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Personality variables that discriminate pseudoseizures patients and epileptic patients used in the 16 PF

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Abstract

This project was designed to study the effect of certain personality factors on pseudoseizure patients. It was hypothesized that Factors C and O in the 16 Personality Questionnaire could serve as predictor variables for the criterion variable, positive diagnosis of pseudoseizure versus true epileptic seizures. It was also hypothesized that these two groups, pseudoseizure versus epileptic seizure, would differ significantly on a test titled the Sickness Impact Profile. The two scales in this test, psychosocial and physical, were examined. Two discriminant analyses were performed with these two tests being the predictor variables and group membership being the criterion variable. Non-significant results indicated no support for these two hypotheses. Difficulties with reliability of the 16 PF Questionnaire and the small sample size may have contributed to the non-significant results.

Personality Variables That Discriminate Pseudoseizure Patients and Epileptic Patients Used In The 16 PF

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PERSONALITY VARIABLES THAT DISCRIMINATE PSEUDOSEIZURE PATIENTS AND EPILEPTIC PATIENTS USED IN THE 16 PF.

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Personality Variables That Discriminate Pseudoseizure Patients and Epileptic Patients Used In The 16 PF

Seizures have always elicited strong, usually negative reactions from persons experiencing them as well as those observing them. People who have seizures frequently have felt ashamed and those witnessing seizures have in the past considered that patient to be possessed. It is not surprising then to observe that seizure patients tend to exhibit some emotional or behavioral problems. Rodin (1977) discovered that more than half of the seizure patients he studied had some sort of psychological or social problem with behavioral manifestations.

Seizure patients have a physiological disorder which may elicit or make patients prone to certain psychological or social problems. A group of patients related to seizure patients is pseudoseizure patients. A pseudoseizure is a clinical event which superficially resembles an epileptic attack but is found lacking in an essential component, such as concomitant electroencephalographic dysrhythmia or possessing a feature not compatible with epilepsy, such as the characteristic of being precipitated, modified, or stopped by a simple command, hypnotic suggestion, or withdrawal of the attention of observers (Liske, E., & Forster, F.M., 1968). Pseudoseizures can have a sudden or gradual onset, but they are typically of longer duration

than true seizures according to Ramani, Quesney, Olson, and Gumnit (1980); they often occur in the presence of others (who constitute an audience); the seizure behavior is usually bizarre and uncoordinated; physical injury, eye deviation, tongue biting, incontinence, and postictal confusion, symptoms, that commonly characterize true seizures, are rarely present (Ramani, et al., 1980). Previous studies have evidenced the psychological and social problems of true seizure patients, yet studies which focus on the psychological and social problems of pseudoseizure patients are far from abundant.

There are certain characteristics associated with the high incidence of pseudoseizures including age, sex of the patient, and prior epileptic or neurologic history. Onset of pseudoseizures is normally before the age of 40 (Standage, K.F., 1975). Ferris (1959), Liske and Forster (1964), and Standage (1973) found that the mean age of onset of attack was 22.5, 27.4, and 18.5, respectively. Another characteristic associated with pseudoseizures is sex of the patient. In most clinical studies of persons suffering from pseudoseizures, women far outnumber men. Ramini, et al. (1980) studied the diagnosis of hysterical seizures in epileptic patients. During a nine month period, 46 patients (24 males and 22 females) were admitted to the epilepsy unit. Of this group, nine patients were clinically suspected and diagnosed as suffering from pseudoseizures.

Of these nine patients, eight were female. Also, all of these patients showed evidence of organicity in neuropsychological testing. This study points to the evidence that suggests that pseudoseizure patients more often than not have a history of neurological disease, concurrent or recent past physical illness, or a history of seizure disorder (Ramani, et al., 1980; Standage, K.F., 1975).

Studies also indicate that pseudoseizure patients are more psychologically impaired than epileptic patients. Roy (1977) compared 17 in-patients who had been diagnosed in the past as epileptics by a consultant neurologist and treated with anticonvulsants. These patients were admitted for the investigation and treatment of epilepsy but their discharge diagnosis was pseudoseizures. Each of these patients was then matched for sex and age with the next patient admitted for investigation and treatment of epilepsy but whose discharge diagnosis was epilepsy. Both groups completed the General Health Questionnaire and the Wakefield Self-Assessment Depression Inventory (Snaith, Ahmed, Mehta, & Hamilton, 1971). All patients were then seen and a psychiatric interview and assessment carried out and the Hamilton Rating Scale for depression completed (Hamilton, M., 1960). There were no statistically significant differences for marital status, referral source, unit investigated by, or between the admission or referral

diagnosis for the control group. Table 1 indicates that there were statistically significant differences between the groups on psychiatric background factors. The data also showed that

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Insert Table 1 about here

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10 patients in the pseudoseizure group had made 26 suicide attempts while of the seizure group, four patients had made eight suicide attempts. Ten of the pseudoseizure patients had sexual maladjustment problems; four currently married patients had had no sexual intercourse from one to four years; in three other married patients, the frequency of intercourse had reduced to less than once a month; one patient was divorced after an unconsummated marriage and two single teenage girls were markedly promiscuous. Results from the Hamilton Depression Rating Scale, the General Health Questionnaire, and the Wakefield Self-Assessment indicated that there were statistically significant differences between the groups on all measures of affective symptoms. Ramini, et al. (1980) and Standage (1975) have suggested that stress, particularly between the patient and his or her family may plan an important role in pseudoseizures. Standage (1975) found a higher incidence of familial stress in pseudoseizure patients and in particular disturbed parental relationships. Parental death or absence of a parent during childhood were frequent and when relationships were preserved, they were often of an unsatisfactory nature.

Psychological assessment studies addressing the differential diagnosis of pseudoseizures from true seizures are few. Finlayson and Lucas (1979) in a study of pseudoseizures in children and adolescents obtained Minnesota Multiphasic Personality Inventory (MMPI) data on 13 adolescents. The pseudoseizure diagnosis was obtained from an extensive neurologic examination, including electroencephalogram, brain scan, lumbar puncture and skull roentgenogram. Of 151 cases identified, 13 patients fulfilled the criteria for selection, namely, (1) age 20 or less, (2) referral for evaluation of suspected epilepsy, (3) no documentation of a seizure disorder of cerebral origin, and (4) diagnosis of a functional or psychiatric disorder through the Bender Gestalt Test, the MMPI, and the Wechsler Adult Intelligence Scale. Data regarding age at seizure onset and character and duration of symptoms were recorded. The MMPI test results of the 13 patients were remarkable. The group appeared to have a high level of psychopathology as evidenced by the elevations of the F and Sc scales. The F score mean was 61.5 and the schizophrenia mean was 77.2; the latter was the highest T-score. A general medical population of the same age range as the study group had been reported as having an F-score mean of 54.8 and a schizophrenia mean of 59.5. Examination of the data for evidence of neurosis revealed that the neurotic triad - elevations in the hypochondriasis, depression, and hysteria -

was observed in the profile coding of five patients. The most homogenous scale was hysteria which had a standard deviation of 7.5. It was also the second highest T-score mean - 71.6. By contrast, in a general medical population of this age group, the psychopathic deviate, schizophrenia, hypomania, and psychasthenia scales were highest in profile coding and hysteria ranked fifth. Schizophrenia and hypomania were prominent in the study profile coding, whereas psychopathic deviate was less than that in the comparison group.

Another study which focuses on the psychological assessment of pseudoseizure patients versus epileptic patients was investigated by Stewart, Lovitt, and Stewart (1982). This study compared severity of psychopathology and personality in three groups of patients: (1) those with organic (neurogenic) seizures alone (N=11); (2) those who exhibited both neurogenic and psychogenic (pseudoseizures) seizures (N=13), and (3) those with pseudoseizures (N=13). Psychiatric evaluation included a seizure questionnaire, the Schedule for Affective Disorders, and a Schizophrenia-Lifetime Verson (SADS-L) and a psychiatric history that focused on possible precipitating events that occur before the onset of seizures. A past history of psychiatric treatment, hospitalization, and previous suicide attempts was also obtained. Patients were then evaluated using the WAIS,

the Bender Gestalt Test, the MMPI, and the Rorschach. Thirty-three percent of the true seizure group had a family history of epilepsy compared with only 14% of the mixed group and 23% of the pseudoseizure group. All EEG's in the pseudoseizure group were normal. The IQ scores obtained from the seizure group and the pseudoseizure were significantly different (p .05). The mixed and pseudoseizure groups had similar levels of intellectual ability. A history of past suicide attempts was common among patients with mixed and pseudoseizures (46%) but less frequent among those with true seizures (9%). Similarly, a history of past psychiatric treatment was more common among patients with mixed and pseudoseizures (38%) than among those with true seizures. Eighteen percent of the patients with true seizures had a psychiatric history compared with only 54% of the mixed patients and 46% of the pseudoseizure patients. An evaluation of psychopathology using the SADS-L demonstrated striking differences between the groups. The most frequent diagnosis in the true seizure group was alcoholism, anxiety disorder, and minor affective disorder; major affective disorder and major character pathology including borderline personality, were not present. The patients with mixed and pseudoseizures were much more seriously disturbed. Of the mixed seizure group, five patients had lifetime history that met the criteria for Briquet's syndrome or had features of a histronic personality. One patient met the criteria for

schizophrenia. Of the pseudoseizure group, three patients had a history of major affective disorder, one patient exhibited schizoaffective disorder, and one had a manic-depressive disorder. Eight patients met the criteria for major character pathology including five with antisocial personality who also met the DSM-III criteria for borderline personality. Only three met the diagnostic criteria for hysteria. A chi-square trend analysis showed a significant graduated increase for character pathology (p .002) over the three ordered groups: true seizures, mixed seizures, and pseudoseizures. A one-way trend analysis of variance followed by the Duncan's multiple range tests found that for each IQ score, Groups 1 and 3 were significantly different ($p < .05$).

The Minnesota Multiphasic Personality Inventory (MMPI) is the most widely used personality inventory. The MMPI consists of 550 affirmative statements to which the examinee gives the response: "True," "False," or "Cannot Say." The MMPI items range widely in content, covering such areas as: health, psychosomatic symptoms, neurologic disorders, and motor disturbances; sexual, religious, political, and marital issues; and many well-known neurotic or psychotic behavior manifestations, such as obsessive and compulsive states, delusions, hallucinations, ideas of reference, phobias, and sadistic and masochistic trends. The MMPI provides scores on 10 "clinical" scales with eight of the

scales consisting of items that differentiated between a specified clinical group and a normal control group of approximately 700 persons. These scales were thus developed empirically by criterion keying of items, the criterion keying being the psychiatric diagnosis (Anatasi, A., 1976).

The Sixteen Personality Inventory (16 PF) is also a measure of personality. It is a multidimensional set of 16 questionnaire scales arranged in omnibus form. It was designed to make available in practicable testing time information about an individual's standing in the majority of primary personality factors. The 16 PF is based on a series of interlocking researches over 25 years directed to locating unitary independent and pragmatically important "source traits" both in ratings and questionnaires (Cattell, R., 1946, 1957, 1959, 1965). The 16 PF was based on factorial research by Raymond Cattell and his co-workers. This inventory is designed for ages 16 and older and it yields 16 scores in such traits as reserved versus outgoing, humble versus assertive, shy versus venturesome, and trusting versus suspiciousness.

Users of different personality assessment techniques frequently experience difficulty in translating observed results into one another's language. Relationships between the 16 PF and the MMPI have been investigated in a variety of populations with the general conclusion being that some

communality exists between the two tests but that each instrument measures factors which the other instrument does not measure. Karson and Pool (1957) studied the relationships between the clinical scales of the MMPI and 16 PF and found that there is surprisingly little direct correlation between the two tests. Subsequently, they reported correlations based on a sample of 71 United States Air Force officers who were referred for medical or psychological examination. From these data, they concluded that there is a considerable amount of overlap between the MMPI and 16 PF, but that the 16 PF reflects personality dimensions not tapped by the MMPI. O'Dell and Karson (1969) compared the MMPI and the 16 PF through canonical correlation and factor analysis. The 16 PF, Form A, and the short form of the MMPI were given to 58 volunteer air traffic control specialists. They found that the two tests have a fair amount of common variance but they noted that a large psychopathology factor is represented almost exclusively in the MMPI and not in the 16 PF.

Williams, Dudley, and Overall (1972) administered the MMPI and the 16 PF to 201 new admissions of a state mental hospital. The data were analyzed to provide answers to two general lines of inquiry. The first series of analyses were aimed at clarifying relationships between the MMPI and the 16 PF. Intercorrelations within and between the instruments were computed, and factor analysis methods were also used to

summarize the sources of variance common to the two instruments. The 16 PF appeared weak in the assessment and measurement of the more serious kinds of psychopathology and had strongest loadings in a common factor identified with the validity scales of the MMPI. The 16 PF also was found to measure three higher order factors of personality not represented in the MMPI, but they did not appear highly relevant for assessment of a disturbed mental hospital population.

The Sickness Impact Profile (SIP) is a behaviorally based measure of sickness related dysfunction that was developed in an effort to provide an appropriate, valid, and sensitive measure of health status (Gilson, B.S., Gilson, J.S., Bergner, M., Bobbitt, R.A., Kressel, S., Pollard, W.E., & Vesselago, M., 1975). The SIP is comprised of 136 items that broadly cover activities involved in carrying on one's life. It is designed to reflect a subject's perception of his or her performance of these activities. Reliability estimates based on two administrations of the SIP to 31 subjects showed that overall scores were highly reliable. Test-retest correlations using the various scoring methods ranged from .80 to .88.

This study will focus on the discriminatory power of the 16 PF and the discriminatory power of two personality variables found in the 16 PF. On the basis of past research, two factors will be investigated to determine whether there

is a significant difference in the scores on the factors between the experimental (pseudoseizure) group and the control (seizure) group. It is hypothesized that subjects suffering from pseudoseizures would have a higher level of trait anxiety than the subjects suffering from epilepsy. The first factor to be investigated is Factor C. Subjects scoring low on Factor C of the 16 PF tend to be low in frustration tolerance for unsatisfactory conditions, changeable, emotionally unstable, and tend to display neurotic symptoms (psychosomatic complaints, sleep disturbances, etc.). It is therefore hypothesized that subjects in the experimental group will score lower than the control group and in fact obtain a low sten score. Another factor to be investigated is Factor O. A high sten score on this factor would indicate apprehension, self-reproachment, worry, and troubled thoughts. A high score would indicate a person who worries and feels anxious and guilt stricken over difficulties. I would hypothesize that the experimental group would obtain a higher sten score than the control group on Factor O. I intend to use these factors to look at the phenomenon of pseudoseizures. This study is an exploratory experiment. I intend not to just look at pseudoseizures as a form of psychopathology, but to look at variables that might influence pseudoseizure behavior. The SIP will be administered to get a measure of the patient's functioning level through the physical and psychosocial scales.

Method

Study Setting

Four of the pseudoseizure (experimental) subjects were tested in their homes. Two of the pseudoseizure subjects were tested within the confines of the Federal Correctional Institution, Butner, North Carolina. The remaining pseudoseizure subjects were tested at Medical College of Virginia. The nine epileptic subjects, which comprised the control group, were tested at the Federal Correctional Institution, Petersburg, Virginia, and the United States Penitentiary, Lewisburg, Pennsylvania.

Subjects

The subjects for the experimental (pseudoseizure) group were nine patients of which seven were previously patients at Medical College of Virginia. Their ages ranged from 21 to 46 years of age. The mean age of this group was 32.6 years of age. The experimental group consisted of patients who had been previously diagnosed as epileptic but whose discharge diagnosis was hysterical seizures. There were four males and five females in this group. The following protocol was used for the diagnosis of pseudoseizures:

Hysterical Seizures Protocol

All patients seen for poorly controlled, diagnostically uncertain or atypical attacks of episodically altered behavior or state of consciousness

had full neurological examination. This examination consisted of general, physical, and neurological evaluation as well as skull x-rays, cerebrospinal fluid analysis, computerized cranial tomography, electrocardiogram, and 24-hour monitoring when indicated. Patients without documented seizures had their anti-convulsants discontinued upon hospitalization before being evaluation. All patients had sleep deprived and awake electroencephalograms with recording during or close to an attack. Furthermore, when indicated, 24-hour ambulatory EEG monitoring was obtained. Patients had prolactin levels drawn upon admission and immediately and thereafter a seizure.

An activation test using saline infusion and suggestion (provocative tests) was performed on all patients. This test, standardized in our laboratory, was done according to the following protocol:

1. The physician explained to the patient the need to record an attack.
2. The patient gave permission for the use of intravenous medication to produce an attack.

3. The technician applied EEG electrodes (10-20 system) EKG electrodes for a polygraphic 16- or 18-channel recording.
4. An intravenous infusion apparatus was inserted.
5. The physician then instructed the patient: 'I will now give you medicine that may bring on a spell and then I will give you medicine that will stop the spell.'
6. The physician then injected saline and said: 'I am now injecting the medicine and your spell will begin.'
7. If no attack ensued, injection and suggestion may have been rejected, may have been repeated, often several times.
8. After the spell started, the physician injected more saline with the statement: 'I am now injecting the medicine to stop your spell; the medicine is in and the spell will stop.'
9. Some attacks were recorded on videotape.

A positive test consisted of (1) induction and termination of the patient's atypical attack, including aura and posticum, with saline injection and suggestion; (2) an EEG without evidence of abnormal cerebral discharge, postattack slowing, or depression, and

(3) no EKG abnormality during the attack (Cohen, R., & Suter, C., 1981).

The control group consisted of nine patients who had recorded grand mal seizures (i.e., recorded abnormal EEG's or EKG abnormality). There were nine males in this group which ranged in age from 21 to 48 years of age. The mean age of this group was 32.2 years of age.

The mean educational level (measured in terms of years of school completed) for the experimental group was 11.8 years and 8.4 years for the control group. The mean vocabulary score as measured by the Shipley Institute for Living Scale (Shipley, B., 1967) was 14.5 years for the control group and 13.7 for the experimental group. The range for vocabulary of the control group was 11.0 to 17.0 years and the range for the experimental group was 12.7 to 16.2 years of age.

All subjects were informed about the nature of the study, asked to sign a consent form, and debriefed.

Apparatus

The 16 PF was used as the measure of personality in an effort to explore its discriminatory power. Form A was used for this study. This test was designed for ages 16 and older. Owing to the shortness of the scales, reliabilities of factor scores for any single form of the 16 PF are generally low. When the two forms of the tests are combined

(A and B), parallel form reliabilities center in the .50's and retests after a week or less fall below .80 (Anatasi, A., 1980). There is some question to the factorial homogeneity of items within each scale, as well as the factorial independence of scales (Levonian, R., 1961).

The Sickness Impact Profile was used to obtain a measure of the impact of the sickness on behavior. The SIP provides three scores: physical, psychosocial, and overall score. The SIP is a behaviorally based measure of sickness related dysfunction that was developed in an effort to provide an appropriate, valid, and sensitive measure of health status (Gilson, B.S., Gilson, J.S., Bergner, M., Kressel, S., Pollard, W.E., and Vesselago, M., 1975). The SIP is comprised of 136 items that broadly cover activities involved in carrying on one's life. It was designed to reflect a subject's performance on these life activities. Reliability estimates based on two administrations of the SIP to 31 subjects showed that overall scores were highly reliable. Test-retest correlations using the various scoring methods ranged from .80 to .88.

The Shipley Institute of Living Scale was used to replace the administration of the Otis-Lennon Mental Ability Test. The Shipley was chosen because of its

shorter administration time. The Shipley requires 20 minutes administration time whereas the Otis-Lennon requires 40 minutes administration time. A shorter screening instrument was chosen to combat the possibility of test fatigue.

The Shipley Institute of Living Scale was designed as an aid in detecting mild degrees of intellectual impairment in individuals of normal original intelligence (Shipley, W.C., 1967). The scale was standardized on 1,046 individuals. The normative group was composed of students ranging in continuous gradation from the fourth grammar grade through college. From this group, all of whom had had intelligence tests, mental-age equivalents were established for vocabulary scores and abstraction scores and the two combined. Reliability coefficients obtained from 322 Army recruits were .87 for the vocabulary test, .89 for the abstraction test, and .92 for the two combined. No actual validity coefficients were available. Nevertheless, results obtained from 374 mental patients from both private and state hospitals point to the efficaciousness of the scale in measuring impairment.

Results

Discriminant Analysis

A discriminant analysis was computed with the Personality Factors C and O in the 16 PF and the two groups (seizure and pseudoseizure). Group membership served as the criterion variable and the personality factors served as the predictor variables. The discriminant analysis indicated that these two variables did not significantly predict group membership at a .5% level of significance. The Hottelling T^2 was also found to be nonsignificant at the .5% level of significance.

The discriminant analysis performed in order to determine if the variables (the two scales in the Sickness Impact Profile: psychosocial and physical) predicted group membership (seizure and pseudoseizure) was also found to be nonsignificant at the .5% level of significance. The Hottelling T^2 was also found to be nonsignificant at the .5% level of significance.

Discussion

Nonsignificant results were obtained for both discriminant analyses performed on the 16 PF (Factors C and O) and the physical and psychosocial scales in the Sickness Impact Profile. There are several reasons possible for obtaining nonsignificant results for these two discriminant analyses.

The two factors on the 16 PF may not have been reliable and/or valid predictors of pseudoseizure versus epileptic seizures. This may be due to the fact that there is a considerable amount of overlap between these two factors. If Factor C was found to be nonsignificant then it is not surprising that Factor O was also nonsignificant. The nonsignificant results could also be contributed to the small sample size. The availability of pseudoseizure subjects is very small and more importantly is the fact that the diagnostic procedure used to identify the pseudoseizure group was extremely rigorous.

As stated in the literature review, there have not been many studies focusing on the psychological differentiation of pseudoseizure patients from epileptic patients. The nonsignificance of the 16 PF and the SIP differentiating these two groups should not be indicative of other personality tests being researched as possible indicators of pseudoseizures. A larger sample size with a mixed group (a group with a history of epileptic seizures and known pseudoseizures) added might further advance this design and lead to discriminatory power. The ability for any reliable and valid personality variable to discriminate pseudoseizures versus epileptic seizures may lead to more expeditious intervention and treatment. This would be advantageous to physicians and psychologists because they would be better prepared to recognize and diagnose proper care and treatment.

Definition of the cause would avoid improper treatment and exacerbation of the problem and is the first step toward helpful and productive treatment.

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Table 1

	Experimental	Control	Significance Level
Family History of Psychiatric Disorder	10	2	$P<.01$
Past History of Psychiatric Disorder	15	4	$P<.01$
Attempted Suicide	10	4	$P<.05$
Sexual Maladjustment	10	2	$P<.01$

Appendix

Reminder and Consent Form

I, _____, voluntarily consent to participate in
(subject)
the study entitled Personality Variables That Discriminate Pseudoseizure Patients and Epileptic Patients Used In The 16 PF.

1. The purpose of this study is to assess the ability of two personality variables to discriminate pseudoseizure patients from epileptic patients.

2. This study will involve the administration of two tests. The testing procedures are strictly noninvasive and do not involve the use of any drugs or other medical or surgical procedures.

3. The results of this study will assist physicians in diagnosing and differentiating pseudoseizure patients.

4. This study involves no invasive procedures. The main inconvenience is the time required to complete the tests.

5. By signing this consent form I have not waived any of my legal rights or released this institution from liability for negligence. I may revoke my consent and withdraw from this study at any time. Questions regarding the experiment may be directed to the experimenter at any time.

6. The use of the test results and information obtained will be for the purpose of research only. Everything possible will be done, consistent with the purpose of this consent,