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William W. Farquhar
Major professor

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SELF REPORTED SYMPTOMATOLOGY IN MAJOR DEPRESSIVE ILLNESS

By

Gregory Alan Holmes

A DISSERTATION

Submitted to
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ABSTRACT

SELF REPORTED SYMPTOMATOLOGY
IN MAJOR DEPRESSIVE ILLNESS

by

Gregory Alan Holmes

The purpose of the study was to determine whether or not a self rated instrument could differentiate between endogenous and non-endogenous depression. A 163 item test named the Differential Diagnostic Depression Scale (DDDS) was developed to measure 29 symptom categories associated with depression.

The DDDS was administered to a sample of 100 patients with a chief complaint of depression at a consortium of inpatient and outpatient psychiatric centers. The patients were diagnosed as endogenous or non-endogenous depression based on a combination of values from the Dexamethasone Suppression Test (DST) and Research Diagnostic Criteria (RDC).

Two approaches were used to construct scales from the DDDS items. In the a priori approach items were grouped into 25 scales based on content similarity. The internal consistency of the scales ranged from .57 to .88. A principal component solution was used in the second method of scale construction. Fifteen factors were extracted with internal consistency values that ranged from .32 to .92.

A discriminant analysis was used to construct a function that would best separate endogenous and non-endogenous depression for each approach.[21] ~~Thirty-five subjects from each group were randomly selected for the analysis phase.~~ The discriminant function constructed by the a priori approach, and the two empirical approach subscales correctly classified 87% of the ~~randomly selected groups.~~ The discriminant function constructed by the empirical approach correctly classified 79% of the randomly selected groups. Cross validation was attempted by using the discriminant functions to classify the 30 remaining individuals in the sample. The classification accuracy was 57% with the a priori discriminant function, and 43% with the empirical discriminant function.

A second discriminant analysis was conducted, using a select number of scales from both the a priori and empirical approach. The second discriminant function based on the a priori approach correctly classified 73% of the original seventy subjects, and 60% of the cross validation groups. The second discriminant function based on the empirical approach correctly classified 73% of the original seventy subjects and 57% of the cross validation groups.

DEDICATION

To Peggy May Anderson
and
in memory of
Nash Anderson

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CHAPTER 1

THE PROBLEM

The classification of major depressive disorders has been one of the most controversial and important areas of psychiatric research over the past six decades. Beginning with the early clinical observations of Freud and Kraepelin, researchers have sought to establish a classification system of depression that would aid clinicians in their understanding of the behavior, etiology, and treatment of the depressed patient. The impetus behind these research efforts is the urgent nature of the problem, which can be drawn from two observations. First, the risk of a given individual developing a major depressive disorder requiring professional intervention is alarmingly high. Recent research suggests that approximately 23% of all females and 10% of all males suffer from major depressive illness requiring professional intervention at least once during their lifetime (Keller, et. al., 1982). Secondly, if not properly diagnosed and treated, depression is often a debilitating and at times life threatening illness.

Several major advances in the neurosciences in recent years have significantly affected the diagnosis and treatment of depression and serve as a foundation for further research. A recent review of research attempts to establish valid and reliable criteria for a diagnostic system suggests that depressive disorders can be dichotomized into two groups based on the presence or absence of a

constellation of behavioral symptoms, biological markers, and treatment response (Nelson and Charney, 1981). The first group, generally referred to as endogenous depression or major depression with melancholia, is relatively autonomous to environmental change. Furthermore, it is more likely to have neurophysiological correlates, and is more responsive to biological intervention than non-endogenous depression. The second group, non-endogenous depression, is typically defined by the absence of the features mentioned for the endogenous group.

Two recent developments are of particular importance in attempts to distinguish endogenous from non-endogenous depression. First has been the discovery that in 50% of endogenous depressives the administration of dexamethasone failed to produce normal serum cortisol suppression. From this finding, the dexamethasone suppression test (DST) was developed. The dexamethasone suppression test has proven to be helpful in corroborating the diagnosis of endogenous depression when it is abnormal (positive), having a specificity of 95% (Carroll, et. al., 1981). The second development was the introduction of Research Diagnostic Criteria (RDC) for twenty-five major psychiatric disorders, including endogenous depression. Spitzer and his colleagues demonstrated that interviewers using the RDC were able to reliably distinguish endogenous from non-endogenous depression, with coefficients for agreement above .80 for both categories (Spitzer, et. al., 1978).

Need for the Study

A need exists for an additional method of differentiating endogenous and non-endogenous depression. The majority of research attempts to classify depressive disorders as either endogenous or non-endogenous used observer ratings of symptoms, rather than patient self ratings. Although self rating scales for depression exist, previous studies have shown that these scales are useful as indexes of severity of illness and do not differentiate between subtypes of depression (Rehm, 1976). A self rated scale that could reliably differentiate subtypes of depression would be of significant value both as a research instrument, and most importantly, as a relatively inexpensive technique for the diagnosis of depression.

Both the DST and RDC have limitations which interfere with their utility as diagnostic procedures for the routine clinical evaluation of depression. Although the DST has been found to be a relatively specific laboratory test, 33-50% of endogenous depressives have normal cortisol suppression after dexamethasone administration and are not detected by the test (Carroll, et. al., 1981). Additional drawbacks include the cost of the test and the necessity of having trained personnel to administer and analyze test results. The RDC are designed to be used in conjunction with an in-depth clinical interview which is both expensive and time consuming.

Purpose of the Study

The purpose of the research reported in the present study was to determine whether a patient self reported instrument could differentiate endogenous and non-endogenous depression.

Research Hypotheses

Gerald Klerman, in his review on research in depression, argues that the concept of endogenous depression embodies four component propositions, or hypotheses, that are testable through empirical investigation (Klerman, 1972). Klerman's four propositions are as follows:

1. Endogenous depression consists of a pattern of behavioral signs or symptoms that occur together at one point in time.

2. The short term episode of endogenous depression, as contrasted to non-endogenous depression, occurs without a recent precipitating event.

3. The premorbid personality pattern of the endogenous depression will be relatively stable and non-neurotic.

4. Endogenous depression will run an autonomous course, i.e., will not be reactive to environmental alteration.

In this study an empirical investigation of the first proposition was conducted. It was hypothesized that:

1. A self report measure designed to assess empirically supported constructs will differentiate between endogenous and non-endogenous depression.

2. A self report measure will yield interpretable constructs which will contribute to the understanding of the differences between endogenous and non-endogenous depression.

Theory

Although there has been a wealth of research over the past seventy years on the phenomena of depressive illness, there remains no clear consensus among investigators regarding the exact classification of such disorders (Kendell, 1976; Eysenck, 1970). Several conceptual and methodological problems interfered with attempts at establishing an accurate nosological system. A major problem was that symptoms

associated with depression, such as disturbance in mood, anxiety, and decreased concentration occur in a range of psychiatric conditions and are also part of the normal adaptation response (Klerman, 1972).

One of the fundamental conceptual issues in depression research is whether depression can be best explained by a unitary or binary model of classification. Proponents of the unitary model of depression argue that all depressive illness has basic underlying similarities, and that all observed clinical differences can be explained by severity of the illness (Klerman, 1972). In the unitary model distinct demarcations of subtypes of depression are seen as impossible.

In contrast, the binary, or pluralistic model of depression holds that it is possible to distinguish between at least two subtypes of depression, and that differences cannot be explained by severity alone (Rosenthal and Klerman, 1966). The two most frequent binary models referred to in the literature are the endogenous-reactive dichotomy and the psychotic-neurotic dichotomy. In the former, depressions can be subdivided based upon their reactivity to environmental change (Gillespie, 1929). The endogenous depression, once established, is thought to run an independent or "autonomous" course, i.e., be relatively unaffected by external stimuli. As such, these depressions are often thought to be of biological origin. On the other hand, reactive depressions are so named because of the relative responsiveness to external stimuli and are thought to originate as reactions to life stress.

In the psychotic-neurotic binary model, emphasis is placed on the presence or absence of psychotic symptoms in making the distinction between depressions (Kendell, 1976). Psychotic depressions are

characterized by symptoms such as hallucinations, delusions, and degree of ego regression, whereas neurotic depressions are defined by the absence of these psychotic symptoms. Unfortunately, as MacFadden (1963) noted, the labels and descriptive terms for both dichotomies have been used interchangeably by some researchers, contributing to confusing and conflicting research reports. For example, some researchers equated endogenous with psychotic depression, when in fact the phenomena can occur independent of one another (Andreasen and Grove, 1982). Similarly, the terms neurotic and reactive depression have been used interchangeably while research suggests the terms have different implicit and explicit meanings (Akiskal, et. al., 1978).

There are two research approaches that have been used to establish the validity of the binary, or pluralistic model of depression. One approach is by demonstrating that subtypes of depression exist, based upon differences in clinical features, or symptomatology. The second approach is to demonstrate that identified subtypes respond differentially to various treatment modalities, such as medication or psychotherapy. In this study, the former approach is used to study the differences in the self report of symptoms, as measured by the DDDS.

Overview of Remaining Chapters

In Chapter Two, the relevant literature is reviewed in the following areas: symptom differences, differential treatment response, and the efficacy of previous patient rated instruments. The research design and procedures are presented in Chapter Three. In Chapter Four, the analyses of the results are presented. Conclusions and recommendations for further research are presented in Chapter Five.

CHAPTER 2

REVIEW OF LITERATURE

In the following review, three areas of research are examined. First, a review of attempts at classifying depression based on symptom frequency is presented. Second, there is a brief summary of research on treatment response among subtypes of depression. In the final part of the review, there is a consideration of attempts of using patient rated instruments to measure subtypes of depression.

Symptom Frequency Studies

One of the earliest attempts at distinguishing between subtypes of depression was made by Freud (1956) in his monograph "Mourning and Melancholia." Freud felt that mourning was a normal response of an individual to the loss of a loved one, whereas melancholia was a pathological, or abnormal process. He believed that melancholia could be distinguished from the mourning process in that melancholia was associated with strong self reproach, whereas there was no loss of self esteem in mourning.

Another early attempt to classify depression was conducted by Kraepelin (1921) who also felt it was possible to distinguish a normal reaction of sadness from clinical depression. Based upon his clinical observations, Kraepelin subdivided clinical depression into two types - psychogenic depression, and manic depressive insanity. The major characteristics of the manic depressive group were that the attacks of

illness appeared to have no precipitant, and that the course of illness was "independent," or autonomous, from events that occurred during their hospitalization. Psychogenic depressions were believed to be precipitated by external circumstances and influenced by the milieu during the course of treatment.

Gillespie (1929) reported his clinical observations of a group of 25 depresed inpatients who were given physical and mental examinations. He found that their depressions could be differentiated according to degree of reactivity to external and internal stimuli. Two major groups were discovered: reactive and autonomous depressions, with the latter having a subgroup which was labeled as "involutional." The reactive depressions were primarily characterized by presence of a precipitant and their responsiveness during the course of treatment in the hospital. Approximately 90% had clearly identifiable events which were thought to precipitate the patients presenting problems. Furthermore, the reactive depression group was judged to be responsive to their physician or other variations in the hospital milieu, such as visits by family members, or staff changes. Gillespie observed that this group was also more responsive to everyday events such as changes in the weather.

The autonomous group was characterized by a lack of responsiveness to most of the events mentioned above. However, Gillespie was able to identify a precipitant for the majority of the patients in the autonomous group, and concluded that the distinctive feature of this group was the autonomous nature of the illness once the depression had been activated. Other characteristics of the autonomous group were increased "restless activity," feelings of remorse, frequent self

accusations, and a family history of psychoses. A small subgroup of the autonomous depressions were labeled as involutional, and exhibited a preponderance of hypochrondriacal concerns and poor insight.

Lewis (1938) challenged the early attempts at subdividing depression and claimed that depression could be classified according to severity alone. He stated that the manic depressive illnesses most likely represented an acute, severe depression, whereas the other clinical depressions were "...chronic, mild depressions." Most importantly, he argued that differences in symptoms could not be used in a meaningful way to separate subgroups.

There have been several attempts to discriminate endogenous from non-endogenous depressions using factor analysis of symptomatology. Hamilton and White (1959) used factor analysis on 17 clinical features in a group of 64 depressed male inpatients. Four factors were extracted which they interpreted as "retarded depression," "agitated depression," "anxiety reaction," and "psychopathic depression." The first factor was felt to represent an endogenous depression, and the symptoms with the highest loading on the factor were depressed mood, self reproach, psychomotor retardation, suicidal ideation, and loss of interest in activities.

Weckowicz, Cropley, and Muir (1971) attempted to replicate Hamilton's findings in a study of 52 depressed males on an inpatient unit in Canada. Four factors were found in the factor analysis. Comparison of the results with the Hamilton results indicated little similarity between the two sets of factors, and none of the factors resembled the "retarded depression" found in the earlier study. The authors suggested that the relatively small sample sizes in both

studies could be a major reason for the lack of agreement between the studies.

Kiloh and Garside (1963) conducted a factor analysis on 35 clinical features noted as present or absent in 143 cases of depressed outpatients. Two factors were extracted, the first of which was interpreted as a general factor; the second, a bipolar factor. The second factor was found to have a high correlation with the clinical diagnosis of endogenous or neurotic depression. The clinical features with the highest correlation with the diagnosis of endogenous depression were early awakening, morning worsening, distinct quality of mood, and psychomotor retardation. Neurotic depression was characterized by reactivity to the environment, presence of a precipitant, self pity, and variability of depressed mood. They argue that their results support the "...traditional dichotomy of depressive cases into neurotic and endogenous varieties..."

An attempt to replicate Kiloh and Garside's original study was conducted by Kiloh and his associates (1972) using 145 inpatients in Australia. Principal component analyses on the data from the original study and the replication produced two factors which were similar in nature. The first factor was a bipolar factor which the authors believed to be descriptive of endogenous depression. Unlike the first study, no general factor was discovered, and was thus considered to be an artifact of the analysis technique used in the first study. The second factor was thought to be descriptive of neurotic depression. Features associated with the endogenous factor were depth of depression, early awakening, psychomotor retardation, and quality of the

depression. The neurotic factor was characterized by reactivity, presence of a precipitant, duration, and inadequate personality.

The authors speculated that, whereas endogenous depression is likely to have the quality of a categorical illness due to the tendency for the scores to cluster together, neurotic depression was more likely to be a dimensional illness. Individuals with neurotic depression would not be expected to exhibit endogenous features, whereas individuals with endogenous depression may respond to their illness with neurotic behaviors.

McConaghy, Joffe, and Murphy (1967) attempted to replicate Kiloh and Garside's 1963 study. One hundred outpatients were evaluated for the presence or absence of 43 clinical features, 35 of which were included in the Kiloh and Garside study. Two factors were extracted, and the authors concluded that the factor loadings for each clinical feature did not indicate that either factor could differentiate neurotic from endogenous depression. Eight features, thought to be most representative of endogenous and neurotic depression were selected for factor analysis, and neither of the two factors that were extracted were associated with either type of depression.

The authors attributed the differences between their results and the Kiloh and Garside study to possible interviewer bias in Kiloh's study and different methods of patient selection. The interviewers in the Kiloh study were aware of the clinical diagnosis during the interview. Secondly, Kiloh and Garside performed their analysis on the third of their sample that they believed had "definite" diagnoses, whereas, the McConaghy study did not exclude patients from the analysis.

Rosenthal and Gudeman (1967) conducted a factor analysis of the clinical features of 100 female outpatients and inpatients and extracted a bipolar factor which they interpreted as endogenous. Symptoms with the highest loading on the factor were lack of reactivity, concentration difficulties, distinct quality of mood, psychomotor retardation or agitation, and midnight awakening. Symptoms with a negative loading on the factor were self pity and irritability.

Kay, Garside, Beamish, and Roy (1969) confirmed the existence of a bipolar factor in their study of 104 of inpatients selected retrospectively from hospital records for a five year follow-up study. Thirty-five features were rated as absent or present, based on the hospital records. Symptoms with negative signs on the factor were guilt, psychomotor retardation, severity of depression, hopelessness, suicidal behavior and nihilistic ideas. The authors concluded that this cluster was similar to the endogenous syndrome described by Hamilton and White (1959), Kiloh and Garside (1963), and Rosenthal and Gudeman (1967). However, it should be noted that the 104 patients represented 29% of the cases eligible for analysis, with 71% rejected due to diagnosis, incomplete data, or inability to contact the subject.

Garside, Kay, Wilson, Deaton, and Roth (1969) rated 269 depressed inpatients on the Depressive Category Type Scale, (DCTS), which was composed of 15 items believed to distinguish endogenous from neurotic depression. A principal component analysis was conducted and the distribution of the first component scores was calculated. Both the distribution of component scores and the sum of unweighted raw scores had a bimodal distribution, leading the authors to argue that the patients could be divided into an endogenous group and a second group

characterized by the absence of endogenous features. The features with the greatest weight on the first component were autonomous course, psychomotor retardation, distinct quality, good premorbid personality, and morning worsening.

Klein (1974) observed that most factor analytic studies have shown a bipolar factor that cannot be reduced to a severity factor alone. He suggests that research, in attempting to demonstrate a binary view of depression, has been handicapped by researchers using different definitions of endogenous depression. Klein notes some researchers believe endogenous depression refers primarily to a lack of a precipitant, whereas others use endogenous depression to refer to the lack of reactivity of the depression to environmental changes. He observes, as have others, that many so called endogenous depressions have been found to have a precipitant whereas others have not. He suggests using the term "endogenomorphic depression" to describe the symptom pattern traditionally associated with endogenous depression, as the term endogenomorphic does not necessarily imply a biological etiology. Furthermore, he believes that endogenomorphic depressions can then be subdivided into two types: endogenous depressions, and precipitated depressions with endogenous features. In making the distinction, Klein implies that the endogenous-reactive conceptualization of being polar opposites is incorrect, and that the two concepts are independent from one another.

Lewinsohn, Zeiss, Zeiss, and Haller (1977) conducted a factor analytic study that supported Klein's hypothesis that endogeneity and reactivity are independent dimensions. Three groups of depressed outpatients were assessed on 35 symptoms, and a separate factor for

endogeneity and reactivity was identified in all three samples. No bipolar factor was extracted, lending support to Klein's two dimensional model. Symptoms with the highest loading on the endogeneity factor were helplessness, self reproach, psychomotor retardation, lack of reactivity, loss of interest, and distinct quality of mood.

Daly and Cochran (1970) investigated the occurrence of clinical features in 241 white females admitted to the inpatient unit of a North Carolina Hospital. Individuals with a diagnosis of involutional melancholia were compared with all other diagnoses, based on the presence or absence of 31 clinical features. Eight of the 31 comparisons proved significant by chi square. Those individuals in the involutional group were more religious, compulsive, had fewer difficulties in their adult lives, were more likely to receive ECT, antidepressants, and supportive psychotherapy, and exhibited either psychomotor agitation or retardation. A second analysis compared subjects classified as endogenous depressives with those diagnosed as reactive depressives, and 18 comparisons were reported as significant. The endogenous group was described as more religious, less likely to abuse alcohol, and have fewer passive aggressive features or childhood and adult difficulties.

Matussek, Soldner, and Nagel (1981) attempted to confirm the existence of an endogenous syndrome by analyzing symptom frequency and using cluster analysis on the symptoms of 198 subjects who had been previously hospitalized for depression. The subjects were diagnosed as either endogenous or neurotic by Research Diagnostic Criteria. In comparing the symptom frequency between the two groups, the endogenous group was significantly related to eight symptoms: morning worsening,

lack of reactivity, short duration, distinct quality of mood, psychomotor retardation, indecisiveness, sudden onset, and delusions. The symptoms associated with neurotic depression were sadness and neuroticism.

The cluster analysis determined eight symptoms as being characteristic of the endogenous syndrome: distinct quality of mood, lack of reactivity, withdrawal from social contact, impulse inhibition, disturbance of the circadian rhythm, physiological disturbance (appetite or sleep), sudden onset, and absence of a precipitant. They conclude that it is possible to detect an endogenous syndrome by cluster analysis, and believe that the syndrome cannot be defined by the presence or absence of a single item. They suggest the presence of an "endogenous component" with varying levels of strength in all depressive illness.

Andreasen and Grove (1982) used cluster analysis to classify a sample of 275 depressed inpatients. One hundred and six symptoms were rated based on the results of a semi-structured interview. Information on course of illness, family history, and treatment variables were used to validate the clusters. Four groups were found as follows: a severely depressed group with endogenous features, a moderately depressed group, a bipolar group, and a depressed group with psychotic features.

The authors concluded that the results indicate that subtypes of depression exist and differ in terms of both severity of illness and profile of symptoms. They stated that depressive disorders are "...probably not a unitary and homogenous phenomena...", and that the

results were independent validation of the subtypes described by Research Diagnostic Criteria.

Feinberg and Carroll (1982) have recently reported a successful attempt at separating unipolar endogenous depression from non-endogenous depression using discriminant analysis. One hundred and sixty-five inpatients and outpatients were diagnosed as endogenous or nonendogenous based on material from the Schedule for Affective Disorders and Schizophrenia, clinical interviews, and response to treatment. Each patient was rated on several clinical and historical features, as well as the Hamilton Rating Scale. The ratings for all patients with an HRS score over 10 were used in a discriminant analysis in an attempt to validate clinical diagnosis. A discriminant function that separated the two depressed groups contained eight items: decreased appetite, guilt, presence of a precipitant, agitation, delusions, work and interests, retardation, and loss of pleasure. Eighty-four percent of the patients were classified correctly using the discriminant function.

Matussek and Luks (1981) found significant differences in the thematic content of endogenous and non-endogenous depressives. Fifty-three women with past episodes of depression were classified as having had endogenous or non-endogenous depression according to Research Diagnostic Criteria. Interviews were conducted with each subject to determine the themes, or concerns of the depression, and to determine whether or not the subject could see a connection between their illness and the contents mentioned. Three themes were reported more frequently in the non-endogenous group: concerns over separation from significant others, arguments or conflicts with other people, and self reproach.

Furthermore, endogenous patients more often found their depressive mood inexplicable, i.e., could not see the connection between their problems and mood. Matussek and Luks concluded that the endogenous depressive may be less capable of establishing and maintaining intensive emotional relationships.

Nelson and Charney (1980) evaluated the frequency of primary affective disorder in subjects with endogenous depression and reactive depression in an attempt to use that criteria to reliably distinguish between the two groups. One hundred and two inpatients were classified as endogenous or reactive depending upon their responsiveness to psychosocial aspects of hospitalization. Criteria for primary affective disorder were taken from Research Diagnostic Criteria, and the subjects were also rated on symptoms for the RDC subtype of endogenous depression. The composite primary affective disorder criteria defined a heterogenous group of patients, i.e., included a significant percentage of both endogenous and reactive depressions. However, significant differences were found between the two groups among individual symptoms, with agitation, retardation, self reproach, decreased concentration, and depressive delusions occurring more frequently in the endogenous group. The presence of a precipitant did not distinguish between the two groups.

Although many of the above investigations appear to support an endogenous/non-endogenous model of depression, there is less support for the psychotic-neurotic model. Akiskal and his associates (1978) conducted a four year prospective study in an effort to determine the homogeneity of patients that had been given the diagnosis of neurotic depression. During a four year follow-up period, 40% of the sample

were diagnosed as having a primary affective disorder, whereas 48% were diagnosed as a secondary affective disorder and 12% fit neither category. Furthermore, fully 70% of those diagnosed as having primary affective disorder exhibited endogenous features as defined by RDC.

The authors argued that the results support the conclusion that the term neurotic depression may no longer be useful as it refers to a heterogenous group of disorders. Secondly, since all of the subjects' depressions were precipitated by an event, they believed that it was not feasible to use precipitants as a criterion for subtypes of depressive disorders. Finally, the results supported Klein's concept of endogenomorphic depression as 36% of the sample developed depressions with endogenous features.

Klerman's study (1979) of depressed inpatients supports the finding that the diagnosis of neurotic depression lacks sufficient clarity to be used as a research classification. Klerman identified six criteria as forming the constellation of neurotic depression: mild severity, lack of psychotic features, presence of a precipitant, presence of longstanding maladaptive personality patterns, and the presence of unconscious conflicts. Ninety depressed patients with major affective disorder were diagnosed with the RDC to determine the degree of overlap between four of the above criteria. Only 17% of the sample met all four criteria, and the degree of overlap between any two symptoms varied between one-half and two-thirds. A second major finding from the study was that 37% of the patients with endogenous features had a clearly defined precipitant. Klerman concluded that the findings demonstrated that the multiple criteria for neurotic

depression defined different groups of patients and therefore were too vague for clinical and research use.

Kendell and Gourlay (1970) attempted to determine if psychotic depressives and neurotic depressives could be separated using discriminant analysis. One hundred and fifty features were gathered on 63 patients with depressive neurosis and 115 patients with the diagnosis of psychotic depression. Twenty-four of the 150 items discriminated between the two groups in a series of chi-square tests, and these items were then combined with an additional nine items for the discriminant analysis. Although most of the psychotic group had positive scores and most of the neurotic group had negative scores on the discriminant function, the distribution was not significant. Interestingly, Kendell and Gourlay found the overlap between the two groups to be smaller than a previous study they conducted (Kendell, 1968) and attribute this difference to more consistant diagnostic criteria and higher reliability of their data.

Several previous reviewers of the literature have concluded that there is considerable research support for a binary model of depression. In her review of the major statistically based classification studies, MacFadden (1963) cautioned against drawing generalizations from interstudy comparisons. She noted that often the reliability of clinical diagnosis in the studies was low and varied according to the setting in which it was conducted. Furthermore, she observed that considerable semantic differences existed in that investigators used such diagnostic labels as "endogenous" to describe different phenomena. However, MacFadden concluded that given these reservations, factor analytic, cluster analytic, and discriminant function studies all point

to the existance of a "...persistant, severe, 'endogenous' depression." On the other hand, she concludes that the evidence was less supportive for the existence of a "specific" neurotic or reactive depression, although several studies suggested the presence of two or more types.

In his review, Roth (1960) concluded that endogenous and neurotic depression can be differentiated according to specific symptoms and premorbid personality. He believed that in endogenous depression the affective change has a "...disproportionately severe depth and intensity" in relation to the precipitant, and that patients report a distinct quality of mood. Other outstanding features of endogenous depression were lack of responsiveness to environmental change, early morning awakening, psychomotor change, and delusions.

Eysenck (1970) emphatically stated in his review of the literature that the debate between proponents of a unitary model and binary model "...has been conclusively decided in favor of the binarians." Therefore, he has suggested that researchers should concern themselves with whether or not depression can best be explained by a categorical or dimensional model.

Kendell (1976) was far more reserved in his review. He noted that semantic differences made any comparison of studies difficult at best. In an awkward attempt to circumvent such differences, he discussed the literature in terms of support for two subtypes which he labeled "Type A" and "Type B". Type A depressions were considered to be severe depressions with the symptoms of diurnal variation, guilt, retardation, insomnia, and weight loss. Type B depressions were described as milder in severity and without the symptoms associated with Type A depressions.

Although Kendell felt that the controversy between the unitarians and binarians was not completely resolved, he did concede in the review that there was a need to separate the types and that most of the research supports the notion of Type A depression or syndrome. He believed there was much less agreement on what constituted the Type B syndrome.

Nelson and Charney (1981) concluded from their recent review of the literature that autonomous or endogenous depression could be differentiated from non-endogenous depression by the presence or absence of specific symptoms. Further, they suggested that there appeared to be two subtypes of endogenous depression, an anhedonic, retarded type and an agitated, delusional type. The symptoms with the greatest association with endogenous depression were psychomotor change, severity of depressed mood, lack of reactivity, depressive delusions, self reproach, and loss of interest. They believed that there was moderate research support for the association of the endogenous symptoms of distinct quality of mood, diurnal morning worsening, and difficulty concentrating. Sleep disturbance, weight loss, appetite disturbance, and suicidal thoughts were not found to be helpful in differentiating between subtypes of depression. Furthermore, they argued that the symptom differences may prove to be useful in the generation of valid diagnostic criteria, and propose that further research was needed to determine their reliability.

Treatment Response Studies

Several researchers have indicated support for a binary model of depression based on studies of response to treatment. Garney, Roth, and Garside (1965) examined the relationship between symptoms of

depression, clinical diagnosis, and response to electroconvulsive therapy (ECT). One hundred and twenty-nine inpatients who were referred for ECT were rated for the presence or absence of 35 clinical features, and followed for six months after ECT. A significantly higher percentage of patients diagnosed as endogenously depressed responded to ECT than those diagnosed as neurotic depressive. Three significant factors were found through factor analysis of the features: a bipolar factor, corresponding to endogenous and neurotic depression, a general factor, and a paranoid psychotic factor. High positive loadings of the bipolar factor were found for adequate premorbid personality, absence of a precipitant, distinct quality of mood, weight loss, body build, history of depression, early morning awakening, psychomotor change, somatic and paranoid delusions, and ideas of guilt. Negative loadings were found for the following symptoms: anxiety, morning worsening, self pity, and hysterical features. The authors considered these results verification of the hypothesis of two distinct depressed populations.

Raskin and his colleagues (1970) investigated the response of depressed subgroups to chlorpromazine, imiprimine, and placebo in a double blind study of 555 depressed inpatients. Three subgroups were formed based on initial diagnosis at the time of hospitalization: neurotic depressives, psychotic depressives, and schizophrenic depressives. Clinical status was evaluated prior to drug administration and at selected intervals thereafter. No difference in response to medication were found among neurotic depressives. Imiprimine was found to be more effective that either placebo or chlorpromazine in the

psychotic group. Raskin concluded that differential response supports distinguishing among depressive subgroups.

Indirect support for findings of differential treatment comes from the work of Gurney and his colleagues (1970). One hundred and fifty-four inpatients with primary affective disorder were assigned to two groups according to whether anxiety or depression was the predominant affect during a clinical interview. Response to treatment was measured at discharge and at a six month follow-up. Electroconvulsive therapy and tricyclic antidepressants were prescribed more frequently to the group with depression as the predominant state, whereas more sedatives and barbituates were prescribed to the anxiety group. In addition, the depressed group had a significantly better response rates to both ECT and tricyclic medication. The authors believe that the findings demonstrated the importance of separating affective disorders according to whether or not anxiety was the predominant symptom.

Overall and his associates (1966) investigated the relationship between symptoms and diagnosis during a study on the effects of medications on depressed subjects. Seventy-seven patients were classified on 16 symptom variables into three profile clusters through factor analysis. These three profiles were interpreted by the investigators as "anxious-tense depression," a "hostile depression," and a "retarded depression." The anxious-tense depression was thought to correspond with what has been called reactive, or neurotic depression, whereas the retarded depression corresponded with features typically seen in endogenous depression. Differential treatment response to medication was evaluated between the three groups, and the subjects with "anxious-tense" depression responded significantly better

to thioridazine, whereas the "retarded depression" group had significantly greater improvement to imiprimine. Overall suggests that depression can and should be subdivided according to the presenting profile of symptoms for treatment response.

Two reviews of treatment response studies indicate support for the notion of differential response of symptom groups to different treatment. Nelson and Charney (1981) concluded in their review that psychomotor retardation, loss of interest and emotional withdrawal predict response to tricyclic depressants. Bielski and Friedel (1976) concluded in their review of the literature on prediction of tricyclic response that anorexia, weight loss, and middle or late insomnia were most predictive of response to medication.

Self Report Measures

Although there appears to be a growing consensus among researchers that a binary, or pluristic model may best describe depressive disorders, questions remain as to how to best measure symptomatology. The majority of research has used interviewer ratings of symptoms rather than the self report of patients. Although several self rated measures of depression exist, Rehm (1976) found that few of the scales had psychometric data to support their use. Rehm concluded that the Beck Depression Inventory, MMPI, Zung Depression Scale, and Zubin Adjective Check List had the most psychometric support and are the most frequently used, however, each measured a limited range of depressive symptoms.

Hughes, O'Hara, and Rehm (1982) reviewed the most commonly used self rated instruments that are used to measure depression and found that many of the instruments were limited by the restricted content

they sample. They report that the Beck Depression Inventory emphasized the cognitive disturbance of the subject, whereas the Hamilton Rating Scale emphasized physiological correlates. The authors believe that self report questionnaires have several advantages over other measures of depression, including relative inexpense, ease of administration, and their ability to quantify subjective complaints. The disadvantage of self report questionnaires is that they are susceptible to cultural and subjective response bias. The authors concluded after comparing self report questionnaires to other techniques that no single class of instrument could be considered best and recommended combinations of instruments to establish clinical diagnosis.

One of the most frequently cited studies on the validity of self report scales was conducted by Prusoff, Klerman, and Paykel (1972). Two hundred depressed subjects were evaluated by interviewers using the Hamilton Rating Scale and a 110 item self report inventory. Evaluations were conducted at the time of hospitalization with correlations ranging from .11 to .63. At follow-up the correlations were somewhat higher, ranging from .34 to .74. Correlations for severity were .83. The authors suggested that whereas self report assessments may be helpful in measuring the presence or absence of symptoms, they cannot be used to measure severity of illness during the acute episode.

Although the Prusoff study has been cited by some as evidence for the limited usefulness of self report measures, there are several methodological flaws in their study, some of which they frankly acknowledge. One important flaw was that the instruments differed in content, and the wording for various symptoms areas was different. Secondly, two different raters were used at time of admission and

follow-up, and no data is presented on inter-rater reliability. Finally, only the data from 67% of the sample was reported as fully one-third of the sample did not participate at follow-up.

Feinberg and his associates (1981) reported a higher concordance rate when similar instruments were used by subjects and raters. Comparisons were reported between scores on the Hamilton Rating Scale and the Carroll Rating Scale, a self rated version of Hamilton. Correlations of .75 were found between the total scores on a sample of 198 depressed outpatients. Furthermore, Feinberg's group reported differences in the correlation coefficients between subtypes of depressed subjects, with those patients diagnosed as unipolar depression having a correlation of .83, bipolar depression with a correlation of .75, and non-endogenous depression of .66. The authors suggested that patients with non-endogenous depression may report more symptoms than are rated by clinicians.

Summary and Conclusions

Several conclusions can be drawn from the preceding review of the literature. As MacFadden (1963), Kendell (1976), and Nelson and Charney (1981) have noted previously, considerable differences do exist among the earlier studies in sample composition, definition of key clinical diagnostic terms, and symptoms included. However, the clear majority of the previous studies lend support to the conclusion that depression can best be explained and treated by using a binary, or pluralistic paradigm. The twenty-two major studies reviewed in this chapter are presented in Table 2-1. Only three of these studies failed to support a binary model of depression.

Table 2-1

Summary of Symptoms
Associated with Endogenous Depression

Author(s)	Year	Symptoms
1. Freud	1917	Self reproach
2. Kraepelin	1921	Lack of precipitant, autonomous course
3. Gillespie	1929	Lack of reactivity, psychomotor agitation, self reproach, family history of psychoses.
4. Lewis	1938	No qualitative difference.
5. Hamilton and White	1959	Severity of mood, self reproach, psychomotor agitation, suicidal ideation, loss of interest.
6. Kiloh and Garside	1963	Early awakening, diurnal variation, quality of mood, psychomotor retardation.
7. Garney, et. al.	1965	Premorbid personality, absence of precipitant, distinct quality of mood, weight loss, body type, family history, early morning awakening, psychomotor change, delusions, self reproach.
8. Overall, et. al.	1966	Responsiveness to imiprimine.
9. McConaghy, et. al.	1967	None.
10. Rosenthal and Gudeman	1967	Lack of reactivity, poor concentration, distinct quality of mood, psychomotor agitation or retardation, midnight awakening.
11. Garside, et. al.	1969	Autonomous course, psychomotor retardation, quality of mood, premorbid personality, diurnal variation.
12. Kay, et. al.	1969	Guilt, psychomotor retardation, severity, hopelessness, suicidal behavior, nihilistic ideation.

13.	Daly and Cochrane	1970	Religious behavior, compulsive, psychomotor agitation or retardation.
14.	Gurney, et. al.	1970	Responsiveness to ECT and tricyclic medication.
15.	Raskin, et. al.	1970	Responsiveness to imiprimine.
16.	Weckowicz, et. al.	1971	None.
17.	Kiloh, et. al.	1972	Severity of depression, early awakening, psychomotor retardation, quality of mood.
18.	Lewinsohn, et. al.	1977	Helplessness, self reproach, psychomotor retardation, lack of reactivity, loss of interest, distinct quality of mood.
19.	Nelson and Charney	1980	Psychomotor agitation or retardation, self reproach, decreased concentration, delusions.
20.	Matussek, et. al.	1981	Distinct quality of mood, lack of reactivity, social withdrawal, impulse inhibition, sleep and appetite disturbance, sudden onset, lack of precipitant.
21.	Matussek and Luks	1981	Loss of insight.
22.	Andreasen and Grove	1982	Insomnia, loss of appetite, loss of interest, psychomotor agitation, lack of reactivity.

The frequency of the association of endogenous depression with specific symptoms is summarized in Table 2-2. Psychomotor disturbance was the most frequently reported symptom, appearing in 12 of the 22 studies reviewed. Other frequently reported symptoms were automous course, self reproach, distinct quality of mood, and middle or late insomnia. Symptoms that were reported relatively infrequently as distinguishing endogenous from non-endogenous depression included sudden onset, withdrawal, suicidal ideation or behavior, family history, appetite disturbance and diurnal variation. Finally, responsiveness to tricyclic medication and ECT appears to be more characteristic of endogenous depression than non-endogenous depression.

Although self rated measures for depression exist, they do not appear to have been successful thus far in attempts to differentiate endogenous from non-endogenous depression. A major reason for this failure is undoubtedly due to the fact that the scales were developed as measures of severity, and not intended or designed to differentiate among subtypes. A second reason is the limited range of symptoms covered by each instrument. Although there remains some question about the validity of using patient's accounts of their symptomatology, interest in developing a self rated scale remains strong due to relative inexpense, ease of administration and their ability to quantify feelings of the patient.

Table 2-2

Frequency of Citations for Symptoms
Associated with Endogenous Depression

	Symptom	Number of Literature Citations*
1.	Psychomotor Change	12
2.	Autonomous Course	7
3.	Self Reproach	7
4.	Distinct Quality of Mood	7
5.	Insomnia (Middle or Terminal)	6
6.	Lack of Precipitants	3
7.	Loss of Interest	3
8.	Severity of Mood	3
9.	Decreased Concentration	2
10.	Delusions	2
11.	Diurnal Variation	2
12.	Decreased Appetite	2
13.	Family History	2
14.	Premorbid Personality	2
15.	Suicidal Ideation or Behavior	2
16.	Pessimism	2
17.	Body Type	1
18.	Obsessions/Compulsions	1
19.	Impulse Inhibition	1
20.	Loss of Insight	1
21.	Social Withdrawal	1
22.	Sudden Onset	1

*Twenty-two principal investigations were reviewed.

CHAPTER 3

METHODOLOGY OF THE STUDY

In Chapter Three, the development of the Differential Diagnostic Depression Scale (DDDS) is described. The sample, design, item selection criteria, and the analytic procedures used in the study are also presented.

Description of the Development of the DDDS

A review of the relevant research, presented in Chapter Two, was conducted by the author to identify symptom patterns which had been associated with depression. Particular interest was paid to those symptoms that were believed to differentiate endogenous and non-endogenous depression. A research team consisting of a Ph.D. counseling psychologist and eight doctoral level counseling psychology students generated a pool of 141 items designed to measure the symptoms identified in the literature.

The process of item generation, editing, and selection was designed to maximize content validity. Only those items which were consensually validated by all members of the research team were included in the final item pool. As an additional check to ensure the content validity of the items, the questionnaire was reviewed by a psychiatrist who had considerable clinical and research experience in the field of the diagnosis and treatment of depression. The result of this collaborative effort was the Differential Diagnostic Depression

Scale (DDDS) which was designed to measure, through self report, depressive symptomatology (Farquhar, Holmes, and Azar, 1982). A summary of the symptoms and number of associated items may be found in Table 3-1.

In addition to items from the twenty-nine symptom categories, twenty items from a modified version of the Crowne-Marlowe Social Desirability Scale (Crowne and Marlowe, 1964) were included in the construction of the DDDS. These items were included to permit future research of the relationship between response to the symptom category items and social desirability. Twenty items were randomly selected from the Modified Crowne-Marlowe Scale and included as every eighth item on the DDDS. The following are examples of such items: "I can remember playing sick to get out of something," and "I am careful about my manner of dress."

The DDDS had 161 items in the completed form, representing the twenty-nine symptom categories listed in Table 3-1 and the items from the Modified Crowne-Marlowe Social Desirability Scale. The distribution of items per symptom category is also listed in Table 3-1. The 141 symptom items were randomly ordered for presentation in the questionnaire. The subjects were asked to respond to each item on a four point Likert-type scale ranging from "Definitely True of Me" through "Definitely Not True of Me." The complete questionnaire is attached as Appendix A. The first page of the DDDS consisted of a fact sheet which was used to gather information about demographics of the sample.

Table 3-1

Symptom Categories
Represented on the DDDS

Category	Number of Items
1. Psychomotor Change	10
2. Autonomous Course	5
3. Self Reproach	9
4. Distinct Quality of Mood	1
5. Insomnia (Middle or Terminal)	4
6. Lack of Precipitants	2
7. Loss of Interest	6
8. Severity	6
9. Decreased Concentration	4
10. Delusions/Hallucinations	8
11. Diurnal Variation	5
12. Decreased Appetite	3
13. Family History	4
14. Suicidal Ideation or Behavior	5
15. Pessimism/Hopelessness	4
16. Obsessions/Compulsions	3
17. Impulse Inhibition	6
18. Social Withdrawal	10
19. Sudden Onset	3
20. Anxiety	3
21. Crying	5
22. Memory Loss	3
23. Responsibility	7
24. Somatic Complaints	15
25. Length of Illness	1
26. Irritability	2
27. Fear	3
28. Sadness	3
29. Indecisiveness	2

Sample

The sample of the study consisted of two groups: individuals with a diagnosis of probable or definite endogenous depression (n=50) and individuals with a diagnosis of non-endogenous depression (n=50). Sample selection criteria and diagnostic procedures for the two groups is presented in detail in the next section.

The demographic information for both groups is presented in Tables 3-2 through 3-9. The mean age of the non-endogenous group and endogenous group was 35.54 and 41.82, respectively. The majority of both depressed groups were Caucasian with a small percentage of Asians and Blacks (see Table 3-3). A significantly greater proportion of the endogenous group were female ($p<.05$, see Table 3-4). The majority of both groups were married, had been married only once, and had between one and two children in their families (see Tables 3-5 to 3-7). Both groups ranged in income from below $4,000 to over $40,000, and the majority of both groups had at least high school educations (see Tables 3-8 and 3-9).

Procedures

Subjects in the study were recruited following their admission to the inpatient psychiatric unit at Ingham Medical Center, Lansing, Michigan, or after their intake at a consortium of Lansing area outpatient psychiatric clinics. The outpatient clinics included the Affective Disorders Clinic at Michigan State University; Eaton Counseling Center, Charlotte, Michigan; and the Ingham County Mental Health Center, Lansing, Michigan.

Table 3-2

Age of Respondents

	Endogenous	Non-Endogenous
Mean	41.82	35.54
Median	39	33
Standard Deviation	6.45	5.93

Table 3-3

Race of Respondents

	Endogenous	Non-Endogenous
Race	Percent	Percent
Asian	4	0
Black	4	4
Caucasian	88	92
Other	4	4

Table 3-4

Sex of Respondents*

	Endogenous	Non-Endogenous
Sex	Percent	Percent
Female	76	56
Male	22	44
No Response	2	0

*$p < .05$

Table 3-5

Marital Status of Respondents

	Endogenous	Non-Endogenous
Category	Percent	Percent
Single	28	26
Married	40	46
Living Together	8	4
Widowed	2	0
Divorced	16	20
Separated	2	2
No Response	4	2

Table 3-6

Respondent's Number of Marriages

	Endogenous	Non-Endogenous
Category	Percent	Percent
None	38	42
One	34	48
Two	24	10
Three	2	0
No Response	2	0

Table 3-7

Respondent's Number & Age of Children

	Endogenous	Non-Endogenous
Category	Mean	Mean
Number	1.7	1.2
Age of Youngest Child	7.22	5.98
Age of Oldest Child	11.84	7.64

Table 3-8

Income of Respondents

	Endogenous	Non-Endogenous
Category	Percent	Percent
Under $4,000	18	20
$4,000-$6,000	16	4
$6,000-$10,000	6	6
$10,000-$15,000	10	16
$15,000-$20,000	8	10
$20,000-$25,000	14	14
$25,000-$30,000	10	14
$30,000-$40,000	8	6
Over $40,000	6	6
No Response	4	2

Table 3-9

Education of Respondents

	Endogenous	Non-Endogenous
Category	Percent	Percent
Grade School	4	0
Junior High	0	2
High School	58	36
Trade School	12	10
Associate's Degree	10	0
Bachelor's Degree	6	18
Master's Degree	8	22
Doctoral Degree	0	8
No Response	2	4

Inclusion Criteria

The subjects were selected for the study if, during the initial screening or intake, they presented with subjective complaints of depression, dysphoria, or experienced a loss of interest or pleasure in their usual activities. Patients did not qualify for inclusion in the study if depression was suspected by the clinician but denied by the patient. The subjects were between the ages of 18 and 65 and free of medical illnesses that may have invalidated the results of their dexamethasone suppression test described below. Subjects were also excluded if their depression was secondary to other psychiatric illnesses. The medical and psychiatric exclusions criteria are listed in Figure 3-1.

During the admission or intake procedure, or as soon as it was deemed clinically appropriate by the hospital or clinic staff, those patients who qualified for inclusion were informed by the staff about the nature of the study and asked if they would be willing to participate. At that time, they were told that their decision to participate would not influence the treatment that they would receive. If they were willing to participate, a consent form was obtained for each subject (see Appendix B).

After subjects signed their informed consent to participate, three procedures were followed. First, each subject was asked to complete the DDDS. After the completion of the DDDS, each subject was given a semi-structured interview, the Schedule for Affective Disorders and Schizophrenia (Endicott and Spitzer, 1978). The diagnosis of endogenous or non-endogenous depression was made based on the results of the interview, using Research Diagnostic Criteria (Spitzer and Endicott,

Figure 3-1

Psychiatric and Medical Exclusion Criteria

Psychiatric

1. Schizophrenia
2. Bipolar Depression
3. Organic Brain Syndrome
4. Alcoholism
5. Anorexia Nervosa

Medical*

1. Pregnancy, high dose estrogen therapy other than oral contraceptives.
2. Cushing's disease or syndrome
3. Severe weight loss where body weight <80% of ideal weight
4. Hepatic enzyme induction (phenytoin sodium, barbituates, mepro-bamate)
5. Uncontrolled diabetes mellitus (hypoglycemia, acidosis)
6. Major physical illness; trauma; fever; dehydration; nausea
7. Temporal lobe epilepsy; use of reserpine or narcotics
8. Addison's disease
9. Corticosteroid therapy
10. Hypopituitarism
11. High dose benzodiazepines (>25mg/day of diazepam)
12. Other endocrine disease
13. Spironolactone therapy

*Adapted from B.J. Carroll, et. al. A Specific Laboratory Test for the Diagnosis of Melancholia. Archives of General Psychiatry, 1981, 38, 15-22.

1978). Finally, each subject was given the Dexamethasone Suppression Test (DST), a laboratory test for blood plasma cortisol level. If the subject was on an inpatient unit, 1 mg. of dexamethasone was administered at 11:00 p.m. by unit staff. Blood samples were then drawn by hospital staff at 4:00 p.m. the following day. If the subject was an outpatient, they were given the dexamethasone for self administration and instructed to return to the clinic or a designated laboratory for the blood sampling the following day at 4:00 p.m. Although Carroll (1982) reports a higher sensitivity with the DST if blood is drawn more frequently, the 4:00 p.m. blood draw was used for practical considerations.

Rater Training

The interviewer/raters for this study consisted of seven doctoral students in a psychology program who were part of a research seminar on depression. The training materials and two stage procedure used in the study were drawn from a training program specifically developed for the RDC by Gibbon and her colleagues (1981). First, the raters were asked to read the RDC as well as articles which described development and clinical use of the instrument (Endicott and Spitzer, 1978; Spitzer, Endicott, Robins, 1978). The raters discussed the instruments and resolved differences in interpretation of the diagnostic criteria.

In the second stage of training, 14 written case vignettes were rated by each participant to gain experience in using the RDC. The vignettes, abstracted from actual patient records, included chief complaint, history of present illness, a review of past psychiatric history, and description of findings from a mental status examination.

The raters independently rated the case vignettes. After

completing each vignette they compared their ratings with a key. The keys consisted of consensus ratings by three experienced raters. The keys were supplied with the vignettes by the developers of the training program (Gibbon, et. al. 1981). For this study, each rater was encouraged to discuss the rationale of the rating of the vignettes in a group format.

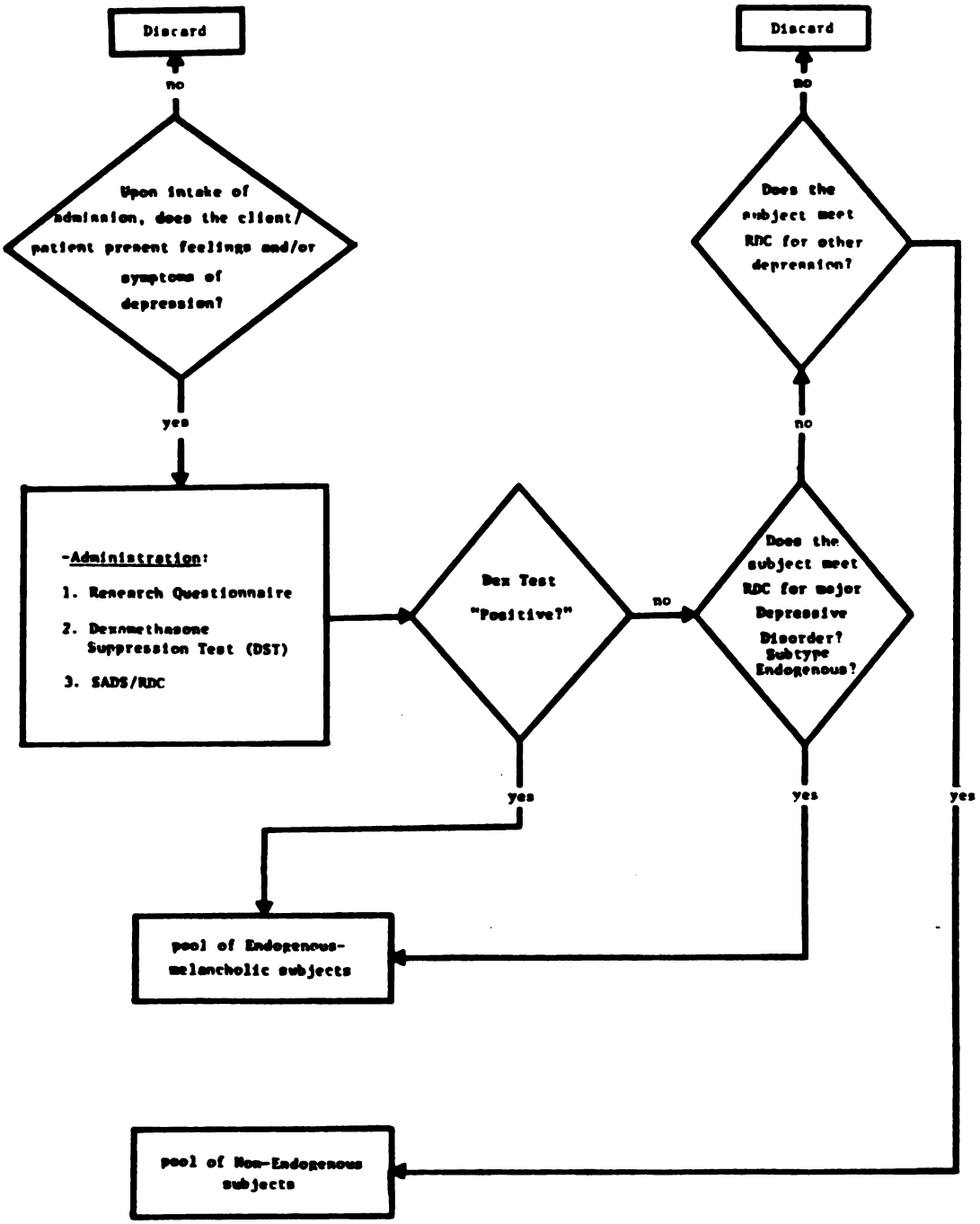
Following the training procedures each person rated seven additional written case vignettes using the RDC. In addition, raters were asked to rate two patient videotaped interviews using the RDC criteria.

A two-way analysis of variance was used to compare the responses of the raters on each diagnostic category across the nine test cases. An intraclass correlation coefficient of .97 was obtained for major depressive disorder, endogenous subtype.

Classification Procedures

For the purpose of analysis, depressed subjects were designated as endogenous or non-endogenous according to the flow chart presented as Figure 3-2. Subjects with a positive, or abnormal Dexamethasone Suppression Test (>5mg/dl) were classified as endogenous depressions. Those with negative or normal ($\leq$5mg/dl) were classified according to their RDC diagnosis. The Dexamethasone Suppression Test has been demonstrated to be a highly specific biological marker for endogenous depression, with a specificity rate of 96% (Carroll, et. al., 1981). Individuals with a research diagnosis of "Major Depressive Disorder, Probable or Definite Endogenous" subtype were classified as endogenous depressions. All other research diagnoses for depression were classified as non-endogenous depressions.

Figure 3-2
Diagnostic Classification of Patients



Design

The design for the study was essentially correlational. Scales on the DDDS were formed by two methods of item selection: an "a priori" method and an "empirical" method. In the a priori method, scales were constructed by grouping items with similar content together. Items were then eliminated from each scale if they decreased the internal consistency of the scale. In the empirical method, items were first grouped into scales based on their highest loading on factors extracted by principal components analysis, which is correlational in nature. Both methods of item selection were compared by computation of a discriminant function, which is also correlational in nature.

Research Hypotheses

The main hypotheses for the study were as follows:

1. A self report instrument formed by the a priori method will differentiate between endogenous and non-endogenous depression.

2. A self report instrument constructed by the empirical method will differentiate between endogenous and non-endogenous depression.

3. Differences between endogenous and non-endogenous depression found through hypotheses #1 and #2 will lead to interpretable constructs about the nature of endogenous and non-endogenous depression.

Analysis Procedures

A flow chart of the analytic procedures is presented as Figure 3-3. The first activity consisted of examining the item endorsement level to ensure that the endorsement rate for each item was within an acceptable range. Items with an endorsement level below .05 or above .95 were to be withheld from further analyses. The rationale for

Figure 3-3
Analytic Procedures For DDDS.

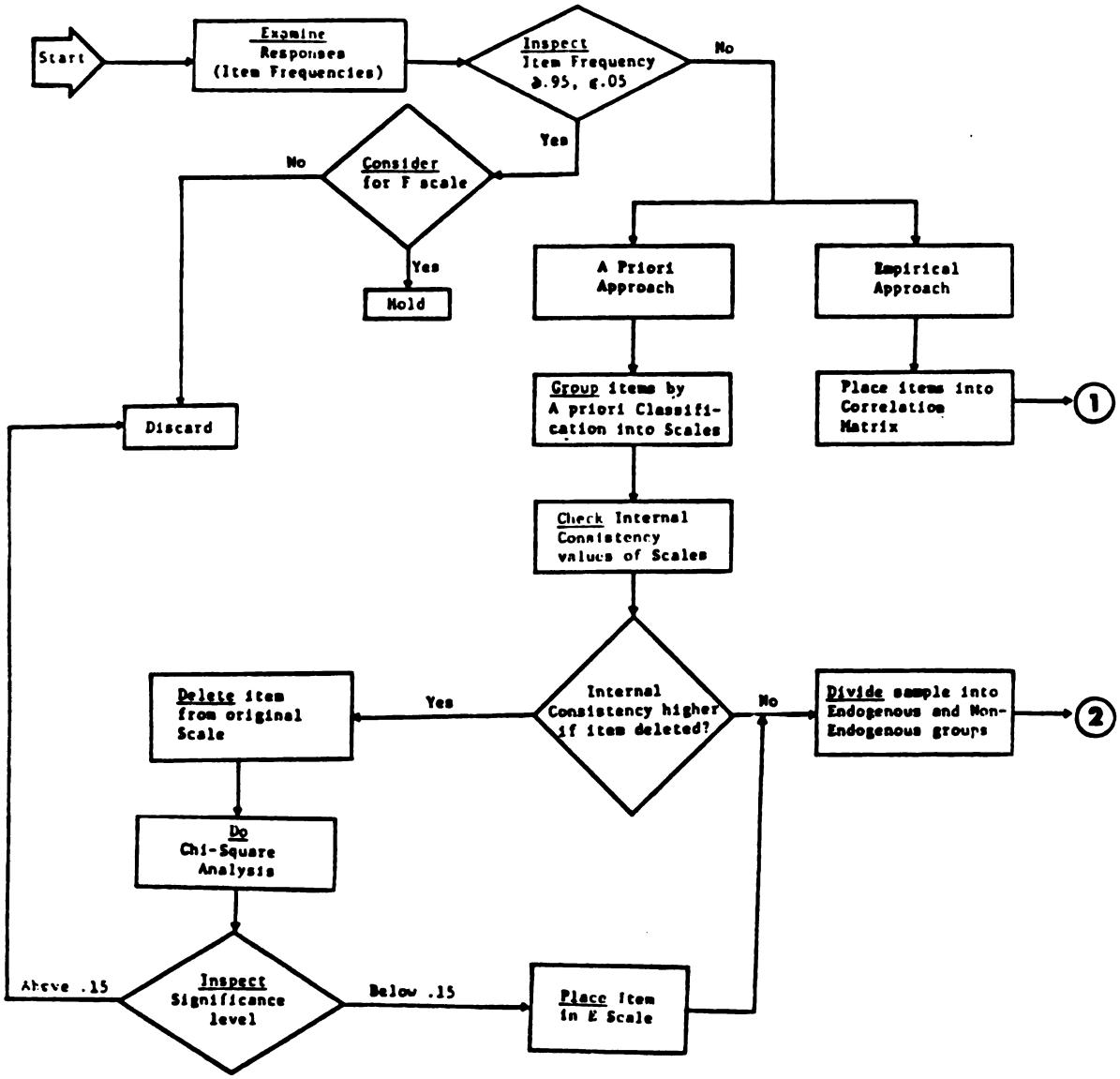
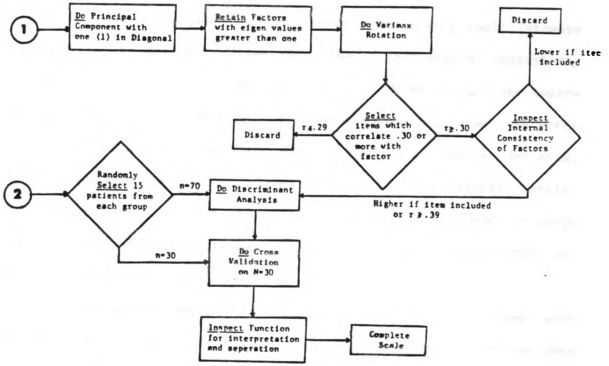


Figure 3-3 (cont'd)



withholding these items was that they would have little variance and would not contribute to the discrimination of types of depression.

After screening all items for endorsement level, two alternate strategies were followed for selecting items to be used in the construction of scales. In the first approach items were grouped into scales based on an a priori examination of item content. After this grouping, the internal consistency of each of the scales was calculated by the use of coefficient alpha. Each item in a given scale was examined to determine whether the internal consistency would increase if the item was deleted. Items that lowered the internal consistency of the scale were removed from that scale. A three by four chi square was used to analyze each item. Respondents were separated into three diagnostic groups based on their RDC diagnosis of probable, definite, or nonendogenous depression. Items that lowered the internal consistency of a given scale but were significant at the .15 level or below in the chi square analysis were removed from the original scale and placed in a general scale labeled as endogenous, or E Scale.

In the second approach to scale construction, all items were placed in a correlation matrix and a principal factor solution was done without communalities in the diagonals. The principal factor solution was used to examine the relationship among items and to find out how the item responses related to one another. A varimax rotation was used following the principal factor solution. This procedure maximizes the within factor loading for each item. Only those factors with a sum of squares (eigenvalue) in excess of one were rotated. Items that did not load higher than .30 on any of the rotated factors were withheld from further analyses. The internal consistency of each factor was computed

with coefficient alpha, and items that lowered the reliability of a given factor and did not load higher than .39 were withheld from further analyses. However, some of these items were retained as part of the scale in an attempt to create an equal number of items as the a priori approach.

After the research scales were constructed by the two approaches, the scales were used in a discriminant analysis in an attempt to find a combination of scales that would best discriminate between the two groups. Thirty-five subjects from each diagnostic group were randomly selected for the discriminant analysis and fifteen subjects from each group were withheld for puroses of cross validation. The discriminant analysis was used to compare actual versus predicted group membership for each of the two diagnostic categories. The percentage of correct classification for known groups was compared for the a priori and the empirical method. The discriminant function derived from the analysis phase was used for both methods to predict the group membership for those subjects withheld for cross validation.

A second discriminant function was constructed for each approach using those scales identified in the literature as the best predictors of endogenous depression. The discriminant analysis was conducted on the seventy subjects identified above, and cross validated on the group of thirty individuals withheld for that purpose.

Finally, the individual items that discriminated between the diagnostic groups placed in a separate scale. The group means on the scale were compared for the seventy randomly selected subjects. A second comparison of group means was conducted for the two cross validation groups.

Summary

The literature on endogenous and non-endogenous depression was examined for symptom categories of each type of depression. A research team generated 141 items that were believed to match the content of those categories. The items were combined with twenty items from the Modified Crowne-Marlowe Scale, and the resultant instrument was named the Differential Diagnostic Depression Scale (DDDS). A sample of 100 depressed individuals was obtained through a consortium of inpatient and outpatient psychiatric centers. The DDDS was administered to each subject as well as the Dexamethasone Suppression Test (DST) and the Schedule for Affective Disorders and Schizophrenia (SADS). Individuals were diagnosed as endogenous or non-endogenous depression based on a combination of Dexamethasone Suppression Test values and Research Diagnostic Criteria (RDC).

In the data analysis, two approaches were used to construct scales from individual items. In the a priori approach, items were grouped in scales prior to analysis based upon similarity in content. The internal consistency for each scale was calculated, and items were deleted if they lowered the reliability of the scale. A chi square analysis was done on all of the DDDS items. Items that discriminated at the .05 level or below were retained in a general scale. In the second approach to the construction of scales, a principal component solution was used on all items. Factors were extracted until the sum of squares (eigenvalue) was less than 1.0 or the factor was not interpretable. The internal consistency of each of the factors was determined, and items were deleted that lowered the reliability and had

factor loadings of less than .39. Some of the a priori scales were omitted to ensure an equal number of items in each approach.

After the two methods were used to construct two separate sets of scales, a discriminant analysis was used to find a discriminant function which would accurately classify the depressed groups. The accuracy of each method was calculated to compare the efficiency of the two procedures. A second discriminant analysis was conducted using a select number of scales for each approach. Finally, individual items that discriminated between endogenous and nonendogenous items were placed in a scale and a comparison of group means was conducted.

CHAPTER FOUR

Results of the Data Analysis

In Chapter Four, the results of the tests of each of the criteria for item selection as well as the major hypotheses are presented. The results of the tests for item selection for both the a priori and empirical method are presented in the first section, with emphasis placed on the items that were retained or withheld from further analysis. The results from the discriminant analyses for both approaches are presented in the second section.

Item Endorsement Level

The distribution of responses for each item was examined to determine the item endorsement level. The rationale behind this examination was that items that were endorsed in one direction by a large proportion of the sample would have little variance. None of the responses to the individual items had an endorsement level that exceeded .95. All items, with the exception of the social desirability items, were retained for further analysis. The social desirability items were held for future research efforts.

A Priori Scale Construction

In the a priori method of item selection, items were grouped in scales according to content similarity (See Table 3-1). The internal consistency of each scale was computed using Cronbach's alpha

coefficient. If the internal consistency increased when an item was eliminated it was removed from the scale. All items were also screened by chi-square analysis. Items that lowered a scale internal consistency but were significant at the .15 level or below were removed from the original scale and placed in a heterogenous scale labeled endogenous or E Scale.

Fifteen items decreased the internal consistency of the original scales and were not signficant at the .15 level or below. These items are listed in Appendix C with the respective alpha coefficients of their original scale. Ten additional items were found to lower the internal consistency of their original scale if included and were significant at the .15 level or below. These items were removed from their original scale and placed in the E Scale and are listed in Appendix D.

Following the examination of the internal consistency and chi-square tests, 12 additional items were withheld from further analysis in order to match the number of items generated by the empirical approach to item selection. This was done to ensure an equal number of items for both approaches for the discriminant analysis. The 12 items were nested in four scales and are listed in Appendix E. The criteria for the elimination of these items was that: 1) none of the items were significant at the .15 level or below; and, 2) none of the four scales (sadness, fear, indecision, and social withdrawal) had prior research support as good discriminators of subtypes of depression.

After the 27 items were deleted, 114 items remained for further analysis. The retained items are listed by their respective scale in

Table 4-1. Alpha levels are included for 21 of the 25 a priori scales. The reliabilities ranged from .57 to .88. The alpha level was not computed for four of the scales due to the SPSS program limitation that each scale have at least three items. A correlation matrix for the 25 scales is presented as Appendix F.

Empirical Scale Construction

In the empirical approach of scale construction, all DDDS items except for the social desirability items were placed in a correlation matrix. A principal factor solution was done without communalities in the diagonals. A varimax rotation was executed for factors with an eigenvalue greater than one.

Fifteen interpretable factors were extracted from the above analysis as follows: Factor 1: General; Factor 2: Self Reproach; Factor 3: Suicidal Ideation and Behavior; Factor 4: Agitation; Factor 5: Anorexia and Weight Loss; Factor 6: Dependency; Factor 7: Interpersonal Dissatisfaction; Factor 8: Memory Impairment; Factor 9: Crying; Factor 10: Body Integrity; Factor 11: Delusions and Hallucinations; Factor 12: Pessimism; Factor 13: Loss of Energy; Factor 14: History; Factor 15: Diurnal Variation and Somatic Anxiety. Eighteen of the items had low loadings on the 15 factors (below .30) and were withheld from further analysis.

The internal consistency for the retained items on each factor was computed using the Cronbach alpha coefficient. Nine items were found to lower the internal consistency of a factor and had factor loadings less than .39. These nine items were withheld from further analysis and can be found in Appendix G. The internal consistency of the factors ranged between .31 to .92.

Table 4-1

Scales Determined by
the A Priori Approach

SCALE 1	ANXIETY; Reliability = .75
Item #	
86	As the days pass, I seem to get more nervous.
100	Sometimes I get so nervous, I panic.
153	I feel tense.
Scale 2	CRYING; Reliability = .82
Item #	
31	I continue to cry over the event that caused my depression.
51	I seem to cry for no reason at all.
89	I'm really tired of crying.
109	I can't cry even when I feel like it.
Scale 3	CONCENTRATION; Reliability = .83
Item #	
37	I can't seem to keep my mind on one thing.
39	I can't concentrate.
131	I can hardly think at all.
Scale 4	DELUSIONS/HALLUCINATIONS; Reliability = .71
Item #	
19	I hear things that other people don't hear.
52	I feel as if things are not real.
103	I have felt that people have been making me do things by controlling my mind.
138	I think of strange things that are too bad to talk about.
156	I see things that other people don't see.
161	I hear strange things when I'm alone.
Scale 5	EATING DISTURBANCE OR WEIGHT LOSS; Reliability = .77
Item #	
9	Food doesn't taste good to me anymore.
60	I've been losing weight recently, even though I'm not trying to.
Scale 6	IMPULSE INHIBITION; Reliability = .78
Item #	
11	I hold myself back from doing what I want.
35	I can't let go and have fun anymore
43	I feel so bad I don't feel anything anymore.
54	I can't remember the last time I had a good laugh.
75	I don't allow myself to get involved.
Scale 7	REACTIVITY; Reliability = .66
Item #	
15	I feel my condition is hopeless.
20	Nothing seems to make me feel better.
43	I feel so bad I don't feel anything anymore.

Table 4-1 (continued)

Scale 8	LOSS OF INTEREST; Reliability = .76
Item #	
7	I have little interest in being with friends.
58	I've lost interest in doing my work.
99	I've lost my interest in sex.
102	I have little desire to eat.
119	I eat less now than usual.
162	Most of the time, I'm not interested in sex, but once in awhile I am.

Scale 9	MEMORY; Reliability = .88
Item #	
67	I can't count on my memory.
91	I have a hard time remembering things.
118	I don't remember things as well as other people do.

Scale 10	DIURNAL VARIATION; Reliability = .71
Item #	
5	I wake up refreshed.
68	I feel worse in the morning than any other time in the day.
137	I wake up depressed and feel like things are going to get worse.
150	I feel tired and jittery when I wake up.

Scale 11	ONSET; Reliability = .51
Item #	
22	My depression came on me quickly.
106	My depression seemed to come out of nowhere.

Scale 12	HOPELESSNESS; Reliability = .85
Item #	
34	I have no hope for myself.
49	Things aren't going to get any better for me.
79	No one can help me now.

Scale 13	HISTORY; Reliability = .74
Item #	
30	Other people in my family have had problems with depression.
101	I am the only one in my family that I know of that has had problems with depression.
122	Someone in my family has been hospitalized for depression.

Scale 14	PSYCHOMOTOR; Reliability = .79
Item #	
1	I feel like my heart is racing.
2	I don't have any energy.
3	I'm so tired I don't care about anything anymore.
36	I feel nervous and edgy.
44	Everything bout me is slowed down.
50	I'm tired most of the time, but sometimes I have a burst of energy.
61	I feel like my mind is racing.

Table 4-1 (continued

Item #	
87	I'm ashamed of the fact that I feel so tired.
124	I feel like my body is speeded up.
145	I've come to live with the fact that I'm always tired.

Scale 15	RESPONSIBILITY; Reliability = .73
Item #	
77	My ability to manage my life changes alot.
82	I have lost my sense of responsibility.
93	People can't count on me anymore.
94	I could not survive unless someone took care of things for me.
95	Although I feel bad, I can do things if I have to.
110	I cannot manage my own life.

Scale 16	OBSESSIVENESS; Reliability = .57
Item #	
74	I have the same thoughts over and over again.
155	I can't seem to get rid of thoughts that bother me.

Scale 17	SELF REPROACH; Reliability = .85
Item #	
26	I feel worthless and no good.
27	I can't stand myself anymore.
28	I don't like myself.
47	I feel empty and hollow.
62	I don't see how anyone can stand being around me.
73	I feel powerless.
76	I feel guilty.

Scale 18	SEVERITY; Reliability = .75
Item #	
21	My depression is so overwhelming, I find it hard to go on.
81	My depression is so severe I drive people away.
85	I'm very depressed.
108	I am more depressed than anyone I know.
134	My depression varies from mild to severe.

Scale 19	INSOMNIA; Reliability = .81
38	I wake up early in the morning and can't back to sleep.
78	I have problems going to sleep.
114	I wake up alot during the night.

Scale 20	SOMATIC; Reliability = .82
Item #	
10	My chest feels tight.
14	I have problems with constipation.
17	People tell me I sigh alot.
18	I have problems with diarrhea.
59	My body feels like it is rotting inside.
66	I have problems with headaches.
92	I have chest pains frequently.

Table 4-1 (continued)

Item #	
107	Although people don't believe it, I know there is something wrong with my body.
129	I have a lot of hard to place aches and pains.
132	I have difficulties breathing.
133	My stomach seems to be upset alot.
135	My body is going to pieces.
143	My breathing seems different now.
149	I find myself sighing alot.
Scale 21	SUICIDE; Reliability = .84
Item #	
33	I've made a serious attempt to harm myself.
42	I tried to commit suicide, but I knew it wasn't going to work.
98	I've tried to commit suicide.
146	I think about suicide alot, but I know I won't do it.
Scale 22	DISTINCT QUALITY*
Item #	
57	I'm more depressed than usual.
Scale 23	LENGTH*
Item #	
225	My depression started less than a year ago.
Scale 24	IRRITATION*
Item #	
115	I get upset easily.
111	The smallest things seem to upset me.
Scale 25	PRECIPITANT*
Item #	
148	I know what caused my depression.
71	I get depressed over nothing.

*Reliability not calculated as the original scale had less than 3 items

After the 27 items were deleted in the empirical approach, 114 items remained for further analysis. These items are listed along with their respective factor loadings in Table 4-2. A correlation matrix for the 15 factors is presented as Appendix H. The correlation matrix was computed for the retained items on each factor.

Discriminant Analysis

Following the construction of the research scales by the a priori and empirical approach, a discriminant analysis was executed to find a combination of scales that would best descriminate between the two depressed groups. Thirty-five subjects from each diagnostic group (endogenous and non-endogenous) were randomly selected for the analysis, and the remaining subjects were held for cross validation.

One discriminant function was constructed for each approach. The standardized function coefficients for the variables used in both approaches is presented in Table 4-3. Each coefficient indicates the relative contribution of the variable to the discriminant function. In the a priori approach, the scales anxiety and precipitant made the largest relative contribution to the discriminant function, whereas the scales impulse inhibition and length made the smallest contribution. In the empirical approach, the scales pessimism and general made the largest contribution, whereas suicidal ideation and crying contributed the smallest amount to the discriminant function.

The discriminant functions were then used to classify the seventy cases that were randomly selected from the two depressed groups. The classification results are presented in Tables 4-4 and 4-5. Eighty seven percent of the seventy cases were classified correctly with the a priori approach versus 77% correct classification with the empirical

Table 4-2

Scales Selected by the Empirical Approach

Factor 1: GENERAL; Reliability = .92

Item #		Factor Loading
44.	Everything about me is slowed down.	.78
43.	I feel so bad I don't feel anything anymore.	.73
158.	All the joy is gone out of my life.	.71
47.	I feel empty and hollow.	.69
54.	I can't remember the last time I had a good laugh.	.67
57.	I'm more depressed than usual.	.63
45.	I don't take chances anymore.	.58
35.	I can't let go and have fun anymore.	.58
75.	I don't allow myself to get involved.	.56
85.	I'm very depressed.	.55
131.	I can hardly think at all.	.52
97.	I feel sad.	.51
20.	Nothing seems to make me feel better.	.49
150.	I feel tired and jittery when I wake up.	.47
73.	I feel powerless.	.45
139.	I can't seem to think about anything but how bad I feel.	.45
2.	I don't have any energy.	.44
130.	I want to be alone most of the time.	.42
59.	My body feels like its rotting inside.	.41
147.	I usually get along with people but lately my seem to have been falling apart.	.39
58.	I've lost interest in doing my work.	.39

Table 4-2 (continued)

Item #		Factor Loading
142.	I'm afraid about what will happen in the future.	.38
69.	I have pulled into myself.	.37
21.	My depression is so overwhelming, I find it hard to go on.	.35
93.	People can't count on my anymore.	.33
29.	I have been slowly getting more and more depressed over the past few weeks.	-.47
Factor 2:	SELF REPROACH/ANXIETY, Reliability = .90	
26.	I feel worthless and no good.	.71
28.	I don't like myself.	.67
27.	I can't stand myself anymore.	.61
12.	I watch what I am doing with other people.	.58
11.	I hold myself back from doing what I want.	.58
6.	I have many different fears about the present and the future.	.54
76.	I feel guilty.	.52
41.	I don't seem to have any control over my life.	.47
36.	I feel nervous and edgy.	.45
86.	As the days pass, I seem to get more nervous.	.44
74.	I have the same thoughts over and over again.	.36
100.	Sometimes I get so nervous, I panic.	.32
Factor 3:	SUICIDAL IDEATION AND BEHAVIOR, Reliability = .86	
98.	I've tried to commit suicide.	.82
33.	I've made a serious attempt to harm myself.	.78
42.	I tried to commit suicide, but I knew it wasn't going to work.	.77

Table 4-2 (continued)

Item #		Factor Loading
63.	I have been hospitalized for depression.	.64
146.	I think about suicide a lot, but I know I won't do it.	.54
53.	There have been times in my life when I had no idea what I did.	.49
117.	I've done things too terrible to think about.	.47
121.	If I weren't so afraid of dying, I'd commit suicide.	.38
Factor 4:	AGITATION, Reliability = .82	
123.	I feel like my mind is racing.	.81
124.	I feel like my body is speeded up.	.73
1.	I feel like my heart is racing.	.50
10.	My chest feels tight.	.50
37.	I can't seem to keep my mind on one thing.	.46
78.	I have problems going to sleep.	.40
Factor 5:	ANOREXIA/WEIGHT LOSS, Reliability = .86	
102.	I have little desire to eat.	.77
119.	I eat less now than usual.	.77
60.	I've been losing weight recently, even though I'm not trying to.	.75
9.	Food doesn't taste good to me anymore.	.61
157.	I eat more when I get depressed.	.54
38.	I wake up early in the morning and can't get back to sleep.	.53

Table 4-2 (continued)

Item #		Factor Loading
Factor 6:	DEPENDENCY, Reliability = .82	
94.	I could not survive unless someone took care of things for me.	.74
110.	I cannot manage my own life.	.59
95.	Although I feel bad, I can do things if I have to.	.56
7.	I have little interest in being with friends.	.44
81.	My depression is so severe I drive people away.	
82.	I have lost my sense of responsibility.	.43
127.	I find it impossible to make a decision.	.40
39.	I can't concentrate.	.39
99.	I've lost my interest in sex.	.30
Factor 7:	INTERPERSONAL DISSATISFACTION, Reliability = .83	
126.	I have had difficulties getting close to people for a long time.	.65
111.	The smallest things seem to upset me.	.61
62.	I don't see how anybody can stand being around me.	.59
65.	I pull away from people.	.58
105.	I seem to drive people away.	.57
83.	I get irritated a lot.	.45
115.	I get upset easily.	.43
162.	Most of the time I'm not interested in sex, but once in a while I am.	.40
Factor 8:	MEMORY IMPAIRMENT, Reliability = .62	
91.	I have a hard time remembering things.	.81
67.	I can't count on my memory.	.78

Table 4-2 (continued)

Item #		Factor Loading
118.	I don't remember things as well as other people seem to.	.71
84.	I can't do anymore than I'm doing now.	.34
Factor 9:	CRYING, Reliability = .80	
51.	I seem to cry for no reason at all.	.72
109.	I can't cry even when I feel like it.	.63
89.	I'm really tired of crying.	.61
66.	I have problems with headaches.	.58
31.	I continue to cry over the event that caused my depression.	.52
Factor 10:	BODY INTEGRITY, Reliability = .58	
135.	My body is going to pieces.	.57
133.	My stomach seems to be upset a lot.	.53
92.	I have chest pains frequently.	.47
107.	Although people don't believe it, I know there is something wrong with my body.	.41
129.	I have a lot of hard to place aches and pains.	.40
159.	My body seems to be working all right.	-.69
Factor 11:	DELUSIONS/HALLUCINATIONS, Reliability = .67	
19.	I hear things that other people don't hear.	.74
161.	I hear strange things when I'm alone.	.74
103.	I have felt that people have been making me do things by controlling my mind.	.48
138.	I think of strange things that are too bad to talk about.	.42

Table 4-2 (continued)

Item #		Factor Loading
Factor 12:	PESSIMISM/HOPELESSNESS, Reliability = .31	
49.	Things aren't going to get any better for me.	.54
149.	I find myself sighing a lot.	.50
156.	I see things that other people don't see.	.48
34.	I have no hope for myself.	.39
148.	I know what caused my depression.	.38
155.	I can't seem to get rid of some of the thoughts that bother me.	-.60
113.	When things are going well I feel like I have more energy.	-.68
Factor 13:	FATIGUE, Reliability = .72	
50.	I'm tired most of the time, but sometimes I have a burst of energy.	.65
145.	I've come to live with the fact that I'm always tired.	.61
87.	I'm ashamed of the fact I feel so tired.	.61
Factor 14:	HISTORY, Reliability = .72	
101.	I am the only one in my family that I know of who has problems with depression.	.80
30.	Other people in my family have had problems with depression.	.78
122.	Someone in my family has been hospitalized for depression.	.69

Table 4-2 (continued)

Item #		Factor Loading
Factor 15:	DIURNAL VARIATION/SOMATIC ANXIETY, Reliability = .52	
68.	I feel worse in the morning than any other time in the day.	.61
17.	People tell me I sigh alot.	.60
154.	I feel miserable in the morning.	.48
132.	I have difficulties breathing.	.36
55.	I'm afraid of being alone.	.35
14.	I have problems with constipation.	.34

Table 4-3

Standardized Discriminant Function Coefficients
for the A Priori and Empirical Approaches

A PRIORI		EMPIRICAL	
Variable	Coefficient	Variable	Coefficient
Anxiety	-.901	General	-.601
Crying	-.182	Self Reproach	-.333
Concentration	-.616	Suicidal Ideation and Behavior	-.038
Delusions/Hallucinations	.204	Agitation	.142
Eating	.130	Anorexia/Weight Loss	.5237
Impulse Inhibition	-.020	Dependency	.296
Reactivity	-.091	Interpersonal Dissatisfaction	.337
Loss of Interest	.379	Memory Impairment	.359
Memory	.317	Crying	-.078
Diurnal Variation	.602	Body Integrity	.230
Onset	-.108	Delusions/Hallucinations	.101
Pessimism	.343	Pessimism	.641
History	.112	Fatigue	.050
Psychomotor Change	.324	History	.043
Responsibility	.078	Diurnal Variation/ Somatic Anxiety	.373
Obsessiveness	.129		
Reproach	-.102		
Severity	.286		
Sleep	.493		
Somatic	.249		
E Scale	.314		
Distinct Quality	-.356		
Length	-.028		
Irritation	.299		
Precipitant	.618		
Suicide	-.461		

Table 4-4

Classification Results of Discriminant Function with A Priori Scale Construction

Actual Group	Number of Cases	Predicted Group Membership Endogenous	Non-Endogenous
Endogenous	35	29	6
Non-Endogenous	35	4	31

$x^2 = 39.4$, $p<.05$

Table 4-5

Classification Results of Discriminant Function with Empirical Scale Construction

Actual Group	Number of Cases	Predicted Group Membership Endogenous	Non-Endogenous
Endogenous	35	28	7
Non-Endogenous	35	9	26

$x^2 = 33.11$, $p<.005$

approach. The discriminant function for the a priori approach was significant at the .05 level, whereas the discriminant function for the empirical approach was significant at the .005 level.

Following the classification of the seventy cases, the discriminant function was used to classify the thirty subjects that had been withheld for cross validation. Fifty seven percent of the cross validation group were correctly classified by the discriminant function constructed by the a priori approach (see Table 4-6). Forty three percent of the cross validation group were correctly classified by the discriminant function constructed by the empirical approach (see Table 4-7).

A second discriminant function was constructed for each approach using a reduced number of scales. The number of scales was reduced in order to increase the ratio of subjects to scales. The scales were selected for the new discriminant functions based on the review of the literature in Chapter Two.

The following scales were used in the a priori approach: Eating, reactivity, loss of interest, diurnal variation, psychomotor change, self reproach, sleep, somatic, distinct quality of mood, and precipitant. The discriminant function accurately classified 73% of the original seventy subjects. In cross validation, the accuracy dropped to 60%, which was not significantly different from chance classification ($p>.05$).

The following factors were used in the empirical approach: General, self reproach, agitation, anorexia/weight loss, body integrity, diurnal variation/somatic anxiety.

Table 4-6

Cross Validation Results
of A Priori Discriminant Function

Actual Group	Number of Cases	Predicted Group Endogenous	Non-Endogenous
Endogenous	15	8	7
Non-Endogenous	15	6	9

Table 4-7

Cross Validation Results
of Empirical Discriminant Function

Actual Group	Number of Cases	Predicted Group Endogenous	Non-Endogenous
Endogenous	15	6	9
Non-Endogenous	15	8	7

The discriminant function accurately classified 73% of the original seventy subjects and 57% of the cross validation group, which was not significantly different than chance ($p>.05$).

Following the discriminant analysis, the eighteen items that discriminated between probable, definite, and non-endogenous depression via by chi-square analysis were placed in a scale. The group means were compared for the endogenous and non-endogenous groups for the seventy randomly selected subjects. There was a significant difference between the two group means ($p<.01$). However, there was no significant differences in the group means for the cross validation groups ($p>.05$).

Research Hypotheses

In Chapter Three, the following research hypotheses were stated:

1. A self report instrument formed by the a priori method will differentiate between endogenous and non-endogenous depression.
2. A self report instrument constructed by the empirical method will differentiate between endogenous and non-endogenous depression.
3. Differences between endogenous and non-endogenous depression found through hypotheses 1 and 2 will lead to interpretable constructs about the nature of endogenous and non-endogenous depression.

Based on the results of the original discriminant function with the study sample, the first hypothesis was rejected. The classification accuracy based on the a priori approach dropped from .87 to .57 in cross validation, which is not significantly different than chance classification. These results were confirmed with the second discriminant function using selected scales.

The second hypothesis was also rejected. The classification accuracy based on the empirical approach dropped from .77 to .43, which is not significantly different than chance. This was supported by the second discriminant function using selected factors.

Due to the instability of the accuracy of classification for both approaches, the third hypothesis was rejected. No clear, consistent differences emerged that led to interpretable constructs.

Summary

The item endorsement level of all items in the DDDS was examined to identify items that had an endorsement level greater than .95. None of the items had an endorsement level greater than .95. All items, with the exception of the social desirability items, were retained for further analysis.

In the a priori scale construction items were grouped in twenty nine scales according to content similarity. The internal consistency of each scale was computed by coefficient alpha. The frequency distribution of responses was analyzed by chi-square. Fifteen items decreased the internal consistency of the scale and were not significant at the .15 level or below. These items were withheld from further analysis. Ten additional items lowered the internal consistency of the original scale and were significant at the .15 level. These items were placed in a general scale. One hundred and fourteen items remained for further analysis. Twelve additional items were omitted to ensure equal numbers of items in both approaches to scale construction.

In the empirical approach to scale construction, fifteen factors were extracted by a principal component solution. The factors were rotated by a varimax rotation. Eighteen items failed to load higher

than .29 on any of the factors and were withheld from further analysis. The internal consistency of each scale was computed by coefficient alpha. Nine items were found to lower the reliability of a scale when included and had factor loadings less than .39. These items were withheld from further analysis.

A discriminant analysis was used to construct discriminant functions for both sets of scales. In the a priori approach, the discriminant function correctly classified 86% of a randomly selected subgroup of a sample of depressed subjects and 57% of a group selected for cross validation. The discriminant function constructed by the empirical approach correctly classified 77% of the randomly selected subgroup and 43% of the group selected by cross validation.

A second discriminant analysis was used for both approaches using scales selected on the basis of the literature review. In the a priori approach, the discriminant function accurately classified 73% of the randomly selected groups and 60% of the cross validation groups. In the empirical approach, the discriminant function accurately classified 73% of the randomly selected groups, and 60% of the cross validation groups.

The eighteen items that discriminated between the diagnostic groups were aggregated. A comparison between group means for the seventy subjects selected at random was significant at the .01 level. However, there was no significant difference ($p<.05$) between group means for the cross validation groups.

CHAPTER 5

SUMMARY AND CONCLUSIONS

In Chapter 5, four sections are presented. The first section contains a summary of the research project. The conclusions are drawn in the second section, and a discussion of the findings is presented in the third section. The fourth section of the chapter contains implications for future research.

Summary

The purpose of the study was to determine whether or not a patient self rated instrument could differentiate endogenous and non-endogenous depression. Two major conclusions were drawn from a review of the literature. Three of the 22 studies failed to support the conclusion that depression was not a homogenous entity. Symptoms that most frequently distinguished endogenous from non-endogenous depression were psychomotor disturbance, autonomous course, self reproach, distinct quality of mood, and middle or terminal insomnia. The second conclusion was that although there had been several self rated measures of depression in the literature, none were designed to differentiate subtypes of depression.

After the review of the literature was complete, 29 symptom categories of depression were identified. A research team generated 141 items that were designed to represent these categories. The resultant instrument was named the Differential Diagnostic Depression

Scale (DDDS). A sample of 100 individuals with the chief complaint of depression was obtained through a consortium of inpatient and outpatient psychiatric centers. The DDDS was administered to each subject as well as the Dexamethasone Suppression Test (DST) and the Schedule for Affective Disorders and Schizophrenia (SADS). Individuals were diagnosed as endogenous or non-endogenous based on a combination of DST values and Research Diagnostic Criteria (RDC).

In the data analysis, two approaches were used to combine items into research scales. In the a priori approach, items were grouped into scales based on similarity in content. The frequency of responses per diagnostic category was compared by chi-square, and the internal consistency of each scale was computed. Fifteen items decreased the internal consistency of their original scale and were not significant at the .15 level or below. These items were deleted from further analysis. Ten items decreased the internal consistency and were significant at the .15 level. These items were placed in a general category labeled endogenous, or E Scale. Twelve additional items were deleted to ensure an equal number of items as the empirical approach.

A principal component solution was used in the empirical approach and 15 factors were extracted. A varimax rotation was used. Eighteen items failed to load on any of the extracted factors and were withheld from further analyses. The internal consistency of the factors was computed and the nine items that lowered the internal consistency and did not load higher than .39 on their respective factors were deleted.

A discriminant analysis was used to construct a function that would best separate endogenous and non-endogenous depression for each approach. Thirty five subjects from each group were randomly selected

for the analysis phase. The discriminant function constructed by the a priori approach correctly classified 87% of the randomly selected groups, and was significant at the .05 level. The discriminant function constructed by the empirical approach correctly classified 77% of the randomly selected groups, and was significant at the .005 level. Cross validation was attempted by using the discriminant functions to classify the 30 remaining individuals in the sample. The classification accuracy was 57% with the a priori discriminant function, and 44% with the empirical discriminant function.

A second discriminant function was constructed for both approaches using a reduced number of scales. In the a priori approach, the second function correctly classified 73% of the original seventy subjects, and 60% of the cross validation groups. In the empirical approach, the second function correctly classified 73% of the cross validation groups.

Finally, eighteen items that discriminated between non-endogenous, probable, and definite endogenous depression were aggregated. There was a significant difference ($p<.01$) between the endogenous and non-endogenous group means for the original seventy subjects. However, there was no significant difference ($p>.05$) between the group means for the cross validation groups.

Conclusions

The conclusions reached from the view of the literature were as follows:

1. Previous studies on symptom differences between endogenous and non-endogenous depression had considerable variation in sample composition, diagnostic criterion, and range of symptoms included for analysis.

2. Nineteen of the 22 studies reviewed supported the conclusion that depression can best be explained using a binary, or pluralistic paradigm.
3. The most frequently cited symptom differences in the literature between endogenous and non-endogenous depression were psychomotor disturbance, autonomous course, self reproach, distinct quality of mood, and middle or terminal insomnia.

The conclusions from the study are as follows:

1. There was a significantly higher percentage of females in the endogenous sample than in the non-endogenous sample (x^2, $p<.05$). There were no other significant differences in the demographics for the two groups.
2. None of the 141 DDDS items had an endorsement level greater than .95.
3. One hundred and fourteen items survived the tests for internal consistency in the a priori approach. Twenty five scales were constructed ranging in reliability from .51 to .88.
4. Fifteen factors emerged from a principal component solution in the empirical approach. One hundred and fourteen items had factor loadings above .39 and did not decrease the internal consistency of the factors. The reliability of the factors ranged from .31 to .92.
5. The discriminant function constructed by the a priori approach correctly classified 87% of a random sample of 70 of the 100 original subjects. On cross validation, the correct classification shrank to .57.

6. The discriminant function constructed by the empirical approach correctly classified 77% of a random sample of 70 of the 100 original subjects. On cross validation, the correct classification shrank to .44.

Discussion

The Differential Diagnostic Depression Scale (DDDS) is a self rated questionnaire developed as an inexpensive alternative for the differentiation of subtypes of depression. In the pilot study of the instrument, two approaches were used to combine items into scales: a priori classification and factor analysis.

The two discriminant functions constructed from the different approaches classified the random sample of 70 subjects with impressive accuracy (87% and 77%, respectively). However, the accuracy rate proved to be highly unstable, dropping to 57% for the a priori function and 44% for the empirical function with the cross validation groups. The instability can be explained by three possible sources. The first source is error variance in the scales, or the variables used in the discriminant analyses to construct the functions. The second potential source of error was variance in the diagnostic classifications. In addition, there may have been systematic differences between the two groups used in the classification and cross validation phases of the study.

There was considerable variability in the reliability of the scales used for both approaches. Although attempts were made in both approaches to maximize the internal consistency of the scales, considerable inter-scale differences existed in scale reliability. The alpha coefficients ranged from .51 to .88 with the a priori approach,

and .32 to .92 with the empirical approach. The scales in both approaches with low reliability may have contributed to the instability of the classification accuracy. One reason for the differences in the reliability of the scales can probably be attributed to differences in scale lengths. Reliability of scales increases with longer scales. Furthermore, some of the content areas that have been associated with endogenous depression may have been under-represented by items. For example, although the review of the literature in Chapter 2 showed that "distinct quality of mood" was one of the most consistent symptoms of endogenous depression, it was represented by only one item on the DDDS. The reason for having only one item was that certain symptom categories did not readily lend themselves to item generation. The research team made every reasonable effort to generate items for each category.

A second reason for the variability in the instrument may have been that the items differed in the reading level required for their comprehension. No tests were performed on the items to ensure that items were not above an eighth grade level of reading comprehension, however, efforts were made to keep the vocabulary of each item as simple as possible.

Criterion variance may also have contributed to the shrinkage in classification accuracy between the two sample groups. The endogenous group was formed by collapsing two diagnostic subtypes: those individuals with a 'probable' endogenous depression and those with a 'definite' endogenous depression. Some researchers have advocated eliminating the probable endogenous group from classification studies because there are false positives in the group (Feinberg, et. al., 1982; Spitzer, 1978). The inclusion of the probable endogenous group

in the study may have had the effect of minimizing the differences between the two diagnostic groups. Secondly, although the reliability of the RDC has been established (Spitzer, 1978; Gibbon, 1981; and Holmes, et. al., 1983) questions remain about the validity of the diagnostic categories. Carroll has argued that the RDC is not as accurate in classifying endogenous depression as his clinical diagnostic method (Carroll, et. al., 1981). Nelson and Charney (1981) have stated in their review that other diagnostic criteria, such as the DSM-III, may be more sensitive to endogenous depression.

The phenomena of endogenous depression may be unstable in itself. Carroll (1982) has argued that the DST may suffer a loss of sensitivity and specificity if it is not administered in the middle of the episode. Unfortunately, the lack of research in measuring the episodic nature of endogenous depression did not permit an accurate classification of the sample on this variable.

Implications and Recommendations for Further Research

The pilot study of the DDDS was an initial attempt to develop a self rated instrument that would differentiate endogenous and non-endogenous depression. Considering the difficulties discussed above, further research is strongly recommended as follows:

1. Construction of new discriminant functions with the probable endogenous group eliminated from the analysis and classification phases. This step would likely increase the separation of the two groups by removal of the false positives. Further research is required into the nature of the probable endogenous group before they can be included in classification studies.

2. Refining the scales used in the a priori and empirical approaches. There are several methods that can be used in this approach. First, some of the shorter, less reliable scales should be lengthened and the internal consistency recalculated. Second, a subset of the scales generated in the study could be selected for the construction of a new discriminant function. The selection of the scales should be based on the following criteria: the scale should be reliable, have a low correlation with another scale, and discriminate between the two depressed groups by univariate analysis.
3. Use the DST and medication response to decrease criterion variance. Another approach to the diagnostic classification of endogenous depression is the use the DST and/or medication response to form the known groups for the discriminant analysis and classification.

APPENDICES

APPENDIX A

Appendix A

Differential Diagnostic Depression Scale (DDDS)

All items are to be marked:

DT = Definitely True of me
T = True of me
NT = Not True of me
DNT = Definitely Not True of me

		(DT)	(T)	(NT)	(DNT)
1.	I feel like my heart is racing.	()	()	()	()
2.	I don't have any energy.	()	()	()	()
3.	I'm so tired I don't care about anything anymore.	()	()	()	()
4.	People can read my mind.	()	()	()	()
5.	I wake up refreshed.	()	()	()	()
6.	I have many different fears about the present and future.	()	()	()	()
7.	I have little interest in being with friends.	()	()	()	()
8.	I am careful about my manner of dress.	()	()	()	()
9.	Food doesn't taste good to me anymore.	()	()	()	()
10.	My chest feels tight.	()	()	()	()
11.	I hold myself back from doing what I want.	()	()	()	()
12.	I watch what I am doing with other people.	()	()	()	()
13.	My depression is mild but always there.	()	()	()	()
14.	I have problems with constipation.	()	()	()	()
15.	I feel my condition is hopeless.	()	()	()	()
16.	I can remember "playing sick" to get out of something.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
17.	People tell me I sigh a lot.	()	()	()	()
18.	I have problems with diarrhea.	()	()	()	()
19.	I hear things that other people don't hear.	()	()	()	()
20.	Nothing seems to make me feel better.	()	()	()	()
21.	My depression is so overwhelming, I find it hard to go on.	()	()	()	()
22.	My depression came on me quickly.	()	()	()	()
23.	I have a hard time making a decision on small things but I do alright on the important things.	()	()	()	()
24.	I just can't be courteous to people who are disagreeable.	()	()	()	()
25.	My depression started less than a year ago.	()	()	()	()
26.	I feel worthless and no good.	()	()	()	()
27.	I can't stand myself anymore.	()	()	()	()
28.	I don't like myself.	()	()	()	()
29.	I have been slowly getting more and more depressed over the past few weeks.	()	()	()	()
30.	Other people in my family have had problems with depression.	()	()	()	()
31.	I continue to cry over the event that caused my depression.	()	()	()	()
32.	When I don't know something I try to cover it up.	()	()	()	()
33.	I've made a serious attempt to harm myself.	()	()	()	()
34.	I have no hope for myself.	()	()	()	()
35.	I can't let go and have fun anymore.	()	()	()	()
36.	I feel nervous and edgy.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
37.	I can't seem to keep my mind on one thing.	()	()	()	()
38.	I wake up early in the morning and can't get back to sleep.	()	()	()	()
39.	I can't concentrate.	()	()	()	()
40.	I never like to gossip.	()	()	()	()
41.	I don't seem to have any control over my life.	()	()	()	()
42.	I tried to commit suicide, but I knew it wasn't going to work.	()	()	()	()
43.	I feel so bad I don't feel anything anymore.	()	()	()	()
44.	Everything about me is slowed down.	()	()	()	()
45.	I don't take chances anymore.	()	()	()	()
46.	Nothing makes me feel better.	()	()	()	()
47.	I feel empty and hollow.	()	()	()	()
48.	I do not hesitate to go out of my way to help someone in trouble.	()	()	()	()
49.	Things aren't going to get any better for me.	()	()	()	()
50.	I'm tired most of the time, but sometimes I have a burst of energy.	()	()	()	()
51.	I seem to cry for no reason at all.	()	()	()	()
52.	I feel as if things are not real.	()	()	()	()
53.	There have been times in my life when I had no idea what I did.	()	()	()	()
54.	I can't remember the last time I had a good laugh.	()	()	()	()
55.	I'm afraid of being alone.	()	()	()	()
56.	I rarely check the safety of my car no matter how far I am traveling.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
57.	I'm more depressed than usual.	()	()	()	()
58.	I've lost interest in doing my work.	()	()	()	()
59.	My body feels like its rotting inside.	()	()	()	()
60.	I've been losing weight recently, even though I'm not trying to.	()	()	()	()
61.	I feel like my mind is racing.	()	()	()	()
62.	I don't see how anybody can stand being around me.	()	()	()	()
63.	I have been hospitalized for depression.	()	()	()	()
64.	Sometimes I deliberately hurt someone's feelings.	()	()	()	()
65.	I pull away from people.	()	()	()	()
66.	I have problems with headaches.	()	()	()	()
67.	I can't count on my memory.	()	()	()	()
68.	I feel worse in the morning than any other time in the day.	()	()	()	()
69.	I have pulled into myself.	()	()	()	()
70.	When I'm not thinking about what depresses me, I can think clearly.	()	()	()	()
71.	I get depressed over nothing.	()	()	()	()
72.	I am sloppy about my manner of dress.	()	()	()	()
73.	I feel powerless.	()	()	()	()
74.	I have the same thoughts over and over again.	()	()	()	()
75.	I don't allow myself to get involved.	()	()	()	()
76.	I feel guilty.	()	()	()	()
77.	My ability to manage my life changes a lot.	()	()	()	()
78.	I have problems going to sleep.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
79.	No one can help me now.	()	()	()	()
80.	It is sometimes hard for me to go on with my work if I am not encouraged.	()	()	()	()
81.	My depression is so severe I drive people away.	()	()	()	()
82.	I have lost my sense of responsibility.	()	()	()	()
83.	I get irritated a lot.	()	()	()	()
84.	I can't do anymore than I'm doing now.	()	()	()	()
85.	I'm very depressed.	()	()	()	()
86.	As the days pass, I seem to get more nervous.	()	()	()	()
87.	I'm ashamed of the fact that I feel so tired.	()	()	()	()
88.	I sometimes try to get even rather than to forgive and forget.	()	()	()	()
89.	I'm really tired of crying.	()	()	()	()
90.	Things I like to do don't seem as much fun as they used to be.	()	()	()	()
91.	I have a hard time remembering things.	()	()	()	()
92.	I have chest pains frequently.	()	()	()	()
93.	People can't count on me anymore.	()	()	()	()
94.	I could not survive unless someone took care of things for me.	()	()	()	()
95.	Although I feel bad, I can do things if I have to.	()	()	()	()
96.	No matter who I'm talking to, I'm a good listener.	()	()	()	()
97.	I feel sad.	()	()	()	()
98.	I've tried to commit suicide.	()	()	()	()
99.	I've lost my interest in sex.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
100.	Sometimes I get so nervous I panic.	()	()	()	()
101.	I am the only one in my family that I know of who has problems with depression.	()	()	()	()
102.	I have little desire to eat.	()	()	()	()
103.	I have felt that people have been making me do things by controlling my mind.	()	()	()	()
104.	I do not intensely dislike anyone.	()	()	()	()
105.	I seem to drive people away.	()	()	()	()
106.	My depression seemed to come out of nowhere.	()	()	()	()
107.	Although people don't believe it, I know there is something wrong with me.	()	()	()	()
108.	I am more depressed than anyone I know.	()	()	()	()
109.	I can't cry even when I feel like it.	()	()	()	()
110.	I cannot manage my own life.	()	()	()	()
111.	The smallest things seem to upset me.	()	()	()	()
112.	There have been occasions when I took advantage of someone.	()	()	()	()
113.	When things are going well I feel like I have more energy.	()	()	()	()
114.	I wake up a lot during the night.	()	()	()	()
115.	I get upset easily.	()	()	()	()
116.	People are there to help me now that I need them.	()	()	()	()
117.	I've done things too terrible to think about.	()	()	()	()
118.	I don't remember things as well as other people seem to.	()	()	()	()
119.	I eat less now than usual.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
120.	I have not deliberately said something to hurt someone's feelings.	()	()	()	()
121.	If I weren't so afraid of dying, I'd commit suicide.	()	()	()	()
122.	Someone in my family has been hospitalized for depression.	()	()	()	()
123.	I feel like my mind is racing.	()	()	()	()
124.	I feel like my body is speeded up.	()	()	()	()
125.	I wake up often, but finally fall into a deep sleep.	()	()	()	()
126.	I have had difficulties getting close to people for a long time.	()	()	()	()
127.	I find it impossible to make a decision.	()	()	()	()
128.	Before voting, I thoroughly investigate the qualifications of all the candidates.	()	()	()	()
129.	I have a lot of hard-to-place aches and pains.	()	()	()	()
130.	I want to be alone most of the time.	()	()	()	()
131.	I can hardly think at all.	()	()	()	()
132.	I have difficulties breathing.	()	()	()	()
133.	My stomach seems to be upset a lot.	()	()	()	()
134.	My depression varies from mild to severe.	()	()	()	()
135.	My body is going to pieces.	()	()	()	()
136.	The urge to tell someone off is not part of my make-up.	()	()	()	()
137.	I wake up depressed and feel like things are going to get worse.	()	()	()	()
138.	I think of strange things that are too bad to talk about.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
139.	I can't seem to think about anything but how bad I feel.	()	()	()	()
140.	If I could cry, I would feel better.	()	()	()	()
141.	I need people more now than before.	()	()	()	()
142.	I'm afraid about what will happen in the future.	()	()	()	()
143.	My breathing seems different now.	()	()	()	()
144.	If I could get into a movie without paying and be sure I was not seen, I would probably do it.	()	()	()	()
145.	I've come to live with the fact that I'm always tired.	()	()	()	()
146.	I think about suicide a lot, but I know I won't do it.	()	()	()	()
147.	I usually get along with people, but lately my relationships seem to have been falling apart.	()	()	()	()
148.	I know what caused my depression.	()	()	()	()
149.	I find myself sighing a lot.	()	()	()	()
150.	I feel tired and jittery when I wake up.	()	()	()	()
151.	I need to be by myself.	()	()	()	()
152.	There have been times when I feel like rebelling against people in authority even though I knew they were right.	()	()	()	()
153.	I feel tense.	()	()	()	()
154.	I feel miserable in the morning, but have high hopes for the day.	()	()	()	()
155.	I can't seem to get rid of some of the thoughts that bother me.	()	()	()	()
156.	I see things that other people don't see.	()	()	()	()
157.	I eat more when I get depressed.	()	()	()	()

Appendix A (continued)

		(DT)	(T)	(NT)	(DNT)
158.	All the joy is gone out of my life.	()	()	()	()
159.	My body seems to be working all right.	()	()	()	()
160.	I admit my mistakes.	()	()	()	()
161.	I hear strange things when I'm alone.	()	()	()	()
162.	Most of the time I'm not interested in sex, but once in a while I am.	()	()	()	()
163.	My feelings about myself change a lot.	()	()	()	()

APPENDIX B

Appendix B

Consent Form

Study: Self Reported Symptomatology In Major Depressive Illness

Investigator: Gregory Alan Holmes, M.A.
Doctoral Candidate, Counseling Psychology
Robert J. Bielski, M.D.
Department of Psychiatry

I, _____, have had the above named study explained to my satisfaction and I freely consent to participate in the study. I have been informed that my decision to participate in this study will in no way alter the treatment I will receive for my depression.

I understand that I have been asked to complete three procedures during this study. These three procedures are as follows:

1. I will be interviewed by members of the research team. The interview will last for approximately 1-1/2 hours, during which time I will be asked questions about my depression.

2. I will be given the Dexamethasone Suppression Test, a blood test for plasma cortisol concentration. I will be given 1 mg of Dexamethasone in a tablet form and be asked to take the tablet at 11:00 p.m. I understand that there is minimal risk in taking this medication. I will then have a small sample of my blood drawn the following day at 4:00 p.m.

3. I will be given the Differential Diagnostic Depression Scale (DDDS), a 163 item questionnaire.

I agree to participate in the procedures described above. I understand that the amount of risk and discomfort involved in this study is very small; being no greater than that usually involved in drawing a small blood sample. I understand that the benefits to me

Appendix B (continued)

from participating in this study will be a special evaluation of my depression.

I further understand that I may speak to and/or meet with one of the study psychiatrists at this time.

I further understand that I may ask questions before signing this consent form, or any time thereafter, that my participation in this study is voluntary and that I am free to withdraw at any point without penalty.

I further understand that the results from these procedures are confidential and can only be released to others with my written permission.

Signed: _____ _____

(Subject) (Date)

_____ _____

(Witness) (Date)

xc: Subject
File

APPENDIX C

Appendix C

Items Deleted from DDDS During A Priori Approach

Item Number	Original Scale	Alpha IF: Included/Deleted		Significance
140	Crying	.68	.82	.75
4	Delusions/Hallucinations	.70	.71	.88
157	Eating	.70	.77	.34
12	Impulse Inhibition	.777	.779	.78
113	Reactivity	.50	.66	.74
90	Loss of Interest	.762	.763	.24
154	Diurnal Variation	.681	.712	.34
41	Hopelessness	.813	.855	.63
84	Responsibility	.731	.769	.35
155	Obsessiveness	.332	.566	.56
83	Sadness	.737	.758	.67
125	Insomnia	.757	.813	.93
159	Somatic	.786	.82	.41
116	Social Withdrawal	.764	.788	.82
141	Social Withdrawal	.764	.789	.65

APPENDIX D

Appendix D

E Scale Items

Item Number	Original Scale	Alpha IF: Included/Deleted		Significance
70	Concentration	.772	.826	.06
53	Delusions/Hallucinations	.704	.704	.15
55	Fear	.541	.724	.04
29	Onset	.114	.517	.02
63	History	.563	.744	.01
163	Reproach	.848	.867	.07
13	Severity	.696	.748	.14
121	Suicide	.831	.841	.008
147	Social Withdrawal	N/A	N/A	.07
117	Self Reproach	N/A	N/A	.004

APPENDIX E

Appendix E

Scales Deleted by the A Priori Approach

Item	Original Scale	Significance
23	Decision Making	.26
127	Decision Making	.58
6	Fear	.28
142	Fear	.16
97	Sadness	.40
158	Sadness	.16
151	Social Withdrawal	.53
130	Social Withdrawal	.68
126	Social Withdrawal	.50
105	Social Withdrawal	.52
69	Social Withdrawal	.30
65	Social Withdrawal	.80

APPENDIX F

APPENDIX F. CORRELATION MATRIX FOR A PRIORI SCALES.

	Anxiety	Crying	Concen	D & H	Eating	Impulse	Reactive
Anxiety	1.00	.22	.57	.29	.38	.49	.38
Crying	.21	1.00	.12	.14	.27	.01	.14
Concen	.57	.12	1.00	.18	.26	.43	.51
Schizo	.29	.14	.18	1.00	.19	.45	.33
Eating	.38	.27	.26	.19	1.00	.33	.34
Impulse	.49	.01	.43	.45	.33	1.00	.56
Reactive	.38	.14	.51	.33	.34	.56	1.00
Interest	.35	.21	.38	.30	.67	.47	.50
Memory	.32	.23	.44	.15	.05	.16	.26
Diurnal	.52	.13	.55	.16	.30	.38	.42
Onset	.12	-.13	.20	.19	.32	.16	.30
Hopelessness	.24	.23	.28	.42	.26	.42	.54
History	.12	-.05	.10	.20	-.07	.17	.05
Psymotor	.62	.19	.59	.42	.37	.55	.53
Response	.30	.15	.51	.43	.23	.46	.38
Obsess	.56	.30	.52	.31	.39	.49	.35
Reproach	.61	.29	.45	.43	.31	.58	.55
Severity	.44	.21	.55	.33	.31	.46	.69
Insomnia	.41	.35	.33	.26	.43	.18	.19
Somatic	.41	.42	.41	.44	.40	.37	.42
E Scale	.11	.37	.15	.44	.34	.18	.29
Distinct	.32	.31	.32	.23	.45	.41	.48
Length	.07	.02	-.01	.18	.31	.23	.10
Irrate	.42	.16	.36	.14	.09	.32	.34
Precip	-.06	-.04	-.16	-.13	.13	-.06	-.26
Suicide	.09	.21	.03	.35	.24	.09	.21

APPENDIX F. CORRELATION MATRIX FOR A PRIORI SCALES (CON'T.).

	Interest	Memory	Diurnal	Onset	Hopelessness	History
Anxiety	.35	.32	.52	.12	.24	.12
Crying	.21	.23	.13	-.03	.23	-.05
Concen	.38	.44	.55	.20	.28	.10
Schizo	.29	.15	.16	.19	.42	.20
Eating	.67	.05	.30	.32	.26	-.07
Impulse	.47	.18	.38	.16	.42	.17
Reactive	.50	.26	.42	.30	.54	.05
Interest	1.00	.11	.35	.24	.46	.05
Memory	.11	1.00	.23	-.01	.22	.16
Diurnal	.35	.23	1.00	.07	.20	.13
Onset	.24	-.01	.07	1.00	.13	-.09
Hopelessness	.46	.22	.20	.13	1.00	.04
History	.05	.16	.13	-.09	.04	1.00
Psymotor	.56	.26	.51	.14	.36	.06
Response	.49	.21	.31	.09	.50	.12
Obsess	.40	.34	.43	.21	.32	.16
Reproach	.43	.35	.40	.09	.58	.07
Severity	.42	.29	.37	.27	.47	.05
Insomnia	.45	.04	.32	.11	.21	-.04
Somatic	.58	.17	.40	.19	.45	.05
E Scale	.43	.22	.13	.12	.37	.17
Distinct	.51	.04	.28	.13	.33	.01
Length	.32	-.23	.01	.34	.14	-.20
Irrate	.30	.33	.31	.10	.20	.21
Precip	-.04	-.18	-.07	.14	-.17	-.05
Suicide	.26	.16	.08	-.07	.37	-.03

APPENDIX F. CORRELATION MATRIX FOR A PRIORI SCALES (CON'T.).

	Psymotor	Response	Obsess	Reproach	Severity	Insomnia
Anxiety	.62	.30	.56	.61	.44	.41
Crying	.19	.15	.30	.29	.21	.35
Concen	.59	.51	.52	.45	.55	.33
Schizo	.42	.43	.31	.43	.33	.26
Eating	.37	.23	.39	.31	.31	.43
Impulse	.55	.46	.49	.58	.46	.18
Reactive	.53	.38	.35	.55	.69	.19
Interest	.56	.49	.40	.43	.42	.45
Memory	.26	.21	.34	.35	.29	.04
Diurnal	.51	.31	.43	.41	.37	.32
Onset	.14	.09	.21	.09	.27	.11
Hopelessness	.36	.50	.32	.59	.47	.21
History	.06	.12	.16	.07	.05	-.04
Psymotor	1.00	.44	.46	.60	.48	.37
Response	.44	1.00	.40	.49	.56	.33
Obsess	.46	.40	1.00	.52	.56	.48
Reproach	.59	.49	.52	1.00	.60	.28
Severity	.48	.56	.56	.60	1.00	.36
Insomnia	.37	.33	.48	.28	.36	1.00
Somatic	.55	.47	.44	.50	.50	.47
E Scale	.32	.38	.26	.38	.33	.37
Distinct	.43	.23	.40	.31	.38	.36
Length	.13	.09	.05	.01	.05	.21
Irrate	.35	.32	.37	.42	.42	.18
Precip	-.11	-.31	-.03	-.18	-.28	-.01
Suicide	.15	.20	.15	.26	.23	.27

APPENDIX F. CORRELATION MATRIX FOR A PRIORI SCALES (CON'T.)

	Somatic	E Scale	Distinct	Length	Irrate	Precip	Suicide
Anxiety	.41	.11	.32	.07	.42	-.06	.09
Crying	.42	.37	.31	.02	.16	-.04	.21
Concen	.41	.15	.32	-.01	.36	-.16	.03
Schizo	.44	.44	.23	.18	.14	-.13	.35
Eating	.40	.34	.45	.31	.09	.13	.24
Impulse	.38	.18	.40	.23	.32	-.06	.09
Reactive	.42	.29	.48	.06	.34	-.26	.21
Interest	.58	.44	.51	.32	.30	-.04	.26
Memory	.17	.22	.04	-.23	.33	-.18	.12
Diurnal	.40	.13	.28	.01	.31	-.07	.08
Onset	.19	.02	.13	.34	.10	-.14	-.07
Hopelessness	.45	.37	.33	.14	.20	-.17	.37
History	.05	.17	.01	-.20	.21	-.05	-.03
Psymotor	.55	.32	.43	.13	.38	-.11	.15
Response	.47	.38	.23	.09	.32	-.31	.20
Obsess	.44	.26	.40	.05	.37	-.03	.15
Reproach	.50	.37	.31	.01	.42	-.18	.26
Severity	.50	.33	.38	.05	.42	-.28	.23
Insomnia	.47	.37	.36	.21	.18	.01	.27
Somatic	1.00	.47	.40	.25	.29	-.15	.26
E Scale	.47	1.00	.32	.08	.14	-.07	.59
Distinct	.40	.32	1.00	.33	.19	.02	.16
Length	.25	.08	.33	1.00	-.03	.13	-.01
Irrate	.29	.14	.19	-.03	1.00	-.31	.07
Precip	-.15	-.07	.02	.13	-.31	1.00	.07
Suicide	.26	.59	.16	-.01	.07	.07	1.00

APPENDIX G

Appendix G

Factor Items Deleted

Item Number	Factor	Alpha IF: Deleted	Alpha IF: Included
79	Suicide Ideation/Attempts	.861	.857
153	Agitation	.803	.802
125	Agitation	.822	.801
114	Dependency	.819	.817
77	Interpersonal Dissatisfaction	.832	.831
25	Memory Impairment	.601	.425
71	Memory Impairment	.616	.425
151	Loss of Energy	.722	.70
5	History	.729	.693

APPENDIX H

APPENDIX H. CORRELATION MATRIX FOR EMPIRICAL FACTORS.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 1	1.00	.67	.29	.52	.34	.53
Factor 2	.67	1.00	.22	.47	.26	.55
Factor 3	.29	.22	1.00	.17	.29	.26
Factor 4	.52	.47	.16	1.00	.42	.46
Factor 5	.34	.26	.29	.42	1.00	.25
Factor 6	.63	.55	.26	.46	.25	1.00
Factor 7	.58	.56	.13	.32	.11	.55
Factor 8	.37	.38	.11	.21	-.04	.25
Factor 9	.25	.31	.29	.32	.25	.23
Factor 10	.41	.46	.27	.46	.38	.51
Factor 11	.36	.37	.39	.25	.14	.31
Factor 12	.34	.12	.10	.16	.26	.07
Factor 13	.48	.42	.15	.16	.07	.23
Factor 14	.14	.16	.06	.06	-.05	.11
Factor 15	.31	.16	.15	.28	.15	.34

APPENDIX H. CORRELATION MATRIX FOR EMPIRICAL FACTORS (cont.)

	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
Factor 1	.58	.36	.25	.41	.36	.34
Factor 2	.53	.37	.31	.46	.37	.12
Factor 3	.13	.11	.29	.27	.39	.33
Factor 4	.32	.21	.32	.46	.25	.10
Factor 5	.11	-.04	.25	.38	.14	.16
Factor 6	.55	.25	.23	.51	.31	.26
Factor 7	1.00	.29	.14	.38	.31	.07
Factor 8	.29	1.00	.27	.16	.13	.02
Factor 9	.14	.27	1.00	.37	.22	.05
Factor 10	.38	.16	.37	1.00	.32	.34
Factor 11	.31	.13	.22	.32	1.00	.23
Factor 12	.07	.02	.04	.34	.23	1.00
Factor 13	.36	.25	.05	.29	.27	.19
Factor 14	.24	.23	.06	.04	.25	.10
Factor 15	.12	.03	.29	.21	.29	.17

APPENDIX H. CORRELATION MATRIX FOR EMPIRICAL FACTORS (cont.)

	Factor 13	Factor 14	Factor 15
Factor 1	.48	.14	.14
Factor 2	.42	.16	.16
Factor 3	.15	.06	.15
Factor 4	.16	.06	.28
Factor 5	.07	.05	.15
Factor 6	.23	.11	.34
Factor 7	.36	.24	.12
Factor 8	.25	.23	.03
Factor 9	.05	.06	.29
Factor 10	.29	.04	.21
Factor 11	.27	.25	.29
Factor 12	.19	.10	.17
Factor 13	1.00	-.01	.14
Factor 14	-.01	1.00	.03
Factor 15	.14	.03	1.00

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