5-1985

Personality variables that discriminate pseudoseizures 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.

By

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B.S., Virginia Commonwealth University, 1980

A Thesis

Submitted to the Graduate Faculty

of the University of Richmond

in Candidacy

for the degree of

MASTER OF ARTS

in

Psychology

May, 1985

Richmond, Virginia

Abstract

This project was designed to study the effect of certain
personality factors on pseudoseizure patients. It was hypo-
thesized 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
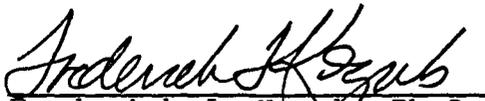may have contributed to the non-significant results.

Personality Variables That Discriminate Pseudoseizure

Patients and Epileptic Patients Used In The 16 PF

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Acknowledgements

This study was made possible through the assistance, cooperation, and support of many people. The author wishes to acknowledge the contributions of the following:

Dr. L. James Tromater, who was chairman of this thesis. Dr. Tromater remained a conscientious editor, supporter, and reviser to the very end. His sense of humor and patience brought this project to an end; Dr. Bernard M. Chirico and Dr. F. J. Kozub, who were members of the committee. Their cooperation and assistance eased me through this project.

The Federal Bureau of Prisons, United States Justice Department, and particularly Marshall Haimes, without whose assistance I could have not completed this project. The cooperation that I received from the staff and inmates cannot be measured.

Dr. Robert Hart and Dr. Robert J. Cohen, who could not have been more generous with their knowledge of neurology and neuropsychology. Without Dr. Cohen's cooperation and assistance, the subjects for this study would have been unavailable.

Dinaz Lynn Stafford, who helped me collect data for this study. Her friendship, constant nagging, and academic inspiration made this project bearable and fun.

My parents and family for their financial support, pride, and love that pulled me through this project. I thank them.

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

Insert Table 1 about here

---

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 electroenceph-
alograms 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 <u>Personality Variables That Discriminate</u>

<u>Pseudoseizure Patients and Epileptic Patients Used In The</u>

<u>16 PF</u>.

    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,

to protect my privacy in the use of the test results

and information obtained.

_____ _____
Signature, Responsible Investigator Signature, Subject

                                     _____
                                     Date