

# Patients with coexistent psychogenic pseudoepileptic and epileptic seizures: a psychological profile

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Despite significant advances in epileptology, the differential diagnosis of epileptic and pseudoepileptic seizures continues to be a considerable challenge. The problem becomes even more complicated when epileptic and psychogenic pseudoepileptic seizures coexist in the same patient. Appropriate psychological measures may be helpful in the diagnosis and may improve knowledge about aetiological factors which can provoke psychogenic pseudoepileptic seizures. The purpose of this paper is to present the psychological profile of patients with mixed seizures (epileptic and psychogenic pseudoepileptic) developed on the basis of the Minnesota Multiphasic Personality Inventory (MMPI) and to discuss the personality differences between patients with psychogenic epileptic seizures and epileptic patients. In patients with diagnosed epilepsy and/or suspected psychogenic pseudoepileptic seizures long-term video-monitoring was performed. On the basis of the gathered data the patients were divided into three groups: group I ( $N = 32$ : 25 F and 7 M) had coexistent psychogenic pseudoepileptic and epileptic seizures, group II ( $N = 38$ : 30 F and 8 M) had psychogenic pseudoepileptic seizures only and group III ( $N = 36$ : 18 F and 8 M) had epileptic seizures only and was treated as the control group. All three groups were given the MMPI. Comparison of the averaged personality profiles of the three groups revealed significant differences ( $P < 0.0001$ ) in hypochondriasis (Hs) and hysteria (Hy), similarity of the profiles of groups I and II, and significantly higher Hs and Hy scores than D (Depression) scores ( $P < 0.001$ ). Unlike groups I and II, group III (the epileptic group) had significantly higher D scores than Hs and Hy scores ( $P < 0.01$ ). Our findings suggest that conversion, manifested in the typically elevated Hs and Hy scores as compared to D scores, is present in both groups of patients demonstrating pseudoepileptic seizures but absent in the patients with epilepsy where the Hs and Hy to D ratio is reversed. Patients with mixed seizures and patients with psychogenic pseudoepileptic seizures only have similarly shaped profiles.

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## INTRODUCTION

From 5 to 33% of all patients referred for epilepsy actually suffer from psychogenic pseudoepileptic seizures<sup>1–5</sup>. Psychogenic pseudoepileptic seizures are frequently misdiagnosed as epileptic seizures and some patients with psychogenic pseudoepileptic seizures may be given antiepileptic therapy, including new-generation AEDs.

Even greater diagnostic problems emerge when psychogenic pseudoepileptic and epileptic seizures coexist in one and the same patient<sup>6–9</sup>. A recent study in Iceland<sup>10</sup> has reported psychogenic pseudoepileptic seizures in 4% of the adult population (>15 years of age). In one half of these patients pseudoepileptic seizures coincided with epileptic seizures. A review of the patients admitted to the Department of Neurology

and Epileptology in Warsaw between 1990 and 1997 revealed that 3.2% of them suffered from this dual condition<sup>11</sup>.

Researchers in this field agree that the problem of psychogenic pseudoepileptic seizures is extremely complex and far from resolved<sup>12–14</sup>. Psychological criteria for the differential diagnosis of seizures are lacking, both in the literature and in clinical practice. Such criteria should encompass both psychopathological and social aspects of the problem. Several studies involving psychological testing have been published within the last decade<sup>15–17</sup>. These studies suggest a number of significant differences between the personality profiles of epileptic patients and patients suffering from psychogenic pseudoepileptic seizures<sup>15</sup>. We have found no reports to date of studies involving patients in whom both types of seizures

coexist. Perhaps a closer look at the personalities of these patients will provide some insight into the mechanisms and incidence of psychogenic pseudoepileptic seizures.

## OBJECTIVE

The purpose of our study was to obtain personality profiles, based on Minnesota Multiphasic Personality Inventory (MMPI) scores, of patients with coexisting epileptic and psychogenic pseudoepileptic seizures and to see whether there are any differences in the average profiles of patients with mixed conditions and patients with either some form of epileptic seizures or psychogenic pseudoepileptic seizures only.

## MATERIAL AND METHODS

### Subjects

The subjects were patients admitted to the Department of Neurology and Epileptology of the Medical Centre for Postgraduate Education, Warsaw between 1992 and 1998 with diagnosed epilepsy and/or suspected psychogenic pseudoepileptic seizures. The patients were interviewed and long-term EEG video monitoring was performed. They were then divided, on the basis of their results, into two groups: one with both epileptic seizures and psychogenic pseudoepileptic seizures ( $N = 32$ ; 25 F and 7 M) and a second one with psychogenic pseudoepileptic seizures only ( $N = 38$ ; 30 F and 8 M). A third, control, group ( $N = 36$ ; 28 F and 8 M), suffering from epileptic seizures only and matched with the two remaining groups for sex, age and intelligence, was further selected.

The mean age of the subjects was 25.6. All patients had normal intelligence ( $M = 107.4$ ,  $SD = 11$ ) and the groups were balanced for level of intelligence.

### Video EEG monitoring

All patients were submitted to standard EEG monitoring (International 10–20 System) and to long-term (24 hour) video EEG monitoring (Glonner System) where, parallel to the EEG monitoring, all epileptic and pseudoepileptic seizures were registered synchronically on video tape.

The following diagnostic criteria were used to distinguish between psychogenic pseudoepileptic seizures and epileptic seizures: no changes in EEG-recordings during and after seizures, as compared to interictal recordings, presence of alpha rhythm during demonstrated disturbances of consciousness

and no changes in EEG recordings following sleep deprivation. Additional criteria such as duration of the episode, departure of the observed episode from familiar forms of epileptic seizures, suggestiveness, lack of any correlation between seizure frequency and antiepileptic treatment, theatrical nature of seizures and their situational specificity, and the nonstereotypic nature of the episode were also taken into account.

### Frequency and type of seizures

In groups I and II more than one half of the patients had psychogenic pseudoepileptic seizures more than once a week (cf. Table 1).

Table 1: Frequency of psychogenic pseudoepileptic seizures in groups I and II.

Frequency	Group I	Group II
>1 per week	21	22
1–4 per month	10	13
<1 per month	1	3

In groups I and III, on the other hand, more than one half of the patients had epileptic seizures less frequently than once a month (cf. Table 2).

Table 2: Frequency of epileptic seizures in groups I and III.

Frequency	Group I	Group III
>1 per week	0	0
1–4 per month	12	14
<1 per month	20	22

As far as clinical symptomatology is concerned, the psychogenic pseudoepileptic seizures we managed to record can be divided into three basic classes: seizures with motor components (imitating tonic-clonic seizures), seizures with poorly demonstrated motor components but involving sensory and vegetative sensations and poor response to stimulus input (imitating partial simple, partial complex or myoclonic seizures) and seizures accompanied by complete lack of response to sensory input and stupor. Five patients demonstrated more than one form of psychogenic seizure—four patients in group I and one patient in group II (cf. Table 3).

Table 3: Observed forms of psychogenic pseudoepileptic seizures.

	Group I	Group II
Imitating partial simple seizures	1	3
Imitating complex seizures	13	3
Imitating tonic-clonic seizures	15	22
Imitating partial complex seizures	1	3
Imitating myoclonic seizures	2	2
Stupor	4	5
Stupor + tonic-clonic seizures	0	1

Table 4: Forms of epileptic seizures in groups I and III.

	Group I	Group III
Partial complex	5	7
Secondary generalized tonic-clonic	12	10
Absence	1	0
Partial + secondary generalized tonic-clonic	14	19

Secondary generalized tonic-clonic seizures were the dominant form of seizure in the two groups suffering from epileptic seizures. Two different forms of seizures were observed in 14 patients in group I and 19 patients in group III (cf. Table 4).

In 21 patients in group I the psychogenic seizures resembled their typical epileptic seizures. In the remaining 11 patients the psychogenic seizures were of a different type than the epileptic seizures.

#### MMPI administration and statistical analysis

All the patients in our study were given the MMPI. The final analysis was based on MMPI 6.0 © MBM, developed by Hathaway and McKinley, 1998. Differences between the clinical profiles of the three groups were assessed by means of MANOVA (with Scheffe contrasts).

#### RESULTS

The averaged MMPI profiles for the three groups are presented in Fig. 1 and mean values of hypochondriasis (Hs), depression (D) and hysteria (Hy) and standard deviation are presented in Table 5. All three groups differed significantly with respect to hypochondriasis ( $F = 35.11$ ;  $P < 0.0001$ ) and hysteria ( $F = 28.16$ ;  $P < 0.0001$ ). No significant differences between groups emerged for the remaining personality dimensions.

Table 5: Mean values and standard deviation of hypochondriasis, depression and hysteria dimensions in three study groups.

	Hypochondriasis (Hs)	Depression (D)	Hysteria (Hy)
	Mean (SD)	Mean (SD)	Mean (SD)
Group I	61.6 (8.4)	54.3 (11.3)	61.7 (10.2)
Group II	69.8 (10.6)	60.0 (11.8)	70.3 (9.4)
Group III	50.3 (7.7)	58.1 (12.7)	51.9 (10.8)

As far as the first three clinical profiles (hypochondriasis, depression and hysteria) are concerned, groups I and II are very similar. In both these groups the Hs and Hy scores are much higher than the D scores ( $P < 0.001$ ). In group III (epilepsy group), on the other hand, the relationship between the components of the first clinical triad is reversed, i.e. D scores are much higher than Hs and Hy scores ( $P < 0.01$ ).

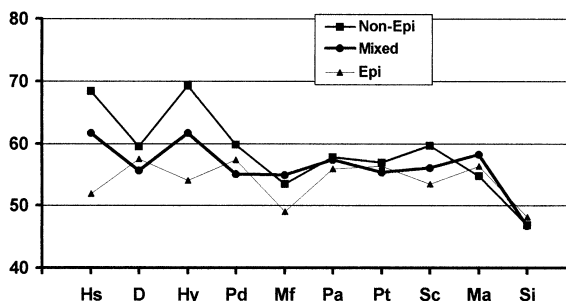


Fig. 1: Averaged MMPI profiles. Non-Epi—patients with psychogenic pseudoepileptic seizures only; Mixed—patients with both epileptic seizures and psychogenic pseudoepileptic seizures; Epi—control group, only epileptic seizures.

#### DISCUSSION

Many writers have emphasized how difficult it is to pinpoint the distinctive personality variables between psychogenic pseudoepileptic and epileptic patients and their distinctive histories of developmental stressors or previous functional disorders<sup>18</sup>. Our study has managed to reveal several differences in the personality profiles of these two groups of patients.

As in our previous research<sup>6</sup>, we found that psychogenic pseudoepileptic seizures are more frequent in women than in men. Other researchers have also found this pattern<sup>18–20</sup>. This typical pattern emerged both in our mixed patient group and the group with pseudoepileptic seizures and epileptic seizures. Other important similarities between these two groups also appeared. Even though we aggregated the psychological profiles in the three groups of patients, we still found that patients with 'mixed' seizures and those with only pseudoepileptic seizures have similar Hs, D, Hy triads.

Psychogenic pseudoepileptic seizures have been explained in terms of conversion dynamics<sup>15,18,21</sup>. Our findings suggest that conversion, manifested in the typically elevated Hs and Hy scores as compared to D scores, is present in both groups of patients demonstrating pseudoepileptic seizures but absent in the patients with epilepsy where the Hs and Hy to D ratio is reversed. In other words, the alleged presence of, or predisposition to, psychogenic seizures has found sound empirical confirmation in the personality profiles of these patients. It is still open to question, however, whether the formal similarities between the personality profiles of the group with pseudoepileptic seizures and the group with both pseudoepileptic seizures and epileptic seizures can be attributed to the same psychopathological dynamics. This is surely a problem which needs to be studied further. If we manage to determine the psychopathological dynamics underlying pseudoepileptic seizures, this will help to develop preventive measures and therapies targeted at behavioural disorders. Furthermore, such research should contribute to the development of psychogenic pseudoepileptic seizure classification which takes personality disorder as an aetiological factor into consideration.

This study has also shown that in mixed cases, psychogenic pseudoepileptic seizures are more frequent than epileptic seizures (Table 2). In our previous research<sup>6</sup> the ratio of psychogenic pseudoepileptic to epileptic seizures was about 4:1. Such episodes are wrongly assumed to be epileptic seizures. Because of this, the true picture of the epilepsy is blurred and this interferes with the proper treatment of the patient's true epilepsy. Then again, epileptic seizures, especially those which are generated in the frontal lobes, are often wrongly taken to be pseudoepileptic seizures because their symptomatology is so diverse. Wrong diagnosis leads to wrong treatment and the consequences for the patient may be really dramatic<sup>11</sup>. Long-term inadequate and ineffective treatment poses problems for the doctor too. On top of this there are the social aspects of the problem—instead of getting better and returning to normal life and work, wrongly treated patients remain on disability pension, convinced that they are seriously, organically ill.

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#### REFERENCES

1. Betts, T. Pseudoseizures: seizures that are not epilepsy. *Lancet* 1990; **336**: 163–164.
2. Gates, J. R., Ramani, V., Whalen, S. *et al.* Ictal characteristic of pseudoseizures. *Archives of Neurology* 1985; **42**: 1183–1187.
3. Williamson, P. D. Pseudoseizures versus pseudopseudo-seizures. *Epilepsia* 1993; **34** (Suppl. 2): 107.
4. Wolańczyk, T., Jędrzejczak, J. and Owczarek, K. Patients with psychogenic pseudoepileptic seizures. *Epileptologia* 1994; **2**: 11–24.
5. Aldenkamp, A. P. and Mulder, O. G. Behavioural mechanisms involved in pseudoepileptic seizures: a comparison between patients with epileptic seizures and patients with pseudoepileptic seizures. *Seizure* 1997; **6**: 275–282.
6. Jędrzejczak, J., Owczarek, K. and Majkowski, J. Psychogenic pseudoepileptic seizures: clinical and electroencephalogram (EEG) video-tape recordings. *European Journal of Neurology* 1999; **32**: 18–23.
7. Betts, T. and Boden, S. Diagnosis, management and prognosis of a group of 128 patients with nonepileptic attack disorder. Part I. *Seizure* 1992; **1**: 19–26.
8. Spitz, M. C. Panic disorder in seizure patients: a diagnostic pitfall. *Epilepsia* 1991; **32**: 33–38.
9. Kuyk, J., Leijten, F., Meinardi, H. and Spinhoven Van Dyck, R. The diagnosis of psychogenic non-epileptic seizures: a review. *Seizure* 1997; **6**: 243–253.
10. Sigurdardottir, K. R. and Olafsson, E. Incidence of psychogenic seizures in adults: a population study in Iceland. *Epilepsia* 1998; **39**: 749–752.
11. Jędrzejczak, J., Tomal, M. and Majkowski, J. Diagnosis of psychogenic pseudoepileptic seizures in the material of the Department of Neurology and Epileptology in Warsaw in 1990–1995. *Epileptologia* 1996; **2**: 133–138.
12. Shaw, D. J. Differential MMPI performance in pseudo-seizure epileptic and pseudo-neurologic groups. *Journal of Clinical Psychology* 1996; **22**: 271–275.
13. Wilkus, R. J. and Dodrill, C. B. Factors affecting the outcome of MMPI and neuropsychological assessments of psychogenic and epileptic seizure patients. *Epilepsia* 1989; **30**: 339–347.
14. Devinsky, O. Nonepileptic psychogenic seizures: quagmires of pathophysiology, diagnosis, and treatment. *Epilepsia* 1998; **39**: 458–462.
15. Dodrill, C. B., Wilkus, R. J. and Batzel, L. W. The MMPI as diagnostic tool in non-epileptic seizures. In: *Non-epileptic Seizures* (Eds A. J. Rowan and J. R. Gates). Boston, Butterworth-Heinemann, 1993: pp. 101–110.
16. Derry, P. A. and McLachlan, R. S. The MMPI-2 as an adjunct to the diagnosis of pseudoseizures. *Seizure* 1996; **5**: 35–40.
17. Holmes, M. D. and Dodrill, C. B. What is the significance of subjective events recording during long-term EEG video monitoring. *Epilepsia* 1998; **39**: 857–862.
18. Devinsky, O., Sanchez-Villaseñor, F., Vazquez, B. *et al.* Clinical profile of patients with epileptic and nonepileptic seizures. *Neurology* 1996; **46**: 1530–1533.
19. Gumnut, T. J. and Gates, J. R. Psychogenic seizures. *Epilepsia* 1986; **27** (Suppl. 2): 124–129.
20. Buchanan, N. and Snars, J. Pseudoseizures (nonepileptic attack disorder)—clinical management and outcome in 50 patients. *Seizure* 1993; **2**: 141–146.
21. Rowan, A. J. and Gates, J. R. *Non-epileptic Seizures*. Boston, Butterworth-Heinemann, 1993.