatment

Yes No

Other traumatic experiences

Yes No

First degree family psychiatric background

Yes No

*Clinical data*

Onset age of seizure:

Frequency since onset:

Frequency last 6 months:

No. of admissions in Neurology unit:

No. of admissions in Psychiatry unit:

Previous treatments

AE BZD or AD AE + (BZD or AD)

*Diagnosis (previous reports)*

1. Psychiatric:

2. Neurologic:

*Diagnosis (SCID-III-R)*

1. Diagnosis «over lifetime»

Axis I:

2. Present diagnosis (last month)

Axis I:

Axis II:

*Dissociative phenomena (DSM-IV)*

Dissociative fugue

Yes No

Dissociative amnesia

Yes No

Dissociative identity disorder

Yes No

Non-specific dissociative disorder

Yes No

*Dissociative phenomena not included in DSM-IV*

Pseudohallucinations

Yes No

AE: antiepileptics; BZD: benzodiazepines; AD: antidepressants.

Unit. All of the sample had been diagnosed of epilepsy previously and only 54.34 % had psychiatric backgrounds in previous reports.

Table 4 shows the past and present psychiatric diagnoses of the 46 patients using the SCID-III-R clinical interview. It was observed that besides the PNES that fulfilled conversion disorder criteria presented by all the patients, 37 % (n = 17) of the patients had another comorbid

**TABLE 2. Sociodemographic and clinical characteristics of 46 patients with non-epileptic conversion seizures**

Variables sociodemographic	Frequencies	
	N	%
<b>Gender</b>		
Man	10	21.7
Woman	36	78.3
<b>Civil status</b>		
Single	18	39.1
Married	25	55.6
Divorced	2	4.3
<b>Academic level</b>		
Without studies	10	24
Primary	24	52.2
Secondary-University	11	23.8
<b>Work situation</b>		
Active	12	26.1
Unemployed or pensioner	17	37
Has never worked	17	37
<b>Clinical</b>		
Family psychiatric background	19	41.3
Previous treatment		
Only AE	22	47.83
BZD or AD	7	15.22
AE + (BZD or AD)	17	36.95
	MEAN	SD
Present age	37.39	13.68
Age of onset of seizures	29.25	13.78
Years of evolution	8.65	8.97
No. of seizures at onset (per month)	35.40	136.71
No. of seizures last 6 months (per month)	16.65	67.55
Admissions to Neurology Service	1.89	2.68
Admissions to Psychiatry Service	0.29	0.6

AE: antiepileptics; BZD: benzodiazepines; AD: antidepressants.

psychiatric diagnosis, 21.7 % (n = 10) had two other psychiatric diagnoses besides conversion disorder and 6.5 % (n = 3) of the sample showed up to three psychiatric diagnosis in addition to that of the inclusion one. Furthermore, 16 patients (34.78%) presented personality disorders.

Seventeen (17) patients (36.95%) of all the sample showed dissociative phenomena at the moment of the evaluation or had presented them in the past. Of these, eight (17.4%) had presented pseudohallucination type perceptual phenomena, three patients (6.5%) had presented some episode of dissociative fugue, two patients (4.3 %) had suffered some episode of dissociative amnesia and four patients (8.7 %) had dissociative symptoms that did not fulfill criteria of a specific dissociative disorder.

A total of 30.43 % of the patients (n = 14) had a background of traumatic experiences, Five of them had experiences of ill-treatment, three had a background of

**TABLE 3. Diagnoses received by the 46 patients with psychogenic no-epileptic seizures prior to reaching our center**

	<i>N</i>	%
<b>Psychiatric diagnosis</b>	<b>25</b>	<b>54.3</b>
Mood state disorders	15	32.61
Anxiety disorders	4	8.69
Somatoform disorders	1	2.17
Adaptative disorders	1	2.17
Conversion disorder	2	4.35
Substance disorders	1	2.17
Personality disorder (axis II)	1	2.17
<b>Epilepsy</b>	<b>46</b>	<b>100</b>
With seizures having localized presentation	16	34.78
With simple partial seizures	3	6.52
With complex partial seizures	8	17.39
Generalized epilepsy	7	15.22
«Grand mal» seizures	8	17.39
«Petit mal» seizures	4	8.69

sexual abuse, and six had other types of traumatic experiences.

Two important variables of the present status of the patients were established. They included clinical and socioenvironmental aspects: number of axis I diagnoses and frequency of seizures in the 6 months prior to the evaluation. When they were compared with three important characteristics of the clinical background of these patients, that have been considered noteworthy and have been frequently mentioned in previous studies on this type of patients, it was observed that there were no significant differences, although there was a clear tendency to greater manifestation of seizures in the 6 months prior to the diagnosis in patients with traumatic experiences or dissociative symptoms (table 5). On the other hand, no association was found between previous traumatic background and existence of dissociative phenomena.

## DISCUSSION

One of the most interesting findings in our study is the corroboration that this type of patients is very difficult to

**TABLE 4. Psychiatric diagnosis of 46 patients of the study performed with the structured clinical interview for DSM-III-R (SCID)**

	<i>Present diagnoses</i>		<i>Diagnoses over life time</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
<b>Mood state disorders</b>	<b>20</b>	<b>43.47</b>	<b>15</b>	<b>32.6</b>
Major depressive disorder	10	21.74	9	19.56
Bipolar disorder	1	2.17	1	2.17
Dysthymia	9	19.56	5	10.87
<b>Anxiety disorders</b>	<b>9</b>	<b>19.55</b>	<b>4</b>	<b>8.7</b>
Panic disorder	3	6.52	2	4.35
Agoraphobia	1	2.17		
Specific phobias	1	2.17		
Generalized anxiety disorder	3	6.52		
Non-specified anxiety disorder	1	2.17	2	4.35
<b>Somatoform disorders</b>	<b>8</b>	<b>17.39</b>	<b>1</b>	<b>2.17</b>
Hypochondria	1	2.17	1	2.17
Somatization disorder	7	15.22		
<b>Adaptative disorders</b>	<b>4</b>	<b>8.69</b>	<b>1</b>	<b>2.17</b>
Adaptative disorders with depressed mood state	1	2.17		
Adaptative disorders with anxiety	1	2.17	1	2.17
Mixed adaptive disorders. with depressed mood state and anxiety	2	4.35		
<b>Substance disorders</b>	<b>1</b>	<b>2.17</b>	<b>1</b>	<b>2.17</b>
Alcohol dependence	1	2.17	1	2.17
<b>Personality disorders (axis II)</b>	<b>16</b>	<b>34.78</b>		
Paranoid personality disorder	1	2.17		
Histrionic personality disorder	8	17.39		
Dependent personality disorder	3	6.52		
Bordeline personality disorder	2	4.35		



**TABLE 5. Number of axis I diagnosis and frequency of seizures in last 6 months, in relationship with the presence of traumatic experiences, dissociative symptoms and personality disorders**

		<i>Number of diagnoses</i>	<i>Frequency of seizures last 6 months</i>
Traumatic experiences	Yes	2 (0.88)	37.55 (119)
	No	2 (0.95)	6.9 (10.26)
Dissociative symptoms	Yes	1.94 (0.97)	35.07 (111.0)
	No	2.03 (0.91)	6.13 (10.27)
Personality disorders	Yes	1.68 (0.70)	5.61 (8.32)
	No	2.17 (0.98)	22.96 (84.35)

\* Comparison in which statistically significant differences appear ( $p < 0.05$ ).

diagnose, which favors the delay of correct treatment. In this sense, we have verified that evolution time from onset of the seizures to diagnosis, in our study from 8 to 9 years, coincides with previous studies<sup>10</sup>.

Other data that indicate the difficulty of reaching a correct diagnosis are the therapeutic approaches developed on these patients. Thus, all of the patients had been treated with antiepileptics without having epilepsy. On the other hand, in spite of being patients diagnosed of epilepsy who did not respond to treatment, 15 % of the patients only received antidepressants and/or anxiolytics at some point in their life. From another perspective of analysis of the therapy used, we observe that the patients continued to present emotional disorders and seizures in spite of being patients with a status of neurological patient, of also having high psychiatric comorbidity and of being chronically treated with antiepileptics and antidepressants-anxiolytics. Finally, the hospital therapeutic resource denotes an erroneous diagnostic approach, since most of the admissions were made in the Neurology units when it would have been appropriate to do so in Psychiatric Units.

The reason that it is important to have an early correct diagnostic and therapeutic approach in these patients is because, in this way, progressive clinical deterioration would be avoided, that is expressed by the high incidence of patients with incapacity for work activity and elevated comorbidity of psychiatric disorders, including personality disorders<sup>1</sup>. Furthermore, delay in diagnosing the seizure type and its correct treatment implies chronification of the disorder and a high cost for the health system due to the high number of admissions of the patients in the Neurology Services<sup>12</sup>.

In our study, in line with previous studies<sup>14</sup>, most of the subjects were women. Onset age of 29 years, very similar to the 30 years of onset age in other series<sup>9</sup>, is almost twice the mean onset age of epileptic seizures, that is found at about 15 years<sup>15</sup>. Thus, late onset age may be a clinical factor to consider as an indicator of psychogenic non-epileptic seizures.

On the other hand, in our sample, it is seen that comorbid psychiatric disease is abundant in patients with

PNES, the most frequent disease being that of mood state disorders followed by anxiety disorders, as in other studies<sup>1,6,20</sup>. However, our study did not obtain such a high prevalence of dissociative disorders as the Bowman et al. study<sup>1</sup>. This may be due to the differences in the methodology used or in the selection criteria, since Bowman<sup>1</sup> used the «Structured clinical interview for DSM-IV, dissociative disorders (SCID-D)» (SCID-D)<sup>22</sup>, while we only followed the DSM-IV clinical criteria, performing a less systematic analysis of these symptoms. Bowman and Coons<sup>23</sup> stress the difficulty to make the differential diagnosis between PNES and the dissociative symptoms-disorders and base it on the elevated comorbidity of both disorders and on the difficulty for its correct discrimination because the symptoms of both overlap in many cases. These factors could also collaborate in the absence of differences found between our two groups of patients with PNES based on the presence or non-presence of dissociative episodes.

In our study, 34.78 % of the patient presented personality disorders and, as in previous studies<sup>1</sup>, the most frequent one was histrionic disorder followed by personality borderline disorder. In another study, it was found that 70 % of the sample presented personality disorders<sup>11</sup>, however such a high rate could be a bias that is surely due to the reduced size of this sample. However, our data are similar to those of the Arnold et al. study<sup>24</sup> that reported rates of 36 % and 30 % obtained in the meta-analysis on 15 studies by Bowman<sup>12</sup>.

The rate of traumatic experience background in our sample was 30.43 %, somewhat greater than 26.6 % of previous studies<sup>11</sup>, but much less than that found in other studies that go from 67<sup>1</sup> to 86 %<sup>20</sup>. On the other hand, our data would be similar to the Tojeck et al. results<sup>15</sup>, in which 44 % of the patients with PNES had suffered traumatic experiences. The low frequency of traumatic background in our sample could be related with the type of population selected, as will be seen later on. On the other hand, some authors give special importance to the presence of stressing events over the lifetime, whatever they are, above all in childhood and adolescence, because these patients consider the negative vital events more stressing than the general population<sup>15</sup>. This could explain why no significant differences are found between the patients with or without traumatic experiences within the PNES patient group, since the way they suffer many of the situations, that are really not traumatic but are dealt with as if they were, would play a role of a stimulus that generates stress and of the alteration of neurobiological homeostasis in these patients, with the same intensity as that caused by sexual abuses or other traumatic well typified traumatic experiences and that are mentioned in most of the studies on PNES<sup>1</sup>.

In our sample, there was no patient with «post-traumatic stress disorder» (PTSD) while rates going from 36<sup>24</sup> to 49 % were found in other studies<sup>1</sup>, these prevalences being in the upper limit of those observed in the risk individuals, that go from 3 to 58 %<sup>19</sup>, and very far from the overall prevalence of PTSD that ranges from 1%-14 %<sup>19</sup>. In

so far as our sample comes from the general Spanish population, specifically from Catalonia, and is not subjected to highly stressing events as occurs in other latitudes, we believe that the absence of this diagnosis between the psychiatric background of our patients is reasonable.

In summary, we can say that patients with conversion PNES are a clinically serious population that are difficult to diagnose and thus have a long evolution until the onset of effective treatment, which causes important alterations in mental health and in the main standards that mark an acceptable quality of life.

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