

# COMPARISON OF PERSONALITY PROFILES OF PATIENTS WITH PSYCHOGENIC NON-EPILEPTIC SEIZURES AND PATIENTS HOSPITALIZED FOR OTHER DISSOCIATIVE DISORDERS

Krzysztof Owczarek<sup>1</sup>, Joanna Jędrzejczak<sup>2</sup>,  
Filip Owczarek<sup>3</sup>

<sup>1</sup> Department of Medical Psychology, Medical University, Warsaw, Poland

<sup>2</sup> Department of Neurology and Epileptology, Medical Centre for Postgraduate Education, Warsaw, Poland

<sup>3</sup> Department of Psychology, Warsaw University, Warsaw, Poland

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## SUMMARY

**Introduction.** *Dissociative disorders cause significant diagnostic problems. Prolonged dysfunction of this type, particularly paresis and dysesthesia, may be related to unresolved personality disorders. The most frequent forms of psychogenic disorders are limb paresis, headaches, backaches and psychogenic nonepileptic seizures (PNES). The objective of our study was to compare the personality profiles of PNES patients with the profiles of patients hospitalized for other forms of somatization, and to assess the differences in MMPI somatization scores between the two groups of patients.*

**Material and method.** *We collected data from 104 patients (85 women, 19 men), including 64 (53/11) with diagnosed or suspected PNES and 40 (32/8) with headaches, dizziness or back pain. Pathological personality patterns were diagnosed with the Minnesota Multiphasic Personality Inventory (MMPI).*

**Results.** *In both groups the values for Hysteria (Hs) and Hypochondria (Hy) were significantly higher than the values for Depression (D). The greatest difference between the two groups was found for Psychasthenia, with mean scores of 56.11 for the PNES patients and 46.15 for patients with other forms of somatization ( $p \leq 0.001$ ). Significant differences were also found for Schizophrenia ( $p \leq 0.001$ ), Masculinity-Femininity ( $p \leq 0.02$ ), Paranoia ( $p \leq 0.02$ ) and Mania ( $p \leq 0.05$ ).*

**Conclusions.** *The differences between our PNES patients and patients with other forms of somatization were quite clear, both quantitatively and qualitatively. Although the pattern of the first three scales (the profile) is similar in both groups, the scores on other personality scales are significantly higher in PNES patients. This may suggest that patients with psychogenic nonepileptic seizures are more emotionally high-strung, whereas emotional tension is somewhat reduced in patients with other forms of somatisation.*

## INTRODUCTION

Dissociative disorders cause many problems for both patients and clinicians. They often lead to an incorrect medical diagnosis, and may seriously jeopardize the implementation of appropriate and effective treatment. According to the tenth edition of the International Statistical Classification of Diseases and Related Problems (ICD-10, WHO 1992), the common theme of all conversion or dissociative disorders is partial or complete loss of normal integration between memories of the past, sense of identity, sensory sensation, and body movement control. Whatever their specific type, all dissociative disorders may subside within a few weeks or months, particularly if their onset coincided with a traumatic life event. More persistent dissociative disorders, such as paralysis or dysesthesia, may be related to insoluble or interpersonal problems. These disorders used to be classified as various kinds of "hysterical conversions." Nowadays their origins are believed to be psychogenic, and they can be temporally related to traumatic events, insoluble or "unbearable" situations, or dysfunctional relations with the social environment. The symptoms often reflect the patient's ideas of how a somatic disease would manifest itself (ICD-10). The symptomatology is often very complex and confusing, and may involve several body systems or functions. The patient may present with symptoms mimicking cardiological, gastric, musculo-skeletal, urogenital, or neurological symptoms, or may complain of pain or fatigue (Hurvitz 2004). All these forms of dysfunction have one common origin: somatization, a propensity to present somatic symptoms and thereby attract the attention of healthcare providers. At first glance the clinical picture does not resemble a psychiatric disorder. The anomalies are rooted in the patient's social situation, or are related to occupational responsibilities. The DSM-IV – TR diagnostic system (APA 2000) relates somatization to vegetative disorders, which manifest themselves in the form of somatic complaints, conversion disorders, hypochondriacal disorders, somatization disorders, persistent psychogenic pain, or disorders which take on a somatic form.

The incorrect diagnosis of conversion disorders as organic diseases is a serious clinical concern. It can lead to many mistakes and misunderstandings in various medical specialities (Majkowski 1995). Hamilton et al. (1996) assessed the prevalence of medically unexplained symptoms in cardiology, gastroenterology and neurology outpatient clinics at a large teaching hospi-

tal and investigated the current clinical management of these patients. Data were collected retrospectively from the case notes of all new referrals to these clinics over a two month period. The results of this analysis revealed that over a two-month period, during which 343 patients were admitted to the hospital, 120 patients (35%) were hospitalized for purely dysfunctional reasons, 204 patients (59.5%) were diagnosed with organic diseases, and 19 patients (5.5%) remained undiagnosed. In France, conversion disorders (hysteria) are one of the most troublesome and widespread problems for emergency health care services and hospital admission rooms. These disorders include somatization disorders and somatoform disorders, neither of which are listed specifically by the DSM-IV-TR. Not all physicians are competent enough to adequately recognise the etiology of symptoms which appear and disappear independently of the patient's will, and are not ordinary simulation. It is strongly recommended that physicians representing various specialties, including especially psychiatrists, cooperate closely (Tignol 1995). Correct diagnosis of the causes of such disorders is also a serious problem in other parts of the world (Samuels 1995). In Australia, for example, patients with dissociative disorders are often incorrectly treated for years, and even submitted to surgery before they are correctly diagnosed (Singh 1998).

One form of dissociative disorder of which we now have a much better understanding than we used to, and whose correct diagnosis is rapidly improving, consists in psychogenic nonepileptic seizures (PNES). PNES are usually described as sudden changes of physical behavior which imitate an epileptic seizure, but are not accompanied by the electrophysiological changes in the brain that accompany a genuine epileptic seizure and are registered in an EEG (Owczarek et al. 1998, Jędrzejczak et al. 1999, Jędrzejczak & Owczarek, 1999, Owczarek 2002, 2003a, 2003b).

PNES causes many diagnostic and therapeutic problems. An analysis of admissions to the Department of Neurology and Epileptology at the Medical Center for Postgraduate Education in Warsaw referred for epilepsy revealed that 15.3% of these patients had PNES (Wolańczyk et al. 1994).

The authors of a Norwegian study (Mökleby et al. 2002) applied several measures of emotional functioning: the Mini International Diagnostic Interview (MINI v. 4.4), the Hospital Anxiety and Depression Scale (HAD) and the Aggression Questionnaire (AQ). The HAD was used to measure anxiety and depression, and the AQ provided measures of anger and hostility. The authors examined three groups of patients: 23 patients with PNES, 23 with dissociative disorders (muscle pain, neurasthenia, pelvic pain, chest pain) and a healthy control group recruited from the staff of the hospital in which the study was conducted. For all the studied parameters, the mean scores for PNES patients and patients with dissociative disorders were higher than the mean scores for the control group ( $p \leq 0.001$ ). When the mean values for the two clinical groups were compared, however, only one significant difference emerged: the PNES group was significantly more hostile than the dissocia-

tive disorder group ( $p=0.019$ ). These findings demonstrate that patients with PNES are a heterogeneous group as far as psychological disorders are concerned. They also demonstrate that PNES is similar in many ways to patients with other dissociative disorders. Personality studies using the Minnesota Multiphasic Personality Inventory (MMPI) in PNES patients and patients with epilepsy showed that the PNES patients had significantly higher Hypochondriasis, Hysteria and somatisation scores [13,16]. However, we know of no reports of studies comparing these personality dimensions in PNES patients and patients with other dissociative disorders.

By combining EEG monitoring with video monitoring of the patient, we can conduct a clinical/electrophysiological analysis of the nature and duration of seizures (Owczarek et al. 1998, Jędrzejczak et al. 1999, Jędrzejczak & Owczarek 1999, Owczarek 2003a, 2003b). This allows us to develop criteria for the diagnosis of PNES and other dissociative disorders with epileptic seizures. However, it hardly contributes to our understanding of the underlying causes of these behavior disorders. It is necessary to include a psychological examination in the diagnostic procedure. Due to the lack of appropriate differential psychological procedures, patients with PNES and other disorders of psychogenic etiology, such as headaches, backaches, pain in the arms or legs, fatigue etc., are all qualified as somatic patients. A more thorough knowledge of the psychological determinants of PNES and other dissociative disorders would help to formulate appropriate therapeutic principles. Treatment based on incorrect diagnosis is usually both costly and ineffective.

By comparing the MMPI personality dimensions in the two groups, we can try to identify the psychological factors which distinguish PNES patients from patients with other dissociative disorders. Such differentiation may also help to explain the origins and nature of psychogenic nonepileptic (pseudoepileptic) seizures and other forms of dissociative disorders.

The purpose of our study, then, was to compare the MMPI personality profiles of PNES patients with the profiles of patients hospitalized for other dissociative disorders.

## **MATERIAL AND METHODS**

We analyzed data gathered from individuals referred to the Department of Neurology and Epileptology at the Medical Center for Postgraduate Education in Warsaw. All in all, 104 patients were evaluated (85 women and 19 men). In order to differentiate between presenting symptoms and epileptic seizures the patients were first interviewed, then submitted to a neurological examination and long-term video-EEG monitoring. Depending on the start time of the first seizure, the latter lasted from 6 to 24 hours, until enough data had been gathered. The subjects were divided into two groups: patients with diagnosed or suspected psychogenic nonepileptic seizures (group I,  $n=64$ ) and patients with headaches, dizziness, backaches and spinal pain (group II,  $n=40$ ).

In order to qualify for the study, the patients had to be able to understand and complete the MMPI, be over 15 years old, and have an IQ of over 75 (WAIS-R, full scale).

The clinical criteria for the presence of psychogenic nonepileptic seizures those of the DSM-IV, and the diagnostic indications given by Hurvitz (2004):

- lack of tangible organic causes of the disorder;
- a clinical picture of presenting symptoms unrelated to the picture of symptoms normally found for organic lesions;
- symptom or syndrome range inconsistent with any known disease;
- a range of dysfunction due to the symptom or syndrome inconsistent with the range of dysfunction in the course of recognized diseases.

### ***Video-EEG monitoring***

All patients underwent a routine EEG examination complying with the International 10-20 System, and also long-term (24h) video-EEG monitoring (Glonner System). PNES and other somatic disorders were registered on video magnetic tape in synchrony with the EEG recording. The following diagnostic criteria were used to differentiate between psychogenic nonepileptic seizures and somatisation:

- lack of any difference between seizure and post-seizure EEG on the one hand and interictal EEG on the other hand;
- presence of alpha rhythm during demonstrated absences.

Additional criteria were adopted to diagnose seizure type:

- seizure duration and departure of the observed seizure from known types of epileptic seizures;
- susceptibility to suggestion, lack of any relation between seizure frequency and antiepileptic treatment;
- demonstrative nature of seizures in specific situations;
- non-stereotypic nature of the incident (Jędrzejczak et al. 1999, Jędrzejczak & Owczarek 1999).

Group I usually presented nonepileptic seizures imitating tonic-clonic seizures (37 patients). According to the literature, this is the most frequent type of nonepileptic seizure and is found in 47-100% percent of subjects (Jędrzejczak et al. 1999, Jędrzejczak & Owczarek 1999, Holmes & Dodrill 1998, Desai et al. 1982, Luther et al. 1982). Ten patients had symptoms resembling partial simple seizures, 9 patients had seizures resembling partial seizures, and 4 patients had seizures imitating myoclonic seizures. Three patients demonstrated stupor and 1 patient demonstrated stupor with symptoms resembling a tonic-clonic seizure.

### ***MMPI and IQ***

All patients were tested with the Minnesota Multiphasic Personality Inventory (MMPI), computerised version – S. R. Hathaway & J. C. McKinley, MMPI 6.0® MBM, 1998. The patients were tested early in the day (9 AM to

2 PM) and there was no time limit. Information concerning the need to perform the test was limited to the standard instruction.

The next step was the intelligence test (WAIS-R). A one-day interval was scheduled between the MMPI and the WAIS-R in order to avoid fatigue affecting IQ scores. The intelligence test was usually given early in the day (between 9 AM and 2 PM). Testing followed the routine procedure. Verbal IQ, nonverbal IQ and IQ for the full test were calculated.

### Statistical analysis

The data were submitted to descriptive statistical analysis (means, standard deviations, minimal and maximal scores) and the results of the two patient groups were compared (Student t test for non-paired samples). Additionally, within-group differences in MMPI scale scores were tested using the Student t test for paired samples. Dichotomous variables were tested by means of the Chi<sup>2</sup> test. The critical value for all statistical tests was  $p=0.05$ .

## RESULTS

The first step in the statistical analysis was to test the assumption that the groups did not differ with respect to age, gender and level of intelligence. Table 1 shows the age distributions in the two groups.

The mean age in the dissociative disorder group was in fact higher than in the PNES group ( $p \leq 0.01$ ).

Table 2 shows the raw and percentage scores for gender distribution. There were significantly more women than men in both groups. Because there were so few men it was not possible to compare profiles separately for men and women at this stage.

The gender distributions were similar in the two groups. The chi<sup>2</sup> value (0.13) was nonsignificant at the assumed level of significance ( $p \leq 0.05$ ).

Table 3 shows the mean IQ scores for the two groups. No significant differences were found.

A comparison of the MMPI control scales did not reveal any differences between the two groups (see the first three scales in Fig. 1).

Table 1. Mean age per group values

Group	Mean	Standard deviation	Minimum	Maximum
PNES	24.79	9.37	15	47
Other dissociative disorders	31.90	11.23	16	53
t= 2.73; p < 0.01				

Table 2. Gender distribution per group

Group \ Gender	Females	Males	Females and Males
PNES	53 (82.8%)	11 (17.2%)	64
Other dissociative disorders	32 (80.0%)	8 (20.0%)	40
Total	85 (81.7%)	19 (18.3%)	104
Chi <sup>2</sup> = 0.13; df = 1; p = 0.718; (ns.)			

ns. - nonsignificant

Table 3. Mean IQ per group

Group	Full scale	Verbal scale	Nonverbal scale
PNES	97.18	101.6	93.2
Other dissociative disorders	99.14	102.3	96.6
	t = 0.88; ns.	t = 0.66; ns.	t = 1.26; ns.

ns. – nonsignificant

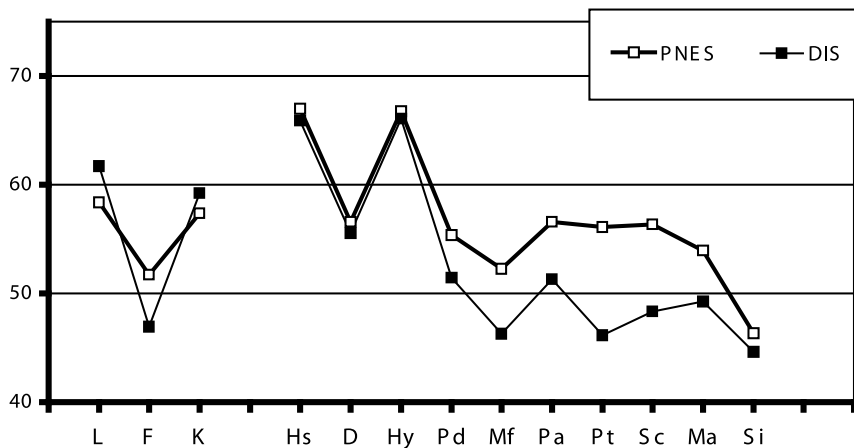


Fig. 1. Averaged MMPI profiles for the two groups. Symbols on the horizontal axis signify control scales (L – Lie scale, F – Low frequency, K – Correction) and clinical scales (Hs – Hypochondrisis, D – Depression, Hy – Hysteria, Pd – Psychopathic Deviate, Mf – Masculinity-Femininity, Pa – Paranoia, Pt – Psychasthenia, Sc – Schizophrenia, Ma – Mania, Si – Social Introversion). \*\*\* – p<0.01; \*\* -p<0.02; \* – p<0.05; (Student's t test)

**Differences for mean personality profile values**

Both of the groups presented above showed similar normative profiles (means of the assessed personality dimensions) as far as the first three clinical scales are concerned (see Table 4). In both groups, the mean Hysteria (Hs) and Hypochondriasis (Hy) scores were much higher than the mean Depression (D) scores. The difference was significant at  $p \leq 0.001$ . Meanwhile, the greatest difference of all between the two groups was found for Psychasthenia (Pt): the PNES patients had a mean score of 56.11, while the DIS patients had a mean score of 46.15. This difference was also significant ( $t=4.70$ ,  $p \leq 0.001$ ). The next significant difference was the difference between mean Schizophrenia (Sc) scores. The PNES and DIS groups scored 56.33 and 48.35 respectively ( $t=3.43$ ,  $p \leq 0.001$ ).

The next statistically significant difference was found for Masculinity-Femininity ( $t=2.57$ ,  $p \leq 0.02$ ); the scores for the PNES and DIS groups were 52.28 and 46.30 respectively. The difference for Paranoia was also significant ( $t= 2.45$ ,  $p \leq 0.02$ ), the respective scores for the PNES and DIS groups being 56.59 and 51.30. Finally, a significant difference was found for Mania ( $t= 2.29$ ,  $p \leq 0.05$ ): 53.94 for the PNES group vs. 49.25 for the DIS group.

Table 4. Student t parameters for differences between mean values of Hypochondriasis, Depression and Hysteria

Differences	PNES	Other dissociative disorders
Hs>D	t = 7.73	t = 7.84
Hy>D	t = 6.72	t = 7.04

All differences statistically significant at  $p \leq 0.001$ .

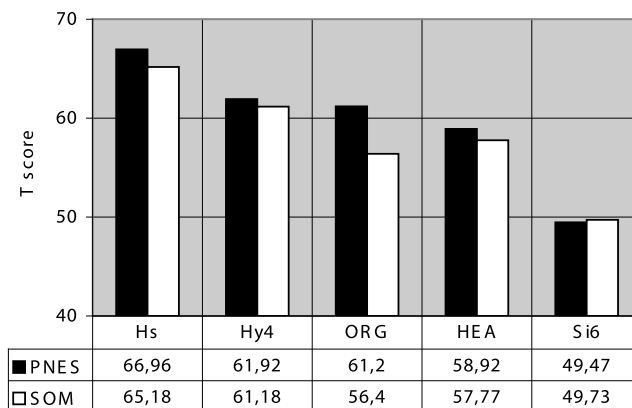


Fig. 2. Differences between mean somatisation scores for the group with psychogenic nonepileptic seizures (PNES) and groups with other somatisations (SOM). Hs-Hypochondriasis, Hy4-Somatic Complaints, ORG-Organic Symptoms, HEA-Poor Health, Si6-Physical-Somatic Complaints



### **Differences for mean somatisation values**

The means for the MMPI clinical scales for the two groups in respect to somatization are presented in Fig. 2. Significant differences between the groups were found for Organic Symptoms (ORG), in that the PNES group had higher ORG scores than the DIS group ( $t=2.04$ ,  $p\leq 0.05$ ). Both groups scored higher on ORG than the mean for the general population (50 standard tens).

Although the mean scores for Hypochondriasis (Hs), Somatic Complaints (Hy4) and Poor Health (HEA) are much higher than 50 standard tens, the two groups did not differ significantly from each other with respect to these parameters. The means for Physical-Somatic Complaints (Si6) oscillated around 50 standard tens, and the difference between the PNES and DIS groups was not significant.

## **DISCUSSION**

The analysis of the data began with a comparison of the two groups with respect to gender, age and IQ. There are no reported studies of these parameters in patients with dissociative disorders; existing reports pertain to PNES patients only. A review of this literature suggests that psychogenic nonepileptic seizures are more frequent in women than in men (Gumnut & Gates 1986, Buchanan & Snars 1993, Devinsky et al. 1996, van Merode et al. 1997, Jędrzejczak et al. 1999, Jędrzejczak & Owczarek 1999, Carton et al. 2003, Marzooqi et al. 2004, Oto et al. 2005). Gender distributions in the present study were similar in both groups, and in both cases there were more women than men. No between-group differences were found for intelligence. The two groups did differ, however, with respect to several other important variables. It is noteworthy that mean age differed significantly (PNES – 24.79, other dissociative disorders – 31.9).

The statistical analysis revealed no significant differences between the groups with respect to the mean values of the control scales. However, the shapes of the score distributions for these scales suggest that patients with other dissociative disorders were much less truthful in their test responses, and this may have lowered their scores on the clinical scales. Although no significant between-group differences were found for the control scales, if we look at the shape of the score distributions for these scales we can see that the DIS patients had a greater tendency to present themselves in a positive light compared with the PNES patients. This may suggest that the DIS group's scores are biased in the direction of better psychological adjustment.

As far as the first three clinical scales are concerned, the averaged personality profiles for the two groups do not differ significantly. The profile for patients with other dissociative disorders (DIS) is similar to the profile for patients with psychogenic nonepileptic seizures (PNES) with respect to Hs, D and Hy. Elevated Hs and Hy scores and lower D scores are typical for individuals with a powerful need to interpret their problems in a way which is at

once rational and socially acceptable. Such patients have a sense of entitlement, however. In the present study higher Hs and Hy scores compared with D scores suggest the presence of a conversion mechanism (the so-called conversion dip) in both groups of patients. The profile similarity in the two groups suggests that this mechanism also underlies other dissociative disorders.

The present study found considerable differences between PNES and DIS patients with respect to several other personality profiles: Sc, Pt, Mf, Pa and Ma. As far as the clinical scales of the normative personality profile are concerned, the greatest difference was found for Psychoasthenia: the PNES group scored significantly higher on this scale. Psychoanesthesia correlates positively with anxiety, self-centeredness, narcissism and magical thinking. Psychologically high-strung, chaotic and despondent patients score high on this scale. These individuals have difficulty concentrating and making decisions; they complain of fatigue, sleepiness and being run down. They are also prone to introvertive rumination and excessive introspection, and also tend to exaggerate their problems. Their thinking and behavior show signs of compulsion and obsession. They lack self-confidence and are excessively self-critical. They are always feeling guilty, threatened, shy and withdrawn. They tend to be too exacting and formal in their day-to-day functioning. In their interpersonal relations they are boring and lack self-acceptance and therefore have difficulty relating closely to other people. They find it particularly difficult to make decisions. One of the reasons for this is that they fantasize too much and tend to analyse even the most improbable options of hypothetical situations. Their most frequent defense mechanisms are intellectualization, rationalization, magical thinking, compulsions and rituals (Matkowski 1992).

The PNES group scored significantly higher on the Schizophrenia scale than the DIS group. High Sc scores are obtained by individuals who keep to themselves, are withdrawn, shy, and generally avoid novel situations. Their language and thinking are unconventional, and therefore they are hard to communicate with. They take no interest in other people's affairs and seem to be lonely, reticent or unapproachable. Others see them as eccentric or bizarre. One of the reasons why they keep to themselves may be that they become disorganized when stressed. They are tormented by many doubts concerning their self-esteem and sense of identity, and have difficulty distinguishing between reality and their fantasy world. They are apathetic and timorous, and may behave masochistically and/or sadistically.

The next scale on which PNES patients scored significantly higher than DIS patients was Masculinity-Femininity. High scores on this scale are caused by rejection of the traditional gender roles that society ascribes to men and women, and also by problems with fulfilment of other social roles. Hence men and women who score high on the Mf scale present themselves differently, and also manifest different types of problems. High scoring women are domineering, aggressive and competitive. They reject the traditional female role and engage in "typically masculine" activities. They are spontaneous and

self-confident, although they may come across as brusque and indelicate. They avoid "typically feminine" activities and balk against relationships involving observance of norms based on traditional role divisions. High scoring men, on the other hand, are usually passive, dependent, pliant and submissive. They are sensitive to other people, tolerant and compliant. Their interests focus around artistic, philosophical, and esthetic issues. They appreciate cognitive activity and solve problems originally and creatively. They express themselves easily and verbalize their ideas clearly. Their most common defense mechanisms are sublimation and suppression.

Paranoia was yet another scale on which PNES patients scored higher than patients with other dissociative disorders. Elevated scores on this scale are indicative of a tendency to submission, lack of self-confidence and excessive worrying. High scorers feel that they experience reality more profoundly. They also feel lost and misunderstood. In order to reduce these feelings they may even act in very risky and dangerous ways. Their most frequent defense mechanisms are various forms of projection and externalization. High scoring women may be extremely sensitive and overly anxious of other people's evaluation. These attitudes may be rooted in shortcomings and deficiencies which are concealed from the environment (Matkowski 1992).

PNES patients scored significantly higher on Mania than patients with other dissociative disorders (DIS). High scorers on this scale tend to overrate themselves, have high aspirations and are oblivious of their own limitations. They undertake many activities, but are easily irritated and bored, and their activity often does not lead to achieving the high goals they set for themselves. They lack attention to detail, their interpersonal relations are very superficial and often manipulative. They are emotionally labile – episodes of irritation, anger and aggressive outbursts alternate with despondency and depression. They openly admit that they would like to do something bad or shocking. Individuals who score high on mania often violate the law.

Analysis of the MMPI scores in the two studied groups confirmed the view that the presence of (or predisposition to) psychogenic nonepileptic seizures and other dissociative disorders is clearly reflected in the personality profile.

The differences between the PNES patients and the DIS patients which showed up in the present data are clearly both quantitative and qualitative. Although the first three profiles are similar, the Pt, Sc, Pa, Ma and Mf scores are significantly higher in PNES patients than patients with other dissociative disorders. This may suggest that PNES patients are more emotionally tense (and this may be why their nonepileptic attacks are so frequent), whereas emotional tension is partly reduced in DIS patients.

In the study by Mökleby et al. study cited above (2002), PNES patients had higher hostility levels than patients with other types of dissociative disorders. Our MMPI studies showed that the PNES patients' hostility is largely directed against the self, and that these patients present many contradictory motivations and behavioral tendencies, as evidenced in their higher Pt, Sc,

Pa, Pd and Mf scores. Hence PNES patients present behavior which evokes serious social discrimination and condemnation. This is how these patients' self-punitive tendencies are realized (cf. their elevated Sc scores). This may be why PNES patients express their tensions and stress differently than patients with other dissociative disorders. Meanwhile, the latter patients externalize their hostility, and that is why they score high on the MMPI control scales, which point to a tendency to suppress candid responses.

As far somatization is concerned, both groups had scores significantly higher than 50 standard tens on four out of five MMPI scales measuring somatization (Hs, Hy4, ORG and HEA). This suggests that both PNES patients and DIS patients tend to view their problems as organic. This attests to the contribution of environmental and family factors to somatization (Garralda 1996, Devinsky 1998, Wood et al. 1998). The two groups' mean scores approximated 50 standard tens for one scale only, Physical-Somatic Complaints (Si6), and the two groups did not differ significantly in this respect. This parameter is derived from the Social Introversion (Si) scale and implies concern with one's appearance and health. Si6 scores depend on constitutional factors to a greater extent than the scores on other somatization scales. Significant differences between the two groups were only found for one somatization scale: Organic Symptoms (ORG). The mean for PNES was higher than the mean for patients with other dissociative disorders. Patients with high ORG scores present many symptoms which may be indicative of organic disorders. The higher the ORG score, the more symptoms the patients present.

## CONCLUSIONS

Hypochondriasis and Hysteria scores were higher than depression scores in both groups of patients. This score pattern is called the "conversion dip," and indicates that conversion is the source of the disorder in both groups. According to the authors of the MMPI, conversion is a sign of a powerful need to interpret one's problems in a way which is both rational and socially acceptable, and that is why psychological conflicts in individuals who use conversion are expressed in the form of somatic symptoms. This way, anxiety can be reduced and other intense negative emotions can be avoided. The present study seems to confirm this idea (Owczarek 2003a, 2003b). Since statistically significant differences were only found for Hypochondriasis and Hysteria, triad elevation in the present study can be interpreted as elevation of the neurotic triad. This means that the nature of the problems in both groups of patients is neurotic. Both groups also had elevated ORG (organic symptom) scores. This means that patients with dissociative disorders often complain of symptoms which may be indicative of organic disorders: headaches, backaches, nausea, sickness, disturbed motor functions and coordination, fainting episodes, blurred vision, speech, memory or attention dysfunction, etc. Frequent complaints of rather non-specific somatic symptoms

are typical of somatoform disorders. According to ICD-10, these are recurrent incidents of somatic symptoms accompanied by persistent demands for medical examinations despite negative results of similar examinations and despite doctors' assurance that the complaints have no somatic foundation. Such a picture is often seen in patients with dissociative disorders. The persistence of somatic complaints and a certain "attachment" to them on the one hand, and the denial of doctors' opinions and the accuracy of medical tests on the other hand, make it difficult to treat psychogenic nonepileptic seizures and other associative disorders successfully. Another factor contributing to diagnostic and therapeutic difficulties in these kinds of disorders is the well-learned pattern of somatic behaviors often acquired in early ontogenesis. The most frequent cause of psychogenic nonepileptic seizures are disturbed family relations (Westbrook et al. 1998). Pathological behavior patterns transmitted from generation to generation are a serious challenge for the psychologist. The entire family has usually developed a pathological adjustment system involving ingrained dysfunctional behavior patterns, whose causes are unconscious or suppressed. In such cases the MMPI can help to identify the most important genuine and primary causes of the pathological behavior. MMPI scores may also help to choose the best therapy and to assess its effectiveness.

The descriptions of the psychological variables tested with the MMPI may be used to identify the psychopathological mechanisms of psychogenic nonepileptic seizures and other dissociative disorders. The present results show that the presence of (or predisposition to) psychogenic nonepileptic seizures is clearly reflected in the personality profile. What remains to be determined, however, is whether or not the fact that the profiles of the tested personality dimensions are similar in the two studied groups means that the etiology of nonepileptic seizures is the same in both groups. This question needs to be investigated further. It is also necessary to remember that in day-to-day clinical practice the MMPI may serve as an important and convenient auxiliary diagnostic tool, but it cannot excuse the diagnostician from careful personal reflection when formulating the final diagnosis for each individual patient. Although central tendencies and other statistical estimations are objective, they cannot serve as a cover for the clinical facts observed in both the objective and subjective medical examination of each single patient.

In light of numerous doubts and the deficiency of empirical data in the literature, it would probably be advisable to replicate this MMPI study on larger clinical material, including patients with other dissociative disorders who have very rarely been studied so far. If we could identify the pathological personality mechanisms underlying psychogenic nonepileptic seizures and other dissociative disorders, this would be of great help in developing appropriate guidelines for the prevention and therapy of such behavior disorders. An analysis of the findings of such research would help us to gain a better understanding of the etiology of PNES and other dissociative disorders. We may

even find that by analyzing these patients' personalities we will be able to explain the nature of these disorders, and hence to treat them more adequately.

## REFERENCES

- American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders, 4th ed., Text revision. Washington, DC: APA.
- Buchanan, N. & Snars, J: (1993). Pseudoseizures (non epileptic attack disorder) - clinical management and outcome in 50 patients. *Seizure*, 2, 141-146.
- Carton, S., Thompson, P.J. & Duncan, J.S. (2003). Non-epileptic seizures: Patients' understanding and reaction to diagnosis and impact on outcome. *Seizure*, 12, 287-294.
- Desai, B.T., Porter, R.J. & Penry, J.K. (1982). Psychogenic seizures: a study of 42 attacks in six patients with intensive monitoring. *Archives of Neurology*, 32, 202-209.
- Devinsky, O. (1998). Nonepileptic psychogenic seizures: quagmires of pathophysiology, diagnosis, and treatment. *Epilepsia*, 39, 458-462.
- Devinsky, O., Sanchez-Villaseñor, F., Vazquez, B. et al. (1996). Clinical profile of patients with epileptic and nonepileptic seizures. *Neurology*, 46, 1530-1533.
- Garralda, M.E. (1996). Somatisation in children. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 37, 13-33.
- Gumnut, R.J. & Gates, J.R. (1986). Psychogenic seizures. *Epilepsia*, 27 Suppl. 2, 124-129.
- Hamilton, J., Campos, R. & Creed, F. (1996). Anxiety, depression and management of medically unexplained symptoms in medical clinics. *Journal of the Royal College of Physicians*, 30, 18-20.
- Holmes, M.D. & Dodrill, C.B. (1998). What is the significance of subjective events record during long-term EEG video monitoring? *Epilepsia*, 39, 857-862.
- Hurvitz, T.A. (2004). Somatization and conversion disorder. *Canadian Journal of Psychiatry*, 49, 172-178.
- Jędrzejczak, J. & Owczarek, K. (1999). Role of emotional factors in etiology of psychogenic pseudoepileptic seizures. *Epilepsia*, 40 Suppl. 2, 295.
- Jędrzejczak, J., Owczarek, K. & Majkowski, J. (1999). Psychogenic pseudoepileptic seizures: clinical and electroencephalogram (EEG) video-tape recordings. *European Journal of Neurology*, 6, 473-479.
- Luther, J.S., McNamara, J.O., Carwille, S. et al. (1982). Pseudoepileptic seizures: methods and video analysis to diagnosis. *Annals of Neurology*, 12, 358-362.
- Majkowski, J. (1995). Classification of psychogenic pseudoepileptic seizures [in Polish]. *Epileptologia*, 4, 295-304.
- Marzooqi, S.D., Baker, G.A., Reilly, J. & Salomon, P. (2004). The perceived health status of people with psychologically derived non-epileptic attack disorder and epilepsy: a comparative study. *Seizure*, 13, 15-23.
- Matkowski, M. (1992). MMPI: study – description – interpretation. Poznan, Poland: Department of Personality, Therapy, and Development.
- Mökleby, K., Blomhoff, S. & Malt, U.F. et al. (2002). Psychiatric comorbidity and hostility in patients with psychogenic nonepileptic seizures and healthy controls. *Epilepsia*, 43, 193-198.
- Oto, M., Conoway, A., McGonigal, A., Russell, A.J. & Duncan, R. (2005). Gender differences in psychogenic non-epileptic seizures. *Seizure*, 14, 33-39.
- Owczarek, K. & Jędrzejczak, J. (2001). Patients with coexisting psychogenic pseudoepileptic and epileptic seizures: a psychological profile. *Seizure*, 10, 566-569.
- Owczarek, K. (2002). Dissociative disorders in clinical practice [in Polish]. *Postępy Psychiatrii i Neurologii*, 11, 131-137.
- Owczarek, K. (2003a). Somatisation indexes as differential factors in psychogenic pseudoepileptic and epileptic seizures. *Seizure*, 12, 178-181.

- Owczarek, K. (2003b). Anxiety as differential factor in epileptic versus psychogenic pseudoepileptic seizures. *Epilepsy Research*, 52, 227-232.
- Owczarek, K., Jędrzejczak, J. & Majkowski, J. (1998). Minnesota Multiphasic Personality Inventory profile in patients with psychogenic-pseudoepileptic, epileptic and mixed psychogenic- pseudoepileptic and epileptic seizures. Preliminary report. In: J. Majkowski, K. Owczarek & P. Zwoliński (eds.), 3rd European Congress of Epileptology (359-362). Bologna: Monduzzi Editore Litosei-Rastignani.
- Samuels, A.H. (1995). Somatisation disorder: a major public health issue. *Medical Journal of Australia*, 163, 147-149.
- Singh, B.S. (1998). Managing somatoform disorders. *Medical Journal of Australia*, 168, 572-577.
- Tignol, J. (1995). Urgences hysteriques. *Revue du Praticien*, 45, 2563-2567.
- van Merode, T., de Krom, M.C. & Knottnerus, J.A. (1997). Gender-related differences in non-epileptic attacks: a study of patients' cases in literature. *Seizure*, 6, 311-316.
- Westbrook, L.E., Devinsky, O. & Geocadian R. (1998). Nonepileptic seizures after head injuries. *Epilepsia*, 39, 978-982.
- Wolańczyk, T., Jędrzejczak, J. & Owczarek, K. (1994). Patients with psychogenic pseudoepileptic seizures [in Polish]. *Epileptologia*, 2, 11-24.
- Wood, B. L., McDaniel, S., Burchfiel, K. & Erba, G. (1998). Factors distinguishing families of patients with psychogenic seizures from families of patients with epilepsy. *Epilepsia*, 39, 432-437.
- World Health Organization. (1992). ICD-10 - International Statistical Classification of Diseases and Health Related Problems, Tenth Revision. Geneva: WHO.

Address for correspondence:

Prof. dr hab. med. Krzysztof Owczarek  
Akademia Medyczna  
Zakład Psychologii Medycznej  
ul. Trojdena 2  
02-109 Warszawa  
E-mail : jerk@wp.pl

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