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This study investigated the presence of specific personality characteristics, false positive results, and psychopathology in individuals with epilepsy. The method of measure was the Rorschach Inkblot Test using the Comprehensive System for interpretation. Three groups were used: 20 individuals with epilepsy, 20 individuals with chronic illness, and 20 individuals with no diagnosis of a chronic illness. Independent variables were groups and gender. Using ANOVA at $p < .05$ significance level, results indicated no significant differences in depression, schizophrenia, rigidity, overincorporation, egocentricity, and pure form responses. There was a significant difference between the participants with epilepsy and participants of the other groups on a measure of incidence of popular responses. Those with epilepsy gave significantly fewer responses. The effect size using Eta^2 was medium. The lack of significance in personality characteristics and psychopathology may be due to the implementation of new medications since a few have psychotropic value. The group with epilepsy was heterogeneous regarding the types of seizures experienced and this may have also affected the lack of significance. Further investigation should focus on a discrimination on the type of seizure and personality characteristics as well as the behavioral effects of anticonvulsant medication.

RORSCHACH RESPONSES OF INDIVIDUALS WITH EPILEPSY

A Thesis

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"In all thy ways acknowledge him, and he shall direct thy paths." (Proverbs 3:6)

This paper was written in loving memory of

Henry E. Norris and Georgia V. Hudlin

Family is one of the greatest treasures God has given to us on Earth

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CHAPTER I

INTRODUCTION

Epilepsy is a chronic condition affecting approximately 3 % of the population in the United States. It is defined as the presence of recurrent seizures (Scheuer & Pedley, 1990). Seizures are events reflecting a temporary dysfunction of the brain in which there is an excessive, random firing of the neurons. There are many types of seizures. Each is categorized by the location of the initial discharge of neurons in the brain, the amount of cortical area affected, and the evaluation of an electroencephalogram by a physician (Gestaut, 1970; Svoboda, 1979).

The common medical treatment for epilepsy is the use of anticonvulsive medication. The kind of medication prescribed depends upon the type of seizure an individual is experiencing. With specific types of seizures, though, drug therapy does not always achieve an extended remission of seizures. Side effects may also be problematic and must be dealt with by the individual. When seizures cannot be controlled through medication, surgery may be another option considered by both physician and patient (Dodrill, 1988; Scheuer & Pedley, 1990; Svoboda, 1979).

In addition to medical treatment, a more holistic approach to the management of the disorder has been suggested in the literature. An understanding of the environmental factors and personality profiles unique to individuals with epilepsy may aid in more effective management of the condition and a better quality of life for the individual (Souheaver & Janati, 1987; Svoboda, 1979).

Classification of Seizures

There are many types of seizures, and classification is crucial for proper diagnosis and treatment. The common, well-known diagnoses are grand mal and petit mal seizures. These classifications have proven to be too vague for proper diagnosis and treatment (Svoboda, 1979). In the current literature, seizures are classified by physical origin of the attack and how it begins rather than by its severity. Classification begins with a determination of the specific functions in the brain affected, such as

memory or formulation of speech. Then, the area of the body affected is considered (Scheuer & Pedley, 1990).

For diagnosis, each type of seizure has distinctive characteristics. Focal (localized) seizures begin in a specific region in the brain. The seizures may spread to other areas in the brain and thus affect other areas of the body. Generalized seizures involve the entire brain, thus affecting the whole body. Unilateral (left temporal lobe or right temporal lobe) seizures affect one side of the brain, therefore the opposite side of the body is affected. Neonatal seizures occur soon after birth as a result of trauma. When more than one type of seizure occurs in the same individual, it is classified as a multifocal seizure disorder. When there is insufficient information to diagnose the type of seizure, the diagnosis of unclassified seizure disorder is given (Svoboda, 1979).

Fenwick (1989) has broken down the seizure episodes into phases for better description and understanding. The prodromal phase is the period of time before the occurrence of the seizure. This phase may last from minutes to hours and an alteration in behavior may be observed in the individual during this time. The ictal phase is the occurrence of the actual seizure. The length of this phase depends upon the type of seizure and how extensive it is in the brain. The postictal phase is the period directly after the occurrence of the seizure. In many individuals, this is a time of confusion about what has happened. The interictal phase is the period of time between seizures. This phase varies due to the amount of control there is over the occurrence of seizures. This period is considered to be free of the direct effects and influences of seizures on the behavior of the individual. The psychological characteristics of individuals during the interictal phase will be the focus of the literature cited for this thesis.

Environmental Factors

Environmental factors studied in the past include the social stigma of having epilepsy and the significance of being in the work force. For many years, individuals with epilepsy have been treated differently and discriminated against in society. Hermann, Whitman, Wyler, Anton, and Vanderzwagg (1990) reported various examples of social stigma individuals with epilepsy have

experienced, such as problems in obtaining housing and transportation, changes in parental interaction with children with epilepsy, and social exclusion. Over time, education has helped to dissipate some of the myths about individuals with this condition and has increased awareness that they deserve equal treatment. Despite these efforts, stigma still exists (Fenwick, 1989; Svoboda, 1979).

For the person with seizures, work provides a way of becoming more accepted in the society by decreasing some of the myths still in existence, as well as providing a sense of normality. Work frequently establishes acceptance through social status, so the ability to work is of great importance to the individual with epilepsy. A sense of normality is achieved when he is able to prove to himself that he can now do as much or more than coworkers and as much as he was able to do before the onset of epilepsy. These individuals tend to put a tremendous amount of effort into work and have been found to strive beyond what is expected. Unfortunately, for those with uncontrollable seizures, work is an option that may not be available, or the type and amount of work is limited by their physical condition (Bahrs & Ritter, 1988; Svoboda, 1979).

Personality Characteristics

Many personality characteristics have been attributed to individuals with epilepsy. Some of the early records of personality characteristics were in the Middle Ages, when those with epilepsy were considered to be powerful. It was believed they received divine revelation during the seizures (Blumer, 1984). The outlook on epilepsy, though, was not always positive. There are many historical accounts when individuals with epilepsy were thought to be possessed by demons. Treatments included the practice of exorcism, trephining, and banishment. In the beginning of the current century, Kraepelin is cited by Berrios (1984) and Sorenson and Bolwig (1987) as describing individuals with epilepsy as slow learners and narrow minded. Current studies have revealed a variety of characteristics attributable to many individuals with epilepsy, such as high standards of conduct, fear of failure, hyposexuality, aggression, hypergraphia, and an interest in philosophy and religion (Bahrs & Ritter, 1988; Sorensen & Bolwig, 1987; Trostle, Hauser, & Sharbrough, 1989).

The presence of high moral standards has been repeatedly mentioned in the research. Sorensen, Hansen, Hagenhaven, and Bolwig (1988) found a greater "super-ego functioning" in individuals with epilepsy. They reported many individuals with epilepsy as having a "hypermoralistic" view of the world (p. 219). In their study regarding the significance of being in the work force, Bahrs and Ritter (1988) concluded that the high moral standards of many people with epilepsy was an attempt to be socially integrated into the normal population. This seemed to be an overcompensation to achieve acceptance into society despite the social stigma that exists (Bahrs & Ritter, 1988).

Sorensen et al. (1988) concluded that many individuals with epilepsy display concrete and rigid thought processes. This rigidity may have a detrimental effect on the individual's ability to tolerate the stress and frustrations of everyday life. Janati and Souheaver (1987) reported identifiable stressors to precipitate seizures in half of the participants in their study with uncontrollable seizures.

A considerable amount of research in the literature has focused on certain personality characteristics unique to individuals displaying a specific type of seizure (Brandt, Seidman, & Kohl, 1985; Svoboda, 1979). The categories of interest are generalized seizure disorders and temporal lobe epilepsy. Many of the characteristics seen in the patients with generalized seizures also seem to be present in many of the patients with temporal lobe epilepsy, but there is a tendency for increased intensity in many of these characteristics in individuals with temporal lobe epilepsy (Brandt et al., 1985).

The characteristics that separated individuals with generalized seizure disorder from individuals with no known chronic illness were hyposexuality, deepened emotions, greater interest in religion and philosophy, and hypergraphia (Herman & Riel, 1981). Brandt et al. (1985) supported these findings and further discriminated patients with generalized seizure disorder from individuals with other types by finding a significantly higher level of dependence on others as well as the personal belief that they do not have any control over their personal destiny.

The individuals with temporal lobe epilepsy seem to share many of the same characteristics as those with generalized seizures but manifest specific personality characteristics depending upon the

side of the brain affected (Hermann & Riel, 1981). Brandt et al. (1985) found a significantly higher level of depression, obsession, and pessimism. Perini (1986) reported a higher level of depression and paranoia when seizures occurred in the left temporal lobe. Individuals with right temporal lobe epilepsy seem to have a more optimistic outlook on life and a greater tolerance for stress (Perini, 1986; Souheaver & Janati, 1987). Brandt et al. (1985) supported the finding of Perini (1986) regarding a more optimistic view of life, but did not find any other significant differences between the sample and a control group with no known chronic illness.

Psychopathology

Beyond personality characteristics, the literature supports a higher incidence of psychopathology in the population with epilepsy, regardless of the types of seizures present (Benson, 1986; Whitman, Hermann, & Gordon, 1984). Trostle, Hauser, and Sharbrough (1989) concluded 50% of the individuals with epilepsy had definite or severe psychological or social adjustment problems. Mendez (1988) also found higher levels of aggression and suicide in comparison to matched controls without seizures. Persinger and Makarec (1987) also supported increased psychopathology by finding higher levels of anxiety and paranoia in comparison to matched controls without seizures.

The occurrence of depression and suicide among the population with epilepsy is very high. Mendez, Cummings, and Benson (1986) reported that 55% of the out-patient sample with epilepsy reported major depressive symptoms in comparison to 30% in the out-patient control group without a seizure disorder. Within the sample with epilepsy, 30% reported prior suicide attempts whereas only 7% of the matched control subjects reported prior attempts. Robertson and Trimble (1983) concluded the suicide rate among depressed individuals with epilepsy was five times greater than in depressed individuals without any known chronic illness. There was a 25 times higher incidence of suicide in individuals with temporal lobe epilepsy reporting depressive symptoms compared to individuals without a known chronic illness reporting depressive symptoms. Benson (1986) explained the more frequent occurrence of depression in the population with epilepsy may be due to the high concern over losing control over one's body.

Many researchers have noted the higher incidence of multiple personality disorder occurring in the population with epilepsy (Greaves, 1980; Mesulam, 1981). Mesulam (1981) described eight cases of multiple personality disorders in which the individuals were also diagnosed with a seizure disorder. There is a positive relationship between the greater amount of control over the occurrence of seizures and the frequency of multiple personality disorder diagnoses in individuals with epilepsy. In the diagnosis of multiple personality disorder in individuals with epilepsy, it is crucial to consider the stage at which the individual is in relation to the seizures (prodromal, ictal, periictal, or interictal) (Benson, 1986).

A higher incidence of dementia in the population with uncontrolled seizures has been documented. In the presence of uncontrollable seizures, Benson (1986) explained the lack of oxygen to the brain in the ictal phase and high levels of anticonvulsants used in an attempt to control the seizure may cause dementia. The prognosis for these individuals seems to be poor. Management has been stated as being difficult and the need for custodial placement has become an option for the management of these individuals (Benson, 1986).

The prevailing thinking is that a higher level of psychopathology exists among the population with epilepsy, but there is a new argument against increased psychopathology. Provinciali, Leandro, Franciolini, and del Pesce (1989) could not find a relationship between unilateral epilepsy and psychiatric problems. Naugle and Rodgers (1992) also support this finding in their study, with matched controls on various psychiatric and demographic variables. They went a step further and suggested that the participants with epilepsy displayed adaptive responses to their uncontrolled seizures.

Variables Affecting Personality Traits and Psychopathology

Self-perception plays a large role in the presence of specific personality characteristics and psychopathology. Collings (1990) concluded that those individuals believing there would be little difference between perceived self without epilepsy and current self with epilepsy seemed to have the

highest level of self-esteem and sense of well-being. Hermann et al. (1990) found overall poor adjustment to having epilepsy was related to increased reports of psychopathology.

The severity of the condition is a variable which should not be overlooked when discussing personality and psychopathology. Work, for example, has been proven to provide a sense of normalcy and self-worth. With the presence of uncontrolled seizures, the opportunity to hold a driver's license and range of employment opportunities can be greatly diminished (Bahrs & Ritter, 1988; Collings, 1990).

The selection of the participants for the various studies may have an effect on the described characteristics of those with epilepsy (Goodridge & Shorvon, 1983; Trostle et al., 1989). Many of the subjects for the studies have been selected from neurology clinics, psychiatric hospitals, or from support groups for epilepsy (Currie, Heathfield, Henson & Scott, 1971; Hermann & Riel, 1981; Mendez et al., 1986). Mendez et al., (1986), for example, reported a higher incidence of depression in individuals with epilepsy than in individuals without a known chronic illness. The participants for this study, though, were taken from vocational services for the disabled and a Veterans' Administration in-patient unit. Souheaver and Janati (1987) described those with right temporal lobe and generalized epilepsy displaying more denial and rigidity than the population without epilepsy. Their participants came from a special epilepsy unit in a Veterans' Administration hospital. By selecting from hospital populations and neurologist referrals, the investigators may have chosen individuals with more problems in the control of their epilepsy as well as a higher incidence of psychiatric problems than normal comparison groups (Trostle et al., 1989).

Anticonvulsant medications can also affect personality characteristics of individuals with epilepsy. The medications have been said to cause such side effects as irrational behavior, emotional upset, and temper outbursts (Dodrill, 1988; Sands & Minters, 1977). Sorensen et al. (1988) reported anticonvulsant medication has a detrimental effect on such cognitive functions as alertness, memory, and concentration. Post, Trimble, and Pippinger (1989) described the side effects of anticonvulsant medications to generally interfere with the individual's ability to function at peak performance in all

activities and a general deterioration of cognitive functioning during extended use of these medications. Since most individuals with epilepsy rely upon medication for maintenance of a life relatively free of seizures, it would be difficult to determine if the personality characteristics are due to having the condition of epilepsy or from the use of anticonvulsants.

Testing

Many different instruments have been used in the study of the personality characteristics and psychopathology of individuals with epilepsy. The Minnesota Multiphasic Personality Inventory (MMPI) has been used to determine the differences in profiles compared to those without any known chronic illness (Sorensen & Bolwig, 1987; Souheaver & Janati, 1987). Individuals with epilepsy have also been known to have false positive results on the MacAndrew scale for alcoholism (Steenman, Hermann, Wyler, & Richey, 1988). The L scale, which measures deliberate attempts to place oneself in a favorable light, has been determined to vary with seizure type. Individuals with left temporal lobe epilepsy had the lowest scores on the L scale and individuals with right temporal lobe epilepsy scored high on the L scale (Souheaver & Janati, 1987).

The Bear-Fedio Inventory has also been used in the assessment of personality characteristics. The authors of the Bear-Fedio Inventory argued the MMPI does not pick up personality traits since it was designed to determine psychopathology. Results from the Bear-Fedio Inventory revealed individuals with seizures localized to the left temporal lobe have a higher tendency for behavior that is not socially acceptable and are more obsessive than those with seizures in the right temporal lobe (Bear & Fedio, 1982; Hermann & Riel, 1981; Mungas, 1982; Sorensen & Bolwig, 1987).

Other questionnaires used to evaluate the epileptic profile are the Eysenck Personality Questionnaire and the Marke Nyman Temperament Scale. The results of the Eysenck Questionnaire found a higher incidence of rigidity and neuroticism in individuals with epilepsy in comparison to individuals without any known chronic illness. The study using the Marke Nyman Temperament Scale revealed characteristics such as emotional instability and self-centeredness (Sorensen & Bolwig, 1987).

Banerjee (1985) used the Rorschach Inkblot Test to measure personality traits of individuals with epilepsy. His findings, using the Beck System for interpretation, revealed individuals with epilepsy as having a deficiency in abstract thinking, lack of common sense, and rebelliousness. Banerjee also reported intellectual deficiency and a tendency to strive to escape from the reality of their environment.

Currently, the Rorschach Inkblot Test is extensively used in clinical settings in the United States. Banerjee provided useful characteristics of epileptics in India, but these attributes may not reflect the characteristics of individuals with epilepsy in the United States as measured by the Rorschach. The management of epilepsy and societal values may differ in another culture. The current study proposes to use the Rorschach to investigate the characteristics of individuals with epilepsy in the United States.

Purpose

Since there is widespread use of the Rorschach Inkblot Test in assessment and formulation of treatment issues in clinical settings, it may be useful to understand the different attributes individuals with epilepsy may possess. The current study investigated the characteristic profiles of subjects with epilepsy in comparison to matched individuals with other chronic illnesses and individuals without any known chronic illness. The hypothesis was that a characteristic profile will become evident in the epileptic sample in the various measures on the Rorschach. As with the MMPI and various other tests in use in clinical settings, the present investigation may provide information regarding false positive results, recurrent treatment issues for this population, and common characteristics that may be helpful to improve treatment and management of the condition.

CHAPTER II

METHOD

Participants

Participants for the study consisted of three groups of 20 volunteer subjects each. Group 1 contained individuals with seizure disorders including all types of epilepsy and idiopathic seizure disorders. The type of seizures the participant experienced was not a factor for inclusion since most individuals are not aware of the exact type that has affected them, except the global classifications of grand mal and petit mal. Group 2 consisted of individuals with the diagnosis of a chronic illness other than epilepsy such as diabetes, asthma, and multiple sclerosis. Participants in Group 3 had no history of a diagnosed chronic medical condition. There was an equal number of men and women in each group.

Criteria for inclusion in the study were an age of at least 18 years and no history of dual diagnoses of chronic illness. Participants using any psychotropic medication at the time of testing were not included. Groups 1 and 2 participants could only be using medication related to the management of their condition.

The participants for all groups were obtained from various community and medical groups in the Emporia, Kansas and Wichita, Kansas areas. In the sample of participants with epilepsy, 30% reported having more than 100 seizures within the past year, 10% reported approximately 50 seizures in the last year, and the other 60% reported fewer than 10 seizures. Additional demographics are reported in Table 1.

Testing Instrument

The Rorschach Inkblot Test (RIT) was used to obtain psychological characteristics from each participant. This test is a projective device designed by Hermann Rorschach in 1921. After Rorschach's death, various systems of interpretation were devised for the same ten inkblots. The systems were the Beck, Klopfer, Hertz, Rapaport, and Piotrowski systems. These systems differed greatly in procedure,

Table 1

Means and Standard Deviations for Age, Education, and Years of Illness by Gender and Group

Variable	Women	Men	Total
Age			
Group 1	26.60	38.40	32.50
	9.18	10.83	11.74
Group 2	44.50	48.50	46.50
	16.98	17.49	16.90
Group 3	26.50	37.20	31.85
	11.71	18.82	16.21
Total	32.53	41.37	36.95
	15.36	16.37	16.35
Education			
Group 1	10.90	13.20	12.05
	2.77	2.74	2.93
Group 2	13.70	14.20	13.92
	2.58	2.49	2.48
Group 3	14.10	14.40	14.25
	1.28	1.84	1.55
Total	12.90	13.93	13.42
	2.66	2.36	2.55
Years of Illness			
Group 1	13.80	17.10	15.45
	10.57	13.40	11.87
Group 2	9.50	20.70	15.10
	8.81	15.21	13.39
Total	11.65	18.90	15.27
	9.69	14.31	12.49

Note. Means (upper number) and standard deviations (lower number) are reported in years.

use of data, interpretation of the responses given by the subject, and amount of research that supported their methods of interpretation. The currently used Comprehensive System is a culmination of the different aspects of previous systems that were supported by extensive research. The Comprehensive System contains the best of the previous systems, including the original system devised by Rorschach (Exner, 1986).

The reliability of the various indexes and interpretive statements for RIT was established using a test-retest method (Exner, 1986). In a study using adult, non-patient participants, correlation coefficients for most scores relating to traits fell between .81 and .89 for a one-year retest period. One trait was above .90 and five traits were below .72 correlation. The five traits below .72 were said to be related to the individual's current emotional state rather than enduring psychological characteristics. In a three-year retest study, most correlation coefficients were between .87 and .80. One trait measured at .90, and the same five measures that were below .72 in the one year retest study fell below .70 correlation in the three-year retest study.

Exner (1986) also measured the internal consistency of the system. Many of the correlation coefficients of scores fell below the .80 range. The explanation given for the low scores was the assumption that the stimuli are equivalent. None of the blots could be considered equal stimuli (Exner, 1986).

Traits to be compared for this study consisted of the more stable characteristics that the RIT measures. They were chosen on the basis of existing literature on test-retest measures. The characteristics measured for this study were depression, schizophrenia, egocentricity, rigidity, and underincorporation.

Exner (1986) developed several constellations in RIT to determine the presence of specific psychopathologies. Each incorporates different scores that have proven unique to the disorder. in the depression constellation, seven variablies were determined to discriminate between depressed individuals, nondepressed patients, and nonpatient adult samples. Exner reported that the index correctly identified 81% of the depressive patients if five of the seven established variables are present.

only 70% accuracy of identification was reported using only three of the seven variables, but the incidence of false positives was 30%. The criteria of five out of seven variables almost ensures the elimination of false positive reports (Exner, 1986).

The schizophrenia constellation takes into account the inaccurate perceptions and disordered thinking of schizophrenic patients (1986). In discrimination from non-patient populations, six variables were determined to differ in the schizophrenia protocols. The frequency of special scores in the scoring process as well as the presence of unusual and negative form quality were included as variables of th index. Four of the six variables must be present for a protocol to b considered positive for schizophrenia. As with the depression index, schizophrenia can identified with fewer variables, but the use of four eliminates the majority of false positive results. Exner (1986) reported an 80% identification rate using the SCZI index when comparing to randomly drawn nonschizophrenic inpatients and outpatient adults. His study concluded that the false positive rate for nonpatient adults was 1% with four variables as the criteria (Exner, 1986).

Underincorporation and overincorporation are determined by a weighted score (Zd score), which relates to the amount of area used of the blot. This score was found to correlate to a style of processing information. Exner (1978) found that a low derived score (-3.0) tended to be present in subjects who responded before all environmental stimuli had been processed. He called this process underincorporation. Higher scores (+3.0) tended to be seen in subjects who thoroughly processed environmental stimuli before formulating a response, which is overincorporation (Exner, 1986, p. 360). The findings by Exner were supported by an unpublished study by Bryant and Exner in 1974 (Exner, 1986). Underincorporators were identified as those who could finish twice as many problems in half the time taken by overincorporators on the minnesota Paper Form Board. The underincorporators made twice as many mistakes as the overincorporators. This provided support for the idea that not all of the information was being processed by the underincorporators before the formulation of a response. Further support for under- and overincorporation can be found in an

unpublished study by Exner and leura, who found similar results using the game, "Simon Says" (Exner, 1986).

The frequency of perseveration in the responses to the inkblots and rigidity in thought processes correlate positively. Perseveration within the card refers to the occurrence of a response that is similar to a previous response in content, use of form, quality of form, and area of the blot. In the standardized sample, 44% of the children gave at least one perseveration response within the same card. Approximately 5% of the adult non-patient sample records contained perseverations within the same card. Exner attrivuted the increase in the flexibility of the though processes as increasing with maturation (Exner, 1986).

Egocentricity positively correlated with the presence of reflection responses. A reflection response is one in which the blot is described as being symmetrical areas, such as mirror images. In order to find a research basis for inclusion of the measure of egocntricity into the system, Exner completed a study in which applicants for a job interview were unknowingly viewed by video during a wait for an interview. The frequency of times that subjects looked in the mirror was recorded and compared to the frequency of reflective responses given. It was found that a high frequency of reflective responses corresponded to high frequency of viewing oneself in the mirror (Exner, 1986).

Procedure

The proposal for research was reviewed and approved by the Institutional Review Board for Treatment of Human Subjects at Emporia State University. Full disclosure of the study was given to participants prior to administration of the test. All participants were asked to read and sign a consent form regarding the testing, rights of the subject, and confidentiality (See Appendix A). Confidentiality was provided by the use of an identification code on the information forms and obtained data sheets. The consent forms for Groups 2 and 3 were kept separate from other information and only the author of the study had access to these forms. The consent forms for Group 1 subjects were placed in individual medical charts at the medical institution where testing occurred. This ensured the confidentiality of patients of that institution.

All participants were given a brief questionnaire regarding basic demographic variables and general medical information (see Appendix A). If, during the course of the study, a participant was found not to meet the established criteria, any data obtained from the subject was omitted from the study. Participants with epilepsy were asked to fill out a form including the age at onset of the condition and frequency of seizures within the last year (see Appendix A). Participants with a chronic illness were asked to fill out information regarding specific condition and age of onset (see Appendix A).

Administration of the Rorschach followed the exact specifications given by Exner (Exner, 1986). Different testing sites were necessary for the completion of the study. Testing sites were used that met Exner's specifications.

CHAPTER 3

RESULTS

The statistical design used in this study was a 2 X 3 Analysis of Variance (ANOVA) measure. the variables included in the ANOVAs were Gender (men or women) and Group (epilepsy, chronic illness, or no illness). Seven separate ANOVAs were conducted to determine statistical significance for rigidity, overincorporation, egocentricity, depression, schizophrenia, incidence of popular responses, and incidence of pure form responses. Alpha level was established at .05 for all analyses. The study did not meet the ANOVA assumptions of random selection or random assignment to groups. All other assumptions were satisfied. Since some were derived rather than raw scores, data were run as both derived and as logarithms to ensure that collinearity was not a confounding variable in the results.

Analysis indicated there were no significant interaction or main effects for the schizophrenia constellation from the Rorschach Interpretive Assistance Program (see Table 2). Group 1 revealed a mean score of 1.7. This did not differ significantly from the mean scores for groups 2 and 3. A score of 4 must be met to consider this characteristic as present (see Table 3).

The depression constellation did not reveal any significant interaction effect or main effect for Gender (see Table 2). There was a significant main effect with Group 3 scoring the highest mean score of all groups. Though it was higher, the mean score of 3.95 for the group did not meet the criteria of 5 for the depressive index (see Table 3). Using Eta^2, the effect was medium (.127). Power was found to be low (.681).

Analysis of the Zd scores revealed no significant significant interaction or main effects (see Table 4). All scores were negative, which did indicate the tendency of underincorporation for all groups and genders in this study (see Table 5).

There were no significant main or interaction effects for reflections, perseveration, and pure form responses (see Tables 4 and 6). Group 1 did not give any reflection responses (see Table 5). The women in Group 2 did not give any perseveration Special Scores (see Table 7).

There were no significant interaction or main effect for gender for popular responses. There was a significant main effect for mean number of responses between groups (see Table 6). Using the Tukey procedure, Group 1 mean was determined to differ significantly from Groups 2 and 3 means. Eta^2 for the group differences revealed a medium effect (.15). Power was established at .76.

Table 2

Results of ANOVAs for Schizophrenia and Depression Indexes

Schizophrenia	SS	df	MS	F
Gender	1.67	1	1.67	.95
Group	3.60	2	1.80	1.02
Gender x Group	2.13	2	1.07	.61

Depression	SS	df	MS	F
Gender	1.67	1	1.67	1.67
Group	8.03	2	4.02	3.92 *
Gender x Group	5.63	2	2.82	2.75

* $p < .05$

Table 3

Means and Standard Deviations by Gender and Group for Depression and Schizophrenia Indexes

Variable	Women	Men	Total
Schizophrenia			
Group 1	1.80	1.60	1.70
	1.75	1.27	1.49
Group 2	1.10	1.70	1.40
	0.57	1.42	1.10
Group 3	1.70	2.30	2.00
	1.49	1.16	1.34
Total	1.53	1.87	1.70
	1.36	1.28	1.32
Depression			
Group 1	3.00	3.40	3.20
	0.82	0.97	0.89
Group 2	3.30	3.00	3.15
	0.68	1.05	0.88
Group 3	4.50	3.40	3.95
	1.43	0.97	1.32
Total	3.60	3.27	3.43
	1.20	0.98	1.10

Note. Within each group, the upper number refers to the mean, while the lower number refers to the standard deviation. Results from the depression and schizophrenia are from derived scores.

Table 4

Results of ANOVAs for Zd and Reflection Responses

Zd	SS	df	MS	F
Gender	3.75	1	3.75	.59
Group	9.92	2	4.96	.79
Gender x Group	10.42	2	5.21	.83
Reflection	**SS**	**df**	**MS**	**F**
Gender	.00	1	.00	.00
Group	.93	2	.47	1.80
Gender x Group	.00	2	.00	.00

* $p < .05$

Table 5

Means and Standard Deviations by Gender and Group for Zd and Reflection Responses

Variable	Women	Men	Total
Zd			
Group 1	-2.05	-1.75	-1.90
	2.99	2.14	2.53
Group 2	-1.85	-2.00	-1.93
	2.36	2.71	2.47
Group 3	-1.95	-3.60	-2.78
	2.11	2.64	2.48
Total	-1.95	-2.45	-2.20
	2.43	2.56	2.49
Reflections			
Group 1	0.00	0.00	0.00
	0.00	0.00	0.00
Group 2	0.10	0.10	0.10
	0.32	0.32	0.31
Group 3	0.30	0.30	0.30
	0.68	0.95	0.80
Total	0.13	0.13	0.13
	0.43	0.57	0.50

Note. Within each group, the upper number refers to the mean, while the lower number refers to the standard deviation. Zd results were obtained from a derived score. Reflections results represent means of raw scores.

Table 6

Results of ANOVAs for Perseveration, Pure Form, and Popular Responses

Perseveration	SS	df	MS	F
Gender	.00	1	.00	.00
Group	1.23	2	.62	1.77
Gender x Group	.70	2	.35	1.01
Pure Form	**SS**	**df**	**MS**	**F**
Gender	91.27	1	91.27	.33
Group	7.50	2	.62	1.77
Gender x Group	59.43	2	29.72	.11
Popular	**SS**	**df**	**MS**	**F**
Gender	3.27	1	3.27	.97
Group	31.03	2	15.52	4.63*
Gender x Group	3.03	2	1.52	.43

* $p < .01$

Table 7

Means and Standard Deviations by Gender and Group for Perseveration and Pure Form Responses

Variable	Women	Men	Total
Perseveration			
Group 1	0.30	0.50	0.40
	0.68	0.71	0.68
Group 2	0.00	0.10	0.05
	0.00	0.32	0.22
Group 3	0.40	0.10	0.25
	0.97	0.32	0.72
Total	0.23	0.23	0.23
	0.68	0.50	0.59
Pure Form			
Group 1	50.60	50.90	50.75
	15.70	17.32	16.09
Group 2	52.90	48.60	50.75
	15.87	14.59	15.00
Group 3	53.20	49.80	51.50
	17.43	18.09	17.39
Total	52.23	49.77	51.00
	15.84	16.17	15.92

Note. Within each group, the upper number refers to the mean, while the lower number refers to the standard deviation. Perseveration results represent means of raw scores. Within the Pure Form groups, results are reported as percentages.

Table 8

Means and Standard Deviations by Gender and Group for Popular Responses

Variable	Women	Men	Total
Popular Responses			
Group 1	4.10	4.20	4.15
	1.97	1.48	1.70
Group 2	6.20	5.20	5.70
	1.62	2.35	2.03
Group 3	5.90	5.40	5.65
	1.37	2.01	1.70
Total	5.40	4.93	5.17
	1.87	1.98	1.92

Note. Within each group, the upper number refers to the mean, while the lower number refers to the standard deviation. Within the groups for Popular responses, the means are derived from raw scores.

CHAPTER 4

DISCUSSION

This study investigated the possible identification of specific personality characteristics and psychopathologies that may be present in the population with epilepsy. The participants with epilepsy in this study did not display increased psychopathology in comparison to individuals with chronic conditions or healthy individuals. This finding is in agreement with the increasing trend in research that no increased psychopathology exists. Naugle and Rodgers (1992) used patients with epilepsy in comparison to matched control groups without seizure disorders. They found no increased psychopathology among the group with epilepsy. Actually, they went a step further to support the idea that participants with epilepsy displayed adaptive responses to uncontrolled seizures. Provinciali, Leandro, Franciolini, and del Pesce (1989) also could not find a relationship with epilepsy and psychopathology.

In this study, there was no discrimination regarding the type of seizures the individuals with epilepsy experienced. Some of the research in the literature provided distinct personality characteristics depending up on the type of seizures a person experiences. Since the group for this study was heterogeneous in types of seizures, this may have affected the results.

Criteria for the use of medication in the group with epilepsy and the group with chronic illnesses sought to eliminate confounding factors anticipated from any behavioral changes due to medication. One reason for no significant difference in psychopathology in the present sample may be due to the implementation of more advanced types of medications and technology for the population with epilepsy. Older medications decreased cognitive functioning and peak performance functioning in all activities in the life of the individual with epilepsy (Post et al., 1989). Increased technology such as vagal nerve stimulation and neurosurgery and new medications may increase or more minimally impair psychological well-being.

A spokesperson for Novartis Pharmaceuticals Corporation confirmed the widespread use of four major medications prescribed for epilepsy. The lack of significance of psychopathology should be

further investigated in light of the new medications in wide use. Carbamazepine is used for the treatment of complex partial and generalized seizures (Mattson, Cramer, Collins, & the Department of Veterans Affairs Epilepsy Cooperative, 1992). It also is valued in the treatment of bipolar disorders in 107 other countries (Post, Denicoff, Frye, & Leverich, 1997). Patients using Carbamazepine reported elevated mood and physicans reported patients with elevated moods and better overall functioning at the implementation of Carbamazepine for treatment of epilepsy (Levy, Mattson, Meidrum, Penry, & Dreifuss, 1989). Neurontin is used in the treatment of complex partial seizures, but also prescribed in this country for the treatment of manic episodes associated with bipolar disorder (Physician's Desk Reference, 1997).

The stigma of epilepsy should also be considered in the lack of support for increased psychopathology. The passing of the Americans with Disabilities Act has made discrimination illegal in the work force. The Epilepsy Foundation has publicized the disorder through advertisements on public television stations. Current newspaper articles have displayed the courage of such individuals in their communities. All of these factors may dispel the myth and provide more opportunities for the individual with epilepsy to cope with the illness, rather than hide.

The participants with epilepsy in this study did not display any difference in personality characteristics in "super-ego functioning" or rigidity. This finding did not support the earlier conclusions of Sorensen et al. (1988). Their study found a greater "super-ego functioning" in the epileptic individuals. The analysis of the reflection responses in the RIT in this study fournd no significant differences between the participants with epilepsy, chronic illness, or healthy participants.

Sorensen et al. (1988) reported rigidity in thought processes, a conclusion not supported by the current study. In this study, rigidity of the individuals was measure by the incidence of perseveration responses. There were no significant differences among the three groups..

Pure form responses and popular responses were investigated to determine whether individuals with epilepsy displayed differences in responses. Arluck (1940) reported a lower frequency of pure form responses in the population with epilepsy. The current study did not find any significant

differences in the pure form responses. Exner (1986) postulated that decreased pure form responses was due to a personality style of impulsivity.

The incidence of popular responses in the protocols did show a significant difference among groups. The group with epilepsy displayed a significantly lower number of popular responses in comparison with other groups. This is reported to be one of the more stable features in RIT (Baughman, 1954, Exner, 1978). Exner (1986) postulated most adult subjects should give between five and eight popular responses in a protocol. In this study, the mean score for popular responses in the group with epilepsy was 4.15. Exner believed that a frequency of 4 or fewer popular responses "reflects either an inability or unwillingness of the subject to deliver that which may be the most obvious possible answer" (Exner, 1986, p. 364).

Exner explained both depressive individuals and schizophrenics tend to give a lower number of popular responses, both a mode of 4. Since the epileptic groups revealed neither of these psychopathologies, other reasons for the lower number of popular responses should be considered. If no psychopathology exists, this may only indicate a highly conventional way of dealing with reality (Exner, 1986). The unique finding is worthy of further investigation in the epileptic population.

In testing, the level of chronicity of the subjects must also be considered. Less than 10% of the chronic sample was on disability at the time of testing. In the epilepsy sample, 45% were on disability. There is a certain level of difficulty in trying to match chronicity of health in order to match the experience of the epileptic population. For further investigations, it may be beneficial to obtain participants from various sources (e.g., support groups, hospital settings and physician referrals) in an attempt to be more representative of both the population with epilepsy and the population with chronic illness.

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APPENDIX

Participation Consent Form

Please read this participation form carefully. You are invited to participate in a study investigating personality characteristics of individuals with epilepsy as measured by the Rorschach Inkblot Test. The selection criteria for groups vary: Group one participants are requested to have been diagnosed with a seizure disorder and be taking medication to maintain various aspects of this condition. Group two participants will include individuals with a single chronic illness and be taking medication for their specific condition. Individuals will also be needed for a control group consisting of those with no diagnosis of a chronic illness. All subjects included in the study need to be at least 18 years old, have no history of dual diagnoses of chronic illness, and not be taking any psychotropic medication at the time of testing.

Your participation will require approximately 20 minutes for administration of the Rorschach Inkblot Test and retrieval of demographic information. Your results on the Rorschach will remain confidential. Anonymity will be preserved, and only group comparisons will be reported.

Participation in this study is completely voluntary. If you wish to terminate participation, you may do so at any time. There is no risk or discomfort involved in completing the study. The benefits that you will receive from participation are the experience to participate in a thesis study and introduction to the Rorschach Inkblot Test.

If you would like to volunteer, please read and sign the consent form below. If you have questions or comments regarding this study, please contact Julie Mitchell at (316)343-6072.

THANK YOU FOR YOUR PARTICIPATION!!

I, _____, have read the above information and would like to
(please print name)

participate in this study. I am aware that my participation is completely voluntary and that I may withdraw at any time after signing this form should I choose to terminate my participation. I understand that all information will be reported in a group form and confidentiality will be maintained.

_____ _____
(Signature of participant) (date)

THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY THE EMPORIA STATE UNIVERSITY COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS.

General Background Information

Date of Birth: _____

Gender: _____

Level of Education: _____

Occupation: _____

_____

Have you ever been diagnosed with two chronic illnesses? _____

On a scale for 1 to 5, please circle the number that best describes your physical health.

Very Healthy		Usually Healthy		Not Healthy
1	2	3	4	5

Do you currently take any medication realted to a medical condition? If so, please explain. _____

_____

_____

Chronic Illness Background Information

What illness have you been diagnosed with?_____

_____

What was the age of onset of your illness?_____

_____

Do you currently take medication for this condition? _____

_____

Epilepsy Background Information

At what age were you diagnosed with a seizure disorder?_____

Do you know the type of seizures that you have experienced? If so, Please state the type._____

_____

How many seizures have you experienced within the last year?_____

Are you currently taking medication for this condition?_____

Have you been diagnosed with any other chronic illness? Of so, please explain._____

_____

I, Julie C. Mitchell, hereby submit this thesis/report to Emporia State University as partial fulfillment of the requirements for an advanced degree. I agree that the Library of the University may make it available to use in accordance with its regulations governing materials of this type. I further agree that quoting, photocopying, or other reproduction of this document is allowed for private study, scholarship (including teaching) and research purposes of a nonprofit nature. No copying which involves potential financial gain will be allowed without written permission of the author.

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Signature of Author

July 31, 1998
Date

Rorschach Responses of Individuals with Epilepsy
Title of Thesis/Research Project

Mary Cooper
Signature of Graduate Office Staff

July 31, 1998
Date Received