LOCUS OF CONTROL AND PSYCHOSOCIAL ADJUSTMENT IN ADULTS WITH EPILEPSY

A Thesis Presented to the Faculty of California State University, Hayward

In Partial Fulfillment of the Requirements for the Degree Master of Science in Counseling

By David B. Monson

January, 1992
Abstract

Noting that children with epilepsy have been found to be significantly more external in their locus of control (LOC) orientation than their healthy peers (Matthews, Barabas, & Ferrari, 1983), the author attempted to discover if the same were true of epileptic adults. The author administered the Adult Nowicki-Strickland Internal-External (ANSIE) Scale to a small (N = 15) sample of epileptic adults from the San Francisco Bay Area and compared their responses to those of a community sample that had taken the same scale in a previously published study. According to data analysis using the Student t-test, the epileptic adults were not significantly more external than the general population, as represented by the community sample. However, the t-test for Pearson r correlation coefficients manifested a significantly negative correlation between their level of external LOC and their level of psychosocial adjustment, as measured by the Washington Psychosocial Seizure Inventory's (WPSI's) Overall Psychosocial Functioning Scale (p < .05). These results suggest internality increases with age for epileptics, as it does for the general population (Nowicki, Jr., & Strickland, 1973), and that adult epileptics' levels of psychosocial adjustment are inversely related to their degrees of external LOC.
LOCUS OF CONTROL AND PSYCHOSOCIAL ADJUSTMENT
IN ADULTS WITH EPILEPSY

By
David B. Monson

Approved: Date:

[Signatures]

January 16, 1992
January 21, 1992

iv
Acknowledgements

This master's thesis would not have been possible without the help of certain individuals. I thank Don Brown, my thesis advisor, for his guidance and advice in the designing and reporting of this study; I also thank Don McKillop for his approval of this thesis as a reader of my thesis. I thank Drs. Carl B. Dodrill and Stephen Nowicki, Jr. for granting me permission to use the Washington Psychosocial Seizure Inventory and Adult Nowicki-Strickland Internal-External scale (respectively) in my study. I thank the subjects for their participation in the study; I also thank both the Epilepsy League of the East Bay and the neurologists of the Alameda-Contra Costa Medical Association for enlisting the subjects' participation. I thank my father-in-law, Bert Lee, for lending me both the hardware and software that facilitated the writing of this thesis. Finally, I reserve special thanks for my wife, Marla, for the patience, undying support, and technical help she gave me toward the successful completion of this thesis.
TABLE OF CONTENTS

Abstract . . . . . . . . . . . iii
Acknowledgements . . . . . . . . . . . v

I. Introduction . . . . . . . . . . . 1
   A) General Statement of the Problem . . . . 1
   B) Definition of Terms . . . . . . . . 1
      1) Internal-external locus of control . . . 1
      2) Epilepsy . . . . . . . . . . 2
      3) Overall Psychosocial Functioning/
         Adjustment . . . . . . . . . . 3
   C) Background of the Problem . . . . . . 4
   D) Significance of the Problem . . . . . 5

II. Literature Review . . . . . . . . . . 7
   A) Internal-External Locus of Control . . . 7
      1) Development of Rotter’s I-E Scale . . . 7
      2) Development of the CNSIE . . . . . 9
      3) Development of the ANSIE . . . . . 11
      4) Factors of Nowicki’s LOC scales . . . 12
      5) LOC as an age-related variable . . . . 15
      6) LOC and assertiveness . . . . . . 18
      7) LOC and adjustment . . . . . . . 19
      8) LOC and health . . . . . . . . 21
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B) Psychosocial Adjustment to Seizures</td>
<td>22</td>
</tr>
<tr>
<td>1) Development of the Washington Psychosocial Seizure Inventory</td>
<td>22</td>
</tr>
<tr>
<td>2) Family background</td>
<td>26</td>
</tr>
<tr>
<td>3) Emotional adjustment</td>
<td>41</td>
</tr>
<tr>
<td>4) Interpersonal adjustment</td>
<td>48</td>
</tr>
<tr>
<td>5) Vocational adjustment</td>
<td>49</td>
</tr>
<tr>
<td>6) Financial status</td>
<td>53</td>
</tr>
<tr>
<td>7) Adjustment to seizures</td>
<td>54</td>
</tr>
<tr>
<td>8) Medicine and medical management</td>
<td>64</td>
</tr>
<tr>
<td>C) Summary</td>
<td>68</td>
</tr>
<tr>
<td>III. Method</td>
<td>71</td>
</tr>
<tr>
<td>A) Specific Statement of the Problem</td>
<td>71</td>
</tr>
<tr>
<td>B) Hypotheses of the Study</td>
<td>71</td>
</tr>
<tr>
<td>C) General Methodology</td>
<td>71</td>
</tr>
<tr>
<td>D) Sample</td>
<td>73</td>
</tr>
<tr>
<td>E) Instrumentation</td>
<td>74</td>
</tr>
<tr>
<td>IV. Results</td>
<td>77</td>
</tr>
<tr>
<td>A) Results</td>
<td>77</td>
</tr>
<tr>
<td>B) Interpretation of the Results</td>
<td>79</td>
</tr>
<tr>
<td>V. Discussion</td>
<td>81</td>
</tr>
<tr>
<td>A) Summary</td>
<td>81</td>
</tr>
<tr>
<td>B) Limitations</td>
<td>82</td>
</tr>
<tr>
<td>C) Recommendations</td>
<td>83</td>
</tr>
</tbody>
</table>
References . . . . . . . . . . . . 84
Appendix . . . . . . . . . . . . 89
   A) Research Announcement . . . . . . . . . . . . 89
   B) Letter of Introduction . . . . . . . . . . . . 90
   C) Notice of Informed Consent . . . . . . . . . . . 91
   D) The Adult Nowicki-Strickland I-E Scale . . . 92
   E) The Washington Psychosocial Seizure Inventory . 95
   F) The Demographic Questionnaire . . . . . . . 97
FIGURE

The Washington Psychosocial Seizure Inventory Profile Form: Clinical Means from the Original Study Compared to Means from the Current Study 78
Chapter I
Introduction

General Statement of the Problem

The purpose of this thesis was to investigate how much control adults with epilepsy felt they had over their own lives and how well they adjusted psychosocially to their epilepsy. Also, their perceived level of control over self was compared to that of the general population and to their level of psychosocial adjustment toward their epilepsy. The purpose of these comparisons was to see if there were any significant relationships between these variables and, if so, of what intensity and direction.

Definition of Terms

Internal-external locus of control. In 1966, Rotter published his I-E (internal-external) Scale as an objective measure of an individual’s IE orientation. He defined internality and externality this way:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful
others, or as unpredictable because of the great complexity of the forces surrounding him.... We have labeled this a belief in **external control**. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in **internal control**. (p. 1)

Although Rotter defined IE orientation, or locus of control (LOC), dichotomously (one is either external or internal), he treated it as an interval variable in the development of his I-E Scale. Others using his scale treated LOC likewise because of the nature of his scale and the statistical methods they used to analyze the data in their studies. Strickland (1989) reiterated the interval nature of LOC by stating, "IE beliefs are generalized expectancies that reflect the consistent individual differences among individuals in the **degree** to which they perceive contingencies or independence between their behavior and subsequent events" (pp. 1-2, emphasis added). Because Strickland's definition more accurately reflects the nature of LOC as it is treated in the literature, it will be the working definition of LOC herein.

**Epilepsy.** Epilepsy has been defined as "a group of disorders--the common feature is that there is a sudden
paroxysmal or episodic discharge by some neurons within a particular section of the brain" (Ziegler, 1982, p. 435). The fact that it is a group of disorders denotes it can be symptomatically manifested in a number of ways, such as brief or extended losses of consciousness, psychomotor disturbances, and other ways. Despite the distinctions between these kinds of epilepsy, it will be treated as a single disorder in this study for two reasons: (1) this study's small N does not allow for the breakdown of the subjects into smaller groups according to seizure type, and (2) the literature regarding epilepsy tends to treat it as a single disorder.

**Overall Psychosocial Functioning/Adjustment.** The terms "psychosocial functioning" and "psychosocial adjustment" are used interchangeably in this thesis. This is the variable of global assessment in the Washington Psychosocial Seizure Inventory. Although the scale's developers (Dodrill, Batzel, Queisser, & Temkin, 1980) do not define this variable, its meaning is implied by what it measures--how well adult epileptics adjust, or respond, to the effects epilepsy can have on various aspects of everyday life. These aspects are both common to the general population (e.g., interpersonal adjustment) and peculiar to epileptics (e.g., adjustment to seizures).
Background of the Problem

Roughly the same number of males and females have epilepsy, and its prevalence "is approximately 5 per 1,000 of the population, although the range is 2 to 22 per 1,000 population" (Ziegler, 1982, p. 435). Its symptoms are usually first manifested during a person's childhood, and 75% of all epileptics acquire it or its symptoms before turning 20 (Bjornaes, 1988). (It is possible to be born with epilepsy without having any symptoms for many years.)

Epilepsy can be attributed to any of a number of causes. These may be "structural (anatomic), chemical, physiological or a combination of all three. It may be . . . genetic . . . [or] hereditary. . . . It may follow trauma, infection, fever, metabolic changes or toxic substances (Gibberd, 1973). As is often the case, no cause can be found" (Ziegler, 1982, p. 436). Epilepsy usually does not occur with other health problems and does not affect intelligence (Coulter, 1982).

Consequences such as psychopathology, insecurity, and restriction of autonomy have been associated with epilepsy. For example, epileptic children have more psychiatric problems and a greater incidence of suicide than children with other chronic diseases (Bjornaes, 1988), and adults suffer in several ways (e.g., financial status, adjustment to seizures, external LOC), also (Hermann,
Whitman, Wyler, Anton, & Vanderzwagg, 1990). Insecurity arises from not knowing when, where, or how often the seizures will occur, how severe they will be, and perhaps even what kind they will be (Ziegler, 1982). Because epilepsy can "cause complete disability within less than one second . . . [and] no other illness is typically this abrupt" (Spudis, Penry, & Gibson, 1986, p. 559), driving privileges are often denied, thus resulting in restricted autonomy for many epileptics.

Significance of the Problem

The question of how epilepsy and its consequences affect, or at least relate to, LOC arises when one considers the consequences epileptics face, such as psychopathology, insecurity, and restricted autonomy (though those are by no means the only consequences of epilepsy). Each of these consequences would seem to point toward a tendency of external LOC among epileptics. Restricted autonomy would seem to correspond to a lack of control over self, insecurity would stem from an external LOC, and the relationship between psychopathology and externality has already been noted (Hermann et al., 1990). In light of these possible relationships, the question emerges as to whether or not epileptics have a greater tendency toward externality than internality.
The vast majority of the literature surveyed and reviewed herein that deals with epilepsy describes studies using children as subjects, including some that address LOC as a minor variable. The result of this is a considerable amount of knowledge regarding epilepsy and its effects on children, but a dearth of knowledge concerning how epilepsy affects adults. Whether or not there are differences between these age groups and, if so, what kind, plus the absence of research on adults with epilepsy (particularly in connection with LOC) are all concerns that warrant investigation of the problem with a sample of adult epileptics.
Chapter II
Literature Review

Internal-External Locus of Control

Development of Rotter's I-E Scale. Rotter based his I-E Scale on the earlier work of others (Phares, 1957; James, 1957). Phares constructed a scale consisting of 26 Likert format items, orienting equal numbers of items to internal and external LOCs and basing these orientations on a priori grounds. James refined this scale somewhat, with his scale also containing 13 internal and 13 external items, plus three filler items, all of which were also answered in a Likert format.

With Liverant and Seeman, Rotter (1966) sought to expand on these earliest attempts to measure LOC by creating a 100-item scale that would control for social desirability by employing a forced-choice item format. (On each item, subjects chose between two related statements—one internal and the other external.) This scale contained subscales intended to measure achievement, affection, general social and political attitudes, and so on. It was then "item analyzed and factor analyzed and reduced to a 60-item scale by Liverant on the basis of internal consistency criteria" (p. 9). Item analysis of this scale revealed poor
discrimination and a considerable amount of overlap between the subscales. In particular, achievement correlated highly to social desirability. Because of this poor discrimination, the author and his colleagues abandoned their attempt to measure any facets of LOC and dropped from the scale those items designed for this purpose.

Subjects were then given this scale and the Marlow-Crowne Social Desirability Scale to check for residuals of this variable in the scale. Their responses on the two scales correlated highly, so Rotter, Liverant, and Crowne made a final revision of the scale according to validity and internal consistency data from other studies. This revision included dropping from the scale items that: correlated highly with the Marlow-Crowne Social Desirability Scale, were answered in the same direction by 85% or more of the subjects, were not significantly related to any other item, and correlated lowly to both validation criteria. They also reworded some of the items to make the scale appropriate for upper level high school students and non-college adults.

The final scale contained 23 items. Rotter added six filler items to make the test's purpose ambiguous to potential subjects. He found "internal consistency estimates [of the test] were relatively stable" (p. 10). The scale's test-retest reliability also was consistent. He
considered his attempt to reduce the scale's correlation to social desirability "moderately successful" (p. 10).

**Development of the CNSIE.** Just as Rotter had constructed his I-E Scale for adults, so had others developed scales measuring LOC in children. Nowicki, Jr. and Strickland (1973) cited shortcomings in each of these other measures and developed their own, using the following criteria for their scale: "(a) Scores will become more internal with increasing age; (b) scores will be related to achievement with internals achieving more than externals; and (c) scores will not be significantly related to measures of social desirability or intelligence" (p. 149).

The authors constructed a large pool ($N = 102$) of forced-choice format items (yes/no response to a statement) from which the items for the final version of their scale would be drawn. With the help of school teachers, these items were worded to be "readable at the fifth-grade reading level, yet appropriate for older students" (p. 149). They were based on Rotter's definition of LOC and dealt with "reinforcement situations across interpersonal and motivational areas such as affiliation, achievement, and dependency" (p. 149). These items were given to nine clinical psychologists who answered them externally. The 59 items on which all their answers agreed made up the scale's preliminary form.
The authors had this preliminary scale administered to 152 students in the third through ninth grades. With IQ controlled for, the scale met their second criterion of "internals . . . [scoring] significantly better than externals on achievement test[s]" (p. 151). They then computed an item analysis of the scale to make it more homogeneous and to "examine the discriminative performance of the items" (p. 151). This resulted in the final, 40-item version of the Children's Nowicki-Strickland I-E Scale (CNSIE).

The CNSIE met the first criterion of internality increasing with age when it was administered to a large sample of third through twelfth graders. The second criterion regarding LOC and achievement again was met among the sample's male subjects, but "female achievement . . . [did] not seem to be predictable from scores on the Nowicki-Strickland scale" (p. 152). Scores also met the third criterion, for "locus of control scores were not significantly related to social desirability" (p. 152). Moreover, the split-half method of estimation showed the CNSIE to be internally consistent, with $r$ increasing with the subjects' mean age.

Studies using the CNSIE have shown internality "is significantly related to academic competence, to social maturity, and appears to be a correlate of independent,
striving, self-motivated behavior" (pp. 153-154), especially among males. Also, the relationship between internality and academic competence does not seem to be culture-bound, for "research across cultures [using the CNSIE in more than 25 languages] has shown the expected relationships of internality and achievement behavior, especially academic achievement" (Strickland, 1989, p. 4). This suggests LOC is a cross-cultural, universal construct.

Development of the ANSIE. Just as Nowicki, Jr. and Strickland (1973) pointed to flaws in existing measures of children’s LOC as a reason for developing the CNSIE, so did Nowicki, Jr. and Duke (1974) point to shortcomings in Rotter’s I-E Scale as a reason for developing the Adult Nowicki-Strickland Internal-External Scale (ANSIE), even though Rotter’s I-E Scale was the scale of choice for measuring LOC at the time. The shortcomings these authors cited included a difficult reading level, a tendency to confound different types of LOC, and a relationship to social desirability.

The authors described the ANSIE as a revised form of the CNSIE. As with the CNSIE, higher scores here indicate greater externality. Revisions included the "changing [of] the word 'kids' to 'people' and . . . [the deletion of] items about parents" (Nowicki, Jr. & Strickland, 1973,
p. 153). This last modification raises the unanswered question that if some items are deleted, how does the ANSIE have the same number of items as the CNSIE?

Split-half and test-retest methods showed good reliability. The ANSIE also met the criteria of not being related to social desirability or to IQ test scores. The authors furthermore stated that "support for the construct validity of the ANSIE comes from . . . significant positive correlations between the [ANSIE] scale and the Rotter [I-E Scale]" (Nowicki, Jr. & Duke, 1974, p. 136).

Factors of Nowicki's LOC scales. The construct of LOC "may represent several conceptually independent notions such as personal causation, control by powerful others, or means-ends relationships" (Strickland, 1989, p. 4). Research supports this by suggesting LOC is not unidimensional, but multidimensional (Nowicki, 1976). To determine the factors of LOC, "the main criterion . . . should be the significant increase in predicting behavior from a breakdown of locus of control into its finer components relative to predicting behavior from a global measure" (Nowicki, 1976, p. 13). Nowicki (1976) used this criterion in a factor analysis of the CNSIE.

The subjects were 449 elementary school students in grades 3-6 (216 males, 233 females), 388 junior high school students in grades 7-9 (186 males, 202 females), and 389
high school students in grades 10-12 (202 males, 187 females), most of whom were white and from a lower middle income background. The author performed separate analyses at each age level for each gender by intercorrelating the students' responses to the 40 items and factoring the resulting matrix. He did this by using "the principal components method with a minimum eigenvalue of 8 for computation of components rotated to orthogonal simple structure by means of Kaiser's Varimax method" (p. 15).

This factor analysis yielded three factors. One of them was a general factor which accounted for from 36% to 41% of the variance in the groups, with the percentage of variance accounted for increasing with age. This factor dealt with a general feeling of helplessness. Factors 2 and 3 accounted for from 8% to 19% of the variance and seemed age-specific. Factor 2 dealt with achievement and strength among elementary students; achievement and persistence among junior high school students; and, at the high school level, persistence in overcoming external forces among males and an external LOC among females. Factor 3 had the general component of luck in each age group plus: "deference to parents for males and ability to manipulate others for females" (p. 16) at the elementary level, "persistence and success in social areas" (p.16) at the junior high school
level, and the use of fantasy "as a defense against feelings of powerlessness" (p.16) at the high school level.

Factor 2 was sex-related at the high school level, as was Factor 3 at the elementary school level. The CNSIE’s strength in predicting achievement also differed between males and females, with the prediction for females being inconsistent (Nowicki, Jr. & Strickland, 1973). The possibility that the different factors may be sex-related at different age levels "may explain the inconsistent prediction of female behavior at each age level" (p.16).

The ANSIE has also been factor-analyzed (Finch, Jr., Kendall, Spirito, & Mikulka, 1981). These authors hypothesized that because it was similar to the children’s scale, the ANSIE’s structure would be similar to the CNSIE’s structure. They also anticipated four factors--Personal Control, Powerlessness-Helplessness, Blame, and Luck--which had been found in a previous factor analysis of the ANSIE.

The subjects were 120 college students (83 males, 37 females) with a mean age of 19 years, 10 months. As was done in Nowicki’s (1976) factor analysis of the CNSIE, Kaiser’s varimax criterion was used in one principal components factor analysis of the subjects’ responses on each of the ANSIE’s 40 items. "Factors with eigen values less than one were excluded from the interpretation. Items with loadings on more than one factor were only included in
the interpretation of the factor with which it loaded the highest" (p. 153).

Eight factors accounted for 80.6% of the variance, but only five were interpreted because the other three contained only one item each. These five factors accounted for 28%, 11%, 9.2%, 7%, and 5.1% of the variance, respectively. In turn, they dealt with an "inability to protect oneself" (p. 153), lack of social power, superstition, futility, and persecution, or a "tendency to view effort as useless and the experience of unfair contingencies" (p. 153).

When combined, Factors 1 and 2 resembled the Helplessness factor found by Kendall and others in a previous factor analysis of the CNSIE and the Powerlessness- Helplessness factor found in the other factor analysis of the ANSIE. Factor 3--Superstition--was comparable to the same-named factor in the CNSIE and the Luck factor found by others in the ANSIE. Factors 4 and 5 corresponded to the same-named factors found in the CNSIE and to factors labeled Personal Control and Blame found in the ANSIE. In light of these findings, the authors considered their hypothesis confirmed and concluded that the multiple dimensions of LOC were the same for all age levels.

**LOC as an age-related variable.** As part of his development of the I-E Scale, Rotter (1966) posited that an
individual's LOC is consistent over time in the same situation. Nowicki, Jr. and Strickland (1973) claimed otherwise, stating that an individual's perception of contingency between a behavior and a reinforcement may vary over time. Lao (1976) sided with the latter claim by stating that studies show individuals become more internal as they grow older, at least from early childhood to their thirties. Drawing from the extant literature, she also stated that "internality is positively related to socioeconomic class, education level, higher self-confidence, and more involvement with social action" (Lao, 1976, p. 4). In an effort to see if LOC is indeed an age-related variable, Lao measured the above variables and the LOCs of middle-aged subjects and the LOCs of their college-aged sons.

The subjects included 110 male students, 107 mothers, and 95 fathers. The fathers' and mothers' mean ages were 48.7 and 46.0, respectively. (Information regarding the students' age was not given.)

Both the parents and their sons were given Rotter's I-E scale to measure their LOCs. The parents also answered a "background questionnaire asking for information . . . with regard to age, education level, income, satisfaction with job, evaluation of own ability, degree of involvement
with community affairs, etc." (pp. 4-5). The I-E Scale yielded the following information:

The means . . . for students, mothers, and fathers [scored in the internal direction] were 10.72, 11.87, and 13.18 . . . Results of t-tests indicated that both mothers and fathers were significantly more internal than their sons . . ., but mothers and fathers did not differ significantly on their I-E scores. (p. 5)

Lao accounted for the difference between the parents' and their sons' LOCs by citing Rotter's 1972 finding that the general population was becoming more external over time. Strickland (1989) supported this explanation by noting that college students' scores on the Rotter scale became more external in the late 1960's and early 1970's, with the mean shifting from roughly 8 to 12. She also noted that their mean LOC was becoming more internal again in the late 1980's.

Lao cautioned these results might not be fully generalizable to the population because the sample was restricted to male college students and their parents. These defining characteristics also may have restricted the range of their responses toward the internal end of the spectrum. Assuming that most families with children in college belong to the middle and upper income groups, a restriction of their responses toward internality is more
likely when combined with Rotter's (1966) finding that lower SES groups are often more external than higher groups.

Contrary to previous findings, internality was not related to the variables on the questionnaire, except for the fathers' educational level. Lao concluded that such relationships were generalizable only to children and younger adults for two reasons: (a) Relationships between LOC and other variables had been determined using child and college student samples, and (b) "the meaning and dynamics of I-E [LOC] are different for older people" (p. 6). She also warned that "any explicit or implicit generalization from I-E research to older Ss must be treated with great care" (p. 6).

LOC and assertiveness. Cooley and Nowicki, Jr. (1984) thought internals would be more assertive than externals because their belief in the strength of the contingencies between their behaviors and the behaviors' reinforcers would be stronger than the externals' belief. They found studies supported this idea. As was seen in the difficulty to predict female achievement from scores on the CNSIE, the authors reasoned that "the relationship between beliefs and behavior may not be as consistent for females as it is for males" (p. 86). They ascribed this to their observation that "females traditionally have not been rewarded for assertive self-expression" (p. 86). On the
basis of this reasoning, they set out to compare the relationships between LOC and assertiveness for males and females.

The subjects were 55 undergraduate college students (29 males, 26 females). Each answered a demographic data sheet, the ANSIE, and the Rathus Assertiveness Schedule (RAS), which were given in counterbalanced order. A Pearson product moment correlation between the RAS and the ANSIE was significant. However, "separate analyses for males and females indicated a significant correlation between an internal orientation and high assertiveness for males . . . but not for females" (p. 86).

To account for this male/female difference in assertiveness, the authors proposed:

A discrepancy between an internal belief system and expressed behavior . . . [exists] in the relationship between locus of control and assertiveness. Although internality . . . is a widespread value in our society applied to both males and females, assertive behavior has, in contrast, traditionally been encouraged primarily for males and not females. Recent efforts to foster assertiveness in women seem not to have affected the behavior of current college-aged women. (p. 86)

LOC and adjustment. LOC affects how individuals respond to various situations and how they adjust to life in
general. These effects are manifested in the healthiness of their internality versus externality and their ways of dealing with failure.

From both theoretical and empirical perspectives, internality appears to be conducive to healthy adjustment in our culture. Rotter (1966) asserted "there is clearly an interaction between internality and experience of success" (p. 16). Strickland (1989) agreed with this when she noted that internal subjects exhibited optimism and ambitiousness by expecting to perform "somewhat above [previous] performance levels . . . and had better adjustment" (p. 6). External subjects, on the other hand, attempted to protect themselves against failure by expecting to perform "near or below previous performance levels . . . [and had] lower levels of personal adjustment" (p. 6), thus paradoxically inviting failure.

Despite the above finding, externality can also function positively. For example, internals tend to use defensive externality (e.g.: excuses; denial; and causal attribution to others, chance, or the environment) when dealing with negative personal outcomes. They also tend to repress memories of their failures as a form of defensive externality. (Externals feel little need to repress such memories because they ascribe those failures to external factors.) Notwithstanding these positive functions,
external (and internal) beliefs can produce poor adjustment when held and/or practiced in the extreme (Rotter, 1966).

**LOC and Health.** Internality and other positive beliefs (i.e., optimism, hope) are related to and contribute to good physical and mental health. This holds true even if those beliefs are not grounded in reality or are applied to situations where most would not perceive they have control (Strickland, 1989).

The following examples demonstrate the relationship between LOC and health asserted above. In one study, internal tubercular patients knew more, sought more information regarding their condition, and expressed less satisfaction with the information they received than their external counterparts. In another, breast cancer patients with a "fighting spirit" (Strickland, 1989, p. 2) showed adaptive responses to their condition. Also, male executives under stress who did not become ill "across a five-year . . . study" (p. 5) seemed to be committed to themselves, were "actively involved with their environment and . . . held an unshakable sense of meaningfulness and internal control" (p. 5). These examples are part of the mounting "evidence . . . that control beliefs interact with fundamental physiological functioning, such as occurs in the central nervous system" (p. 7) and promotes good health.
Psychosocial Adjustment to Seizures

Development of the Washington Psychosocial Seizure Inventory. Until 1978, when Dodrill and his colleagues developed the Washington Psychosocial Seizure Inventory (WPSI) (Dodrill et al., 1980), there was no way of objectively measuring the psychosocial adjustment of adults with epilepsy. The authors intended that it be used only with adult epileptics. Its purposes are threefold: 1) to provide "an evaluation of the psychological and social concerns frequently found among epileptics" (p. 124), 2) to give "standardized findings which approximate those which would be obtained from a detailed professional evaluation" (p. 124), and 3) to facilitate research regarding the psychosocial adjustment of adult epileptics. What follows is a description of the scale and its development.

The WPSI consists of 132 items that are statements to which respondents answer either yes or no according to their "self-perceived usual feelings and actions" (p. 124). These items were drawn from an item pool the authors created in work preliminary to the refinement of the WPSI. This preliminary research also resulted in the identification of the areas of psychosocial adjustment the WPSI would assess.

The WPSI’s areas of measurement (clinical scales) include Family Background, Emotional Adjustment, Interpersonal Adjustment, Vocational Adjustment, Financial
Status, Adjustment to Seizures, and Medicine and Medical Management. Each of these scales is discrete, with no item being used on more than one of these scales. However, some of the items are included in a global scale of Overall Psychosocial Functioning and in either or both a Lie Scale and Rare Item Scale that, along with the number of items left blank, assess the validity of a respondent's scale. With these clinical and validity scales, along with the way the items were chosen for the general scale (correlation to professionals' ratings as opposed to factor analysis or some other method), the WPSI highly resembles the MMPI.

The scale was narrowed down from the original pool of items to its final, 132 item version by administering the items and a psychosocial interview (conducted by either a social worker or a psychologist) in counterbalanced fashion to 127 (67 male, 60 female) adult epileptics. The subjects were outpatients at the Epilepsy Center in the Department of Neurological Surgery at the University of Washington's School of Medicine. They ranged in age from 18 to 56 years (mean age, 29.16 years). Of them, 124 reported a mean age at onset of 13.67 years and a mean duration of 15.73 years. In 10 of the interviews, two professionals independently rated the subjects' levels of psychosocial functioning for the purpose of establishing interrater reliability, which was high.
The authors selected items for the clinical scales by computing point-biserial correlations "between each item and the sum of the professional ratings for each area" (p. 129). They included an item on a scale "if it had a significant correlation [at the .01 level] with the professional ratings of that psychosocial area" (p. 129). Items from any area that correlated with professional ratings at the .001 level were also included in the Overall Psychosocial Functioning Scale. If an item met the .01 level criterion on more than one scale, it was placed on the scale with which it correlated most highly.

Dodrill and his colleagues also felt a profile form would help those using the scale gain an at-a-glance understanding of respondents' psychosocial adjustment to their condition. They divided the profile into four levels of elevation: "(a) no significant problems; (b) possible problems, but of limited significance; (c) distinct difficulties with definite adjustmental significance; and, (d) severe problems having a striking impact upon adjustment" (p. 129). Because the clinical scales varied widely in the number of items they contained (from seven in Financial Status to 56 in Overall Psychosocial Functioning), the final profile was based directly on the professional ratings for each area. The actual placement of scores on the profile corresponded to the best prediction of
the professional rating that could be made for each area based upon the simple linear regression of the rating on the inventory scale. (p. 129)

After constructing the clinical scales and the profile, the authors examined the scales' internal consistency, degree of overlap with one another, and direction of correlation with one another and the validity Lie Scale. According to the split-half method and use of the Spearman-Brown Prophecy Formula, they found each scale to be "quite internally consistent" (p. 130). The authors noticed a "reasonable degree of nonoverlap" (p. 133) between their scales that challenged the intercorrelation between the MMPI’s scales. Also, "all [the] clinical scales . . . [were] positively correlated with one another and . . . negatively correlated with the Lie Scale" (p. 133).

With the WPSI and its profile form refined and validated, research into the psychosocial adjustment of epileptic adults with an objective instrument was finally possible. Much research with the WPSI has been conducted since then, and this author seeks to add to that body of knowledge. Before the study is described, though, a discussion of the areas covered by each clinical scale (excepting the Overall Psychosocial Functioning Scale, since its items are drawn from the other scales) is warranted.
Family background. Although this section of the WPSI assesses adult epileptics' family backgrounds retrospectively, it seems that most published studies use child population samples to measure the effects epilepsy can have on children, on their families and on how they all respond to it. Because of the paucity of studies utilizing adults, I consider these studies of children as investigations of family background in the making. The areas investigated include the parents' knowledge of their children's epilepsy, their reactions to it, the epileptic children's reactions to their condition, the effects of epilepsy on the family and on the child in the school, and its relation to LOC in the school setting.

Hoare (1986) assessed adults' knowledge of epilepsy and their attitudes toward children with it by constructing a questionnaire.

[It contained] seven sections: physical consequences of a single fit; aetiology of epilepsy; problems for the child at present and in the future; side effects of drugs; problems for the child's parents; social restrictions for the child and his family; adverse effects on family life. (p. 471)

With this instrument, the author compared the attitudes of 47 mothers whose children had either epilepsy, diabetes or
no known health problem (the sizes of these three groups were not given).

Hoare used a one-way analysis of variance (ANOVA) with the Kruskal-Wallis test and found the three groups differed significantly on eight of the scale's 47 items; when the non-epileptic groups were combined due to significant differences on only two items, the Wilcoxon rank sum test showed they differed significantly on 13 items. "The epileptic group expected more problems than the non-epileptic group on the most items, 10 out of 13" (p. 474). Hoare interpreted this to mean that "the parents of children with epilepsy are more knowledgeable about epilepsy than people in the general population" (p. 475) because "children with epilepsy are more likely to have such problems" (p. 476). Hoare also found that "the more severe their child's epilepsy, the more likely [the parents] think that there will be problems" (p. 476).

Parents' reactions toward their children's epilepsy, as manifested in their attitudes toward it and the relation between those attitudes and their adjustment to it, were measured when 50 parents (16 couples, 11 mothers whose husbands did not participate, six single mothers and one single father) took the Fishbein Expectancy-Value Model of Attitude (Austin, McBride, & Davis, 1984). They ranged in age from 26 to 50 years, with a mean of 34.7 years. Between
them, they had 34 epileptic children (17 male, 17 female) who ranged in age from 6 to 14 years, with a mean of 10.2 years. The average age at the onset of epilepsy was 5.6 years and the mean duration of epilepsy (time since initial diagnosis) was 4.4 years. Although all were taking at least one anticonvulsant medication, they differed in their levels of seizure control, perhaps because the number of types of seizures they experienced also varied (65% had one type while the remainder had two or more types).

The Fishbein Expectancy-Value Model of Attitude was constructed through structured interviews with the parents. They were asked what they believed to be true about their children’s epilepsy and how strong those beliefs were on a 100-point scale. The parents also rated their beliefs toward epilepsy as either positive, neutral, or negative on a seven-point (-3 to 3) scale; this was their evaluation score. The most commonly cited beliefs made up the final, fixed-belief scale, which also included the evaluation scale. Their attitude scores were the sums of the strengths times the evaluations. A scale measuring their adjustment to their children’s epilepsy, developed from the literature and pilot-tested on 10 other parents, assessed five major areas: their children’s health, social stigma from epilepsy, its effect on the family, discipline, and restriction of the children’s activities. The parents
answered on a seven-point Likert scale how often (7=always, 1=never) they felt or behaved in a certain manner.

Multiple regression and Pearson correlation coefficients, together with a one-way ANOVA, showed the adjustment scale was valid only with the mothers in the sample. Among them, the mothers of the children with the least number of seizures adjusted better to their children's epilepsy. The opposite was also true: parents whose children had the most seizures had the most difficulty adjusting. These two findings suggest there is a negative correlation between children's seizure frequency and parents' adjustment to epilepsy. Also, there was a positive relation between the mothers' attitudes toward their children's epilepsy and their adjustment to it.

Parents can react to their children's epilepsy in a wide variety of ways other than those already mentioned. They may be frightened by it or, if lacking information about the condition, be unsure as to what attitude they should adopt toward those children (Hoare, 1984a). They "may be reluctant to encourage independence in [their children] for fear of the consequences" (Hoare, 1984b, p.23). They may feel shame or lose respect for their child (which the child will invariably perceive) (Coulter, 1982). For good or ill, "the main determinants of the attitudes and
adjustment of these children are the attitudes and reactions of their parents" (Laaksonen, 1983, p. 54).

Maj et al. (1987) noted parents' more maladaptive reactions to their children's epilepsy include overprotectiveness, restrictiveness, abusiveness, autocratic parenting styles, rage and hostility toward those children, exclusion of them from the family and "expectations of lower academic achievement, fewer employment choices and more emotional problems . . . than for [their] nonepileptic siblings" (p. 197). They also noted these reactions can lead epileptic children to lowered self-concepts, personality disorders and behavioral problems.

To assess the frequency of these reactions and to "verify their association with the occurrence of disturbed behaviour in [epileptics'] later life" (p. 197), the authors administered the EMBU (its full name was not given), a questionnaire that assesses perceived parental rearing behavior on 14 subscales (abusive, depriving, punitive, shaming, rejecting, overprotective, overinvolved, tolerant, affectionate, performance oriented, guilt-engendering, stimulating, favoring siblings, favoring subjects), to both epileptic adults and their healthy controls. The epileptics were 34 males and 27 females (mean age 23.5 years +/- 5.5 years) whose first seizures had occurred in childhood. Psychopathological features including personality disorders
of impulsiveness and emotional instability, along with depressive mood disorder, were noted with 17 of them, while a control population of 86 males and 65 females (mean age 31.7 +/- 10.1 years) had no history of epilepsy or psychopathology.

Results of the Student t-test and ANOVA reaffirmed the previous findings of lowered expectations regarding academic achievement and of the positive relation between autocratic parenting styles (including "abusive" and "depriving" fathers) and children's development of personality disorders. The authors also found that "parents of epileptics tend to encourage passivity and delay of self-initiated behaviour in their children" (p. 200) and that, among those with psychopathological features, maternal overprotectiveness relates positively to aggressive behavior.

Parents may handicap their epileptic children in ways other than those mentioned above. They may create family secrets about and around the child's epilepsy; unfortunately, these secrets tend to create more problems than they are intended to hide (Ziegler, 1982). According to the "vulnerable child syndrome" (Hoare, 1987), they may react to their child's diagnosis of epilepsy with separation anxiety and manifest this anxiety by infantilizing the child. Parents may also subtly or overtly reject their
adolescent epileptic children, or stifle their strivings for independence through overprotectiveness; if so, the teenagers "may assert their autonomy self-injuriously . . . [through medical] noncompliance" (Friedman et al., 1986, p. 15)--the failure (or refusal) to take anticonvulsant drugs as directed.

Not only can parents' reactions to their children's epilepsy negatively affect the children, but the epilepsy and the children who have it can adversely affect the children and their immediate relatives as well. Hoare demonstrated this in a series of studies using the same groups of chronic or newly-diagnosed epileptic or diabetic children, their healthy controls, and the epileptics' parents and siblings (1984a, 1984b, 1984c). The chronic diabetic group had 36 children (19 males, 17 females; ages 7:1-14:1 [years:months], mean age 10:6) while the other three groups had 29 each: chronic epileptics (17 males, 12 females; ages 5:8-14:7, mean age 9:9), newly-diagnosed diabetics (14 males, 15 females; ages 5:2-13:6, mean age 8:5), and newly-diagnosed epileptics (14 males, 15 females; ages 5:5-14:2, mean age 8:2). Each child was matched according to age and gender. Chronicity was defined as having been diagnosed for at least two years while being newly-diagnosed was seen as having been diagnosed within the past three months. The prevalence of inappropriate
dependency in the four groups of physically ill children and the rates of psychiatric disturbance in these groups and the families of the epileptics were investigated.

To measure the children's dependency, their mothers answered the Self-administered Dependency Questionnaire (SADQ). The SADQ consists of four subscales (affection, communication, assistance, travel) and can measure both actual and preferred dependence; only actual dependence was measured here. The Student t-test showed both the chronic and newly-diagnosed epileptic children but not their diabetic counterparts to be significantly more dependent than their matched controls, leading Hoare to conclude "inappropriate dependency . . . is not an invariable accompaniment of chronic disease, but depends on the nature of the illness" (1984b, p. 23).

The children's psychiatric morbidity was assessed by administering the Rutter Teachers' and Parents' Scales to those groups of adults. The scales distinguish among three types of disorder--neurotic, conduct, and mixed--and measure children's behavior, health, and habits, also. According to chi-square, Student t-test and Fisher's Exact Test analyses, both chronic and newly-diagnosed epileptic children were significantly more disturbed than their controls and their diabetic counterparts; however, there was no significant difference in the rates or types of disturbance between the
two epileptic groups. Also, "children with severe fit frequency (at least once per week) were more likely to be disturbed than children with less frequent fits" (1984a, p. 8). Because no substantial behavioral change was noticed in any of the epileptic children after their diagnoses, Hoare concluded:

A proportion of children with epilepsy are disturbed at the onset of their illness. The simplest explanation is that the neurological dysfunction responsible for epilepsy also predisposes to psychiatric disorder. The majority of children in the newly diagnosed group had had previous seizures before epilepsy was diagnosed, so there is evidence of earlier neurological dysfunction. (p. 10)

Hoare also measured the rates of psychiatric disturbance in the parents and school-age siblings of both groups of epileptic children to see if disturbance in the epileptic groups were related to disturbance in their family members and whether or not the continuing presence of epilepsy in children increases the risk of disturbance in other family members. Each group of epileptic children had 23 school-age siblings who were matched by age and gender with control groups (age and gender information was not given). All of the epileptic children’s parents
participated except for three fathers in the chronic group who no longer lived with their families.

"Details of [the parents'] present and past psychiatric morbidity . . . was obtained during an interview with them" (1984c, p. 15); they also were administered the 60-item version of the General Health Questionnaire. The siblings' morbidity was assessed by the Rutter Parents' and Teachers' Scales while their controls were also rated on the Rutter Teachers' Scales.

Using the chi-square, Student t-test, and Fisher's Exact Test for data analysis, Hoare found the school-age siblings of chronic epileptic children to be significantly more disturbed than their controls and the siblings of newly-diagnosed epileptics. Also, "there was an association between psychiatric disturbance in the epileptic child and increased psychiatric morbidity among mothers of children with chronic epilepsy, but not among mothers in the newly diagnosed group" (p. 17); however, the epileptics' parents as a whole were not more disturbed than adults in the general population. (Unfortunately, the source of adult population norms was not given). Hoare found no evidence for predisposition to psychiatric disorder in the siblings because "the siblings of newly diagnosed epileptic children . . . were not more disturbed than children in the general population" (p. 17), and further concluded that continuing
epilepsy in children can adversely affect both their siblings and mothers.

Ritchie (1981) also examined the influence of the presence of an epileptic child on the family, but with an emphasis on family power, communication and problem-solving styles, and the role of the epileptic child in the family. Subjects were 15 families consisting of a father, mother, older (8 to 16 years) epileptic child and younger non-epileptic child; and 15 control families matched for socioeconomic status (SES), religion, nationality, the mother’s occupational status, and the age, gender, and birth order of the siblings. The epileptic children had no cerebral injury, had suffered a major attack or grand mal seizure, but had been stabilized by medication with no apparent side effects for six months.

The author constructed a 50-item, yes/no forced choice format questionnaire "designed to elicit opinions on a wide variety of hypothetical family situations" (p. 66), included distractor items, and refined it in a pilot study involving five families not included in the final study. "To avoid focusing discussion on one individual, items were included which were relevant to all family members" (p. 66). In the experiment, each family member answered the questionnaire separately, after which Ritchie selected eight items wherein one family member disagreed with the other
three, with each family member disagreeing with the others twice. The families were then told to reach a group decision on each item while being videotaped, having four minutes to work on each item. Independent raters rated the families for speech patterns (dominance, conflict, cohesion, adaption) and problem-solving styles (majority, dictatorial, chaotic). Spearman rank-order correlation coefficients yielded $r$-values ranging from $+0.84$ to $+1.00$ in interrater reliability.

Using the Student $t$-test to analyze the raters' scores, Ritchie found the epileptics' families were more efficient at problem-solving than their controls; this they did by minimizing disagreements and interruptions, and by changing individuals' opinions toward group consensus. They tended to have a rigid hierarchy wherein the mother was the dominant figure. Ritchie concluded that "the behaviours adopted by families with an epileptic child in order to cope with the problem, while being in themselves adaptive, may by psychogenic if continued for longer than the initial crisis period" (p. 70).

In a study similar to Hoare's of the families of epileptic children and their diabetic and normal controls, 45 families—fifteen in each group—were interviewed by a researcher who was blind to their condition (Ferrari, Matthews, & Barabas, 1983). The 45 children ranged in age
from 6.58 to 12.83 years while the mean ages of the epileptic, diabetic, and control children were 9.96, 9.82, and 9.87 years, respectively. The mean duration of illness was 3.05 years for the epileptics and 2.86 years for the diabetics. While the average age at onset was not given, these two groups were matched according to that variable; they and the control sample were also matched according to age, gender, socioeconomic status, and academic standing. All but four of the children's parents (two epileptic families and one for each of the other groups) lived together, and the average family size was 4.97 persons.

The children were administered the Draw-a-Person Test, the Multi-Dimensional Measure of Children's Perceptions of Control, and the Piers-Harris Children's Self-Concept Scale, while their parents were given the Rochester Adaptive Behavior Inventory (RABI). While the children's tests were not described, the RABI was.

[It is a] clinical interview instrument in which a child's behavior can be reliably operationalized in terms of being "at risk" or "no risk" for psychologic maladjustment. [It] consists of . . . open and closed questions relating to the child's behavior and adjustment at home with the family, the child's relationships with family members and peers, and the overall functioning of the family unit. (p. 55)
In two cases, a second researcher also came to assure the accuracy of the coding of responses to the RABI. Interrater reliability was high at 88.35%.

According to a 3x2x2 (group x gender x age) ANOVA, posthoc analyses using Duncan's Multiple Range Test, and chi-square analyses, the epileptic children and their families showed several signs of poor adjustment. The children manifested diminished self-concept relative to their controls and had a tendency of assaultive behavior toward their parents. Also, the epileptics' families saw themselves as having poor intrafamilial communication and as being significantly less close than the diabetics' and healthy children's families saw themselves.

The family is just one environment where the epileptic child is likely to experience difficulties; another is the school. In this milieu, it has been noted that if these children infuse doubts of their competency into their self-concepts, those doubts can lead to academic underachievement (Maj et al., 1987). These authors also noted that "autocratic parental attitudes [are] related to [epileptic children's] school underachievement" (p. 197). Other researchers discovered that "epileptic children taking barbiturates . . . have more behavior problems at school than . . . children treated with non-barbiturates" (Ferrari, Barabas, & Matthews, 1983, p. 113).
These same three researchers investigated the achievement and school behavior of epileptic children by using the same subjects and instruments as employed in the last study cited above, with the exclusion of the Draw-a-Person Test here (Matthews, Barabas, & Ferrari, 1983). According to separate ANOVAs for each instrument, posthoc analyses using the Duncan Multiple Range Test, and Fisher's Exact Test, the authors found the following significant results: epileptics' parents reported their children as less likely to have positive feelings about school, more likely to have trouble concentrating, and more frequently to be "off somewhere else" than parents of the other groups reported their children to be. Epileptic children also had significantly lower self-concepts than the other children.

The following important discovery regarding LOC was unearthed in the above study:

Epileptic children were more likely than healthy children to attribute their performance to some unknown source of control. This was true without regard to whether the final outcome of their performance led to success (e.g., a good grade) or failure (e.g., a poor grade). (p. 11)
This would imply a tendency toward external LOC among children with epilepsy. A consequence of this is that
"they may be less motivated to apply themselves within the school setting" (p. 12).

**Emotional adjustment.** This is the largest of the WPSI's seven specific adjustment scales and is overly represented in the eighth scale, a global assessment of Overall Psychosocial Functioning. Dodrill et al. (1980) even describes this scale as a miniature version of the global assessment scale. Because of this, there is a certain degree of overlap between this scale and the other specific scales (e.g., emotional adjustment and Hoare's studies [1984a, 1984b, 1984c] of psychiatric morbidity in epileptic children and their families). I attempt to avoid such overlap by limiting this section's topics to the process of adjustment; epileptics' adjustment as compared to that of patients with multiple sclerosis (MS); the influence of stressors on adjustment; attempted suicide as a sign of poor adjustment; and anxiety, dependence, helplessness, low self-esteem and LOC as signs of poor adjustment.

According to Laaksonen (1983), the diagnosis of epilepsy can result in emotional turmoil for those newly diagnosed with it. This turmoil "can be seen in terms of a process of crises starting from shock reaction and ending in resolution and acceptance and finally reintegration" (p. 52). Laaksonen lists the patients' ages, the types and etiologies of their seizures, their personality dynamics and
previous adjustment levels, and environmental factors as influencing their processes toward reintegration, but does not describe the reintegrative process itself. Most likely it is similar to Kubler-Ross' stages of grieving for a loss (denial, anger, bargaining, depression, acceptance), since learning that one is disabled is akin to learning that part of one's self or one's potential has died.

Tan (1986) studied how well epileptics adjust to this loss, as compared to multiple sclerosis (MS) patients, another group with a chronic neurological illness. The author noted:

The rate of psychopathology as measured by the MMPI in adult epileptic patients [is] not elevated relative to that of patients with other neurological disorders. However, epileptic patients as a group [are] found to be at higher risk for psychological dysfunction than the general population. (p. 528)

In light of this, but despite Dodrill et al.'s (1980) statement that the WPSI was designed strictly for use within the epileptic population, Tan used this instrument "or modified versions of it with [epileptics, MS outpatients], and normal subjects . . . to determine whether similar results would be obtained in the more general area of psychosocial functioning" (p. 528).
Several subjects in each of the original groups invalidated their WPSI results through high scores on the Lie Scale; I will comment only on the valid results. The reduced groups consisted of 22 female and 22 male epileptics (mean age = 28.0 years, mean age at onset = 13.8, mean duration = 14.2), 17 female and 3 male MS outpatients (mean age = 41.9, mean age at onset = 33.7, mean duration = 8.2), and 19 female and 16 male controls (mean age = 35.9). The epileptics took the standard WPSI while the MS subjects took a modified version wherein items referring to "epilepsy" or "seizures" were reworded as referring to "MS" and "attacks," respectively. The controls' version omitted "items [containing] references to seizures, epilepsy, or medication . . . Only the Lie, Family Background, Emotional Adjustment, and Financial Status scales could be scored" (p. 529) because of missing items on the other scales.

"Analyses of variance, t-tests, and the modified LSD (least significant difference) test for post-hoc multiple comparisons" (p. 529) yielded only one significant finding—those with epilepsy and MS "had significantly more emotional problems than the normal control group . . . , but the two patient groups did not differ from each other" (p. 531) on any of the scales. Tan concluded:

The psychosocial problems or even psychopathology evidenced by epileptic patients may be due more to the
effects of suffering from a chronic, neurological disorder than to epilepsy per se. . . . [Also,]
psychosocial dysfunction is not more prevalent among adult epileptic patients compared to other chronic or neurological patients. (p. 533)

Tan's conclusions both confirm and conflict with those of Ferrari, Matthews, and Barabas (1983), and of Hoare (1984a, 1984b). They confirm the others' conclusions that the negative consequences of epilepsy are more likely to be found in its psychosocial effects than in its physical symptoms; however, they disagree with the others' findings that epileptics experience greater rates of dysfunction or psychiatric morbidity than do other groups with chronic illnesses. This may be because the others' chronic illness comparison groups had diabetes (an illness not involving the central nervous system [CNS]), while Tan's group had MS (which does involve the CNS). Since epilepsy also involves the CNS, Tan's conclusions on this point may be more valid than the others'.

Stress is defined as "the emotional, psychological, or physical effects as well as the sources of agitation, constraint, or annoyance" (Walker, 1991) a person may experience. For epileptics, it also seems to be a negative covariant of their emotional adjustment. For example, epileptic children "are . . . likely to act babyish or
immature, [and] to have frequent periods of emotional distress" (Ferrari, Matthews, & Barabas, 1983, p. 56). Also, a study of adult epileptics showed "increased psychopathology was associated with . . . an increased number of stressful life events in the past year" (Hermann et al., 1990, p. 101). However, because these authors measured their subjects' psychopathology and number of stressful life events only once, what they used as baselines for these variables and as the foundation of their conclusion of "increased" levels of these variables is unclear.

Not only are stressors related to epileptics' levels of emotional adjustment, but they also are related to psychiatric patients' suicide attempts. In reviewing the literature on this topic, Batzel and Dodrill found that "suicide attempters subjectively experienced three times as much stress as nonsuicidal psychiatric patients" (1986, p. 699). These two facts suggest a relationship between epileptics' levels of emotional adjustment and attempted suicide. These authors "investigated the emotional . . . correlates of unsuccessful suicidal behavior in adults with epilepsy" (p. 699).

The subjects were 94 male and 104 female epileptic adults (age range = 16 to 64 years, mean age = 29.03; mean duration = 12.62; mean age of onset = 16.42). They
comprised "a consecutive series of new patients seen . . . [at a university epilepsy center] who had been given the tests required for the study" (p. 699). These tests were "the MMPI, which was scored for all standard scales and four supplementary scales (Barron’s Ego Strength, Richard’s Epilepsy, Welsh Anxiety, Taylor Manifest Anxiety)" (p. 700).

The authors divided the subjects into two groups--those with a history of one or more suicide attempts (N = 32) and those with no such history (N = 166). Although roughly equal numbers of females (N = 81) and males (N = 85) had not attempted suicide, chi-square analysis indicated a significantly greater number of females (N = 23) than males (N = 9) had done so. The authors noted this ratio between female and male suicide attempters "is consistent with the suicide rate for men and women in the United States" (p. 702). This is a false analogy, though, because they are comparing unsuccessful to successful suicide attempters. They also acknowledge that "men use violent and lethal methods . . . nearly twice as frequently as do women" (p. 702), which would suggest that men are underrepresented among suicide attempters because they are more likely than women to successfully complete their attempts.

Individual t-test comparisons between the scores of members of the two groups, plus the Bonferroni correction procedure, yielded six significant variables--two from the
MMPI and all four of the supplementary scales. These "results show the most prominent differences on the measures of anxiety, general psychopathology, and ego strength. . . . Persons with histories of suicide attempts had higher anxiety and decreased ego strength, and this appears to be . . . [the study's] primary finding" (p. 700).

Just as anxiety is an indicator of suicidal behavior, it is also an indicator of poor emotional adjustment, as are dependence, helplessness, low self-esteem and LOC. For instance, the unpredictability of epilepsy (not knowing when the next seizure will occur), can lead to insecurity and the constant fear of being under the threat of an imminent attack. Other anxiety-related emotions can lead to both extreme dependence and helplessness (Bjornaes, 1988). A sense of this helplessness and of loss of control can accompany seizures as well. Also, children with epilepsy often have low self-esteem, the consequences of which include medical noncompliance, rebellion, and dependence (Coulter, 1982). All of this is corroborated by the finding that "epileptic children typically have lower self-esteem, report higher levels of anxiety, and more often perceive events in their lives as caused by unknown sources of control than do matched healthy and diabetic youngsters" (Ferrari, Barabas, & Matthews, 1983, p. 112).
Interpersonal adjustment. Although this scale comprises 17% of the WPSI, very little literature deals primarily with interpersonal adjustment. For a lack of such literature, I draw my references of findings regarding this topic from literature primarily germane to the other scales. These findings point to unassertiveness, social isolation and withdrawal, and low self-esteem as issues of interpersonal adjustment that epileptics are likely to face.

Unassertiveness is apparently both a product and a perception of epileptic children's families. According to Maj et al. (1987), "parents of epileptics tend to encourage passivity and delay of self-initiated behaviour in their children" (p. 200). Also, "families of epileptic children perceive the child as having behavior that is developmentally immature ... and whose interpersonal style is relatively unassertive" (Ferrari, Matthews, & Barabas, 1983, p. 56). However, the authors do not specify the reference group to whom these epileptic children are relatively unassertive. Nevertheless, such perceptions can act as expectations of passivity, which could be one form of the parents' encouragement of passivity to which Maj et al. (1987) refer.

Such passivity may lead to social isolation and withdrawal among epileptic children as they fail to assert themselves in a social setting. Their parents encourage
this passivity through "overprotectiveness and restrictiveness[, which] . . . have been reported to promote social withdrawal" (Maj et al., 1987, p. 197). Hoare (1986) supports this by reporting that "children with epilepsy were more socially isolated and withdrawn than their siblings" (p. 471). Also, social exclusion is one of the psychosocial consequences of the epilepsies (Hermann et al., 1990). Finally, just as anxiety-related emotions relate to dependence and helplessness in emotional adjustment, they can relate to social isolation in interpersonal adjustment as well (Bjornaes, 1988).

For epileptics, the above issues of passivity, unassertiveness, and both social isolation and withdrawal can be accompanied by low self-esteem. According to Laaksonen (1983), "the diagnosis of epilepsy may . . . [be a] blow to one's self esteem in various interpersonal situations" (p. 55).

Vocational adjustment. Epileptics face an uphill struggle in their individual quests for employment. The external factors of low expectations from childhood on, limited employment opportunities, and discrimination, combined with the internal factor of psychopathology, suggest epileptics experience an unemployment rate significantly higher than the general population's. A study utilizing census statistics demonstrates this.
The external factors contributing to unemployment include parents' expectations for their epileptic children to have fewer employment opportunities than they expect for their healthy children (Maj et al., 1987). By sending such a message to their epileptic children, these parents may discourage the children from seeking any employment later on in life. Such expectations may be realistic, though, since epileptics' "future career choice[s] [are] restricted" (Laaksonen, 1983, p. 54) and epileptics do experience vocational difficulties such as "unemployment, underemployment, [and] limitations in [their] vocational choices and options" (Hermann et al., 1990, p. 102). These restrictions and limitations may be either self-imposed (as a result of internalizing others' messages of their supposedly lesser abilities) or externally imposed in the form of discrimination.

According to Hermann et al. (1990), the internal factor of "increased psychopathology was associated with ... poor vocational adjustment [and] less adequate financial status" (p.101) on the WPSI scores of adult epileptics. The authors continued and concluded:

National unemployment rates, and by implication financial stresses, covary with several indices of national mental health (e.g. suicide rate, admissions to mental health facilities). If vocational difficulties
and financial stresses influence the mental health of
the general population, then they can reasonably be
expected to influence the adjustment of individuals with
epilepsy—a group with an unemployment rate several
times greater than the general population (Fraser,
1980). (p. 102)

El-Hilu (1990) demonstrated that epileptics do
experience a significantly greater amount of unemployment
than the general population by conducting a computer search
at the Psychological Medicine Hospital in Safat, Kuwait, for
epileptic patients admitted for psychiatric treatment during
the calendar years 1982 and 1983; only those whose epilepsy
preceded their psychiatric intakes were included. The
search yielded 38 males (mean age 27.7 years, SD 10.76) and
17 females (mean age 28.0, SD 10.48). The total sample
ranged in age from 15 to 59 years, with a mean age of 27.8
years and a standard deviation of 10.58. (Age ranges for
the genders were not published.)

The author statistically compared the above figures
and other patients' variables such as educational level and
occupation to the same variables of the general Kuwaiti
population; unfortunately, El-Hilu did not mention which
statistical instruments were used. Nevertheless, results
showed epileptics "had significantly more illiterates and
less individuals with elementary education and university
graduates" (p. 69) than the general population. Also, "80% of the epileptic sample had never had a job or had a manual one. . . . The epileptic sample had significantly more unemployed and manual workers and significantly less professionals and self-employed [sic] than the general population" (p. 69).

In discussing the above results, EI-Hilu acknowledged the possible influences of both psychiatric impairment and cultural factors. "Psychiatric impairment, . . . together with epilepsy may affect cognitive function which in turn has adverse effects on education and consequently on occupation" (p.72). Also, the author attributed the male preponderance in this sample to the tendency in Arabic culture "to be overprotective towards patients in general and female patients in particular" (p. 69); the sample's epileptic and/or psychiatric severity may have been a factor as well. The females' low levels of educational and occupational achievement may also be culturally explained: "In our culture women in the past were much less encouraged to go to school than men. . . . Cultural factors also apply to occupation, because even healthy women are less likely to go out to work" (p.73). Because of these cultural factors, the study's results may not be fully generalizable to the American population.
Financial status. A computerized search of the literature yielded only two references to studies dealing with both epilepsy and financial status. Hermann et al. (1990) measured the relationship between financial status (as well as other variables) and psychopathology among epileptic patients, with psychopathology as the variable of primary interest. The results of their study are presented in the next section. The other study is described below.

Dodrill, Batzel, Wilensky, and Verby (1987) examined the roles that financial status and adjustment can have in adult epileptics' medical noncompliance by administering the WPSI to 282 patients whose drug treatment regimen had not changed for 30 days before the study’s onset and who had serum drug levels on all their antiepileptic drugs. The authors then had two neurologists who were blind to the study rate each patient as either definitely noncompliant, noncompliant, don’t know, compliant or definitely compliant, according to each’s "sex, age, weight, antiepileptic drug(s) prescribed, dose, mg/kg, and serum levels" (p. 144).

Only those who were rated by both neurologists as belonging to either extreme group were selected for the study; however, those rated by both neurologists as probably noncompliant were included to assure an adequate sample size of noncompliers. This left 80 compliers (46 females, 34 males) and 42 noncompliers (22 females, 20 males). Their
ages ranged from 16 to 66 years, with a mean of 27.5 years. Their mean age at onset was 15.5 years (no range was given).

The authors used the WPSI’s Financial Status Scale and the patients’ hospital financial codes (medications paid for fully by Medicaid, mostly by private insurance, or fully by uninsured patients) and the daily cost of each patient’s drug regimen to "assess the possible role of financial factors upon compliance" (p. 147). Using the Student t-test to analyze the data, they found that "noncompliers much more frequently reported that they lacked adequate funds to meet their daily needs" (p. 149) than did compliers, even though the costs of the two groups’ drug regimens were virtually the same. Also, noncompliers composed a significantly greater percentage of those whose medications were fully paid for than they did of those who paid either partly or completely for their drugs. The authors concluded that "noncompliance is more related to general self-reported financial distress than it is to whether or not the medications are paid for or to how much they cost" (p. 151).

Adjustment to seizures. Epileptics vary in the ways they respond to and cope with their illness. Hermann et al. (1990) described this variation in adjustment:

Some patients . . . are able to proceed through life relatively unencumbered by their epilepsy, which may even be moderate to marked in severity. Other[s] . . .
may feel resentful, believe that their lives have been ruined by epilepsy and may continually dread the occurrence of a seizure. Further, some patients may be particularly fearful of seizure-related accidents and/or having seizures at inopportune times, and resent their medications which may yield adverse side-effects and not always provide adequate seizure control. . . . These factors have been reasonably suspected of being associated with psychiatric distress. (p. 102)

In light of this definition of adjustment to epilepsy, I examine stigma and other psychosocial variables as they relate to psychopathology in adjustment to epilepsy, other forms of poor adjustment, epileptics' resourcefulness in their coping and adjustment, and coping in general.

Stigma is the "perception of a distinguishing personal characteristic or condition, e.g., a physical or psychological disorder, race, or religion, which carries or is believed to carry a physical, psychological, or social disadvantage" (Walker, 1991). It is also a pervasive psychosocial consequence of the epilepsies (Hermann et al., 1990). This assertion is supported by the finding that epileptics seem "to be more concerned [than patients with MS] about people discovering that they have . . . [a neurological disorder]. . . . This may be due to a greater societal stigma or prejudice against epilepsy as compared to
Such a social stigma, with all its effects and pervasiveness, can have psychopathological consequences and is one reason why patients with epilepsy attempt suicide five to seven times as often as the general population (Batzel & Dodrill, 1984).

Hermann et al. (1990) confirmed this relationship between stigma and psychopathology when they examined "the role that psychosocial factors play in predisposing patients with epilepsy to a variety of psychopathologies" (p. 98). They measured these variables in a sample consisting of 102 (57 female, 45 male) in-patients at a university hospital epilepsy center. The patients had a mean age of 31.2 years, a mean age at onset of 14.9 years, and a mean duration of 16.3 years.

The authors investigated four groups of variables predictive of psychopathology: neurological, medication, demographic, and psychosocial. The neurological variables were "age at onset of recurrent seizures, duration of epilepsy, laterality of unilateral temporal lobe seizure onset, seizure type, aetiology, presence/absence of secondarily generalised seizures, [and] number of different seizure types" (p. 100). The medication variables were "monotherapy v. polytherapy [treatment with one v. more than one medication], [and] presence of barbiturate medications" (p. 100). The demographic variables were "age, gender,
years of education, [and] WAIS-R Full Scale IQ" (p. 100). The psychosocial variables were "perceived stigma, perceived limitations, adjustment to seizures, vocational adjustment, financial status, life event changes, social support, [and] locus of control" (p. 100).

Values for the patients' neurological variables were taken from their medical charts. (Seizure frequency was not measured because an unacceptable level of this variable had presented them to the clinic in the first place.) Medication information was ascertained from the patients' most recent (pre-admission) medication schedule" (p. 101). The demographic variables are self-explanatory. (Excluded from the sample were those whose WAIS-R Full Scale IQ scores were less than 70, or who scored "below the 5th percentile on the Reading scale of the Wide Range Achievement Test - Revised" [p. 99], because these patients "would not be reliable to complete the self-report measures" [pp. 99-100]).

The following were used to measure the psychosocial variables: The Perceived Stigma scale "assesses the extent to which people with epilepsy feel that they are victims of prejudice because of their epilepsy" (p. 100). The Perceived Limitations scale is comprised of "statements or expressions of constraints that may be imposed by . . . [epilepsy]. Their underlying theme is the sense of vulnerability to the
physical consequences of the disorder" (p. 100). The WPSI’s financial status, vocational adjustment, and adjustment to seizures subscales have already been described. The Life Experiences Survey (LES) lists life event changes which subjects rate on Likert scales according to the events’ desirability or undesirability. The Social Support Questionnaire measures its namesake variable, with the "the number of individuals available to provide social support" (p. 101) as the predictor variable. The construct underlying Rotter’s internal-external control of reinforcement scale has already been described.

The 30-item version of the General Health Questionnaire (GHQ) was used as a dependent measure "to assess each patient’s overall psychiatric status" (p. 101), or level of psychopathology. The patients’ "GHQ raw scores were treated as a continuous variable for statistical analyses" (p. 101) with each of the patients’ neurological, medication, demographic, and psychosocial variables. These analyses consisted of Pearson product-moment correlations for continuous variables and t-tests for dichotomous variables. Results of these analyses showed seven variables—"increased perceived stigma . . . , an increased number of stressful life events in the past year . . . , poor adjustment to epilepsy . . . , poor vocational adjustment . . . , less adequate financial status . . . ,
external locus of control . . . , and an earlier onset of epilepsy" (p. 101)—had significant relationships with psychopathology as measured by the GHQ.

In presenting these results, the authors begged questions of reference that they left unanswered. For example, they measured perceived stigma once, yet reported it as being increased over an unreported (and apparently unmeasured) baseline, begging the question of what the baseline was. The same holds true for other variables they reported as being significant in a relative way. Unless these results are significant in relation to normative data, they can only be accepted in a qualified manner. A control sample would have solved this problem, but was not used.

The psychopathology in adjustment to epilepsy discovered above can be manifested in several ways, such as "total denial of the symptom or any existing difficulties" (Laaksonen, 1983, p. 54). "Negative attitudes and resentment are . . . [also common] because of the nature of epilepsy and the prejudices traditionally associated with it" (pp. 57-58). These negative attitudes may turn inward in the form of shame, which can often be accompanied by a desire to conceal the illness. These "may lead to bitterness, suspicion, irritability and surliness which again makes the patient quite unpopular with others giving thus [sic] support to further negative attitudes" (p. 58).
Not all adjustment to epilepsy is rooted in psychopathology; instead, the "individual differences in learned resourcefulness influence the coping level of epileptics, in particular in the less severe cases of epilepsy" (Rosenbaum & Palmon, 1984, p. 244). This learned resourcefulness is a "general repertoire of self-control skills" (p. 245); it is also "the extent to which . . . [individuals] are able and willing to self-regulate internal responses (such as emotions, pain, and cognitions) that interfere with the smooth execution of a target behavior" (p. 245). These authors hypothesized that learned resourcefulness would be a factor, along with the severity (measured as frequency) of epileptics' seizures, in predicting the emotional sequelae of their epilepsy.

The authors tested this hypothesis with a sample of 25 male and 25 female epileptics who were outpatients at a local Israeli hospital clinic. They had a mean age of 31.6 years and a mean duration of 11.2 years. Each subject had an official diagnosis of epilepsy, at least one seizure a year, neither any other serious physical condition nor any psychopathology, an age within the range of 19 to 50 years (inclusive), and the ability to answer the questionnaires. A variable that was not part of these inclusion criteria but which was common to all the subjects was a blood serum level
indicative of medication compliance, which limits the scope to which the study's results can be generalized.

Beyond these similarities, the subjects were divided into groups according to their seizure severity/frequency levels. Seventeen subjects had a high level of seizure frequency (generalized seizures "occurring between once a week to once a month with frequent daily absence seizures" [p. 245]), while 16 subjects had a medium level (generalized seizures "ranging from once a month to once in 6 months with relatively few absence seizures every day" [p. 246]), and 17 subjects had a low level (generalized seizures "ranging from once in 6 months to once a year" [p. 246]).

All subjects took Rosenbaum's Self-Control Schedule (SCS) first for the assessment of their learned resourcefulness and their division into high resourcefulness (HR) and low resourcefulness (LR) groups; those who scored above the sample median were labeled HR while the others were deemed LR. The authors described the SCS this way:

[It measures] individual tendencies to apply self-control methods to the solution of behavioral problems. It covers the following content areas: (a) use of cognitions and self-instructions to cope with emotional and physiological responses, (b) application of problem-solving strategies (e.g., planning problem definition, evaluating alternatives, and anticipation of
consequences), (c) ability to delay immediate
gratification, and (d) a general belief in one's ability
to self-regulate internal events. (p. 246)

After the SCS, the subjects took seven other scales
in random order. The Health Locus of Control (HLC) Scale
measured "subjects' perceived control over health related
behavior" (p. 246). The Perceived Control of Seizures (PCS)
scale assessed how much "they believed that they could
control . . . seizures and their ability to control their
emotional reactions following a seizure" (p. 246). A causal
attributions scale examined to what extent they believed
various factors cause their seizures. Of the State-Trait
Anxiety Inventory (STAI), they took the trait form once and
the state form twice--once to measure their normal anxiety
level, and once to assess their recalled anxiety level
immediately after a seizure. They did the same with Lubin's
Depression Adjective Check List (DACL) as they did with the
STAI state form, while Beck's Depression Inventory (BDI)
measured their depression as a trait. The Acceptance of
Disability (AD) Scale assessed how well they were "able to
de-emphasize the negative aspects of . . . [their] physical
disability and emphasize . . . [their] positive assets and
abilities" (p.246).

The authors used a series of 3 (high, medium or low
seizure frequency) X 2 (HR or LR) ANOVAs, univariate ANOVAs
(for the scores of each scale), a univariate analysis of covariance, multivariate analyses of variance in conjunction with Wilks’ criterion, Duncan’s multiple range test, and Pearson’s correlation coefficient to analyze the data. Results confirmed their hypothesis; in particular, HR subjects with either medium or low seizure frequency levels "were significantly less depressed and anxious and coped better with their disability than LR subjects" (p. 244). At all levels of seizure frequency, HR subjects held a stronger belief in their control over their seizures and their health than did LR subjects. However, both HR and LR subjects with high seizure frequency levels demonstrated poor emotional adjustment to epilepsy.

Such emotional adjustment to epilepsy can be seen in how well epileptics respond to the stressors unique to their condition. These stressors "include the psychological consequences of coping with repeated episodes of loss of consciousness, [which are] often associated with embarrassment and loss of personal dignity" (Hermann et al., 1990, p. 98). Along with episodic losses of consciousness, they must respond to stressors brought on by the initial diagnosis of epilepsy. Both their immediate and long-term responses to this are determined by their "individual coping mechanisms and previous level[s] of adjustment" (Laaksonen, 1983, p. 53).
Medicine and medical management. For many epileptics, the use of anticonvulsant medicine(s) is essential for the elimination or partial control of their seizures. However, this does not always come without adverse side effects, such as depression as a result of barbiturate therapy. For this reason, compliance to medical regimens is often an issue, as is noted in the relations between barbiturate therapy and adolescents' medication compliance, independence, and family harmony.

Drug therapy, the least invasive and most common form of symptom management for epileptics, can have adverse side effects such as sedation, aggressiveness, poor short-term memory and, in the case of phenobarbital (traditionally one of the more commonly prescribed barbiturates), addiction (Coulter, 1982; Griffith, 1989). Therapy with certain antiepileptic drugs can also contribute to "mental dulling" (Addy, 1987, p. 395), as manifested by impaired cognitive functioning among children treated chronically with those drugs, even though drug serum levels may be within their accepted therapeutic ranges. It may also lead to psychological complications such as "depression, mood changes or slowing down in psychological functioning" (Laaksonen, 1983, p. 56).

Ferrari, Barabas, and Matthews (1983) referred to an unpublished study of their own wherein they had noticed
depression in and suicidal behavior by two epileptic children while the children were on barbiturate anticonvulsant drug therapy and the cessation of these symptoms upon the children’s withdrawal from this drug treatment. The authors further examined this possible link between depression and barbiturates by analyzing data from their other studies of epileptic, diabetic, and healthy children described in the Family Background section above. The groups’ characteristics are outlined there. Among the fifteen epileptic children, seven took barbiturates (either phenobarbital or primidone) while the other eight took nonbarbiturate drugs.

As noted above, the authors administered the Multidimensional Measure of Children’s Perceptions of Control and the Piers-Harris Children’s Self-Concept Scale to the children and the Rochester Adaptive Behavior Inventory to their parents. Results showed the epileptic children had lower self-concept scores and greater external locus of control scores than the diabetic and healthy children and differed from these groups in terms of anxiety as well. However, the authors failed to mention in which direction these children differed on the last variable and what statistical analyses they used to determine this.

Analyses of variance among the epileptic children revealed those taking barbiturates had lower self-concept
scores and more school-related behavior problems (as reported by their parents) than those taking other drugs. The children on barbiturates also "displayed atypical behaviors, including excess worry, self-destructive behavior, and complaints of persecution" (p. 112). These results supported the authors' hypothesis that barbiturate therapy can precipitate or enhance depressive symptoms.

Friedman et al. (1986) examined the relationships between the medication compliance of 25 epileptic youths and the emergence of greater personal freedom in their lives, disharmony in their families, and their development of self-esteem. Fourteen subjects were female while 11 were male. Their ages ranged from 9 to 17 years and their ages at onset ranged from 3 to 15 years. No means or information regarding their duration of epilepsy were given, but their seizure frequency ranged from none "in the past year to more than one per day" (p. 13).

The authors assessed medication compliance in both pharmacological and behavioral terms. They measured compliance pharmacologically by having the subjects mail them saliva samples on a monthly basis for a year. They then measured the samples' phenobarbital levels (all subjects took this drug), taking into account the presence of other drugs in certain subjects' drug regimens that could interact with phenobarbital and affect its levels in the
samples. The authors measured the subjects' behavioral compliance, knowledge of their regimens, and their self-reported compliance by interviewing them at the beginning, middle, and end of the year-long study. They also used "percentage of scheduled appointments kept and requested saliva samples returned . . . [along with] a chart review conducted at the beginning of the study to record previously missed appointments and clinician notations" (p. 13) as behavioral indicators of compliance.

The researchers measured the subjects' perceptions of their independence and the "affective harmony in their family life [including parental acceptance]" (p. 14) by administering to them the California Test of Personality (CTP) and extracting from it two scales for these variables. They then constructed parallel scales to assess the parents' perceptions of these variables "to confirm the validity and specificity of the teens' responses" (p. 14). The subjects took their scales three times during the study while their parents took their scales twice. The subjects also took the Piers-Harris Children's Self-Concept Scale twice.

The authors reduced the subjects' phenobarbital measures and behavioral compliance indicators to single scores and compared them through correlation and multiple regression; they also compared the phenobarbital and scale scores this way. They used partial correlation to explore
the relationships between phenobarbital and scale scores "while controlling one at a time for . . . age, sex, Tanner stage of sexual maturation . . . , socioeconomic status, age at onset of illness, and degree of seizure control" (p. 14).

Results showed phenobarbital scores "had significant positive correlations with . . . subjects' . . . [self-reported] medication compliance, appointment-keeping score[s], and chart review for appointment compliance" (pp. 14-15). Phenobarbital scores were also significantly correlated to each of the children's and parents' scores on scales derived from the CTP except for the children's independence score, which approached significance at .06. From these results, the authors concluded that "self-esteem is important in regimen compliance" (p. 15) and that "an acrimonious struggle for independence impedes compliance, . . . [while] a sense of autonomy fosters compliance" (p. 15).

Summary

Judging from the literature reviewed, internality appears to be conducive to healthy adjustment in our culture (Rotter, 1966). For example, it has been noted that internality and other positive beliefs (i.e., optimism, hope) are related to and contribute to good physical and mental health (Strickland, 1989). Internality is also positively correlated to assertiveness, a characteristic
valued in our culture (Cooley & Nowicki, Jr., 1984). Externality, on the other hand, seems related to poor adjustment, as was evidenced in an experiment in which externals attempted to protect themselves against failure by expecting to perform "near or below previous performance levels . . . [but had] lower levels of personal adjustment" (Strickland, 1989, p. 6).

Unlike internality, epilepsy does not seem to be related to healthy adjustment. Findings showed epileptic children had poorer self-concepts (Ferrari, Matthews, & Barabas, 1983) and were significantly more psychiatrically disturbed (Hoare, 1984a), more anxious (Ferrari, Barabas, & Matthews, 1983), and less assertive than children in the general population (Maj et al., 1987; Ferrari, Matthews, & Barabas, 1987). It would seem that just as externals are poorly adjusted in comparison to internals, so are epileptics poorly adjusted relative to the general population.

Considering the above parallel relationship that epileptic children are to healthy children as externals are to internals, it would appear that children with epilepsy are significantly more external than healthy children. Research supports this line of reasoning (Matthews et al., 1983). However, it remains to be seen whether the same is
true of adult epileptics, since internality increases with age (Nowicki, Jr., & Strickland, 1973).

Because LOC is an interval variable, the question arises as to whether or not a person's degree of externality would correlate inversely with the person's level of adjustment (i.e., the greater the externality, the poorer the adjustment). The literature surveyed here does not address this point, so this question deserves examination.
Chapter III
Method

Specific Statement of the Problem

This study had several purposes, three of which were: to assess epileptic adults' LOC, to see whether or not their LOC differed significantly from the general population's, and to assess their overall level of psychosocial functioning. A fourth and final purpose was to examine how well they adapted to their epileptic condition by measuring the relationship between their LOC and their level of overall psychosocial functioning.

Hypotheses of the Study

This study investigated the above problem by testing two hypotheses. Stated in null form, they are: (1) There will be no significant difference between the LOCs of epileptic adults and the general population, and (2) there will be no significant correlation between adult epileptics' group LOC and level of psychosocial functioning.

General Methodology

The subjects were invited to participate in the study by either their neurologists (all but one of whom belonged to the Alameda-Contra Costa Medical Association) or
by fellow epileptics who were members of the Epilepsy League of the East Bay, a regional chapter of the Epilepsy Foundation of America. Neurologists informed their epileptic patients of the study either verbally or through written announcements at their offices provided by the author. Members of the Epilepsy League of the East Bay extended verbal invitations at local support group meetings held in Oakland in May and June of 1991, at a chapter conference held in Sacramento in May, 1991, and at the chapter offices in Oakland in May and June of 1991. Invitations extended through the Epilepsy League of the East Bay produced a majority of the subjects. Lack of experimenter control over the study’s execution prevents a more detailed description of it.

Each subject received a packet containing an announcement of the research project, a cover letter explaining the study, two notices of informed consent (one to keep and one to return), and the instruments. (A sample research packet is provided in the appendix.) The subjects answered the scales at home and returned them in self-addressed, stamped envelopes provided with the packet. The lack of experimenter control cited above kept the order in which they answered the scales from being counterbalanced.
To test the first hypothesis, the Student t-test was employed to see if there were significant differences between this study's subjects' ANSIE scores and those of community members (the general population) in a previously published study. The Student t-test was also used to see if this sample belonged to the same population of epileptics as those who answered the WPSI during its formation. The t-test for Pearson r correlation coefficients was used to see if the correlation between the subjects' externality, as measured by their ANSIE scores, and psychosocial functioning, as assessed by their scores on the Overall Psychosocial Adjustment Scale of the WPSI, were significant.

Sample

Fifteen adults--eight males and seven females--participated in the study. The males' mean age was 37.5 years, their mean duration was 20.9 years, and their mean age at onset was 16.6 years. They also averaged 14.8 years of education. The females' mean age was 40.3 years, their mean duration was 20.6 years, and their mean age at onset was 19.7 years. They averaged 15.0 years of education. The total sample's mean age, mean duration, mean age at onset and average years of education were 38.8 years, 20.8 years, 18.0 years, and 14.9 years, respectively. Thirteen
subjects—seven males and six females—were White, while one male was Asian and one female was Native American.

Three subjects (one female, two males) reported being symptom-free, while the remainder reported having seizures at frequencies ranging from every 20 minutes to once a year. Three subjects (all males) stated they had other disabilities or physical conditions that significantly affected their lifestyles, one of whom also reported he was symptom-free.

Discounting one female subject who was living on a pension, equal numbers of males and females stated they had difficulty in either finding or keeping employment. Of this same number of subjects, 57% were not employed. This high unemployment rate was reflected in their annual levels of income: six received from $0 to $10,000, three obtained from $10,001 to $20,000, three earned from $20,001 to $30,000, and two earned from $30,001 to $50,000.

Instrumentation

This study used the Washington Psychosocial Seizure Inventory, the Adult Nowicki–Strickland I–E scale, and a questionnaire to gather the data. Dodrill et al. (1980) determined the reliability coefficients of the WPSI’s scales through the test-retest and split-half methods, which yielded results ranging from .66 to .95, suggesting internal
consistency within the scales. The scales' validity coefficients were determined by "the extent to which the WPSI scales accurately duplicate[d] the [subjects'] ratings by professionals" (p. 130). Correlations between the subjects' responses to the scales and their ratings by the professionals were all significant at the .01 level. Because no norms of the WPSI were available, the sample used in the formation of the inventory was treated as a normative sample in this thesis.

Nowicki, Jr. and Duke (1974) used the split-half and test-retest methods to examine the ANSIE's reliability, and correlational techniques (they did not specify which ones) to demonstrate both its discriminative and construct validities. The scale's split-half reliability ranged from .74 to .86, suggesting the ANSIE to be psychometrically sound. A test-retest coefficient of .83 over a six-week period reiterated this. The lack of relationships between ANSIE scores and scores measuring social desirability and intelligence supported the ANSIE's discriminative validity, and "support for the construct validity of the ANS-IE . . . [came] from . . . significant positive correlations between the scale and the Rotter [I-E Scale]" (p. 136).

The questionnaire obtained descriptive data from the subjects both to paint a composite sketch of the sample and
to highlight the unique features of individual subjects. The data consisted of the following information: sex; race/ethnic origin; age; how long they had been diagnosed as having epilepsy; whether or not they were symptom-free and, if not, how often they had seizures; whether or not they had "any other disabilities or physical conditions that significantly affect[ed their] lifestyle[s];" their highest levels of education; employment status; their perception of how easy or difficult it was for them to find or keep employment; their annual levels of income; and their primary sources of income.
Chapter IV

Results

Results

This study tested two null hypotheses: (1) There will be no significant difference between the LOCs of epileptic adults and the general population, and (2) there will be no significant correlation between adult epileptics' general LOC and their level of psychosocial functioning. Regarding the first hypothesis, the subjects' ANSIE scores (M = 12.87) did not differ significantly from the general population's (M = 10.96), as represented by a community sample in a previous study, t(46) = .9971, p > .05; therefore, the null hypothesis was accepted.

Regarding the second hypothesis, there was a significantly positive correlation between the subjects' scores on the ANSIE and their scores on the Overall Psychosocial Functioning Scale of the WPSI, t(13) = 2.6423, p < .05; r(13) = .5911, p < .05; therefore, the null hypothesis was rejected. Also, this sample did not differ significantly on any of the WPSI's scales from the sample that first took the Inventory. The two groups' means are presented on the WPSI Profile Form on page 78. Their
WASHINGTON PSYCHOSOCIAL SEIZURE INVENTORY

Profile Form

Dodrill's 1980 Sample: solid line  Monson's 1991 Sample: broken line

<table>
<thead>
<tr>
<th>FAMILY BACKGROUND</th>
<th>EMOTIONAL ADJUSTMENT</th>
<th>INTERPERSONAL ADJUSTMENT</th>
<th>VOCATIONAL ADJUSTMENT</th>
<th>FINANCIAL STATUS</th>
<th>ADJUSTMENT TO SEIZURES</th>
<th>MEDICINE AND MEDICAL MANAGEMENT</th>
<th>OVERALL PSYCHOSOCIAL</th>
<th>SOCIAL FUNCTIONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>-11</td>
<td>-33</td>
<td>-20</td>
<td>-13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>56</td>
</tr>
<tr>
<td>4.5</td>
<td>-10</td>
<td>-30</td>
<td>-18</td>
<td>-12</td>
<td>-7</td>
<td>-14</td>
<td>-</td>
<td>48</td>
</tr>
<tr>
<td>4.0</td>
<td>-9</td>
<td>-27</td>
<td>-16</td>
<td>-11</td>
<td>-7</td>
<td>-14</td>
<td>-</td>
<td>44</td>
</tr>
<tr>
<td>3.5</td>
<td>-8</td>
<td>-24</td>
<td>-14</td>
<td>-10</td>
<td>-6</td>
<td>-12</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>3.0</td>
<td>-7</td>
<td>-21</td>
<td>-12</td>
<td>-9</td>
<td>-5</td>
<td>-10</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>2.5</td>
<td>-6</td>
<td>-18</td>
<td>-10</td>
<td>-8</td>
<td>-4</td>
<td>-8</td>
<td>-</td>
<td>32</td>
</tr>
<tr>
<td>2.0</td>
<td>-5</td>
<td>-15</td>
<td>-6</td>
<td>-7</td>
<td>-3</td>
<td>-4</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td>1.5</td>
<td>-4</td>
<td>-12</td>
<td>-3</td>
<td>-3</td>
<td>-2</td>
<td>-4</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>1.0</td>
<td>-3</td>
<td>-9</td>
<td>-5</td>
<td>-4</td>
<td>-2</td>
<td>-4</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>0.5</td>
<td>-2</td>
<td>-6</td>
<td>-4</td>
<td>-1</td>
<td>-2</td>
<td>-4</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>0.0</td>
<td>-1</td>
<td>-3</td>
<td>-3</td>
<td>-1</td>
<td>-1</td>
<td>-4</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>0.5</td>
<td>-0</td>
<td>-0</td>
<td>-0</td>
<td>-0</td>
<td>-0</td>
<td>-0</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>1.0</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>1.5</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>2.0</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.5</td>
<td>-4</td>
<td>-4</td>
<td>-4</td>
<td>-4</td>
<td>-4</td>
<td>-4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.0</td>
<td>-5</td>
<td>-5</td>
<td>-5</td>
<td>-5</td>
<td>-5</td>
<td>-5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.5</td>
<td>-6</td>
<td>-6</td>
<td>-6</td>
<td>-6</td>
<td>-6</td>
<td>-6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.0</td>
<td>-7</td>
<td>-7</td>
<td>-7</td>
<td>-7</td>
<td>-7</td>
<td>-7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.5</td>
<td>-8</td>
<td>-8</td>
<td>-8</td>
<td>-8</td>
<td>-8</td>
<td>-8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5.0</td>
<td>-9</td>
<td>-9</td>
<td>-9</td>
<td>-9</td>
<td>-9</td>
<td>-9</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Validity Scales
(Acceptable ranges are in parentheses.)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Blank (0-13)</td>
<td>Lie (0-3)</td>
<td>Rare Items (0-5)</td>
</tr>
<tr>
<td>1980</td>
<td>1.44</td>
<td>2.04</td>
</tr>
<tr>
<td>1991</td>
<td>0.13</td>
<td>1.33</td>
</tr>
</tbody>
</table>

**t-values and alpha levels were:** \( t(140) = 0.3499, p > .05 \) (Family Background); \( t(140) = 0.1786, p > .05 \) (Emotional Adjustment); \( t(140) = 0.3671, p > .05 \) (Interpersonal Adjustment); \( t(140) = 0.3920, p > .05 \) (Vocational Adjustment); \( t(140) = 0.4769, p > .05 \) (Financial Status); \( t(140) = 0.3444, p > .05 \) (Adjustment to Seizures); \( t(140) = 0.5413, p > .05 \) (Medicine and Medical Management); and \( t(140) = 0.0568, p > .05 \) (Overall Psychosocial Adjustment).

**Interpretation of the Results**

In light of the fact that epileptic children scored significantly more externally in their LOCs than did their diabetic and healthy peers (Matthews et al., 1983), it is surprising that the epileptic adults in this study did not likewise produce significantly more external LOC scores than the community sample. There are two possible explanations: (1) This sample selected itself by answering and returning the research packets (there was roughly a 33% return rate of all the packets distributed), which suggests a certain degree of proactivity—a trait that can be associated with internality on an a priori basis; and (2) The community sample and this study’s sample took the ANSIE in 1973 and 1991 (respectively), times when the general population’s LOC (as represented by college students’ scores) was becoming at first more external and later more internal (Strickland,
1989). A current community sample might have been both more internal than the one used herein and significantly more internal LOC than this study's sample. Of these two explanations, the latter seems more plausible.

The significance of the result to the second hypothesis restricts the interpretation of its meaning. As subjects' scores on one scale increased, their scores on the other scale increased correspondingly. This implies that as their externality increased, the number and severity of their problems in their psychosocial functioning as epileptic adults also increased correspondingly. This is supported by Hermann et al. (1990), who found externality and psychopathology were significantly related among adult epileptic hospital patients. Strickland (1989) also supported this result when she noted that external subjects had "lower levels of personal adjustment" (p. 6) than did internal subjects. By independently using the two main variables of this study and demonstrating results similar to its significant finding, these results corroborate with and lend strength to this interpretation of the study's significant result.
Chapter V
Discussion

Summary

Noting that children with epilepsy have been found to be significantly more external in their LOC orientation than their healthy peers (Matthews et al., 1983) the author attempted to discover if the same were true of epileptic adults. The author administered the ANSIE Scale to a small (N = 15) sample of epileptic adults from the San Francisco Bay Area and compared their responses to those of a community sample that had taken the same scale in a previously published study. According to data analysis using the Student t-test, the epileptic adults were not significantly more external than the general population, as represented by the community sample. However, the t-test for Pearson r correlation coefficients manifested a significantly negative correlation between their level of external LOC and their level of psychosocial adjustment, as measured by the Overall Psychosocial Functioning Scale of the Washington Psychosocial Seizure Inventory (p < .05). These results suggest that epileptics' internality increases with age, as it does for the general population (Nowicki, Jr., & Strickland, 1973) and that adult epileptics' levels
of psychosocial adjustment are significantly inversely related to their degrees of externality (i.e., their psychosocial functioning decreases as their externality increases).

Limitations

Several shortcomings in this study make generalization to the adult epileptic population difficult. First, neither the ANSIE's community sample nor the WPSI's original sample was intended to be used as a population norm; therefore, they may not reflect their respective populations. Second, the study's sample may not be representative of adult epileptics because of possible selection bias, due to the fact the subjects were self-selecting. Third, the small N of this study may have prevented the finding of a significant result concerning adult epileptics and external LOC. Finally, the failure to achieve significance with external LOC may be due to the fact that the community sample was measured in 1973, when the general population's LOC was becoming more external (Strickland, 1989). Significance might have been achieved had the sample been compared to a more current study, when population LOC was becoming more internal (Strickland, 1989).
Recommendations

The methodological issues of normative samples, selection bias, and temporal equivalence, as well as the issue of small sample size must be addressed to overcome the limitations to this study. Population norms should be used or developed for future research regarding both LOC and the WPSI. Otherwise, research in this area will remain of limited generalizability. Selection bias can be minimized by soliciting the participation of epileptics from not just primarily one, but a variety of sources: private neurologists, specialty clinics, the Epilepsy Foundation of America, and so on. Selection can also be more rigorously controlled by strictly defining the type of epilepsy subjects will have. Adhering to temporal equivalence by comparing samples from the same time period should make results meaningful to that period. Also, larger sample sizes should make results more generalizable to the populations concerned and may even facilitate the achievement of significant results.
REFERENCES


Announcing:

EPILEPSY RESEARCH PROJECT

Would you like to have a clearer understanding of your sense of self-determination and your attitudes toward your epilepsy? You can find out by participating in a research project being conducted by David Monson, an epileptic graduate student of counseling at California State University, Hayward. If you choose to participate, you will answer three questionnaires at home, the answers to which will be kept strictly confidential. You also may meet with Mr. Monson after the conclusion of the study for an interpretation of your scores. If you are interested, please call Mr. Monson at (phone number) and leave your name and address.
Dear Sir or Madame:

I am writing you to invite your participation in a research study being conducted in the Department of Educational Psychology of the School of Education at California State University, Hayward. The study's purpose is to discover the attitudes that adults with epilepsy have toward their epilepsy and the relationships between those attitudes and their senses of self-determination.

If you choose to participate, you will answer the enclosed two scales and the questionnaire. The scales will measure your attitudes about epilepsy and your sense of self-determination. The questionnaire will ask for information such as gender, age, education, and how long you have had epilepsy. The scales and questionnaire should not take more than an hour to complete.

Your answers to the scales and questionnaire will be kept strictly confidential. If you desire, I will meet with you after analyzing all the data to interpret your scale scores and answer any questions you might have. To ensure confidentiality, I will destroy all answer sheets and questionnaires after the study.

Participation in the study is completely voluntary. You will be free to discontinue your participation at any time. If you choose to participate in the study, please return one of the attached consent forms, the scales, answer sheets, and the questionnaire in the self-addressed, stamped enveloped while keeping the other informed consent form for your records.

If you have any concerns regarding the adequacy of safeguards in the study, please contact the Office of the Associate Vice President, Faculty Affairs and Research, attention: Chair, Institutional Review Board (California State University, Hayward, CA 94542, telephone: 881-3022).

Thank you for your cooperation.

Sincerely,

David Monson

Enclosures
Notice of Informed Consent

I have read the letter about the research project being conducted concerning self-determination and attitudes toward epilepsy. I do____ do not_____ want to participate in the study. Also, I do____ do not_____ want to meet with Mr. Monson for an explanation of my scores (please leave blank if not participating).

I understand that Mr. Monson or the assistants chosen by him will answer any questions I may have about the project at any time. I also understand I may end my participation in the study at any time.

___________________________________  ________________________
Signature                                  Date

______________________________
Phone
Adult Nowicki-Strickland I-E LOC Scale

Instructions: I am trying to find out what men and women your age think about certain things. We want you to answer the following questions the way you feel. There are no right or wrong answers. Don't take too much time answering any one question, but do try to answer them all. If you feel you can answer both yes (Y) and no (N) to a question, this is not unusual; simply answer yes if it is a little more yes than no, or answer no if it is a little more no than yes.

On the Scan-Tron sheet, please mark (a) for yes and (b) for no.

Y N (1) Do you believe that most problems will solve themselves if you just don't fool with them?

Y N (2) Do you believe that you can stop yourself from catching a cold?

Y N (3) Are some people just born lucky?

Y N (4) Most of the time do you feel that getting good grades meant a great deal to you?

Y N (5) Are you often blamed for things that just aren't your fault?

Y N (6) Do you believe that if somebody studies hard enough he or she can pass any subject?

Y N (7) Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?

Y N (8) Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?

Y N (9) Do you feel that most of the time parents listen to what their children have to say?

Y N (10) Do you believe that wishing can make good things happen?

Y N (11) When you get punished does it usually seem it's for no good reason at all?
YN (12) Most of the time do you find it hard to change a friend's (mind) opinion?
YN (13) Do you think that cheering more than luck helps a team to win?
YN (14) Did you feel that it's nearly impossible to change your parent's mind about anything?
YN (15) Do you believe that parents should allow children to make most of their own decisions?
YN (16) Do you feel that when you do something wrong there's very little you can do to make it right?
YN (17) Do you believe that most people are just born good at sports?
YN (18) Are most of the other people your age stronger than you are?
YN (19) Do you feel that one of the best ways to handle most problems is just not to think about them?
YN (20) Do you feel that you have a lot of choice in deciding whom your friends are?
YN (21) If you find a four leaf clover do you believe that it might bring you luck?
YN (22) Did you often feel that whether you did your homework had much to do with what kind of grades you got?
YN (23) Do you feel that when a person your age decides to hit you there's little you can do to stop him or her?
YN (24) Have you ever had a good luck charm?
YN (25) Do you believe that whether or not people like you depends on how you act?
YN (26) Did your parents usually help if you asked them to?
YN (27) Have you felt that when people were angry to you it was usually for no reason at all?
YN (28) Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

YN (29) Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?

YN (30) Do you think that people can get their own way if they just keep trying?

YN (31) Most of the time do you find it useless to try to get your own way at home?

YN (32) Do you feel that when good things happen they happen because of hard work?

YN (33) Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?

YN (34) Do you feel that it's easy to get friends to do what you want them to?

YN (35) Do you usually feel that you have little to say about what you get to eat at home?

YN (36) Do you feel that when someone doesn't like you there's little you can do about it?

YN (37) Did you usually feel that it was almost useless to try in school because most other children were just plain smarter than you are?

YN (38) Are you the kind of person who believes what planning ahead makes things turn out better?

YN (39) Most of the time, do you feel that you have little to say about what your family decides to do?

YN (40) Do you think it's better to be smart than to be lucky?
Here are some questions about areas which are important for individuals having seizure problems. For each question, decide whether "Yes" or "No" best describes your usual feelings and actions. If the answer is "Yes" mark out the Y, like this: • N. If the answer is "No" mark out the N, like this: Y . Do not circle your answers. Work quickly and go right from one question to the next. Try not to leave any blank.

1. Do you usually feel tired? Y N
2. Were you usually happy as a child? Y N
3. Do you need vocational counseling? Y N
4. Are you concerned people won't like you or want you around after a seizure? Y N
5. Do you like the area in which you live? Y N
6. Do you find it difficult to always take your medications when you should? Y N
7. Do you enjoy social gatherings? Y N
8. Do you feel you are losing your mind? Y N
9. Is your life free from problems? Y N
10. Do you have problems in the sexual area? Y N
11. Are you usually able to think clearly? Y N
12. Did you ever run away from home? Y N
13. Do your seizures keep you from driving? Y N
14. Are you concerned people won't like you or want you around after a seizure? Y N
15. Do you have problems in the sexual area? Y N
16. Is your vocational future bright? Y N
17. Are you always cheerful? Y N
18. Does your doctor completely understand all of your medical problems? Y N
19. Is inability to concentrate a problem? Y N
20. Do you have trouble making decisions? Y N
21. Have you ever seen a professional for counseling or psychotherapy? Y N
22. Are you generally free from depression? Y N
23. Have you ever felt tense or anxious? Y N
24. Are you free from problems with your family? Y N
25. Do you have more good days than bad? Y N
26. Would you move if you had the opportunity? Y N
27. Do you feel uneasy about the future? Y N
28. Does your doctor always spend as much time with you as you would like? Y N
29. Would you rather win than lose in a game? Y N
30. Can you accept the limitations your seizures place on you? Y N
31. Do you feel resentful that you have seizures? Y N
32. Do your medications affect your complexion? Y N
33. Do you feel useful at least most of the time? Y N
34. Have you ever lost a job because of your seizures? Y N
35. Have you ever been late for an appointment? Y N
36. Do you avoid social situations because of shyness? Y N
37. Do you need immediate psychiatric care? Y N
38. Do you have enough money to do most of the things you want to do? Y N
39. Would you be in another line of work if you did not have seizures? Y N
40. Do you feel you have full control of your mind? Y N
41. Are you content with your social contacts? Y N
42. Do you usually feel rested when you awake? Y N
43. Do you feel your doctor really cares about you as a person? Y N
44. Do you feel most people are phoney or insincere? Y N
45. Are you satisfied with your life as it is now? Y N
46. Do you have enough daily contact with people? Y N
47. As a child, did you have trouble making friends? Y N
48. Are you usually free from tension and worry? Y N
49. Do you have someone in whom you can confide? Y N
50. Have you ever felt sorry for yourself? Y N
51. Does epilepsy keep you from experiencing satisfaction in the area of work or employment? Y N
52. Are you losing your ability to think clearly? Y N
53. Do you feel completely comfortable with your doctor? Y N
54. Were you well accepted by your school teachers? Y N
55. Do you often feel guilty about your thoughts? Y N
56. Are you free from embarrassment about your seizures? Y N
57. Do people usually listen to what you are saying? Y N
58. Are you entirely capable of handling every situation? Y N
59. Have you engaged in sexual practices which cause you concern or worry? Y N
60. Is your life filled with activities that keep you interested? Y N

(over)
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>61. Are you usually happy?</td>
<td>Y</td>
</tr>
<tr>
<td>62. Do you frequently have trouble remembering to take your medications?</td>
<td>Y</td>
</tr>
<tr>
<td>63. Do you often feel restless?</td>
<td>Y</td>
</tr>
<tr>
<td>64. Do you like your doctor?</td>
<td>Y</td>
</tr>
<tr>
<td>65. Do people frequently let you down?</td>
<td>Y</td>
</tr>
<tr>
<td>66. Are your feelings easily hurt?</td>
<td>Y</td>
</tr>
<tr>
<td>67. Have seizures ruined your life?</td>
<td>Y</td>
</tr>
<tr>
<td>68. Have you ever felt like swearing?</td>
<td>Y</td>
</tr>
<tr>
<td>69. Do you have enough friends?</td>
<td>Y</td>
</tr>
<tr>
<td>70. Have you ever had surgery for epilepsy?</td>
<td>Y</td>
</tr>
<tr>
<td>71. Does your seizure problem prevent you from getting a good job?</td>
<td>Y</td>
</tr>
<tr>
<td>72. Do you feel your seizures are being controlled as well as they can be?</td>
<td>Y</td>
</tr>
<tr>
<td>73. Do you have trouble meeting people?</td>
<td>Y</td>
</tr>
<tr>
<td>74. Do you feel financially secure?</td>
<td>Y</td>
</tr>
<tr>
<td>75. Do your medications make you less able to function?</td>
<td>Y</td>
</tr>
<tr>
<td>76. Have you ever disliked someone?</td>
<td>Y</td>
</tr>
<tr>
<td>77. Do you often wish you were dead?</td>
<td>Y</td>
</tr>
<tr>
<td>78. Do you have a close friend?</td>
<td>Y</td>
</tr>
<tr>
<td>79. Are you comfortable being alone despite possible seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>80. Are you easily irritated?</td>
<td>Y</td>
</tr>
<tr>
<td>81. Do you often feel overworked?</td>
<td>Y</td>
</tr>
<tr>
<td>82. Are you dissatisfied with your present living situation?</td>
<td>Y</td>
</tr>
<tr>
<td>83. Do you have enough money?</td>
<td>Y</td>
</tr>
<tr>
<td>84. Do you always tell the truth?</td>
<td>Y</td>
</tr>
<tr>
<td>85. Did your parents frequently quarrel when you were growing up?</td>
<td>Y</td>
</tr>
<tr>
<td>86. Are you out of work because of your seizure problem?</td>
<td>Y</td>
</tr>
<tr>
<td>87. Do you have enough self-confidence?</td>
<td>Y</td>
</tr>
<tr>
<td>88. Do you sometimes wonder if you are on the wrong medication(s)?</td>
<td>Y</td>
</tr>
<tr>
<td>89. Do you have frequent thoughts of suicide?</td>
<td>Y</td>
</tr>
<tr>
<td>90. Are you free from aches and pains?</td>
<td>Y</td>
</tr>
<tr>
<td>91. Is transportation a problem?</td>
<td>Y</td>
</tr>
<tr>
<td>92. Are you fearful of accidents?</td>
<td>Y</td>
</tr>
<tr>
<td>93. Do you often feel people are trying to put something over on you?</td>
<td>Y</td>
</tr>
<tr>
<td>94. Are you often tense and anxious?</td>
<td>Y</td>
</tr>
<tr>
<td>95. Do you feel comfortable telling others you have seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>96. Did you have a good relationship with your mother?</td>
<td>Y</td>
</tr>
<tr>
<td>97. Do you feel trapped in your present living situation?</td>
<td>Y</td>
</tr>
<tr>
<td>98. Are you anxious or uncomfortable in social situations?</td>
<td>Y</td>
</tr>
<tr>
<td>99. Have you ever been angry with anyone?</td>
<td>Y</td>
</tr>
<tr>
<td>100. Do you feel different or strange due to your seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>101. Do you recall ever having Quilodzev's disease?</td>
<td>Y</td>
</tr>
<tr>
<td>102. Would you like to be closer to public transportation?</td>
<td>Y</td>
</tr>
<tr>
<td>103. Do you have trouble accepting your seizure problem?</td>
<td>Y</td>
</tr>
<tr>
<td>104. Would you be able to think more clearly if you did not have to take medications for your seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>105. Do you constantly have trouble sleeping?</td>
<td>Y</td>
</tr>
<tr>
<td>106. Can you afford your present living arrangement?</td>
<td>Y</td>
</tr>
<tr>
<td>107. As a child, were you often punished without cause?</td>
<td>Y</td>
</tr>
<tr>
<td>108. Are you afraid people will find out you have seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>109. Do you frequently want to harm others?</td>
<td>Y</td>
</tr>
<tr>
<td>110. Do you have a chance for vocational advancement?</td>
<td>Y</td>
</tr>
<tr>
<td>111. Do you continually dread the possibility of a seizure?</td>
<td>Y</td>
</tr>
<tr>
<td>112. Do you frequently find yourself in conflict with others?</td>
<td>Y</td>
</tr>
<tr>
<td>113. When growing up were you involved in a lot of fights?</td>
<td>Y</td>
</tr>
<tr>
<td>114. Do you usually feel at peace with yourself?</td>
<td>Y</td>
</tr>
<tr>
<td>115. Do you use alcohol or drugs excessively?</td>
<td>Y</td>
</tr>
<tr>
<td>116. Are you fearful you will have a seizure in an embarrassing circumstance?</td>
<td>Y</td>
</tr>
<tr>
<td>117. Do you resent having to take medications for your seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>118. Are you free from worry about your health?</td>
<td>Y</td>
</tr>
<tr>
<td>119. Do you have enough money to pay your bills?</td>
<td>Y</td>
</tr>
<tr>
<td>120. Did you feel your parents really cared for you?</td>
<td>Y</td>
</tr>
<tr>
<td>121. Have you always been completely comfortable in all social situations?</td>
<td>Y</td>
</tr>
<tr>
<td>122. Do you feel at ease around people of the opposite sex?</td>
<td>Y</td>
</tr>
<tr>
<td>123. Do you strongly dislike other people who have seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>124. Are you satisfied with your employment situation?</td>
<td>Y</td>
</tr>
<tr>
<td>125. Have you ever been teased because of your seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>126. Does your doctor always take time to listen to you?</td>
<td>Y</td>
</tr>
<tr>
<td>127. Are you free from concerns in the vocational area?</td>
<td>Y</td>
</tr>
<tr>
<td>128. Do you hear voices when no one is around?</td>
<td>Y</td>
</tr>
<tr>
<td>129. Are you comfortable going out despite possible seizures?</td>
<td>Y</td>
</tr>
<tr>
<td>130. Do you have trouble expressing your opinions to others?</td>
<td>Y</td>
</tr>
<tr>
<td>131. Do you have sufficient money for basic needs?</td>
<td>Y</td>
</tr>
<tr>
<td>132. Did you feel secure in the home in which you grew up?</td>
<td>Y</td>
</tr>
</tbody>
</table>

PLEASE CHECK TO BE SURE YOU HAVE ANSWERED ALL THE QUESTIONS.
EPILEPSY QUESTIONNAIRE

All responses to this questionnaire will be kept strictly confidential. Information from this questionnaire will be used only for statistical and comparative purposes.

1. Please circle your gender: Male Female

2. Please state your race/ethnic origin: 

3. How old are you? 

4. How long have you been diagnosed as having epilepsy? 

5. Are you symptom-free? Yes No

6. If not, how often do you have seizures? Once every (number of days, weeks, etc.) OR (number) each day. Do not answer if symptom-free.

7. Do you have any other disabilities or physical conditions that significantly affect your lifestyle? Yes No

8. Please circle your highest grade in school completed:
   K 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17+ GED

9. Is it difficult for you to find or keep employment? Yes No

10. Are you currently employed? Yes No

11. Please indicate your annual level of income?
    
    $0-$10,000 $10,001-$20,000
    $20,001-$30,000 $30,001-$40,000
    $40,001-$50,000 $50,001-$75,000
    $75,001-$100,000 $100,000+

12. What is your primary source of income (salary, wages, pension, SSI, etc.)? 