Depth of Depression as a Function of Locus-Of-Control and Style of Aggressive Expression.

James Robert Bartsch

Louisiana State University and Agricultural & Mechanical College

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A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of Psychology

by

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B.A., University of Wyoming, 1969
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ABSTRACT

This study focused on the contributions of measures of locus of control and style of aggressive expression to some of the cognitive distortions often noted in depression. Phenomenological depth of depression was considered, which would be expected to be present in different degrees in the experience of most patients, rather than selecting only those patients who were diagnosed as primarily depressed.

Ten measures were obtained from each of 72 literate adult outpatients. The measures included three depression scores (the Beck Depression Inventory, Zung's Self-Rating Depression Scale, and a therapist-rated behavioral measure created for this study), four locus of control scores (Rotter's Internal-External locus of control scale, and Levenson's Internal, Chance, and Powerful Others scales), and three aggression scores (derived from TAT stories written by each subject). Averages, standard deviations, and intercorrelations among the ten measures were calculated to provide normative data. Two-way randomized block analyses of variance with fixed effects demonstrated that the sex, race, and mental health center attended by subjects did not significantly influence findings. Comparisons were made between these results and those reported in prior research. Locus of control and aggression scores were used in multiple linear regression equations to predict scores on the three depression scales. Multivariate analyses of variance were then performed to aid in selecting the most powerful and parsimonious prediction equations.
Results indicated that increased beliefs in chance and in the influence of powerful others tended to characterize those individuals who sought outpatient treatment for their problems in living. Further, as self-reported and therapist-rated depth of depression increased, those beliefs became stronger. The generalized expectancy measured by Rotter's Internal-External scale did not appreciably contribute to prediction of depression scores. The scales created by Levenson were far more useful as predictors of depth of rated depression.

The classical psychoanalytic theory of depression has viewed retroflected aggression as a major characteristic of depression. This research found little support for that view. Those subjects who wrote TAT stories which had themes of retroflected aggression were not judged either by themselves or their therapists as significantly depressed. Rather, themes depicting overt aggressive responding were associated with higher levels of depression, as measured by the Beck Depression Inventory and the behavioral rating. Lower frequencies of themes depicting retroflected aggression were associated with higher levels of Self-Rating Depression Scale-measured depression. These results may have been associated with diminished response rates, consistent with Seligman's learned helplessness model of depression.

For the population considered in this study, it was concluded that specific expectancies related to strong beliefs in chance and powerful others, along with increased frequencies of TAT themes of outward aggression were related to increased self-assessed and therapist-rated depth of depression. Overall, it was concluded that the three depression measures comprised different aspects of depression, which
could each be predicted by characteristically different combinations of locus of control and aggression measures.

Recommendations for further research were made. Suggested methodological and theoretical modifications were also discussed.
CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Introduction

This research will focus primarily on phenomenological depth of depression. It is here suggested that expectancies derived from one's belief system might play a major role in determining the extent of depression. Therefore, the possible contribution of locus of control variables will be considered. In addition, the manner in which aggression is expressed has been an aspect of depression which has received much theoretical attention, but limited experimental testing. Thus, both of these variables will be evaluated as they pertain to depth of depression.

A cognitive approach involving expectancies and personality variables would seem especially useful in this research effort. Depressed persons frequently described themselves as socially and interpersonally less competent than others. The findings of Loeb, Beck, and Diggory (1971) were typical, that depressed people often considered their performance on tasks as inferior to that of other subjects, while no actual differences in performance were present. This seemed to indicate a selective distortion concerning one's self-evaluative abilities. Miller (1975) argued that depression did lead to performance deficits, but concluded that cognitive and attentional factors, along
with motivational deficits were operative in the experience of many depressed individuals.

Beck (1963, p. 328) stated that "the distinguishing characteristic of the depressed patients was that they showed a systematic error; viz, a bias against themselves." He considered this phenomenon to be due to a faulty correspondence between a stimulus and its conceptualization. Specifically, he identified twenty-one "symptom-categories" which were frequently present in depressed people. These he divided into affective, motivational, cognitive ("negative self-concept, pessimism, and negative interpretations of experience"; Beck, 1967, p. 254), and physical and vegetative symptoms. His view of depression was that depressed persons exhibited "the cognitive triad: a negative conception of the self, a negative interpretation of life's experiences, and a nihilistic view of the future" (1971, p. 498).

Beck's view of depression received support from Comer and Laird (1975). Although they did not specifically allude to Beck's work, their orientation was consistent with the cognitive emphasis which Beck has advocated. They stated (p. 100) that

it seems reasonable to conclude at least tentatively that people may well differ consistently in whether they make sense of the adversities that befall them in terms of their own attributes or those of the adversity. . . . It seems much more improbable that we should decide to derogate ourselves because we have fallen on difficult times. However, in fact, precisely that kind of behavior seems to be characteristic of those people who are labeled 'depressed'. . . the previously observed but not at all clearly understood effects of 'expecting to suffer' were due to the subjects' attempts to justify to themselves this anticipated suffering.

Similar conclusions from traditional experimental research were offered by Miller and Seligman (1973, p. 62) who stated that "depression in
this model is a specific cognitive distortion of the perception of the ability of one's own responses to change the environment, rather than a general 'pessimism.'"

A second major problem area to be considered in this research concerns the contribution of locus of control variables. Rotter (1966) first introduced this concept, indicating that locus of control was a generalized expectancy. Since that time, most workers who have related locus of control to depression concluded that an external locus of control would be consistent with more severe types of depression. Some authors have taken the opposite view, stating that increased depression would be consistent with a strong internal locus of control. Origins of the locus of control concept, different schemes which have been devised to measure it, and theoretical proposals relating the concept to depression will be discussed in more detail below.

Consideration of one's style of aggressive expression will be a third problem considered in this research. One's approach to interpersonal relationships might illustrate some of the cognitive factors related to the negativistic, self-derogating attitudes noted in depressed persons. One aspect of social interactions would include the manner in which aggression is manifested. It is suggested that style of aggressive expression (toward the self, toward others, or not expressed) may be related to depth of depression.

A more extensive literature review relating to the development of different views of depression and locus of control will now be presented. In addition, schemes to be used in this research to measure depth of depression, style of aggressive expression, and locus of
control will be discussed.

Theories and Conceptualizations of Depression

Depression is one of the most prevalent psychological states seen by mental health professionals. As Beck (1973, p. vii) asserted, "Some authorities have estimated that at least 12 per cent of the adult population will have an episode of depression of sufficient clinical severity to warrant treatment." Views of the nature, etiology, and alleviation of depression have been characterized by significant amounts of disagreement. Much of this disagreement may be due to different theoretical approaches to description of clinically significant depression.

Becker (1974), Zung (1973), and others have dated the study of depression to the fourth century B.C., when Hippocrates wrote of melancholia, attributing it to the black bile and phlegm. Since that time, interest in depression has spawned numerous theories which have not yet adequately answered many basic and applied questions.

Kraepelin popularized the view of depression as usually being innate (endogenous), but occasionally psychogenic. In contrast, Meyer did not adhere to a "disease" concept. "Unlike Kraepelin, who viewed depression as a disease entity with specific etiologic agent and course, Meyer construed it as a maladaptive, psychobiological reaction to stress" (Becker, 1974, p. 10). Thus, one of the many dichotomies which characterized different conceptualizations of depression was developed. Robins and Guze (1972, p. 283) described the plethora of dichotomies which have been used to describe depression as including "reactive versus endogenous depression, neurotic versus psychotic depression, and
involutional melancholia versus manic-depressive illness." An underlying assumption seemed to be that "depression" described a group of related disorders.

In their recent review, Akiskal and McKinney (1975) listed five currently popular schools of thought concerning depression. These included psychoanalytic, behavioral, sociological, existential, and biological approaches. Perhaps the most widely used approach has been the psychoanalytic explanation of depression as a syndrome. This theory proposed concepts such as oral fixation, inner-directed aggression, and object loss as etiological factors in human depression. Although Freud (1917) did not specifically state whether or not he believed depression to be a disease process, the view of depression as an illness has been popular among theorists within the analytic tradition.

Several recent psychoanalytic writers attempted to modify some early notions. Bibring (1953) and Jacobson (1971) discussed a continuum of depression, ranging from normality, through neurosis, to psychosis. Thus, depression was conceptualized as a unified syndrome, with a mechanism which was seen as basically the same for various types of depression. Here, the underlying assumption seemed to have been that differences were more quantitative than qualitative. On this point, Beck (1967) strongly concurred. His work has had, as one of its major assumptions, the belief that depth of depression was the salient dimension for study, rather than comparisons among various categories of depression.

A second major school of thought has taken a behavioral (functional) approach to depression, largely discarding the etiological
hypotheses of analytically-based theorists. Ferster (1974, 1965) attributed depression to absence of sufficient reinforcement and/or a decrease in rate of reinforcement. Lewinsohn (1974) emphasized a low rate of response-contingent positive reinforcement as the salient deficit.

Within the behavioral literature may be found Seligman's concept of "learned helplessness" (Overmier & Seligman, 1967; Seligman & Groves, 1970; Seligman & Maier, '67; and Seligman, Maier, & Geer, 1968). This concept was originally developed using dogs in an experimental paradigm involving exposure to inescapable shock. Briefly, these experiments involved administration of shocks (using a Pavlovian procedure) to restrained animals. This was followed by escape and avoidance trials conducted using a two-compartment shuttle box. Shocks were administered, preceded by a warning tone, while the dogs were in one part of the shuttle box. The dogs first heightened activity, then passive behavior. Naive dogs showed activity followed by escape. "Learned helplessness" referred to the phenomenon of non-avoidance or non-escape behavior. Learned helplessness also referred to an explanatory concept, that the restrained dogs learned that shock onset was not contingent on their behavior. This learning then generalized to the shuttle box situation. Uncontrollability was suggested as the critical aspect of this procedure.

Later work employed a triadic design, where one group received pretreatments of controllable shock, another received uncontrollable shock on the same schedule as the first group (the yoked group), and a third group received no pretreatment. The yoked group showed the
learned helplessness phenomenon, while the other groups did not. This result has been shown in rats, dogs, cats, fish, and mice. Hiroto (1974) and Miller and Seligman (1973) have very lucidly summarized the extension and generalization of this concept to include humans.

**Measurement of Depression**

Many early attempts to define depression were wholly descriptive, although some included explanatory statements. Kahlbaum "distinguished psychotic depressions from dementia praecox or schizophrenia on the basis of cognitive impairment in schizophrenia and prognosis or outcome" (Becker, 1974, p. 9). Beck, Ward, Mendelson, Mock, and Erbaugh (1962) concluded that the reliability of traditional psychiatric diagnoses was inadequate, as diagnoses made by four board-certified psychiatrists were characterized by low (approximately 50%) agreement rates.

More recently, there have been numerous attempts to devise standardized ways to define depression. The Minnesota Multiphasic Personality Inventory has often been used as a means of obtaining an index of depression. However, some have held that the MMPI Depression scale is an unacceptable measure of depression. Several rating scales have been devised for the sole purpose of assessing depression. They include the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Hamilton Rating Scale for Depression (HRS; Hamilton, 1960), the Lubin Depressive Adjective Check List (Lubin, 1965), the Wang Self-Assessing Depression Scale (Wang, Treul, & Alverno, 1975), the Zung Depression Status Inventory (Zung, 1972a), and the Zung Self-Rating Depression Scale (SRS; Zung, 1965).
Other approaches to the problems of standardized classification have included the work of Spitzer and Endicott (1969; Endicott & Spitzer, 1972). Their series of DIAGNO programs permitted computerized diagnosis and classification, including discrimination of several subtypes of depression. Some authors, perhaps best represented by Eysenck (1970), have scrutinized the unipolar-bipolar dichotomy, and used factor analysis in their attempts to devise an acceptable scheme for the study of depression.

A rather common finding has been that depression, however defined, was present in nearly every subject population, from volunteers in introductory psychology classes to chronic inpatients. Research on depression has been further complicated by the fact that measured depression has often been found to have low, although sometimes significant, correlations with many different variables. Thus, depression has not been shown to be clearly independent of, or strongly related to other variables. Much relevant work in this area has concerned demographic variables. Becker (1974, pp. 57-69) reviewed such studies, and concluded that demographic variables seldom affected scores on depression inventories.

A major aspect of the present analysis concerns measurement of depression. Of the various scales used to measure depression, the Beck Depression Inventory (BDI) and the Zung Self-Rating Depression Scale (SRS) seemed to be most widely used in the literature.

Beck's scale sampled twenty-one clinically defined symptoms of depression. His conceptualization of depression differed from that of most other workers in that he felt that cognitions preceded affective
disturbances, rather than the converse. The main thrust of Beck's work has involved comparisons between depressed and non-depressed subjects, with the BDI as the definition of depression. Although he clearly avoided psychiatric diagnoses as criteria, he did use ratings of depth of depression made by experienced psychiatrists in his validity studies. While indicating that even experienced psychiatrists produced low reliabilities using traditional diagnoses, Beck and his associates (Beck, Ward, Mendelson, Mock, & Erbaugh, 1962) have shown that judgments of depth of depression tended to be more reliable. They stated (p. 357) that

"an additional method of classification consisted of rating the patients on a 4-point scale along a single dimension, viz., the depth of depression. It was found that, when they used this method, the diagnosticians agreed within one scale unit in 99% of the cases."

In addition, these same authors found (1961) the even-odd reliability of their scale to be +.86, with a Spearman-Brown corrected correlation of +.93. Becker (1974) reported that those early findings have been replicated, both within the United States and in cross-cultural studies. He went on to state (p. 25) that Beck's scale "correlates well with other measures of depression. . . . It is sensitive to clinical change. Scores are unrelated to race, age, and intelligence, but females and the less well educated tend to obtain higher scores." Unfortunately, the BDI scores used to differentiate clinically depressed subjects from those who were not depressed have varied from study to study.

Zung's Self-Rating Depression Scale samples many of the same content areas as the BDI. The most obvious difference between the
scales is that of format. In addition, the SRS was based on factor-analytic studies, and was originally designed to sample three central characteristics of depression. Those were "pervasive affect, physiological equivalents or concomitants, and psychological concomitants" (Zung, 1965, p. 63). While most of the research using the SRS has been done by Zung and his associates, they have continued to improve the psychometric properties of the scale. In 1972 and 1973, Zung modified the areas tapped by his scale as a result of additional factor analyses. At that time, he revised several items in his scale. The areas of pervasive affect disturbance and psychomotor disturbance were each sampled by two items, while the areas of physiological disturbances and psychological disturbances were each represented by eight items. Unlike the H&I, the SRS was constructed so as to prevent acquiescence set.

Zung (1973, 1972b) has very aptly shown the relationship between scores on the SRS and the subject's age. His scale accurately discriminated clinically depressed persons from normals for persons between 20 and 64 years of age. Non-depressed subjects outside of this range have been found to score higher (more like clinically depressed subjects), and could not be clearly discriminated from a clinical population on the basis of SRS scores.

Scores on the SRS, in addition to being correlated highly with other tests of depression (Davies, Burrows, & Poynton, 1975; Marone, & Lubin, 1968; Zung, 1969, 1967; and Zung, Richards, & Short, 1963), have also been shown to be independent of age, sex, income, marital status, or literacy level, although there was a small negative
correlation \((r = -0.28)\) between the score and the number of years spent in school (Zung, 1967).

Two studies comparing the Beck and Zung scales in cross-cultural settings were of note. Zung (1969) correlated his scale with the BDI, using subjects in England and Germany, and found correlations of +0.76 and +0.72, respectively. An analysis of the two scales was also done in Australia by Davies, Burrows, and Poynton (1975). They compared the scales, with inpatients serving as subjects. The correlations were +0.73, +0.80, +0.52, and +0.73 after 0, 7, 14, and 21 days of hospitalization and treatment with antidepressant medication (the number of subjects was 72, 24, 18, and 10, respectively).

A major weakness of both the BDI and the SRS has been that state and trait depression were confounded. Beck emphasized his cognitively-oriented theoretical base, while Zung was more concerned with methodological issues. Zung recognized the confounding of state and trait, but suggested that different instructional sets could be used as dictated by the research problem at hand. Perhaps the greatest strength of both scales has been their widespread use, their demonstrated sensitivity to clinical change, and their independence from the influence of demographic variables.

In addition to traditional global self-reports of depression, another significant approach has been taken by workers within the behavioral framework. A literature review failed to produce a clearly behavioral index of depression which was designed to be used by an observer or therapist in an outpatient setting. One intent of the present research was to develop a behavioral measure of depression which
could readily be used by therapists who were not trained specifically in the assessment of depression. Prior behavioral measures included the one developed by Williams, Barlow, and Argus (1972) for use in an inpatient setting. In addition, Hamilton (1960) devised a rating scale designed to assess intensity of depression among patients already diagnosed as depressed. That scale required extensive training of two raters, and was not intended for use in research.

In an early effort, Overall (1962) constructed a scale measuring manifest depression by asking "twenty experienced psychiatrists and clinical psychologists" to choose these items of the Inpatient Multidimensional Psychiatric Rating Scale (HIPS) which were "most relevant to the psychiatric concept of depression as a symptom syndrome" (p. 240). Thirty-one items were chosen by at least thirteen of the twenty judges. Ratings of 204 hospitalized depressives were subjected to a centroid factor analysis with a varimax rotation. Seven depression factors (depression in mood, guilt, psychomotor retardation, anxiety, subjective experience of impairment in function, abnormal preoccupation with physical health, and physical response to stress) emerged.

McLean (1976) enumerated six "skill areas" where behavioral analyses and interventions could focus in evaluation and treatment of depression. These six areas (communication, behavioral productivity, social interaction, assertiveness, decision making and problem solving, and cognitive self-control) "represent the skill areas which we have found to be most frequently deficient in clinically depressed people" (p. 72). Similar to other behavioral approaches taken in assessing depression, McLean used the above six problem-areas as screening tools so that
specific behavioral treatments could be planned for specific problem behaviors.

A great deal of work has also been done by Lewinsohn and his associates. Like McLean, Lewinsohn placed emphasis on gathering highly specific behavioral data with the intention of developing specific treatments. Lewinsohn, Biglan, and Zeiss (1976) enumerated five major symptoms categories of depression. They included dysphoria, behavioral deficits, behavioral excesses, somatic symptoms, and cognitive manifestations. From this approach, Lewinsohn used a behavioral coding approach to assess specific constellations of difficulties exhibited by each client, often observing the client and spouse at their home.

Miller (1975) presented an extensive review of research relevant to psychological deficit in depression. He concluded that few deficits have been found which were specific to depression, and that severity of depression seemed most consistently related to experimentally demonstrated deficits. Following his approach, an attempt will be made to devise a checklist of behaviors observable during therapy sessions which could provide an index of severity of depression. The development of such a scale will be discussed later.

The Role of Aggression in Depression

Classical psychoanalytic theory has considered retroflected aggression to be a significant aspect of depression. Freud (1917), in speaking of the aggression toward the self often noted in depression, indicated that "the self-reproaches are reproaches against a love object which have been shifted away from it on to the patient's own ego" (p. 248). Bibring (1953) considered retroflected aggression as secondary to
a diminished level of self-esteem, while Jacobson (1971) saw this phenomenon as an attempt at reparation and a defining characteristic of depression. Consistent with the views of these authors, a negative cognitive set, characterized by self-punitive actions, would become more pronounced as depth of depression increased.

An alternative view of the relationship between aggression and depression has been proposed by those within the behavioral tradition. Among authors with this orientation, there has been a great deal of agreement that aggression is diminished or absent among depressed persons. Ferster (1974) suggested that "anger comes to serve what is behaviorally called a preaversive stimulus--a situation that precedes the loss of positive reinforcement. Such preaversive stimuli . . . markedly reduce the frequency of the ongoing operant behavior" (p. 44). Such a stance would not necessarily negate analytic notions. Rather, it would appear that while behaviorists observed a decrease in overtly expressed anger they did not posit that anger was somehow redirected (toward the self) as did the analysts.

A third view has been expressed by Arieti (1974). He coined the term "claiming depression" to refer to a type of depression where aggression was expressed toward others, often in a covert manner. Passive-aggressive behaviors and excessive dependency with an assumed hostility would be consistent with this type of depression.

Thus, aggression does appear to be one component of depression, but opinions and evidence have been divided as to how aggression tends to be expressed by depressed persons. This research will attempt to investigate the role of aggression as one parameter in depth of depression.
The Measurement of Style of Aggressive Expression

One of the major emphases of this research will be the measurement of style of aggressive expression, and how that relates to depth of depression and locus of control variables. Aggressive themes have often been studied using the Thematic Apperception Test (TAT; Morgan and Murray, 1935). Much of the past research has considered themes of interpersonal aggression, especially in efforts to predict overt hostility. Stone (1956) used a zero-to-three scale to score interpersonal aggression. His measure was fifteen TAT cards, seven of which were in Hartman's (1970) list of eight basic cards, and nine of which were also in the set of ten cards later selected by Newmark and Flouranzano (1973). Reliability and validity studies clearly demonstrated the usefulness of Stone's scale.

Hafner and Kaplan (1960) also developed a hostility rating scale (from zero to four) for the TAT. Eight experienced clinical psychologists served as judges, and weights for different hostility themes were derived. Unlike earlier studies, inner-directed hostility was included in this scale, but was not differentiated from interpersonal aggression in the scoring. Reliable and externally-validated ratings of hostility in psychiatric patients could be obtained using this scale.

Gottschalk, Gleser, and Springer (1963) conceptualized hostility as either directed outward, ambivalently directed, or directed inward. To consider these expressive styles, three schedules were developed, including a detailed series of weights. Reliability correlations ranged from +.88 to +.95. Age, intelligence, and educational level were shown to be unrelated to the three hostility scores, which were
subsequently validated using behavioral ratings.

One of the important behavioral correlates of differences in the depth of symptomatic depression and/or perceived locus of control might be the manner in which aggressive impulses were expressed. As a measure of this, the TAT has been shown by many investigators to be a reliable and valid measure of aggression and/or hostility, variously defined. When TAT themes were judged using explicit criteria, excellent inter-rater reliabilities have been shown. Of the studies reviewed, the work of Gottschalk and his associates appeared to be the most thorough and relevant to the present effort.

Unlike many other projective tests, there has been no universally agreed-upon set of TAT cards used in most clinical situations. As a function of different emphases in research problems, several different sets of TAT cards have been used to assess problem areas and kinds of psychopathology.

Several investigators have recently attempted to develop a standardized set of cards which were best able to elicit numerous themes. Hartman (1970) determined, from the ratings of 170 highly experienced psychologists, that the eight cards which elicited the most themes from both adults and children were as follows: 1, 2, 3BM, 4, 6BM, 7BM, 8BM, and 13MF. Further, his data indicated that for adults (age 17 and above), the best set, in rank order, was: 13MF, 1, 6BM, 4, 7BM, 2, 3BM, 10, 12M, 8BM, and 18GF (the last two cards were tied in the rankings).

Following Hartman's lead, Irvin and Woude (1971), using male college students as subjects and psychologists as raters, ranked the
twenty cards which Morgan and Murray designated as appropriate for adult males. The eight cards which elicited the most themes, in rank order, were: 13 MF, 1, 6BM, 4, 3BM, 7BM, 9BM, and 2. Except for card 9BM, this result duplicated Hartman's results.

Still later, Newmark and Flouranzano (1973) studied thirty white male psychiatric patients. Their results indicated that the ten TAT cards most able to elicit themes were, in rank order: 4, 1, 3BM, 13MF, 12M, 18BM, 8BM, 2, 6BM, and 7BM. With the exception of cards 12M and 18BM, these results also duplicated Hartman's earlier results.

Dhapola (1971), in his review of ten earlier studies, reported that the cards which were considered by most investigators to be the best indicators of aggression were 1, 3BM, 4, 6BM, 12M, 13MF, 18BM, and 18GF. While his review dealt specifically with the cards employed to elicit aggressive themes, the other investigators mentioned above were concerned with the differential effects the cards had in eliciting any kind of theme. Still, many of the same cards were identified in the different studies. The five cards mentioned by all of these authors as best able to elicit themes of any kind were the following: 1, 3BM, 4, 6BM, and 13MF.

Development of the Locus of Control Concept

Locus of control has been a concept which has been linked with a great many other personality variables. It is here proposed that locus of control may be a significant personality variable involved in phenomenological depth of depression. Beginning with Rotter's (1966) monograph, the concept of an internal as opposed to an external locus of control has stimulated much research activity. Rotter's original
focus was on beliefs concerning the nature of reinforcement. Specifically, he considered whether or not reinforcement was viewed as contingent upon one's behavior. Based on his social learning theory, the locus of control concept was proposed as a generalized expectancy or belief. An internal locus of control referred to the belief or expectancy that one's behavior would result in reinforcement. An external locus of control was characterized by the belief that behavior had little or no relationship to the reinforcement received.

Expectancies were seen by Rotter as one of the four major "classes of variables in social learning theory: behaviors, expectancies, reinforcements, and psychological situations" (1975, p. 57). He predicted that behavior would be more significantly altered by contingent reinforcement (either positive or negative) than by non-contingent reinforcement. Thus, many early experimental paradigms contrasted changes in expectancy following task performance. Instructional sets were manipulated, with successful task performance being described as requiring skill or depending on chance factors. Rotter (1975) further elaborated on the specifics of this theory, indicating that knowledge of the generalized expectancy would not alone suffice to predict specific behavior. The specifics of the situation, motivational factors, and the value of a given reinforcer would also be critical in specific predictions.

Rotter's Internal-External Locus of Control Scale (I-E) was developed following earlier theoretical work by James (James & Rotter, 1958) and Phares (1957). Rotter and his associates first developed a 100-item test, written in a forced-choice format. An item analysis and
a factor analysis permitted the scale to be reduced to sixty items. Those items which were highly correlated with the Marlowe-Crowne Social Desirability Scale or which failed to meet other validation criteria (see Rotter, 1966, p. 10) were then eliminated. The final result was a 23-item scale to which six filler items were added.

Rotter (1966) cited four studies on internal consistency with reported correlations ranging from +.65 to +.76, while three studies of test-retest reliability found correlations between +.49 and +.83, during time spans of one to two months. Since the publication of Rotter's monograph, numerous reviews have appeared. Hersch and Scheibe (1967) presented a review of reliability and validity data, discussing many studies relating the I-E scale to other variables. They found test-retest reliabilities to range between +.43 and +.84. Harrow and Ferrante (1969) found test-retest reliability to be +.75 over a six week period. Additional reviews included those by Joe (1971) and Lefcourt (1966).

Further work on the concept of locus of control included factor analytic studies. Mirels (1970) used Rotter's scale with the filler items eliminated. After administering this scale to 316 introductory psychology students, he performed a principal components factor analysis with a varimax rotation. He concluded that two factors were present, suggesting that locus of control was not a unidimensional concept. Reid and Ware (1973) studied a group of 130 overweight women. Scores on the I-E scale were subjected to a factor analysis with a varimax rotation, and two factors were found which closely paralleled those found by Mirels.
More recently, Levenson (1973, 1974) attempted to expand on and modify Rotter's approach. She constructed an inventory, composed of three eight-item scales, entitled "Internal," "Powerful Others," and "Chance." A factor analysis showed seven factors, with the three scales loading independently on three main factors. Levenson reported that Kuder-Richardson reliabilities for the three scales were +.64, +.77, and +.78, respectively. In addition, split-half reliabilities were +.62, +.66, and +.64, while test-retest reliabilities for the respective scales were +.64, +.74, and +.78. According to her findings, Levenson's scales could predict behavior better than could Rotter's.

Ryckman and Malikiosi (1975) compared their findings using Levenson's scales with Lao's unpublished results obtained with Rotter's I-E scale. Scores on Levenson's Internal scale were transformed so that direct comparisons with Rotter's scale could be made. Subject matching on the dimension of age was an important feature of this paper, as the Ryckman-Malikiosi study grouped subjects in the same way that Lao grouped her subjects. College students scored significantly lower on the Internal scale than any of the other subjects except the oldest subjects (over 70 years old). Beliefs in chance and powerful others held by the oldest subjects were not significantly different from those of any other age-grouping.

There has also been research linking locus of control to other variables. Abramovitz (1969), using an abbreviated version of Rotter's scale, found that females tended to be more external than males, and that his scale correlated negatively ($r = -.22$) with the Marlowe-Crowne Social Desirability Scale. This was expected, as Rotter attempted to
eliminate socially desirable items in his original item analysis. Harrow and Ferrante (1969) found males to be more external on Rotter's I-E scale than females, and younger persons to be more external than older persons, while Jones and Shrauger (1968) did not find any sex differences. The findings of Ryckman and Malikiosi (1975) supported those of Harrow and Ferrante, concluding that younger persons tended to be more external. Distefano, Pryer, and Smith (1971) found I-E scores obtained from psychiatric patients to be independent ($r = +.06$) of age. Finally, Yates, Kennelly, and Cox (1975) reported that females were more external than males.

The Relationship of Locus of Control to Depression

Descriptions of depressed persons are frequently similar to those of externals, or those with low self-esteem. Miller and Seligman (1973, p. 63) stated that

there is an apparent similarity . . . between the helplessness concept of learning that reinforcement and responding are independent and Rotter's (1966) concept of external control. . . . externals seem more susceptible to learned helplessness than internals.

Joe (1971, p. 623) summarized research on locus of control as characterizing "externals, in contrast to internals, as being relatively anxious, aggressive, dogmatic, and less trustful and more suspicious of others, lacking in self-confidence and insight, having low needs for social approval, and having a greater tendency to use sensitizing modes" in coping with problems. Finally, Fitch (1970, p. 311) stated that "the low-self-esteem person is seen as disliking, devaluing himself, and in general perceiving himself as not competent to deal effectively
with his environment." While many of these characteristics could be applied to depressed people as well, some would seem inappropriate, and others are controversial as to their applicability. This research will evaluate the proposal that an external locus of control is related to increased depth of depression.

Few authors have attempted to directly link the concepts of depression and locus of control. However, some have dealt with limited aspects of the putative relationship. Harrow and Ferrante (1969) were able to utilize scores on the I-E scale to measure therapeutic changes in depressed inpatients. Abramovitz (1969) compared locus of control and depression scores, using the Guilford Depression Scale, with introductory psychology students as subjects \( r = +.35 \); with the social desirability factor partialled out, \( r = +.28 \). His data have proven difficult to evaluate in relation to those of other workers, as he eliminated three items from Rotter's scale and did not indicate which items were eliminated, or why they were. Still, his results were very much like those of Miller (cited by Miller & Seligman, 1973), whose data indicated a correlation between the BDI and the I-E scale of +.24. Naditch, Gargan, and Michael (1975) evaluated 547 Army basic trainees, using the I-E scale and the Cornell Medical Index depression subscale to assess locus of control and depression. They found a correlation of +.19 for their sample.

Lamont (1972) cited unpublished data by Wilkins, indicating that scores on the I-E were positively correlated \( r = +.44 \) with scores on the SRS, and with scores on the Depression scale of the MMPI \( r = +.35 \). Calhoun, Cheney, and Dawes (1974) concurred, finding the
correlation between the SRS and the I-E to be +.58 for male college students, and +.38 for female college students, all of whom were volunteers. In addition, Zung found that subjects under 20 or over 64 years of age were more inclined to rate themselves as depressed than was the general population. This compares with the findings of Ryckman and Malikiosi (1975) presented above, which compared scores on the I-E with scores on Levenson's scales, and found college-age persons to be more external than other subjects. It would appear that most authors have found externality to be associated with increased depression, with both being more evident among college students.

In support of an alternative conceptualization of the relationship between locus of control and depth of depression, Schwartz (1964) proposed that depressed persons would be expected to be internal in their perception of locus of control. He argued that the self-blame often seen in depression could be considered an assertion of one's responsibility for life events. Yet, most research findings have supported the position that depressed persons perceive external control in their lives. To date, relationships among the depth of symptomatic depression, locus of control, and the manner in which aggression is expressed have not been fully explored.

Critique of Prior Research

It is here suggested that several parameters have yet to be adequately explored in research relating depression, locus of control, and aggressive style. While many researchers have agreed that depression and an external locus of control seem conceptually similar, few
direct tests of this relationship have been made. One such test (Miller and Seligman, 1973) found disappointingly low positive correlations between Rotter's I-E scale and Beck's BDI. Lamont's (1972) findings were also positive but not definitive.

The explanation offered by Miller and Seligman for their results would seem to have involved only one dimension. Their analysis focused on the cognitive distortions noted following the performance of acts described as requiring skill. It is here suggested, that while that approach appeared to be methodologically sound, Beck's emphasis may prove more fruitful. He has stated (1963, p. 327) that "the self-criticisms, just as the low self-evaluations, were applied to those specific attributes or behaviors which were highly valued by the individual." The degree of the subject's ego-involvement has seldom been emphasized in the literature. The subject's belief in the importance of the particular attribute under study may prove to be of great importance in understanding depressive mechanisms. Many tasks used in past research permitted discriminations of the skilled versus chance orientation to be made. However, performance on an experimental task might be notably estranged from other life experiences of the subjects. Such approaches could be especially susceptible to experimenter effects and demand characteristics. Efforts to increase the salience of experimental procedure would be expected to better illuminate the relationship between clinical depression and locus of control.

Other deficiencies in past research may be noted as well. The use of a single scale to define either depression or locus of control may not be sufficient to delineate the concepts. Further, the frequent
use of a median split to define groups as high or low on a given attribute may not fully describe differences in those attributes.

Another problem concerned subject characteristics. The use of volunteers who usually have been students in introductory psychology classes, and who were also aware that they were participating in an experiment, is fraught with serious methodological and theoretical problems. Nearly every experiment investigating locus of control has used college students as subjects. While students often represented the full range of locus of control scores, this population has seldom served as subjects in studies using the BDI or the SRS. Further, students usually have been found to be unrepresentative of the range of depression which has been seen clinically. In fact, Zung (1973) asserted that depression, as he defined it, did not exist in normal populations, and provided extensive data to support his view.

Thus, a review of the literature revealed two major problems which may have precluded a meaningful synthesis of the concepts of depression and locus of control. First, nearly all of the methodologically sound research on depression has utilized patients as subjects, while virtually every study considering locus of control has relied on student subjects. Second, while most studies in both areas dichotomized subjects (high or low depression, internal or external locus of control), criteria for classifying subjects have appeared to be arbitrary, obscure, and idiosyncratic to the particular author. A related point refers to locus of control scales only. These scales can be, and have been, scored in the internal or the external directions. The resulting lack of uniformity in methodology has tended to obfuscate findings
unnecessarily.

Finally, a review of the literature failed to produce studies which investigated relationships between aggressive style and depth of depression. If, as is suggested here, depth of depression is related to locus of control and aggression variables, then a relationship may exist between aggression and locus of control as well.
CHAPTER II

METHODS

Subject Selection

The subjects who took part in this research were all literate adults participating in individual and/or group therapy at one of five selected mental health treatment centers. The express written consent of appropriate officials at each of the participating agencies and of each subject was obtained prior to data collection. A full explanation of the procedures to be followed was given, and questions were answered to the satisfaction of each agency head. Participation was fully voluntary at all times, and all questions which subjects had were answered as completely as possible. Feedback was given to all subjects and their therapists, with permission of the subjects, as soon as possible after data collection.

The only selection criteria applied to the subjects were that they could follow directions and were between 20 and 64 years of age. A total of seventy-two subjects were recruited in cooperation with established procedures at the various agencies. An effort was made to obtain as heterogeneous a sample of subjects as possible. Of the 72 subjects, 28 were male, 44 were female, 64 were white, and 8 were black. No other demographic or diagnostic data concerning clients were sought.

Procedure

This research considered the conceptual categories of depression,
locus of control, and style of aggressive expression. The subjects com-
pleted a self-administered series of questionnaires. Included were the
Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh,
1961) and the Zung Self-Rating Depression Scale (SRS; Zung, 1973). A
behavioral rating of depression from therapists was obtained, and con-
stituted a third measure of depression. Four locus of control scales,
the Rotter Internal-External Locus of Control Scale (I-E; Rotter, 1966),
and Levenson's Internal (I), Powerful Others (PO), and Chance (C) scales
(Levenson, 1974) were also administered. "Trait" instructions were
given for all of the above scales. From the stories written in response
to five selected TAT cards, three overall aggression scores were ob-
tained for each subject. The development of the therapists' rating
scale, and of the aggression scoring scheme will now be discussed.

From Overall's list of thirty-one characteristics of symptomatic
depression, an eleven-item "Behavior Rating Scale" was composed by
this author by selecting those items with the highest communality (h^2)
values. This rating scale is presented in Appendix I. Twenty-six
volunteer subjects (13 males and 13 females, of whom 22 were white and
4 were black) were recruited from introductory psychology classes.
Each individual was interviewed for approximately ten minutes by the
author. Three advanced social work graduate students, all with experi-
ence in individual therapy, served as raters. The three judges
independently rated the twenty-six subjects on the Behavior Rating

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1Kathryn Bartsch, Barbara Thompson, and Dale Thompson served as
judges. Their assistance is gratefully acknowledged.
Scale. No training sessions or comparisons of judgments were employed. Average inter-rater reliabilities were calculated for the eleven items, and four items were eliminated as unreliable. The resulting seven-item scale (the "Therapist's Rating Scale") was used as a behavioral measure of depression, with therapists rating their clients. The inter-rater reliabilities and average reliabilities for the Behavior Rating Scale appear in Appendix II. All items were worded so that the first of the five categories in the Likert-type format indicated the most severe depression.

To develop a scoring system to assess aggressive style shown by TAT stories, three additional judges, all of whom were graduate students in clinical psychology, were recruited. Each judge was given written guidelines for judging aggression themes which were adapted from Gottschalk, Gleser, and Springer (1963). Each judge independently rated the stories written by each of the seventy-two subjects in response to five TAT cards (cards 1, 3BM, 4, 6BM, and 13MF).

All stories were placed by each judge into one of three aggression categories (aggression-out, ambivalent or no aggression, and aggression-in). The number of stories placed in each category was then summed across judges. Thus, for each subject, total aggression-out (AOT), total ambivalent or no aggression (AAT), and total aggression-in (AIT) scores were obtained. Inter-rater and average reliabilities for each aggression category are presented in Appendix III.

2Richard Brooks, Jim Duncan, and Cindy Gracianette served as judges. Their assistance is gratefully acknowledged.
**Presentation of Questionnaires to Subjects**

The four self-report questionnaires (the BDI, the SRS, the I-E, and Levenson's three scales) were administered to all subjects. There were twenty-four possible orders of presentation for the four questionnaires, and each order was employed three times so as to eliminate possible order effects. This procedure resulted in the selection of seventy-two subjects. In all cases, subjects wrote stories in response to five TAT cards following completion of the four questionnaires. The TAT cards were presented in the following order: 1, 3BM, 4, 13MF, and 6BM. Finally, each client's individual or group therapist completed the Therapist's Rating Scale.

**Hypotheses**

This work attempted to investigate interrelationships among depth of depression, perceived locus of control, and direction of aggressive expression. In addition, evaluations of three different measures of depth of depression and four locus of control scales were undertaken. All hypotheses and interpretations were applicable to literate adult mental health center clients, insofar as the sample drawn for this research was representative of that population.

Three primary hypotheses were explored. They were as follows:

1. When the perceived locus of control was more external, depth of depression measures would indicate more depression. Likewise, as the locus of control tended to be more internal, depth of depression measures would indicate less depression. Thus, a direct positive relationship between locus of control and depth of depression would be expected. This is in keeping with the findings of Abramovitz (1969),
Calhoun, Cheney, and Dawes (1974), Lamont (1972), Miller and Seligman (1973), and Seligman (1975). However, Schwartz (1964) and Wener and Rehm (1975) asserted that high levels of depression would be associated with internal rather than external locus of control.

2. Inner-directed aggression would be the form of aggressive expression most often associated with depression, as suggested by Jacobson (1971) and Mendelson (1974). Further, outwardly-expressed aggression would be associated with lower levels of depression. Finally, ambivalence toward or a lack of aggressive expression would be associated with middle levels of depression.

3. Depth of depression would be a function of the combined effects of perceived locus of control and style of aggressive expression. Specifically, an external locus of control along with inner-directed aggression would be expected to be consistent with the highest levels of depression. An internal locus of control, along with externally-directed aggression would be expected to be associated with the lowest levels of depression.

Several hypotheses were also considered which related to the measures of depression and locus of control used in this study. The hypothesis relating to the three measures of depression was as follows:

4. The three measures of depth of depression (the Beck Depression Inventory, the Zung Self-Rating Depression Scale, and the Therapist's Rating Scale) would be highly positively correlated. Each scale would be related to measures of locus of control and direction of aggression in a similar manner.

Two hypotheses relating to the four locus of control scales were considered.
5. The Internal-External scale developed by Rotter and the Internal scale used by Levenson would be highly correlated and would function in highly similar ways in tests of hypotheses. That is, the above hypothesized relationships would obtain equally using either measure.

6. Levenson's Powerful Others and Chance scales would be independent of her Internal scale and of Rotter's Internal-External scale. In addition, the use of these scales as locus of control measures would offer only minimal support for the hypotheses.

**Statistical Analysis**

The scores obtained by subjects on the inventories and ratings were correlated. Averages and standard deviations were also calculated for each of the ten variables. The statistical analysis also involved multiple linear regression analyses. The first part of those analyses tested hypotheses relating levels of depression to locus of control. Past research seemed to suggest that a linear relationship would hold. Multiple linear regression equations were used to test this proposal in a more rigorous manner than could be done with simple linear regression. The second part of the analyses concerned hypotheses relating levels of depression and style of aggressive expression. The third part of this phase of the analysis considered depth of depression as a function of locus of control and aggressive style, acting together.
CHAPTER III

RESULTS

Normative Data

Averages, standard deviations, and intercorrelations among the ten variables were calculated to provide normative data for the findings of this research. Data for the Beck Depression Inventory are compared with findings of other authors in Appendix IV. Appendix V presents comparisons between current findings related to the Zung Self-Rating Depression Scale and past results using that scale. Comparisons between the findings of this research using Rotter's Internal-External Locus of Control and those presented in the literature are summarized in Appendix VII.

Averages and standard deviations for the three depression scales, four locus of control measures, and three aggression ratings are presented in Table 1. Higher scores on the three depression ratings indicated more severe depression. Higher scores on the I-E indicated a more external locus of control. As scores became higher on the C and PO scales, they indicated increasingly strong beliefs in the influence of chance and powerful others. Higher scores on the I scale indicated stronger beliefs in an internal locus of control. The scores on the three aggression variables indicated the average number of stories placed in each category by the three judges.
<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Average</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>BDI</td>
<td>15.503</td>
<td>10.455</td>
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<tr>
<td>SRS</td>
<td>53.792</td>
<td>12.697</td>
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<td>TRS</td>
<td>21.542</td>
<td>3.560</td>
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<tr>
<td>I-E</td>
<td>9.903</td>
<td>4.361</td>
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<tr>
<td>I</td>
<td>35.917</td>
<td>6.597</td>
</tr>
<tr>
<td>C</td>
<td>23.458</td>
<td>9.160</td>
</tr>
<tr>
<td>PO</td>
<td>25.111</td>
<td>10.078</td>
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<tr>
<td>AOT</td>
<td>2.125</td>
<td>1.669</td>
</tr>
<tr>
<td>AAT</td>
<td>6.250</td>
<td>3.034</td>
</tr>
<tr>
<td>AIT</td>
<td>6.597</td>
<td>2.771</td>
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</tbody>
</table>
Table 2 below presents intercorrelations among the ten measures, with associated probability levels.

Two-way randomized block analyses of variance with fixed effects were performed to investigate possible race and/or sex effects on each of the ten variables. The mental health center attended by the subjects was used as the block effect, as there were missing cells for some race-sex combinations in all but one of the five centers. There were no significant main or interaction effects associated with demographic data for any of the ten variables. On the SRS, there was a nonsignificant trend for females to score higher (more depressed) than males. Finally, as each subject was rated by only one therapist on the TRS, a split-half reliability was calculated. That value was +.72, with a Spearman-Brown correction of $r = +.84$.

**Regression Equations Predicting Depression Scores**

Locus of control and aggression scores were used in multiple linear regression equations to predict scores on each of the three depression scales. Multivariate analyses of variance were then performed to aid in selecting the most powerful and parsimonious prediction equations. The best equations associated with the BDI, SRS, and TRS, along with the variances ($R^2$) accounted for by each equation are presented below.\(^3\) Raw scores were used for all equations. Associated with each equation are tables presenting the multivariate analyses of variance.

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\(^3\)Drs. Prentiss Schilling and Penelope Hale were of invaluable aid in the statistical analyses. Their contributions are most sincerely appreciated.
TABLE 2
INTERCORRELATIONS AND PROBABILITIES ASSOCIATED WITH THE
DEPRESSION, LOCUS OF CONTROL, AND AGGRESSION SCORES*

<table>
<thead>
<tr>
<th></th>
<th>BDI</th>
<th>SRS</th>
<th>TRS</th>
<th>I-E</th>
<th>I</th>
<th>C</th>
<th>PO</th>
<th>AOT</th>
<th>AAT</th>
<th>AIT</th>
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<tbody>
<tr>
<td>BDI</td>
<td>1.000</td>
<td>.787</td>
<td>.185</td>
<td>.398</td>
<td>-.384</td>
<td>.353</td>
<td>.410</td>
<td>.146</td>
<td>-.145</td>
<td>.082</td>
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<td>SRS</td>
<td>1.000</td>
<td>.320</td>
<td>.359</td>
<td>-.331</td>
<td>.362</td>
<td>.332</td>
<td>.220</td>
<td>-.296</td>
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<td>TRS</td>
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<td>.081</td>
<td>.021</td>
<td>-.139</td>
<td>.292</td>
<td>-.174</td>
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<td>I-E</td>
<td>1.000</td>
<td>-.335</td>
<td>.621</td>
<td>.535</td>
<td>-.076</td>
<td>-.141</td>
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<td>I</td>
<td>1.000</td>
<td>-.141</td>
<td>-.080</td>
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<td>.024</td>
<td>-.016</td>
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<td></td>
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<tr>
<td>C</td>
<td>1.000</td>
<td>.618</td>
<td>-.211</td>
<td>.094</td>
<td>.025</td>
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<td></td>
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</tr>
<tr>
<td>AIT</td>
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<td></td>
</tr>
</tbody>
</table>

*All tests were two-tailed (N = 72). Probabilities are beneath the correlations.
The three "best" equations for predicting BDI scores were as follows, in order of the amount of variance explained. Equation One--

\[ \text{BDI} = 4.716 + 0.426 \text{PO} \ (R^2 = 0.168) \]. Equation Two--

\[ \text{BDI} = 25.567 + 0.396 \text{PO} - 0.560 \text{I} \ (R^2 = 0.292) \]. Equation Three--

\[ \text{BDI} = 21.940 + 0.421 \text{PO} - 0.543 + 1.133 \text{AOT} \ (R^2 = 0.324) \].

### TABLE 3

**ANALYSIS OF VARIANCE FOR EQUATION ONE**

(\( \text{BDI} = 4.716 + 0.426 \text{PO} \))

<table>
<thead>
<tr>
<th>Source</th>
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<th>M.S.</th>
<th>F</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>PO</td>
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<td>1305.956</td>
<td>1305.956</td>
<td>14.161</td>
<td>.0006</td>
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<td>Error</td>
<td>70</td>
<td>6455.363</td>
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</tr>
</tbody>
</table>

### TABLE 4

**ANALYSIS OF VARIANCE FOR EQUATION TWO**

(\( \text{BDI} = 25.567 + 0.396 \text{PO} - 0.560 \text{I} \))

<table>
<thead>
<tr>
<th>Source</th>
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<tr>
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<td>I</td>
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<td>963.054</td>
<td>963.054</td>
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<td>.0012</td>
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<td>Error</td>
<td>69</td>
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<td>79.599</td>
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<td>7761.319</td>
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</tr>
</tbody>
</table>

### TABLE 5

**ANALYSIS OF VARIANCE FOR EQUATION THREE**

(\( \text{BDI} = 21.940 + 0.421 \text{PO} - 0.543 \text{I} + 1.133 \text{AOT} \))

<table>
<thead>
<tr>
<th>Source</th>
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<th>M.S.</th>
<th>F</th>
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<tr>
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<td>.0014</td>
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<td>AOT</td>
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<td>248.918</td>
<td>3.228</td>
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<td>77.109</td>
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<td>71</td>
<td>7761.319</td>
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</tbody>
</table>

The four "best" equations for predicting SRS scores were as
follows, in order of the amount of variance explained. Equation Four--
SRS = 42.031 + 0.501 C (R² = 0.131). Equation Five--SRS = 49.720 +
0.545 C - 1.393 AAT (R² = 0.241). Equation Six--SRS = 69.651 + 0.490 C -
1.351 AAT - 0.527 I (R² = 0.314). Equation Seven--SRS = 84.541 +
0.537 C - 2.462 AAT - 0.515 I - 1.433 AIT (R² = 0.342).

TABLE 6
ANALYSIS OF VARIANCE FOR EQUATION FOUR
(SRS = 42.031 + 0.501 C)

<table>
<thead>
<tr>
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<tr>
<td>C</td>
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<td>1497.417</td>
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<tr>
<td>Error</td>
<td>70</td>
<td>9948.458</td>
<td>142.121</td>
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<td>TOTAL</td>
<td>71</td>
<td>11445.875</td>
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TABLE 7
ANALYSIS OF VARIANCE FOR EQUATION FIVE
(SRS = 49.720 + 0.545 C - 1.393 AAT)

<table>
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<th>Source</th>
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<tr>
<td>Regression</td>
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<td>1377.290</td>
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<tr>
<td>C</td>
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<td>1752.460</td>
<td>1752.460</td>
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<td>.0007</td>
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<tr>
<td>AAT</td>
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<td>1257.164</td>
<td>1257.164</td>
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<tr>
<td>Error</td>
<td>69</td>
<td>8691.294</td>
<td>125.961</td>
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<td>TOTAL</td>
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<td>11445.875</td>
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TABLE 8
ANALYSIS OF VARIANCE FOR EQUATION SIX
(SRS = 69.651 + 0.490 C - 1.351 AAT - 0.527 I)

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<tr>
<th>Source</th>
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<td>Regression</td>
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<td>1197.708</td>
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<td>C</td>
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<td>1388.709</td>
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<td>AAT</td>
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<td>1179.891</td>
<td>1179.891</td>
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<td>I</td>
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<td>838.544</td>
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<td>Error</td>
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<td>TOTAL</td>
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TABLE 9
ANALYSIS OF VARIANCE FOR EQUATION SEVEN
(SRS = 84.541 + 0.537 C - 2.462 AAT - 0.515 I - 1.433 AIT)

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<tr>
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<tr>
<td>AIT</td>
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<td>319.258</td>
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<td>7533.492</td>
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<td>TOTAL</td>
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<td>11445.375</td>
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</table>

The three "best" equations for predicting TRS scores were as follows, in order of the amount of variance explained. Equation Eight--TRS = 20.219 + 0.622 AOT (R^2 = 0.085). Equation Nine--TRS = 21.195 + 0.594 AOT - 0.036 PO (R^2 = 0.096). Equation Ten--TRS = 20.145 + 0.663 AOT - 0.087 PO + 0.093 C (R^2 = 0.130).

TABLE 10
ANALYSIS OF VARIANCE FOR EQUATION EIGHT
(TRS = 20.219 + 0.622 AOT)

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<tr>
<td>AOT</td>
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<tr>
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<td>71</td>
<td>899.875</td>
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TABLE 11
ANALYSIS OF VARIANCE FOR EQUATION NINE
(TRS = 21.195 + 0.594 AOT - 0.036 PO)

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<td>Error</td>
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<td>813.825</td>
<td>11.795</td>
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</table>
TABLE 12

ANALYSIS OF VARIANCE FOR EQUATION TEN
(TRS = 20.145 + 0.663 AOT - 0.087 PO + 0.093 C)

<table>
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<tr>
<th>Source</th>
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<th>M.S.</th>
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<tr>
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<td>3.384</td>
<td>.0226</td>
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<tr>
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<td>33.883</td>
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<td>.0870</td>
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<td>30.834</td>
<td>2.678</td>
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While equations three, seven, and ten were considered to be the most powerful and parsimonious ones, the use of all of the locus of control and aggression variables would produce the highest values of $R^2$ for each of the three depression variables. For the BDI, that value was 0.349; for the SRS, it was 0.365; for the TRS, it was 0.156.
CHAPTER IV

DISCUSSION

General Discussion

This research explored some of the variables affecting depth of depression. Depressed persons have often reported certain beliefs about themselves which appeared to be cognitive distortions. In situations characterized by personal involvement, marked beliefs in the futility of one's efforts, and convictions that only unfortunate events would result, were frequently held. The tenacity with which such seemingly non-rewarded opinions were held seemed paradoxical. It was as if the law of effect were held in abeyance whenever depression comprised a major part of one's experience. While many explanations have been offered to account for this phenomenon, the present study focused on the contributions of locus of control and the manner in which aggression was perceived.

Although many authors have suggested that an external locus of control would be associated with behaviors similar to those seen in depression, comparatively few studies have directly approached this problem. Published studies indicated a positive relationship between measures of depression and of locus of control, but have shown the relationship to be weaker than anticipated. This study made two methodological modifications to clarify and extend this line of investigation. While much of the past research employed college students as subjects,
this study utilized adult outpatients participating in individual and/or group therapy. In addition, while past efforts have often used a single measure of depression and Rotter's Internal-External Locus of Control scale, this research employed three depression scales and four locus of control measures.

The literature to date seems to have dealt with theoretical issues to a minimal extent. Individuals classified as externals have described themselves in terms highly similar to those used by depressed persons. However, few authors have offered a rationale for this similarity. It is here proposed that the cognitive distortions found in depression are at least partially due to a belief in external control, especially in situations where ego-involvement is high. Further, any cognitive distortions which might be present in usual circumstances should be more evident if one's daily functioning were impaired to such an extent that professional intervention was sought.

Cognitive distortions accompanying increased depth of depression and beliefs relating to an external locus of control would not be expected to be the only phenomena associated with increased severity of psychopathology, and no such assumption was made here. This research was not focused only on those persons whose primary problems in living involved depression. As many authors have asserted, there do not seem to be any phenomena unique to depression. The research strategy taken here was to investigate symptomatic depression, which would be expected to be present in different degrees in the experience of most patients, rather than considering only those who were diagnosed as primarily depressed. Thus, broad ranges of rated depression,
beliefs concerning locus of control, and styles of aggressive expres-
sion were sought.

The results of this research indicated that beliefs in chance
and in the influence of powerful others tends to best characterize
those individuals who sought outpatient treatment for their problems in
living. Further, as self-reported and therapist-rated depth of depres-
sion became more severe, these beliefs became stronger. In addition to
this general trend, other relationships were clarified through the use
of multiple linear regression.

The three measures of depression employed in this research were
found to represent similar, yet distinctive, conceptualizations of
depression. To examine the relationships among depth of depression,
beliefs about locus of control, and aggressive style, scores on each
of the three depression measures were used as the dependent variables
in a series of multiple linear regression equations. Scores on the four
locus of control measures and the three aggression measures were used
as predictors. A most interesting finding was that the generalized
expectancy measured by Rotter's I-E scale did not appreciably contri-
bute to the prediction of depression scores. Most past research has
used the I-E scale as the sole measure of locus of control. The results
of this research clearly indicated that the scales created by Levenson
were far more useful as predictors of depth of rated depression. The
belief in the influence of powerful others was an important component
in increased depth of depression as measured by the BDI, but was related
to lowered scores on the TRS. The belief in the influence of chance
factors (possibly indicative of a fatalistic world view) strongly
contributed to scores on the SRS and, to a lesser extent, to the behavioral rating of depth of depression. Finally, the belief in internal control as measured by Levenson's I scale contributed to the predictions of scores on both the BDI and SRS over and above the contribution of the scales already discussed. Thus, the specific expectancies measured by Levenson's scales made marked contributions in predicting and explaining the variance in the depression scores.

The perception of aggressive themes on five selected TAT cards was also utilized in the prediction equations. The role of aggression has long been considered to be an important dimension in depression. The classical psychoanalytic view has been that retroflected aggression was a major characteristic of depression. This research found little support for that view. Those subjects who produced numerous themes in their TAT stories that were judged to be aggression-out (AOT) were judged by their therapists to be more depressed. A similar pattern was a contributing factor to elevated BDI scores. The other two aggression categories used in this study were related to SRS scores in a fashion contrary to prediction. That is, as aggression-in (AIT) themes increased in number, the depth of depression measured by the SRS decreased. From these data, it appeared that those subjects who wrote stories which had themes of retroflected aggression were not judged either by themselves or by their therapists as severely depressed.

The use of ipsative measures to evaluate themes in the TAT stories limited the usefulness of those data. As raters were instructed to place each story into one of three categories, potential differences in the frequency with which any one aggressive style was present were
possibly obscured. Although this approach removed differences among subjects due to length and complexity of stories, the descriptive statistics produced artifactual results.

The themes produced in response to the TAT cards were open to several interpretations. The manner in which aggression was perceived by the subjects in this study may, in keeping with the projective hypothesis, have reflected either behavioral patterns or a fantasied desire to behave in a fashion consistent with the stories.

As noted, increased aggression-out themes were associated with higher depression scores on the BDI and TRS, while decreased numbers of stories rated aggression-in or ambivalent aggression characterized higher SRS scores. One possible explanation was that the TAT stories depicted the subjects' perception of how other people expressed aggressive impulses. It may have been that the subjects perceived themselves as objects of aggressive actions initiated by others. However, since AOT themes were produced the fewest number of times and AIT themes were most frequent, this explanation did not appear to be the most plausible one. An alternative explanation was more in keeping with the finding that AOT themes were seldom produced. Themes depicting overt aggressive responding may have been reduced in favor of more covert forms of aggression. If so, such a result may have been a function of diminished responding, which Miller, Seligman, and others have proposed as characteristic of depressed individuals. This reduction in externalized aggressive responses was consistent with the learned helplessness hypothesis of depression.

As no opportunities for behavioral observations in non-therapy
situations were available, the tentative conclusion, that interpersonal aggression increased as did depth of depression, could not be fully evaluated. It is here suggested that situational considerations related to participation in research and/or therapy may have been operative, and were potentially critical. Although retroflected aggression in TAT stories did not contribute positively to rated depth of depression, it may well have been that different contingencies may be operative in real-life interpersonal relationships which would be vital to the assessment of the role of aggression in depression. Behaviors present during an activity identified as research or therapy would very possibly differ in significant ways from one's modal style of functioning. Further, writing stories in response to TAT cards may have required a different universe of responses than might be required in social situations. As proposed by several authors such as Lewinsohn, a meaningful analysis of human behaviors, including depression, must occur in social situations. It would seem that the types of aggression expressed on projective measures such as the TAT may well be covert. The retroflected aggression often considered to be a component of depression may be more overt (certain verbal statements and decreased responsiveness, often assumed to be self-punitive) and most frequently expressed in interpersonal situations. If so, then behavioral observations in situations other than research participation would be expected to aid in clarifying the putative relationship between style of aggressive expression and depth of depression.

Ferster (1974) has addressed this possibility in a succinct manner. He indicated that while certain behaviors may have identical
topographies in different situations, many salient factors which must be considered may be captured only by a functional analysis of an individual's reinforcement history.

Comparisons with Norms from Past Research

Averages and standard deviations for scores on the BDI and SRS have not usually been reported in research utilizing those scales. As mentioned in the introduction above, the BDI has often been used as a means of defining depressed and non-depressed groups of subjects. Average scores and the distribution of scores have been reported infrequently. A similar situation existed with the SRS; scores were usually used to separate clinically depressed from "normal" subjects, and to define the degree of depression within clinically depressed populations. Finally, as this work described the first use of the TRS, no comparisons with other research could be made. The BDI and SRS results applicable to the present sample have been compared with published results from other authors in Appendices IV and V.

Rotter's I-E scale has been employed in numerous studies which have reported averages and ranges of scores, but few have reported these results for patient groups. Data from seven selected studies have been presented in Appendix VI.

Levenson's scales, presented as a unified inventory, have had the least research support, as her scales have been recently developed. For her Internal scale, this study found an average score of 35.917, while Levenson (1973) found averages of 35.5 for her sample of 96 normals and of 35.4 for a sample of 165 inpatients. Ryckman and Malikiosi (1975)
found an average of 18.11. This was a transformed score to facilitate comparison with scores on the I-E scale, and would be equivalent to an average score of 29.89, using Levenson's scoring system. That average was obtained from a sample of 483 normals. Averages on the remaining two of Levenson's scales which were obtained in this research differed somewhat from those of past efforts. Here, the average score on the Chance scale was 23.458. Levenson (1973) found an average of 21.7 for inpatients and of 13.9 for normals, while Ryckman and Malikiosi reported a score of 16.57 for their sample of normals. On the Powerful Others scale, an average of 25.111 was found here, which compared favorably with Levenson's results (23.8) for her group of inpatients. Her findings for normals included an average score of 16.65 (males averaged 18.85 and females averaged 14.64), while Ryckman and Malikiosi found an average score of 15.89 for their sample.

**Comparisons with Correlations from Past Research**

Many of the studies utilizing the scales included in this study have been correlational in nature. In general, it would appear that the results of this study supported, and in some cases, extended past research findings. Results relevant to each of the three main categories of variables (depression, locus of control, and aggression) will first be discussed, then those results which related those categories to each other will be reviewed. Intercorrelations among the ten variables were presented above in Table 2.

Among the three depression measures considered here, the Beck and Zung scales were correlated +.787 (p < .0001). This was consistent
with most earlier studies (Davies, Burrows, & Poynton, 1975; Zung, 1969). The TRS was significantly correlated only with scores on the SRS ($r = +.320$, $p < .0062$).

Rotter's I-E scale has been used extensively to assess the locus of control concept, although much criticism has been levied against it. Levenson's scales were introduced as a modification and extension of Rotter's original concept. To date, there have been few direct comparisons of these two scales in the literature. The relationships between the I-E and each of Levenson's three scales would be expected to be positive. While the relationship between the I-E and the I scale would be expected to be positive, correlations between those two scales would be negative, as the I-E is scored in the external direction and the I is scored in the internal direction. The present results supported these expectations, indicating that the I-E correlated $-.335$ ($p < .0043$) with the I scale, $+.621$ ($p < .0001$) with the C scale, and $+.535$ ($p < .0001$) with the PO scale. These results suggested that, for a population of outpatients in therapy, there was a weaker relationship between the similarly-named scales (the I-E and the I) than might have been thought, although the correlations were all in the anticipated direction. As all correlations were also highly significant, there was evidence that these scales measured much the same psychological dimension.

Considering the three scales devised by Levenson, she indicated (1974) that the correlation between the C and PO scales was $+.59$ ($p < .01$), while the correlations between the I scale and the C and PO scales were not significant ($r = -.17$ and $-.14$, respectively). The results of the present study supported these findings, yielding
respective correlations of +.618 (p < .0001), -.141 (NS), and -.080 (NS).

The three aggression measures (AOT, AAT, and AIT) were mutually exclusive categories, and as such, produced ipsative measures. Anastasi (1968, p. 454) indicated that "with ipsative scores, the mean intercorrelation of individual scores tends to be negative and the mean correlation of all the scales with any outside variable will approach zero." Thus, the negative correlations among the three aggression measures, and the low correlations with the other seven measures (see Table 2) were, at least in part, artifactual as a function of the ipsative nature of the measures. Because of the format chosen, the utility value of the aggression measures was perhaps diminished.

The ten measures were unrelated to sex, race, or which clinic the subjects attended. This finding was in keeping with published results which have consistently indicated that the BDI, SRS, and I-E were independent of various demographic variables. It should be noted that there was a slight but non-significant tendency for women participating in this study to score higher on the SRS (indicating more severe depression) than men. The correlation between the sex of the subject and the SRS score was +.260 (p < .0256). As there were more female than males participating in this study, a least-squares analysis of variance was used to further evaluate this trend. That analysis resulted in a value of F (1,64) = 4.758 (p < .0329). This trend was in keeping with past findings which have shown no sex differences, or a slightly higher average in women's scores. Zung and Gianturco (1971) found no sex differences among hospital employees, while Zung (1967) found that the mean score for female patients was higher than for males, although that difference was not significant.
A major emphasis of this research was on the relationships among major classes of variables (depression, locus of control, and aggressive style). The BDI had been reported to be correlated with the I-E ($r = +240, p < .001$) by Miller (cited by Miller & Seligman, 1973), with 201 college students as subjects. Likewise, Prociuk, Breen, and Lussier (1976) found the I-E to be correlated with BDI scores ($r = +.22$, $p < .05$) for a sample of 67 introductory psychology students, but not significantly correlated ($r = +.10$) for 44 students in an advanced abnormal psychology class. The current findings showed a much stronger relationship ($r = +.398, p < .0008$). The magnitude of the correlation between the BDI and the I and C scales was found to be approximately as strong as between the I-E and the BDI ($r = -.384, p < .0012$, and $r = +.353, p < .0027$, respectively). The strongest relationship between the BDI and the various locus of control scales was with the PO scale ($r = +.410, p < .0006$). Although Gottschalk and his associates (1963) found positive correlations between hostility-in scores and the BDI, none of the correlations found here between the aggression scores and BDI scores were significant.

The SRS scores of the present sample were significantly correlated with all of the other scores with the exception of the aggression measures. The relationship between SRS scores and ratings by therapists (TRS) was +.320 ($p < .0062$). Correlations between the SRS and each of the four locus of control measures were all of approximately the same magnitude. With the I-E, $r = +.359 (p < .0024)$, while with the I, C, and PO scales, the correlations were -.331 ($p < .0047$), +.362 ($p < .0022$), and +.332 ($p < .0046$), respectively. Lamont (1972) cited unpublished
data by Wilkins, who found that the I-E was correlated with the SRS 
\(r = +.44\) for a sample of 60 male inpatient veterans. Calhoun, Cheney, 
and Dawes (1974) found a correlation between SRS and I-E scores of 
+.58 \((p < .001)\) for 37 male students, and of +.38 \((p < .05)\) for 44 female 
students.

Discussion of Hypotheses

Hypothesis One was the primary hypothesis for this research, and 
was strongly supported. In essence, that hypothesis suggested that as 
rated depth of depression increased, there would be a parallel trend 
toward a more external locus of control. This relationship has been 
suggested by many authors, but has been supported with less force than 
many had hoped. One feature of the present research which was different 
from past efforts was that adults participating in outpatient treatment, 
rather than college students, were recruited as subjects. While the 
range among locus of control scores has been shown to be roughly com­
parable between these groups, the distribution of depression scores has 
tended to be negatively skewed in student populations. The relation­
ship between depth of depression and an external locus of control, as 
stated in Hypothesis One, was shown to exist in the present sample, and 
to be a stronger positive relationship than had been shown in past 
research efforts.

A second feature of the present research involved the use of 
multiple measures of depth of depression and of locus of control. 
Moderately strong positive relationships between two depression mea­
ures (the BDI and the SRS) and each of four locus of control measures
were found, which lent strong support to the first hypothesis. This finding extended past research which found positive, but often weaker, relationships between depression measures (usually the BDI) and the I-E.

Hypothesis Two received little support, in part due to the ipsative nature of the aggression measures. Rather than finding that retroflected aggression typified more depressed subjects, a somewhat complex pattern between perceived aggression and depth of depression was found. Aggression turned toward oneself (aggression-in) was not significantly correlated with any of the three depression measures. Conversely, externally-directed aggression (aggression-out) was positively correlated with all three depression measures. Finally, ambivalence toward or a lack of aggressive expression (AAT) increased as measured depth of depression decreased. The relationships suggested in Hypothesis Two were further clarified when the prediction equations were employed. Inner-directed aggression scores, although not significantly correlated with scores on any of the depression measures, did add to the prediction of SRS scores. In addition, ambivalent or absent aggression was a major component in the prediction of SRS scores. However, both relationships were of an inverse nature, such that rated depression increased as AIT and AAT scores decreased. These findings suggested that depression measured by the SRS might be positively related to the perception of increased interpersonal aggression. Such a relationship was clearly shown for BDI and TRS scores. The AOT scores were the primary component of the explained TRS variance, and played a small but significant role in accounting for the variance in BDI scores. Thus, it would appear that aggression-out proved to be the most
valuable aggression measure involved in the linear prediction equations.

The general part of the third hypothesis, that a combination of locus of control and aggression measures would predict depression scores, was clearly shown. The specifics of the third hypothesis were not supported. Rotter's scale was not involved in any of the prediction equations, while Levenson's three scales all proved useful. As shown in Equations Three, Seven, and Ten above, Levenson's scales were major components in predicting depression scores. Increases in belief in powerful others, chance, or both, strongly indicated increased depression. Decreased belief in internal control, as defined by Levenson, was a minor component in depth of depression. The overall impression was that the three depression measures could be considered as tapping separate aspects of the subjects' experiences. The partial support of the third hypothesis may be interpreted with the prediction equations in mind. Depression was not shown to be a simple function of a generalized external locus of control and retroflected aggression. Clearly, it was critical to specify which kind of depression and/or specific belief was being considered before general statements might be made. As the third hypothesis was of an exploratory nature and its specific predictions were not totally based in past theory, the results may best be viewed as tentative and subject to further study.

The final three hypotheses were secondary ones, more related to psychometric than theoretical issues. Hypothesis Four, that the three depression measures would be highly positively correlated, was partially supported. The BDI and the SRS were found to be very strongly related to one another, as had previously been shown in the literature. The
TRS was positively related to both of those scales, but its correlation with the BDI was not significant. One possible interpretation of this finding would be consistent with the position suggested by Ferster (1974) and Miller (1975). Those authors suggested that no behaviors or behavior patterns existed which were universally specific to depression. They argued that a functional analysis of the specific behaviors exhibited by any one individual would be indicated, rather than a more global assessment as dictated by any particular schema. Thus, identical behaviors might not always lead to the same conceptual generalizations, primarily as a function of the idiosyncratic individual reinforcement history.

The TRS was devised in an effort to create a behavioral checklist for depression in a fashion analogous to the approaches of Beck, Zung, and others. The present results would suggest that the use of a behavioral checklist sampled a different aspect of depression than was included in the global self-reports. The use of a behavioral approach added another dimension to the assessment of depression. For example, one subject produced scores on both the BDI and SRS indicative of profound depression, but the behavioral rating suggested elation, consistent with observations of the subject during data collection. Thus, the inclusion of a behavioral checklist provided data not included in traditional measures, and proved to be a valuable addition to this research effort.

As suggested in Hypothesis Five, Rotter's I-E scale and Levenson's I scale were positively related, although they were negatively correlated due to differences in scoring direction. They did
not function equally well in tests of the other hypotheses, as the I-E did not contribute significantly to any of the prediction equations. Further, the relationship between the I and I-E scales was much weaker than had been expected. In fact, the PO and C scales were related to the I-E scale to the extent that had been anticipated for the I scale. Levenson's scales all entered into the prediction equations in distinctly different patterns. Although not suggested by the hypotheses, the current findings were consistent with Rotter's (1975) position that his scale measured a generalized expectancy, which might not be applicable in evaluation of specific phenomena and/or behaviors. The use of only the I-E scale and one depression measure by past researchers would appear to have been a research strategy which obscured the relationships between the concepts of depression and locus of control which were shown here.

As stated in Hypothesis Six and consistent with Levenson's (1974) findings, scores on her PO and C scales were independent of scores on her I scale. Although this hypothesis suggested that the PO and C scales would be independent of scores on Rotter's I-E scale, those two scales were found to be strongly positively correlated with the I-E. As mentioned above in the discussion of Hypothesis Five, Levenson's three scales were more useful in testing the main hypotheses than was the I-E scale. Thus, the part of Hypothesis Six that stated that the PO and C scales would have a minimal effect on the other hypotheses was clearly not supported. Rather, they were the primary beliefs associated with the assessment of depth of depression.

The fifth and sixth hypotheses may be considered together.
Scores on the I scale were positively related to BDI and SRS scores, but that relationship was not as strong as the relationships among the scores on three depression measures and the PO and C scales. While it had been anticipated that the I-E and the similarly-named I scale would be the most valuable locus of control variables in predicting depth of depression, and that the C and PO scales would be of little value, the C and PO scales were very useful in this endeavor. That the I-E scale was the least useful of the four locus of control measures was of particular interest as it has been the only locus of control scale used in past research. Such an approach would seem to at least partially explain past findings which indicated that the relationship between depression and an external locus of control was not as strong as had been anticipated.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

This investigation explored interrelationships among three measures of depression, four measures of perceived locus of control, and three measures of style of aggressive expression. In general, the results of past research were supported. In an unselected sample of seventy-two literate adult outpatients from five mental health centers, demographic variables of sex, race, and mental health center attended were unrelated to any of the above ten measures. As a result, analyses focused on the ten measures and did not consider demographic variables.

Among the depression measures, the Beck Depression Inventory (BDI) and the Zung Self-Rating Depression Scale (SRS) proved to be useful measures. These scales were significantly correlated with each of the four locus of control measures and with each other. The Therapist's Rating Scale (TRS) appeared to be measuring a separate aspect of depression, being significantly correlated with only the SRS. The TRS was developed in an attempt to provide a behaviorally-based index of therapist-rated depression. It was concluded that the use of a behavioral checklist was a valuable measure of depression sampling content not included in the BDI and SRS. In addition, the functional analysis of behavior proposed by Ferster (1974) and Lewinsohn (1974; Lewinsohn, Bialow, & Zeiss, 1976) would perhaps have also been a reasonable and successful approach. In addition to ratings by a therapist, behavioral
observations in a social setting, possibly at the subjects' homes, might have also been valuable.

Most of the prior research in this area has used only Rotter's Internal-External Locus of Control scale (I-E) as a measure of the locus of control concept. This study used that scale and the Internal (I), Chance (C), and Powerful Others (PO) scales devised by Levenson (1974). Contrary to expectations, neither the I-E nor the I scale were strongly related to the depression measures. This indicated that beliefs in chance factors and in domination by influential persons in interpersonal relationships were more strongly related to depth of depression than was the diminished belief in personal influence and/or competence. In addition, Levenson's formulations entered significantly into the multiple linear regression equations used to predict depression scores, while scores on Rotter's scale did not. It may therefore be concluded that, for the population considered in this study, specific expectancies related to beliefs in chance and powerful others were more clearly related to both self-assessed and therapist-rated depth of depression than was the generalized expectancy of external control.

Three aggression measures were adapted from the approach taken by Gottschalk, Gleser, and Springer (1963). The decision to use ipsative measures to control for differences in complexity and length of stories written in response to five selected TAT cards proved to be problematic. Spurious correlations and somewhat contradictory patterns in the prediction equations resulted, making interpretations difficult. The use of frequency counts of different themes and modifications of the scoring scheme such that separate scores for aggression-out,
aggression-in, ambivalent-aggression, and no aggression could be obtained would be recommended.

Overall, it was concluded that the three depression measures comprised three different aspects of depression, which could each be predicted by characteristically different combinations of locus of control and aggression variables. The use of multiple measures of depression and locus of control was especially meaningful. This research clearly demonstrated that self-rated depression was strongly related to beliefs in chance and in the influence of powerful others. This research clarified the previously established finding that a major component of human depression was a decrease in perceived internal control.

Several methodological shortcomings became evident during data collection and the analyses. A problem existed in relation to the aggression ratings. No information about the subjects who wrote TAT stories was available to the graduate student raters. However, limited training of the judges and/or insufficient guidelines for ratings, along with possible awareness of the purposes of the research probably contributed to low inter-rater reliabilities. The most serious shortcoming related to the aggression measures was the use of ipsative measures, as previously discussed. The recommendations offered here include more rigorous training of judges in rating aggression themes, improving the guidelines, and using frequency counts of aggressive themes rather than ipsative measures. In addition, further modification of the aggression criteria as outlined above would potentially be valuable.
Two other methodological problems were noted. Although "trait" instructions were given for the depression and locus of control scales, it cannot be clearly stated that this prevented confounding of state and trait variables. Perhaps the most important methodological consideration in this research and most of the other studies like it concerned the problem of depression-specific findings. Although only depression was considered as a function of locus of control and aggression variables, it may be that increases in psychopathology other than depression might produce similar results. While the diagnostic category assigned to each subject by the staff at the different mental health centers was not known or considered for purposes of this research, it would clearly add to this line of investigation to consider other variables such as anxiety level, length of time in therapy, and whether medication was being taken.

Finally, different research strategies could be used in the future in addition to adopting other hypotheses. Such approaches might permit further generalization of the current findings. Rather than using multiple linear regression, factor analytic techniques could have been used. Instead of using unsolicited outpatients, depressed inpatient and outpatient groups, non-depressed inpatient and outpatient groups, and non-patient groups could have been compared on a number of dimensions, including locus of control and aggressive style.
REFERENCES

Abramovitz, S. I. Locus of control and self-reported depression among college students. Psychological Reports, 1969, 25, 149-150.


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Marone, J. and Lubin, B. Relationship between set 2 of the depression adjective check-lists (DACL) and Zung Self-Rating Depression Scale (SDS). *Psychological Reports*, 1968, 22, 333-334.


APPENDICES
APPENDIX I
BEHAVIOR RATING SCALE
Choose one alternative for each item

I. SPEECH BEHAVIOR

1. Rate of speech
   very slow, slow, average, fast, very fast

2. Quantity of speech production (amount)
   far below average, below average, average, above average,
   far above average

3. Speech volume
   very quiet, quiet, average, loud, very loud

II. OVERT BODILY BEHAVIOR

4. Frequency of gestures
   rare, seldom, average, often, frequent

5. Vigor of gestures
   very weak, weak, average, strong, very strong

6. Facial expression
   very sad, sad, average, happy, very happy

7. Generalized body movements
   very slow, slow, average, fast, very fast

III. VERBAL BEHAVIOR

8. Verbalized self-concept
   self-condemning, self-critical, neutral, accepting, conceited
   self-importance

9. Behavior toward interviewer
   very passive, passive, neutral, assertive, very assertive

10. Ease of decision-making
    very difficult, difficult, average, easy, very easy

11. Complaints about physical health (including eating and sleeping habits)
    excessive, many, some, few, none
### APPENDIX II

**BEHAVIOR RATING SCALE INTER-RATER RELIABILITIES**

<table>
<thead>
<tr>
<th>Item Number*</th>
<th>Judges 1 and 2</th>
<th>Judges 1 and 3</th>
<th>Judges 2 and 3</th>
<th>Average</th>
<th>p**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.437</td>
<td>0.247</td>
<td>0.487</td>
<td>0.390</td>
<td>.025</td>
</tr>
<tr>
<td>2</td>
<td>0.270</td>
<td>0.072</td>
<td>0.311</td>
<td>0.218</td>
<td>NS</td>
</tr>
<tr>
<td>3</td>
<td>0.593</td>
<td>0.396</td>
<td>0.639</td>
<td>0.543</td>
<td>.01</td>
</tr>
<tr>
<td>4</td>
<td>0.478</td>
<td>0.596</td>
<td>0.456</td>
<td>0.510</td>
<td>.01</td>
</tr>
<tr>
<td>5</td>
<td>0.420</td>
<td>0.534</td>
<td>0.605</td>
<td>0.520</td>
<td>.01</td>
</tr>
<tr>
<td>6</td>
<td>0.374</td>
<td>0.529</td>
<td>0.233</td>
<td>0.379</td>
<td>.05</td>
</tr>
<tr>
<td>7</td>
<td>0.312</td>
<td>0.215</td>
<td>0.404</td>
<td>0.310</td>
<td>NS</td>
</tr>
<tr>
<td>8</td>
<td>0.382</td>
<td>0.106</td>
<td>0.461</td>
<td>0.316</td>
<td>NS</td>
</tr>
<tr>
<td>9</td>
<td>0.602</td>
<td>0.483</td>
<td>0.373</td>
<td>0.486</td>
<td>.01</td>
</tr>
<tr>
<td>10</td>
<td>0.228</td>
<td>0.165</td>
<td>0.276</td>
<td>0.223</td>
<td>NS</td>
</tr>
<tr>
<td>11</td>
<td>0.549</td>
<td>0.371</td>
<td>0.710</td>
<td>0.543</td>
<td>.01</td>
</tr>
</tbody>
</table>

* Items 2, 7, 8, and 10 were not included in the Therapist's Rating Scale as they were unreliable.

** All tests were one-tailed.
## APPENDIX III

### INTER-RATER RELIABILITIES FOR AGGRESSION RATINGS

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>JUDGES</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGGRESSION-OUT (AOT)</td>
<td>One and Two</td>
<td>+.492</td>
<td>.0001</td>
</tr>
<tr>
<td>(average reliability = +.152)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Three</td>
<td>-.018</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Two and Three</td>
<td>-.017</td>
<td>NS</td>
</tr>
<tr>
<td>AMBIWALENT AGGRESSION AND NO AGGRESSION (AAT)</td>
<td>One and Two</td>
<td>+.493</td>
<td>.0001</td>
</tr>
<tr>
<td>(average reliability = +.463)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Three</td>
<td>+.425</td>
<td>.0004</td>
</tr>
<tr>
<td></td>
<td>Two and Three</td>
<td>+.471</td>
<td>.0001</td>
</tr>
<tr>
<td>AGGRESSION-IN (AIT)</td>
<td>One and Two</td>
<td>+.414</td>
<td>.0006</td>
</tr>
<tr>
<td>(average reliability = +.400)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Three</td>
<td>+.330</td>
<td>.0047</td>
</tr>
<tr>
<td></td>
<td>Two and Three</td>
<td>+.456</td>
<td>.0002</td>
</tr>
</tbody>
</table>
### APPENDIX IV

**Means and Standard Deviations of Beck Depression Inventory Scores for Selected Populations**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sample composition</th>
<th>Mean$^1$</th>
<th>S.D.</th>
<th>Score range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present study</td>
<td>28 male and 44 female outpatients</td>
<td>15.40</td>
<td>10.46</td>
<td>0-40 (0-63 possible)</td>
</tr>
<tr>
<td>Beck (1967)</td>
<td>115 non-depressed patients</td>
<td>10.9</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32 non-depressed patients</td>
<td>5.4</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 147)</td>
<td>9.7$^2$</td>
<td>7.6$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>127 mildly depressed patients</td>
<td>18.7</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44 mildly depressed patients</td>
<td>14.3</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 171)</td>
<td>17.6$^2$</td>
<td>9.7$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>134 moderately depressed patients</td>
<td>25.4</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 moderately depressed patients</td>
<td>24.2</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 158)</td>
<td>25.2$^2$</td>
<td>9.8$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33 severely depressed patients</td>
<td>30.0</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 severely depressed patients</td>
<td>29.5</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 53)</td>
<td>29.8$^2$</td>
<td>8.9$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall total (N = 529)</td>
<td>18.9$^2$</td>
<td>9.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 male and 13 female depressives</td>
<td>32.05</td>
<td>11.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 44)</td>
<td>26.70$^2$</td>
<td>13.11$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 male and 14 female normals</td>
<td>4.63</td>
<td>8.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall total (N = 68)</td>
<td>18.73$^2$</td>
<td>9.79$^2$</td>
<td></td>
</tr>
<tr>
<td>Davies, Burrows, and Poynton (1975)</td>
<td>72 inpatients with depressive diagnoses</td>
<td>25.38</td>
<td>13.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 of above sample (7 days of treatment)</td>
<td>20.17</td>
<td>11.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 of above sample (14 days of treatment)</td>
<td>24.33</td>
<td>13.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 of above sample (21 days of treatment)</td>
<td>19.60</td>
<td>17.24</td>
<td></td>
</tr>
<tr>
<td>Gottschalk, Gleser, and Springer (1963)</td>
<td>20 male outpatients</td>
<td>17.2</td>
<td></td>
<td>0-21</td>
</tr>
<tr>
<td></td>
<td>30 female outpatients</td>
<td>20.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 50)</td>
<td>18.9</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Miller and Seligman (1973)</td>
<td>18 male and 14 female college students</td>
<td>0-21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minkoff, Bergman, and Beck (1973)</td>
<td>23 schizophrenic and depressed suicide attempters</td>
<td>21.93</td>
<td>13.2</td>
<td></td>
</tr>
</tbody>
</table>

$^1$Higher scores indicate more severe depression.

$^2$My calculations.
APPENDIX V  
MEANS AND STANDARD DEVIATIONS OF SELF-RATING DEPRESSION SCALE SCORES FOR SELECTED POPULATIONS

<table>
<thead>
<tr>
<th>Source</th>
<th>Sample composition</th>
<th>Mean₁</th>
<th>S.D.</th>
<th>Score range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present study</td>
<td>28 male and 44 female</td>
<td>53.79</td>
<td>12.70</td>
<td>26-78 (25-100 possible)</td>
</tr>
<tr>
<td>Carroll, Fielding, and Blashki (1973)</td>
<td>24 inpatients with depressive diagnoses</td>
<td>51.9</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 day hospital patients</td>
<td>56.3</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with depressive diagnoses</td>
<td>49.0</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 gen'l.practice pts.</td>
<td>56.3</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with depressive diagnoses</td>
<td>52.1</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Zung (1965)</td>
<td>56 patients with depressive diagnoses</td>
<td>64.62²</td>
<td></td>
<td>38-90</td>
</tr>
<tr>
<td></td>
<td>100 non-depressed controls</td>
<td>33</td>
<td></td>
<td>25-43</td>
</tr>
<tr>
<td>Zung (1967)</td>
<td>43 outpatients</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(neurotic depression)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 outpatients</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(anxiety reaction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>44 outpatients</td>
<td>53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(personality disorder)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19 outpatients</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(adjustment reaction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 116)</td>
<td>55²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zung (1972a)</td>
<td>96 patients (depressed)</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 patients (schizophrenic)</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22 patients (anxiety disorder)</td>
<td>53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>54 patients (personality disorder)</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 patients (situational disturbance)</td>
<td>48</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Total (N = 209)</td>
<td>59²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zung (1972b)</td>
<td>360 depressed patients</td>
<td>64</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>363 normals</td>
<td>39</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Zung, Richards, and Short (1965)</td>
<td>39 outpatients</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(neurotic depression)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28 outpatients</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(anxiety neurosis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41 outpatients</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(personality disorder)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19 outpatients</td>
<td>53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(adjustment reaction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 127)</td>
<td>57²</td>
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</tr>
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</table>

¹Higher scores indicate more severe depression.
²My calculations.
### APPENDIX VI
MEANS AND STANDARD DEVIATIONS OF INTERNAL-EXTERNAL SCALE SCORES FOR SELECTED POPULATIONS

<table>
<thead>
<tr>
<th>Source</th>
<th>Sample composition</th>
<th>Mean</th>
<th>S.D.</th>
<th>Score range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present study</td>
<td>28 male and 44 female</td>
<td>9.90</td>
<td>4.36</td>
<td>1-21 (0-23 possible)</td>
</tr>
<tr>
<td>Cash and Stack (1973)</td>
<td>5 psychotic depressives</td>
<td>10.80</td>
<td>3.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 neurotic depressives</td>
<td>7.25</td>
<td>4.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>43 schizophrenics</td>
<td>10.95</td>
<td>4.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 anxiety neurotics</td>
<td>8.20</td>
<td>4.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 61)</td>
<td>10.23</td>
<td>4.63</td>
<td></td>
</tr>
<tr>
<td>Distefano, Pryer, and Smith (1971)</td>
<td>35 male and 22 female vocational rehabilitation patients</td>
<td>8.95</td>
<td>4.5</td>
<td>0-18</td>
</tr>
<tr>
<td></td>
<td>Same sample (retest)</td>
<td>8.3</td>
<td>4.6</td>
<td>0-21</td>
</tr>
<tr>
<td></td>
<td>40 psychiatric aides</td>
<td>6.3</td>
<td>3.1</td>
<td>1-14</td>
</tr>
<tr>
<td>Harrow and Ferrante (1969)</td>
<td>41 depressed inpatients</td>
<td>8.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 schizophrenics</td>
<td>10.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 manics</td>
<td>4.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total of 45 male and 83 female inpatients</td>
<td>8.70</td>
<td>3.1</td>
<td>1-14</td>
</tr>
<tr>
<td>Jones and Shrauger (1968)</td>
<td>21 male and 21 female</td>
<td>13.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platt and Eisenman (1968)</td>
<td>22 male and 22 female</td>
<td>7.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotter (1966)</td>
<td>Summary of nine prior studies, none including patients (N = 3077)</td>
<td>8.34</td>
<td>2.61</td>
<td></td>
</tr>
<tr>
<td>Yates, Kennelly, and Cox (1975)</td>
<td>47 male undergraduates</td>
<td>11.32</td>
<td>3.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53 female undergraduates</td>
<td>11.81</td>
<td>3.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (N = 100)</td>
<td>11.58</td>
<td>3.51</td>
<td></td>
</tr>
</tbody>
</table>

1Higher scores indicate a more external orientation.

2My calculations.
APPENDIX VII
BECK DEPRESSION INVENTORY

Choose one statement for each item

A. 1. I do not feel sad.
   2. I feel blue or sad.
   3. I am blue or sad all the time and I can't snap out of it.
   4. I am so sad or unhappy that it is very painful.
   5. I am so sad or unhappy that I can't stand it.

B. 1. I am not particularly pessimistic or discouraged about the future.
   2. I feel discouraged about the future.
   3. I feel I have nothing to look forward to.
   4. I feel that I won't ever get over my troubles.
   5. I feel that the future is hopeless and that things cannot improve.

C. 1. I do not feel like a failure.
   2. I feel I have failed more than the average person.
   3. I feel I have accomplished very little that is worthwhile or that means anything.
   4. As I look back on my life all I can see is a lot of failures.
   5. I feel I am a complete failure as a person.

D. 1. I am not particularly dissatisfied.
   2. I feel bored most of the time.
   3. I don't enjoy things the way I used to.
   4. I don't get satisfaction out of anything any more.
   5. I am dissatisfied with everything.

E. 1. I don't feel particularly guilty.
   2. I feel bad or unworthy a good part of the time.
   3. I feel quite guilty.
   4. I feel bad or unworthy practically all the time now.
   5. I feel as though I am very bad or worthless.

F. 1. I don't feel I am being punished.
   2. I have a feeling that something bad may happen to me.
   3. I feel I am being punished or will be punished.
   4. I feel I deserve to be punished.
   5. I want to be punished.

G. 1. I don't feel disappointed in myself.
   2. I am disappointed in myself.
   3. I don't like myself.
   4. I am disgusted with myself.
   5. I hate myself.

H. 1. I don't feel I am any worse than anybody else.
   2. I am very critical of myself for my weaknesses or mistakes.
   3. I blame myself for everything that goes wrong.
   4. I feel I have many bad faults.
I.  1. I don't have any thoughts of harming myself.
2. I have thoughts of harming myself but I would not carry them out.
3. I feel I would be better off dead.
4. I have definite plans about committing suicide.
5. I feel my family would be better off if I were dead.
6. I would kill myself if I could.

J.  1. I don't cry any more than usual.
2. I cry more now than I used to.
3. I cry all the time now. I can't stop it.
4. I used to be able to cry but now I can't cry at all even though I want to.

K.  1. I am no more irritated now than I ever am.
2. I get annoyed or irritated more easily than I used to.
3. I feel irritated all the time.
4. I don't get irritated at all at the things that used to irritate me.

L.  1. I have not lost interest in other people.
2. I am less interested in other people now than I used to be.
3. I have lost most of my interest in other people and have little feeling for them.
4. I have lost all my interest in other people and don't care about them at all.

M.  1. I make decisions about as well as ever.
2. I am less sure of myself now and try to put off making decisions.
3. I can't make decisions any more without help.
4. I can't make any decisions at all any more.

N.  1. I don't feel I look any worse than I used to.
2. I am worried that I am looking old or unattractive.
3. I feel that there are permanent changes in my appearance and they make me look unattractive.
4. I feel that I am ugly or repulsive looking.

O.  1. I can work about as well as before.
2. It takes extra effort to get started at doing something.
3. I don't work as well as I used to.
4. I have to push myself very hard to do anything.
5. I can't do any work at all.

P.  1. I can sleep as well as usual.
2. I wake up more tired in the morning than I used to.
3. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
4. I wake up early every day and can't get more than 5 hours sleep.
Q. 1. I don't get any more tired than usual.
   2. I get tired more easily than I used to.
   3. I get tired from doing anything.
   4. I get too tired to do anything.

R. 1. My appetite is no worse than usual.
   2. My appetite is not as good as it used to be.
   3. My appetite is much worse now.
   4. I have no appetite at all any more.

S. 1. I haven't lost much weight, if any, lately.
   2. I have lost more than 5 pounds.
   3. I have lost more than 10 pounds.
   4. I have lost more than 15 pounds.

T. 1. I am no more concerned about my health than usual.
   2. I am concerned about aches and pains or upset stomach or constipation or other unpleasant feelings in my body.
   3. I am so concerned with how I feel or what I feel that it's hard to think of much else.
   4. I am completely absorbed in what I feel.

U. 1. I have not noticed any recent change in my interest in sex.
   2. I am less interested in sex than I used to be.
   3. I am much less interested in sex now.
   4. I have lost interest in sex completely.
APPENDIX VIII
LEVENSON'S INTERNAL, CHANCE, AND POWERFUL OTHERS SCALE
For each question, circle the number that best describes you.

1. Whether or not I get to be a leader depends mostly on my ability.
   Disagree 1  2  3  4  5  6  Agree

2. To a great extent my life is controlled by accidental happenings.
   Disagree 1  2  3  4  5  6  Agree

3. I feel like what happens in my life is mostly determined by powerful people.
   Disagree 1  2  3  4  5  6  Agree

4. Whether or not I get into a car accident depends mostly on how good a driver I am.
   Disagree 1  2  3  4  5  6  Agree

5. When I make plans, I am almost certain to make them work.
   Disagree 1  2  3  4  5  6  Agree

6. Often there is no chance of protecting my personal interest from bad luck happenings.
   Disagree 1  2  3  4  5  6  Agree

7. When I get what I want, it's usually because I'm lucky.
   Disagree 1  2  3  4  5  6  Agree

8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.
   Disagree 1  2  3  4  5  6  Agree

9. How many friends I have depends on how nice a person I am.
   Disagree 1  2  3  4  5  6  Agree

10. I have often found that what is going to happen will happen.
    Disagree 1  2  3  4  5  6  Agree

11. My life is chiefly controlled by powerful others.
    Disagree 1  2  3  4  5  6  Agree
12. Whether or not I get into a car accident is mostly a matter of luck.

Disagree 1 2 3 4 5 6 Agree

13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.

Disagree 1 2 3 4 5 6 Agree

14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

Disagree 1 2 3 4 5 6 Agree

15. Getting what I want requires pleasing those people above me.

Disagree 1 2 3 4 5 6 Agree

16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.

Disagree 1 2 3 4 5 6 Agree

17. If important people were to decide they didn't like me, I probably wouldn't make many friends.

Disagree 1 2 3 4 5 6 Agree

18. I can pretty much determine what will happen in my life.

Disagree 1 2 3 4 5 6 Agree

19. I am usually able to protect my personal interests

Disagree 1 2 3 4 5 6 Agree

20. Whether or not I get into a car accident depends mostly on the other driver.

Disagree 1 2 3 4 5 6 Agree

21. When I get what I want, it's usually because I worked for it.

Disagree 1 2 3 4 5 6 Agree

22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.

Disagree 1 2 3 4 5 6 Agree
23. My life is determined by my own actions.
   Disagree 1  2  3  4  5  6 Agree

24. It's chiefly a matter of fate whether or not I have a few friends or many friends.
   Disagree 1  2  3  4  5  6 Agree
APPENDIX IX
Rotter's Internal-External Locus of Control Scale

Choose "a" or "b" for each item

1. a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.
   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
    b. Getting a good job depends mainly on being in the right place at the right time.
12.a. The average citizen can have an influence in government decisions.  
   b. This world is run by the few people in power, and there is not much the little guy can do about it.

13.a. When I make plans, I am almost certain that I can make them work.  
   b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14.a. There are certain people who are just no good.  
   b. There is some good in everybody.

15.a. In my case getting what I want has little or nothing to do with luck.  
   b. Many times we might just as well decide what to do by flipping a coin.

16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.  
   b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17.a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.  
   b. By taking an active part in political and social affairs the people can control world events.

18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings.  
   b. There really is no such thing as "luck."

19.a. One should always be willing to admit mistakes.  
   b. It is usually best to cover up one's mistakes.

20.a. It is hard to know whether or not a person really likes you.  
   b. How many friends you have depends upon how nice a person you are.

21.a. In the long run the bad things that happen to us are balanced by the good ones.  
   b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22.a. With enough effort we can wipe out political corruption.  
   b. It is difficult for people to have much control over the things politicians do in office.

23.a. Sometimes I can't understand how teachers arrive at the grades they give.  
   b. There is a direct connection between how hard I study and the grades I get.
24.a. A good leader expects people to decide for themselves what they should do.
   b. A good leader makes it clear to everybody what their jobs are.

25.a. Many times I feel that I have little influence over the things that happen to me.
   b. It is impossible for me to believe that chance or luck plays an important role in my life.

26.a. People are lonely because they don't try to be friendly.
   b. There's not much use in trying too hard to please people, if they like you, they like you.

27.a. There is too much emphasis on athletics in high school.
   b. Team sports are an excellent way to build character.

28.a. What happens to me is my own doing.
   b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29.a. Most of the time I can't understand why politicians behave the way they do.
   b. In the long run the people are responsible for bad government on a national as well as on a local level.
APPENDIX X
ZUNG SELF-RATING DEPRESSION INVENTORY

Circle one number for each item

None or a little of the time = 1.
Some of the time = 2.
Good part of the time = 3.
Most or all of the time = 4.

1. I feel down-hearted, blue and sad. 1 2 3 4
2. Morning is when I feel the best. 1 2 3 4
3. I have crying spells or feel like it. 1 2 3 4
4. I have trouble sleeping through the night. 1 2 3 4
5. I eat as much as I used to. 1 2 3 4
6. I enjoy looking at, talking to, and being with attractive women (or men). 1 2 3 4
7. I notice that I am losing weight. 1 2 3 4
8. I have trouble with constipation. 1 2 3 4
9. My heart beats faster than usual. 1 2 3 4
10. I get tired for no reason. 1 2 3 4
11. My mind is as clear as it used to be. 1 2 3 4
12. I find it easy to do the things I used to. 1 2 3 4
13. I am restless and can't keep still. 1 2 3 4
14. I feel hopeful about the future. 1 2 3 4
15. I am more irritable than usual. 1 2 3 4
16. I find it easy to make decisions. 1 2 3 4
17. I feel that I am useful and needed. 1 2 3 4
18. My life is pretty full. 1 2 3 4
19. I feel that others would be better off if I were dead. 1 2 3 4
20. I still enjoy the things I used to do. 1 2 3 4
VITA

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