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MECHANISMS OF CHANGE IN COGNITIVE-BEHAVIORAL THERAPY IN
RELATION TO DEPRESSIVES' DYSFUNCTIONAL THOUGHTS

The University of North Carolina at Greensboro

PH.D. 1983

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MECHANISMS OF CHANGE IN COGNITIVE-BEHAVIORAL
THERAPY IN RELATION TO DEPRESSIVES'
DYSFUNCTIONAL THOUGHTS

by

Robin B. Jarrett

A Dissertation submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
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of the Requirements for the Degree
Doctor of Philosophy

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1983

Approved by

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APPROVAL PAGE

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This dissertation examined the therapeutic components within Beck's cognitive-behavioral treatment in relation to changes in global measures of depression and in specific response classes relevant to depression. Furthermore, the dissertation noted which response classes were influenced by each component and attempted to predict responsiveness to components by subject classification on frequency of dysfunctional thoughts.

Thirty-seven moderately to severely depressed subjects participated in cognitive-behavioral group therapy. Beck's treatment was divided into the following components: self-monitoring dysfunctional thoughts (Component A), logical analysis (Component B), and hypothesis testing (Component C). To control for order effects, half the subjects were exposed to the components in the sequence ABC and half to the sequence ACB. Using initial frequency scores from the Automatic Thoughts Questionnaire, subjects were divided into two subtypes--those with a high versus a low frequency of dysfunctional thoughts.

Subject classification did not predict responsiveness to components. The scores on the global and specific measures were significantly better after subjects received treatment than before treatment. The therapeutic effects of logical analysis or hypothesis testing were significantly greater than the weak effects produced by self-monitoring.

Multivariate analyses of the global and specific measures and univariate analyses of scores from the Minnesota Multiphasic Personality Inventory--Depression Scale and the Depression Adjective Check List showed no significant difference between the effects of logical analysis and hypothesis testing. The belief scores from the Automatic Thoughts Questionnaire and subscales of the Pleasant Events Schedule and the Interpersonal Events Schedule suggested that logical analysis produced more adaptive changes than hypothesis testing. Analyses of the Beck Depression Inventory scores and the frequency scores from the Automatic Thoughts Questionnaire (within the sequence ACB) showed that the treatment received last produced the most change. Multivariate analyses of the global measures and univariate analysis of the frequency scores from the Automatic Thoughts Questionnaire demonstrated that the combination of all components was significantly more effective than only Components A and C. Analyses of the Beck Depression Inventory scores and the frequency scores from the Automatic Thoughts Questionnaire suggested that the combination of all components was significantly more effective than only Components A and B.

Mechanisms producing change and assessment considerations were discussed.

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CHAPTER I
INTRODUCTION

During the past 5 to 10 years, researchers in the social sciences have begun to focus more on the clinical phenomenon of depression by describing the people and responses involved, by hypothesizing possible causes, and by designing effective treatment. The increasing interest in depression within behavior therapy is well documented in several recent books devoted to the topic (Beck, Rush, Shaw, & Emery, 1979; Clarkin & Glazer, 1981; Rehm, 1981). Such interest can be contrasted with Becker's following statement, in the preface of his book:

Although depression has the highest mortality rate of any personality disturbance and possibly the highest incidence as well, it has been relatively neglected by most social science disciplines. In the writer's opinion, social scientists are overlooking an intensely interesting burgeoning of bio-social-psychological findings on depression that are as yet tentative, fragmentary, unreplicated and unsynthesized yet intriguing and richly promising of alleviation for one of humankind's severest afflictions. (1974, p. xi)

Although the inconclusive nature of the research on depression remains unchanged since Becker's 1974 statement, the National Institute of Mental Health's (NIMH) organization and support of three major research programs on depression is evidence that currently social science in general, as well as behavior therapy in particular, is not overlooking depression. The NIMH research programs include the study of (a) the

psychobiology of depression, (b) the long-term use of drug therapy in recurrent affective disorders, and (c) psychosocial treatments of depression (Teuting, Koslow, & Hirschfeld, 1981). Within behavior therapy, Lewinsohn, Seligman, and Beck have each developed theories of and therapies for depression which are the focus of current work in depression from a behavioral perspective.

Presumably the prevalence and the associated adversities of the depressive disorders have prompted the recent interest in depression. For example, in a National Institute of Mental Health report, Teuting and associates (1981) estimated that over 127 million of the world's people suffer from depression. Approximately 8 to 20 million Americans currently suffer from depression (Teuting et al., 1981), and approximately one-fourth of the U.S. population will encounter a clinical depression during their lifetime (Weissman, Myers, & Harding, 1978). The President's Commission on Mental Health reported in 1978 that these affective disorders are the most prevalent forms of major mental illness and account for the majority of the U.S. psychiatric hospitalizations, independent of social class, race, sex, or ethnic group. At the same time, the Commission reported that the occurrence of depression among women, separated or divorced persons, nonwhites, the poor, and the less educated is higher than the occurrence of

depression among the opposing counterparts of these groups. (The interested reader is referred to Boyd and Weissman, 1982, for more on the epidemiology of depression.)

Teuting et al. (1981) estimated that in the United States treatment for depression costs over \$10 billion each year; they also noted that this estimate is conservative, as 25% of the people who would be diagnosed as depressed never seek treatment. They estimated that at least 15% of depressed persons commit suicide and that 80% of all suicides are thought to be precipitated by depression. In addition, these authors emphasized the "human cost" of depression in terms of subjective discomfort, dysfunctional family life, divorce, child abuse, accident proneness, physical injury, drug abuse, criminal behavior, work capacity, and underemployment.

Recognizing that depression is a common and serious clinical problem which is receiving attention from a variety of researchers, this dissertation limited its focus to cognitive-behavioral therapy for and assessment of nonbipolar depression. In particular, this research examined the mechanisms which contribute to the effectiveness of a cognitive-behavioral therapy for nonbipolar depression and identified some of the depressive responses influenced by this treatment for two subtypes of depressives. Three basic research questions were posed in this dissertation: What components within cognitive-behavioral therapy produce the greatest change in depression? What are some of the response classes within the depressive

cluster which are influenced by each therapeutic component? Will subject classification produced by behavioral assessment help predict responsiveness to different components of cognitive-behavioral therapy for depression?

Before these questions are examined in detail, it is necessary to survey the context in which they were asked. First, a brief description and delimitation of depression will be provided. Second, a behavioral interpretation of depression, as well as several behavioral theories and therapies for depression, will be described. Third, assessment considerations, particularly the necessity of matching treatment and assessment (termed "treatment validity") will be outlined. Finally, relevant interpretational and philosophical issues will be acknowledged briefly.

Depression: Defined and Delimited

The concept "depression" falls within the general category of clinical problems termed "affective disorders," or "disturbances of mood, accompanied by a full or partial manic or depressive syndrome, that is not due to any other physical or mental disorder" (American Psychiatric Association, 1980, p. 205). As Andreasen (1982) has noted, although the concept of affective disorder is historically old, controversy continues on how to limit its boundaries (i.e., how to distinguish affective disorders from normality, schizophrenia, or anxiety and whether to use continua or dichotomies, categories or dimensions) and how to classify the affective disorders into subtypes (e.g., bipolar vs. unipolar, primary vs. secondary, endogenous vs.

reactive, pure vs. spectrum, disease vs. nonfamilial).

In the present study, individuals who had a history of mania or were psychotic at the time they were interviewed were excluded from the investigation. Exclusion accorded with the conceptual definition of depression offered by Craighead (1981, p. 76):

Depression is a label for a feeling or affective state of dysphoria as experienced by a person. This affective state may be precipitated by, occur simultaneously with, or result in a specific set of maladaptive or dysfunctional somatic-motor, cognitive, and physiological responses.

Somatic-motor responses characteristic of depression include both behavioral deficits (e.g., minimal participation in social events, psychomotor retardation, neglect of grooming, inability to do daily work) and behavioral excesses (e.g., weeping, crying, screaming, suicidal behavior, easy fatigability). Cognitive responses typical of depression, as indicated by self-reports, include self-criticism, self-blame, inability to experience pleasure, negative expectation of the environment, helplessness, hopelessness, powerlessness, poor concentration, and indecisiveness. Physiological responses indicative of depression include loss of interest in food, drink, and sex; headaches, sleep disturbances, weight loss, fatigue, and generalized pain (Craighead, 1980; Lewinsohn, Biglan, & Zeiss, 1976; Rush, 1982).

For practical purposes, the category of depression studied here is most likely to be termed "major or minor depressive disorder" when one is using the Research Diagnostic

Criteria (RDC) (Spitzer, Endicott, & Robins, 1978) or "major depressive disorder or dysthymic disorder" when one is using the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III) (American Psychiatric Association, 1980). This general category is "nonbipolar" depressives (sometimes called "unipolar" depressives) which Hollon (1981, p. 35) demarcates as "individuals who have never experienced, or are unlikely to experience, a manic episode." The Diagnostic and Statistical Manual (American Psychiatric Association, 1980) specifies that a manic episode lasts at least one week and includes at least three of the following difficulties: increased activity, pressured speech, flight of ideas, exaggerated self-esteem, decreased need for sleep, distractibility, and excessive involvement in activities which have the potential for unfortunate consequences (e.g., buying sprees, reckless driving). Bipolar depressives (individuals showing a history not only of depressive, but also of manic symptoms) were excluded from this research; at present there are no data to suggest that bipolar depressives respond to psychotherapy better than they respond to lithium or antidepressant medication (Rush, 1982).

Behavioral Interpretations of Depression

Behavioral theories of and therapies for depression tend to emphasize selected responses within the combination of responses labeled "depression." In Craighead's (1980, p. 123) words:

Each of these models of depression portrays depression as a polydimensional phenomenon; however, each model views one characteristic as the primary one in depression, from which all other characteristics of depression stem. The primary characteristic is, in turn, presumed to have a primary, unitary etiological pattern.

The next section of this paper will illustrate this approach by examining three cognitive-behavioral models of depression: Lewinsohn's (1974) social learning model, Seligman's reformulated learned-helpless model (Abramson, Seligman, & Teasdale, 1978), and Beck's (1972) cognitive model. The primary characteristic that Lewinsohn emphasizes is withdrawal from typical activity, with the hypothesized cause being a low rate of response-contingent reinforcement. Seligman stresses behavioral deficits in depression and maintains that they result from the depressive's belief that his/her responses have no effect on the events which follow. Beck emphasizes depressives' negative view of the self, the world, and the future, which Beck hypothesizes results from dysfunctional thoughts and assumptions. If one compares these problem areas to the description of depression outlined in the previous section, it is obvious that each of these behavioral researchers emphasizes a specific problematic response within the "polydimensional" disorder of depression and identifies a single cause for the specific problem. Furthermore, each researcher argues that the primary response influences other secondary responses within the depressive cluster (Craighead, 1980).

The present author previously has argued that depression represents a challenge to behaviorists because the disorder "is a cluster of responses which occur with great frequency, but not with great consistency across individuals." Similarly, the author has maintained that it is useful to conceptualize depression as a number of response classes (Jarrett, 1980, p. 19). Such a conceptualization encourages researchers and clinicians not to consider depression as a global "construct," but to measure the specific, discrete, problematic responses within this combination of responses (Craighead, 1980; Jarrett, 1980). This strategy recommends multivariate analyses within depression research and may aid researchers in teasing apart the relationships among depressive responses. Such research may be able to specify the conditions under which changes in one set of depressive responses are preceded by changes in another set of depressive responses.

With the preceding criticism as background, the following section illustrates three unitary models of depression, all cognitive-behavioral models, and reviews some of the therapies and outcome research that each has stimulated.

Three Cognitive-Behavioral Models of and Therapies for Depression

Lewinsohn's Social Learning Model of Depression

In their conceptualization of depression, Lewinsohn and his associates (1975) used a social learning theory (Bandura,

1977; Rotter, 1954) which strove to integrate stimulus-response theory and cognitive theory. Lewinsohn and Arconad (1981) argued that one must examine the interactions between personal factors (e.g., cognitive processes, expectancies), behavioral factors, and environmental factors in order to understand depression. They maintained that these factors are "interdependent" and that the relative impact of any one factor varies with the setting and behavior involved. Within social learning theory, behavior can not only result from personal and environmental factors, but interact with them. Bandura (1977) has termed such influence "reciprocal determinism."

Lewinsohn emphasized the relationship between reinforcement and depression. In particular, he hypothesized that a low rate of response-contingent positive reinforcement sets the conditions for depression to occur (Lewinsohn, Weinstein, & Shaw, 1969; Lewinsohn, Youngren, & Grosscup, 1979). Lewinsohn and Arconad (1981) defined reinforcement as "the quality of one's interactions with one's environment." Positive reinforcement consists of positive, "person-environment interactions" and strengthens behavior. By "contingent" Lewinsohn means that there is a temporal relationship between behavior and reinforcement (i.e., behaviors precede their consequences or reinforcers). Lewinsohn does not define the word "positive," but appears to mean that the subject experiences the person-environment interaction as pleasant. Lewinsohn emphasized deficits in behavior and related dysphoria and asserted that not only a low rate of positive reinforcement

but also a high rate of aversive events can serve as the antecedent(s) for depression. Lewinsohn and his co-workers (Grosscup & Lewinsohn, 1980; Lewinsohn et al., 1979) stated that this high rate of punishment (i.e., person-environment interactions with unpleasant, disturbing outcomes) can cause depression (termed the "corollary hypothesis").

Lewinsohn stated that the availability and potency of reinforcers and/or punishers, as well as the individual's skill in obtaining reinforcement or coping with punishment, are significant in determining the rate of response-contingent positive reinforcement and/or punishment. According to Lewinsohn (Lewinsohn, Sullivan, & Grosscup, 1982), depression can result when (a) the availability of reinforcers is low and/or the availability of punishers is high, (b) the individual has skill deficits in obtaining reinforcement and/or in coping with punishment, and (c) the potency of positive reinforcement is diminished and/or the influence of punishment is increased.

The series of studies Lewinsohn cited to support this model is largely correlational (Grosscup & Lewinsohn, 1980; Lewinsohn, 1975; Lewinsohn & Amenson, 1978; Lewinsohn et al., 1976; Lewinsohn & Talkington, 1979; Lewinsohn et al., 1979; MacPhillamy & Lewinsohn, 1974). These studies suggest that depressed subjects report fewer pleasant and more unpleasant events than do normal and psychiatric controls. Clinical improvement for depressives was correlated with increases in positive reinforcement and decreases in punishment.

Lewinsohn and Amenson (1978) reported that the absence of particular "reinforcing" events ("positive sexual experiences, rewarding social interactions, fun-filled outdoor activities, solitude, and competency experiences") and the presence of specific "punishing" events ("marital disorder, work hassles, and receiving negative reactions from others") are relevant when depression occurs. In addition to the preceding correlations, Lewinsohn and his co-workers (Lewinsohn, Mischel, Chaplin, & Barton, 1980; Libet & Lewinsohn, 1973) have shown that depressives often show deficits in social skills (i.e., the skills that individuals need to elicit positive reinforcement from their social environment).

Although correlations exist between depression and infrequent pleasant events, frequent unpleasant events, and social skills deficits, the causal relationship between depression and any of these variables has been difficult to demonstrate. As Hollon and Beck (1979) have noted, analysis of time-lagged correlation between pleasant events and decreases in depressed mood (Libet & Lewinsohn, 1973) have not adequately demonstrated a causal relationship. At the same time, Harmon, Nelson, and Hayes (1980) found that self-monitoring increases in pleasant activities decreased depressed mood more than self-monitoring decreases in depressed mood increased pleasant activities. (It should be noted, however, that self-monitoring improvements in mood did have some small reciprocal effect on activity.) More research is needed to

support the unidirectionality of Lewinsohn's model of depression.

Lewinsohn and his associates have designed treatment strategies and packages to parallel the social learning theory of depression. In general, the goals of the treatment are to (a) increase the frequency of pleasant events, (b) decrease the frequency of unpleasant events; (c) increase the enjoyability of pleasant events; (d) reduce the potency of unpleasant events; and (e) foster maintenance of treatment gains. The general strategy that Lewinsohn has used to accomplish these goals is to identify (for the individual) the events which correlate most with changes in mood and to implement procedures to reduce (if negative) or increase (if positive) the frequency and/or impact of the events. The assessment devices that Lewinsohn used included the client's daily monitoring of mood and activity as well as questionnaires such as the Pleasant Events Schedule (PES) (MacPhillamy & Lewinsohn, 1971) and the Unpleasant Events Schedule (UES) (Lewinsohn & Talkington, 1978). These questionnaires list of events that people typically rate as enjoyable (PES) or aversive (UES). The respondent is instructed to indicate how frequently the event occurred during the past month (i.e., the frequency rating) and to rate the enjoyment or aversiveness of the event (i.e., the impact rating). Lewinsohn used these data to conduct a "functional analysis" or to select the difficulties which need treatment. Lewinsohn has designed several types of treatment packages which focus on

increasing pleasant events, on decreasing unpleasant events, or on both increasing pleasant events and decreasing unpleasant events. Lewinsohn and Arconad (1981) reported significant differences between pretreatment and posttreatment global measures of depression after implementing any of the three types of treatment packages. Common techniques used in the packages include environmental intervention (e.g., change jobs, move to a new city), social skills training, time management (e.g., planned activity schedules), contingency management, cognitive skills (e.g., rational-emotive concepts, increasing coping self-statements), and stress management skills (e.g., relaxation training).

Lewinsohn has provided treatment to depressives through individual sessions (see Lewinsohn et al., 1982, for examples of case studies), group sessions (Lewinsohn, Weinstein, & Alper, 1970) and "classroom instruction" (Brown & Lewinsohn, 1979, cited by Lewinsohn & Arconad, 1981). Lewinsohn maintains that all modes of presentation produce significant improvement. Lewinsohn and Arconad (1981) proposed that some of the critical components in short-term therapy for depression may include an understandable and usable rationale, adequate mastery of skills which match the rationale, independent use of the skills outside the therapy context, and improvements which the client attributes to his or her skills (rather than to the clinician's skills).

Seligman's Reformulated Learned Helplessness

Theory and Therapy

Much research has been done on so-called "learned helplessness," both as a behavioral phenomenon of humans and infra-humans (Hiroto, 1974; Hiroto & Seligman, 1975; Rodin, 1976) and as a model for human depression (Klein, Fencil-Morse, Seligman, 1976; Klein & Seligman, 1976; Seligman, 1975). Traditionally, the paradigm used to demonstrate the learned helplessness phenomenon consists of exposing the organism to a situation in which it cannot control an aversive event (i.e., inescapable shock or noise) and subsequently "testing" the organism in a situation in which the organism can control the aversive event (i.e., escape the shock or turn off the noise). In the test situation, where control is possible, organisms usually do not learn to escape the aversive stimuli. In contrast, organisms who were never exposed to aversive stimuli, or were exposed to aversive stimuli which they could control, do learn to cope with the test situation.

Seligman (1975) noted the similarity between the topography of responses observed after exposure to the learned helplessness paradigm and that of responses in depression. For example, some of the features common to both helplessness and depression include passivity, weight loss, appetite loss, social and sexual deficits, and norepinephrine and dopamine depletion. Similarly, Seligman (1978) demonstrated that depressed subjects and nondepressed subjects exposed to a learned helplessness paradigm exhibit the same deficits

relative to normal controls.

In this original theory, Seligman and his colleagues maintained that learning and expecting that events are uncontrollable result in motivational, cognitive, and emotional deficits. Seligman stressed that mere exposure to uncontrollable events is not sufficient to result in helplessness. Instead Seligman argued that the lowered frequency of adaptive responding results from the "expectation" that events will be uncontrollable (the motivational deficit). Seligman also argues that the consequences of learning that events are uncontrollable involves difficulty in learning future responses which could result in lack of control (the cognitive deficit) and involve depressed affect (the emotional deficit).

Abramson, Seligman, and Teasdale (1978) (as well as Wortman & Dintzer, 1978) noted the inadequacies of the original learned helplessness account, and Abramson and associates reformulated the theory. Abramson et al. (1978) argued that the original learned helplessness theory was not easily applied to humans. They identified the major inadequacies of the original theory as (a) difficulty in distinguishing between events that are uncontrollable for all and those uncontrollable for some people (i.e., universal versus personal helplessness) and (b) difficulty specifying the conditions under which helplessness is general or specific, and chronic or acute. The reformulated theory emphasizes that the types of attributions that people make are causally related to the probability of depression. Within the "attributional reformulation" (Beach, Abramson, & Levine, 1981), depression is conceptualized as a set of

cognitive, affective-somatic, and self-esteem deficits. The authors asserted that the types of attributions that people make will influence whether their expectation of lack of control will generalize across time and situations or will affect their self-esteem. Seligman and associates maintained that the crucial dimensions on which attributions must be categorized are internal or external, stable or unstable, and global or specific. Seligman (1981) and Abramson et al. listed the following "premises" of the revised model which specify conditions sufficient, but not necessary, for depression to occur:

Premise 1 ("expected aversiveness"): The person expects highly aversive events to be probable and highly desirable events to be improbable.

Premise 2 ("expected uncontrollability"): The person expects that his/her responses cannot influence the probability of desirable or aversive events.

Premise 3 ("attributional style"): The person's "attributional style" influences the generality and chronicity of depressive behavior, as well as its effect on self-esteem. Global attributions of helplessness produce general depressive deficits. Stable attributions of helplessness result in chronic depression. Internal attributions of helplessness produce lowered self-esteem.

Premise 4 ("severity"): The severity of motivational and cognitive deficits depends on the "strength" of the individual's expectation of aversive events and the "strength" of the individual's expectation of uncontrollable outcomes. The

importance that the individual gives to the uncontrollable outcome will influence the severity of affective and self-esteem deficits.

In summary, the attributional reformulation assumes that individuals become depressed when they expect unpleasant events to occur, believe that they can do nothing about those events, and think that their helplessness is caused by internal, global, and stable factors (Seligman, 1981). Controversy exists in the literature concerning the adequacy of learned helplessness as a model for depression (Costello, 1978). It is to Seligman's (1981) credit that he acknowledges that learned helplessness may account for the deficits in only a subset of depressives (Huesmann, 1978). Although this hypothesis may be reasonable, currently no technology exists which assesses the response cluster(s) for which learned helplessness plays an important etiologic role.

Seligman, Abramson, Semmel, and Von Baeyer (1979), however, have recently developed the "Attributional Style Scale" which could represent an important step in that direction. Seligman and his coworkers developed the scale to test their hypothesis that attributions of helplessness produce depression. Half of the situations listed on the scale pertain to negative events, and half-pertain to positive events. Respondents are instructed to imagine each of the situations on the scale (e.g., "You have been looking for a job unsuccessfully for some time"). Then the respondents are instructed to describe the cause of the event and to rate the internality, stability,

and globality of the cause on a 7-point Likert scale. For negative events, Seligman and his coworkers found statistically significant correlations ($p \leq .001$) between depressed undergraduates' scores on the Beck Depression Inventory (Beck, 1967) and internality ($r = .4$), stability ($r = .34$), and globality ($r = .35$). For positive events, "depression" was significantly negatively correlated with internality ($r = -0.22$, $p < .01$), instability ($r = -.28$; $p < .002$), but not with globality ($r = -.04$). Therefore, depression was correlated with externality and instability and these correlations were not found with nondepressed college students. In addition, Seligman et al. (1979) found that the students who used stable, global attributions for failure were likely to become depressed when exposed to a failure situation (i.e., making a grade on a psychology midterm which they considered a failure). Allow, Abramson, Seligman, Tanebaum, Koslow, Peterson, Semmel, and Miller (1980, cited in Beach et al., 1981) replicated the correlation between depression and a "depressive attributional style" with depressed grade school children, and Raps, Reinhard, Seligman, and Abramson (1980, cited in Beach et al., 1981) replicated this pattern with depressed patients in a Veteran's hospital. According to Seligman, Allow, Raps, and their associates, nondepressed college and grade school students show the same attributional style as hospitalized schizophrenics and medical patients. This style consists of making stable, internal, and global attributions for success and unstable, external, and specific attributions for failure.

Beach and associates mention that they are currently investigating the direction of the association between attributional style and depression. They acknowledge the need for longitudinal research, and they note two unpublished studies which support the notion that depressive attributional styles precede depression.

Until recently, the therapeutic strategies which paralleled Seligman's model of depression were not specified. Generally, references to treatment were deduced from the theory in terms of inoculating people against depression by exposing them to events they could control or by attempting to reduce their expectations of lack of control. Such deductions were made without describing methods to accomplish these goals. The "attributional reformulation," however, appears to have prompted more discussion relevant to treatment for depression. Still, much of Seligman and associates' discussion about treatment seeks to explain the effectiveness of existing treatments from the perspective of learned helplessness rather than to design and to test new regimes. For example, Seligman (1981) proposed the following four methods of ameliorating depression: "environmental enrichment," "personal control training," "resignation training," and "attributional retraining." According to Seligman, the goal of environmental enrichment and personal control training is to change the depressive's tendency to view events as uncontrollable. Seligman suggested that this goal may be accomplished by actually reducing the frequency of

aversive events and by increasing the frequency of positive events through environmental manipulation (e.g., financial assistance, new job). Examples of treatments which Seligman categorized as "personal control training" include social skills training, graded task assignment, parent training, and assertiveness training. The purpose of resignation training is to reduce the desirability of preferred, but unattainable, events and to reduce the aversiveness of ongoing negative events. Seligman suggested that these goals can be met by encouraging the depressive to set more realistic standards and by challenging the depressive's assumptions regarding the importance of positive and negative events. Seligman argued that many of the strategies of Ellis (1962) and Beck (1976) fall within this category. Finally, Seligman suggested that the purpose of attribution retraining is to change unmerited attributions that depressives make for failure (i.e., internal, global, stable) and for success (i.e., external, specific, and unstable). Seligman argued that the basic techniques of cognitive therapy are subsumed here.

Finally, it is noteworthy that Seligman (1981) has asserted that the learned helplessness model would predict that several treatment strategies commonly used with depression would result in no change. Although Seligman cited little research to support his opinion, the condemned treatments include restricting the emission of depressive speech, inducing positive self-statements, self-reinforcement, covert control therapy, desensitization, and flooding.

Beck's Cognitive Model of Depression

Beck's (1967, 1972, 1976) general thesis is that depression results from negative cognitions. These negative cognitions are automatic, involuntary, plausible, and persistent (Beck, 1963) and often contain a theme of loss. Beck (1976) noted that the depressed individual "regards himself as lacking some element or attribute that he considers essential for his happiness." Beck distinguished between public meanings of loss or of events (i.e., socially accepted or objective definitions) and private meanings of loss or of events (i.e., the significance of the event to the individual) and stressed that it is the private interpretation of loss which is critical in the sad, emotional responses following these thoughts. Beck maintained that during depression the theme of loss distorts the individual's conceptualization of the self, the world, and the future. These distortions make up Beck's well-publicized "cognitive triad" and occur despite disconfirming evidence when the individual commits logical errors such as (a) arbitrary inference--the person draws conclusions which cannot be supported by environmental data; (b) selective abstraction--the person emphasizes some details and ignores others; (c) overgeneralization--the person draws conclusions about his or her ability, performance, or worth on the basis of a single incident; (d) magnification/minimization--the individual exaggerates or slights the importance of events; and (e) all-or-none-thinking--the person thinks in absolute terms.

Beck (1976) asserted that some individuals develop a vulnerability, predisposition, or sensitivity to depression by exposure to an "unfavorable life situation" (e.g., the loss of a parent or chronic rejection by peers). Following this exposure, a "schema" (a negative image), "depressogenic assumptions," or "rules" develop. The individual then tends to overreact to losses. Later when the individual is exposed to a situation analogous to the original "unfavorable life situation," he or she interprets events negatively and thinks negatively. The typical emotional, motivational, behavioral, and vegetative depressive symptoms (e.g., hopelessness, apathy, agitations, and sleep disturbance) follow these negative, automatic thoughts. A positive correlation exists between these depressive symptoms and the individual's negative thoughts (i.e., as depressive symptoms increase, negative thoughts increase and vice versa). Beck termed the relationship between depressive symptoms and thoughts a "vicious circle," "a circular feedback model," and the "downward spiral of depression."

Hollon and Beck (1979) concisely summarized the evidence used to support the cognitive theory of depression. In short, they maintained that these data suggest that depressives differ from nondepressives not only in what they think, but also in the way they think.

First, Hollon and Beck cited a series of studies which support the assertion that a correlation exists between depression and dysfunctional thoughts and that no such correlation

exists in the absence of depression. Examples of "dysfunctional thoughts" or "negative cognitive schemas" include dreams with themes of loss or failure (Beck & Ward, 1961), distortion of hypothetical situations (Hammen & Krantz, 1976), and high scores on the Jones Irrational Beliefs Test (Nelson, 1977).

Similarly, Hollon and Beck (1979) reviewed a series of studies to support the notion that depressives differ from nondepressives in how they process information. Examples of depressive characteristics included attributing their failure to personal incompetence (Klein, Fencil-Morse, & Seligman, 1976), underestimating the control they have over outcomes (Alloy & Abramson, 1979), and an increased likelihood to recall negative events (Lloyd & Lishman, 1975).

Experimental research from the information processing paradigm has indicated that depressives have deficits in abstracting ability on the Halstead Categories Test (Post, cited in Teuting et al., 1981), in associative memory (Weingartner, cited in Teuting et al., 1981), and in short-term memory (Oltmanns, 1978). Research has suggested that although the amount of information that can be processed during depression is reduced, such deficits can be ameliorated by improvements in mood (through antidepressants and/or success experiences) (Glass, Uhlenhuth, Weinrub, Fischman, & Teuch, 1978; Henry, Weingartner, & Murphy, 1973).

It is noteworthy that in his review of the literature on psychological and performance deficits in depression,

Miller (1975) attributed the deficits seen in depressives compared with nondepressives to cognitive factors (e.g., low expectations) or to motivational factors (e.g., indifference to the task). Such a conclusion parallels Beck and Seligman's assumption that cognitive factors influence behavior and motivation. Relevant are the studies suggesting that increases in expectations after successful performance were related to subsequent improved performance (Klein & Seligman, 1976; Loeb, Beck, & Diggory, 1971).

The preceding evidence does document the relationship that Beck noted between dysfunctional cognitive processes and depression; however, again, these data do not demonstrate causality. Sensitive to this difficulty, Hollon and Beck (1979) have appealed to studies employing induction procedures that create depressed moods (Strickland, Hale, & Anderson, 1975; Velten, 1968) and correlate with physiological concomitants of clinical depression (Teasdale & Bancroft, 1977). Hollon and Beck emphasized that these correlations may be found only when the subject actually believes that statements are used to induce the mood or the physiological change (Rogers & Craighead, 1977). Appealing to the mood induction procedures for assistance in demonstrating causality seems fruitless for two reasons, however. First, exposing subjects to negative statements, used to induce dysphoric mood, can be viewed as an environmental manipulation rather than a purely cognitive process. Second, the external validity of induced mood can be questioned when one wishes to generalize to clinical

depression. In short, it appears that these mood induction procedures have demonstrated only that induced mood (which may or may not be similar to depression) and physiological changes covary, after subjects have been instructed to read negative statements.

Researchers have also raised basic problems for Beck's model by demonstrating that nondepressed people also display cognitive biases. For example, nondepressed students overestimated the control they had over objectively uncontrollable events when the events occurred frequently or when a high degree of control was desirable. Depressives underestimated the control they had over controllable but undesirable events; however, they accurately estimated the control they had over controllable, neutral outcomes (Alloy & Abramson, 1979). Golin, Terrell, Weitz, and Drost (1979) replicated the nondepressed's "illusion of control" with nondepressed schizophrenic inpatients (and compared them to depressed inpatients). DeMonbreun and Craighead (1977) found that nondepressed students underestimated the frequency of negative feedback that they received on a laboratory test. Lewinsohn et al. (1980) showed that depressives' ratings of their social competence were likely to match objective observers' ratings of the depressives' competence. In contrast, psychiatric and normal controls were likely to rate themselves more positively than the observers did. This combination of data presents difficulty for Beck's blanket assertion that depressives are more likely to distort information than the nondepressed.

In spite of the fact that Beck's model of depression (like Lewinsohn's and Seligman's models) cannot be accepted as an adequate explanation of the development and maintenance of depression, the model has fostered the design of a promising therapy for depression. Beck et al. (1979) comprehensively described the strategies and rationale that Beck uses with depressed clients in Cognitive Therapy of Depression. Beck's intervention is categorized best as "cognitive-behavioral," since both types of techniques are employed. Examples of so-called "cognitive" techniques include self-monitoring of dysfunctional thoughts, evaluating the contents of thoughts, replacing dysfunctional thoughts with alternative thoughts, and reattributing negative consequences to impersonal factors. Examples of so-called "behavioral" techniques include scheduling activities, rating activities in terms of their mastery and pleasure, and graded task assignments. (See Beck et al., 1979; Coleman & Beck, 1981; Hollon & Beck, 1979 for descriptions of each of these techniques.)

Beck's general strategy includes (a) teaching the client that a relationship exists between thoughts, feelings, and behavior; (b) teaching the client to monitor his or her automatic thoughts and to deduce the underlying depressogenic assumptions or rules; (c) teaching the client to state the thought or assumption in the form of a hypothesis, to test the hypothesis, and to examine the evidence which supports or refutes the hypothesis; and (d) teaching the client to replace his or her dysfunctional thoughts or assumptions with

thoughts or assumptions which more closely match the evidence.

Beck stresses^d_e the importance of "collaborative empiricism" between the therapist and client, and warns against attempting to persuade the client to use adaptive thoughts, rather than teaching the client to become sensitive to the empirical invalidation of the negative thoughts. In so doing, the "behavioral" techniques (often given as "homework" assignments) are used as exercises to test the depressive's belief. The "cognitive" techniques are used often to increase the probability that the client will actually implement the behavioral technique in his^rher natural environment.

When examining the outcome literature comparing treatments for depression, several reviewers have concluded that behavioral and cognitive-behavioral techniques are effective with some populations of depressives (Blaney, 1977; Hollon & Beck, 1979; Rehm & Kornblith, 1979). When cognitive-behavioral procedures are compared to strictly cognitive procedures (Taylor & Marshall, 1977), strictly behavioral procedures (Shaw, 1977; Taylor & Marshall, 1977), strictly pharmacological intervention (McLean & Hakstian, 1979; Rush, Beck, Kovacs, & Hollon, 1977), and nonspecific and/or dynamic procedures, there is a trend for cognitive-behavioral to be significantly more effective. At the same time, occasional contradictory findings have appeared in comparing cognitive-behavioral and behavioral therapies. For example, Besyner (1979), in his doctoral dissertation, reported a Lewinsohnian behavioral treatment to be more effective than

cognitive-behavioral therapy and nonspecific and waiting list control groups. Similarly, Comas-Diaz (1981) found that cognitive-behavioral therapy and behavioral therapy were equally more likely to reduce Puerto Rican women's reported depression than a waiting-list control procedure. At a five-week follow-up, the behavioral group was rated as less depressed than the cognitive therapy group. In addition, Zeiss, Lewinsohn, and Muñoz (1979) found no differences among social skills training, cognitive training, and increasing pleasant events. Such discrepant findings may be due, however, to differences in the populations utilized or in the way in which treatment was provided.

It is worth highlighting some of the most convincing (and well-publicized) support for the efficacy of cognitive-behavioral therapy, which is reported by Rush et al. (1977). Forty-one depressed outpatients received either cognitive-behavioral or imipramine hydrochloride therapy. Although the study was biased against psychotherapy in that the unipolar depressives receiving cognitive therapy showed not only a greater degree of psychopathology, but also a poorer past responsiveness to other psychotherapies the subjects receiving cognitive-behavioral therapy showed significantly greater improvement (48.9%) than the subjects receiving imipramine (20%). Although both groups were significantly improved after therapy, the cognitive-behavioral group both maintained its gains at a three-month follow-up when compared to the imipramine group. Although not statistically significant at a six-month

follow-up, this trend continued ($\alpha = .10$). Kovacs, Beck, Rush, and Hollon (cited in Hollon & Beck, 1979) reported that the difference between their groups was also apparent at a one-year follow-up.

Similarly, Beck et al. (1979) reported a study in which cognitive-behavioral therapy alone (i.e., without antidepressants) was effective in treating hospitalized depressives. They cited another study in which the addition of amitriptyline to cognitive-behavioral therapy did not produce any greater improvement than cognitive-behavioral therapy alone. At the same time Beck et al. (1979) were skeptical about generalizing this finding to particular individuals and anti-depressants sometimes provide an useful adjunct to cognitive-behavioral therapy.

It is also noteworthy that although individual sessions have been cognitive-behavioral's typical modality, Hollon and Shaw (1979) reported that group cognitive therapy is both workable and effective. Similarly, some evidence exists that the frequency of sessions, instead of the length of treatment, is significant. In particular, in his doctoral dissertation, Morris (1975; cited in Hollon & Beck, 1979) reported finding no differences in the improvement of clients treated with six sessions spread over a three- versus a six-week period. Rush, Beck, Kovacs, Khatami, Fitzgibbons, and Wolman (1975; referenced in Hollon & Beck, 1979) found no differences between clients treated weekly for 20 sessions and clients treated approximately twice a week (not exceeding 20 sessions) for 12 weeks.

In conclusion, it appears that the preceding data refute and can be contrasted with the following, well-publicized statement by Akiskal and McKinney (1975):

It would appear that no matter what interpersonal factors mobilize depressive behaviors, once the latter reach the melancholic stage, they become biologically autonomous and become relatively refractory to psychotherapeutic intervention. (p. 293)

Treatment Validity: The Contribution which
Assessment Makes to Treatment Effectiveness
and the Relevance of Treatment
Validity to Depression

One assertion made in this dissertation is that if researchers are to identify the mechanisms through which treatments have their effects, then they must attend to the relationship between assessment and treatment. That is, clinical researchers must be committed to specifying the conditions under which a distinct therapy is effective for an identified client with a particular set of problems. Such a commitment is reflected in the goals of behavioral assessment, to identify "meaningful response units and their controlling variables for the purpose of understanding and altering behavior" (Nelson & Hayes, 1979).

Recently, within behavioral assessment an approach termed "treatment validity," which is used to evaluate the quality of the data generated, has been investigated. Because the concept and the study of treatment validity essentially

pertains to the contribution which the results of assessment make to treatment effectiveness, treatment validity issues were relevant in this dissertation. In particular, this dissertation not only asked what components of cognitive-behavioral therapy were the most essential for achieving change in depression, but it also examined the responses within the depressive cluster that were influenced by cognitive-behavioral therapy. In this study, the contribution which identifying clients with high and low frequencies of dysfunctional thoughts made to the effectiveness of cognitive-behavioral therapy was examined. It was predicted the cognitive-behavioral therapy would be more effective for subjects with a high frequency of dysfunctional thoughts than it is for subjects with a low frequency of dysfunctional thoughts. First, a brief overview of treatment validity will be given. Second, the relevance of treatment validity to the study of depression will be described.

Treatment Validity: An Overview

The impetus for the use of treatment validity as an index for evaluating behavioral assessment came from behaviorists' basic dissatisfaction with alternative criteria (Nelson & Hayes, 1979). Treatment validity or the contribution that assessment makes to treatment effectiveness can be contrasted with other criteria used to evaluate behavioral assessment--psychometrics and generalizability theory.

Those who propose the application of psychometrics to behavioral assessment are concerned typically with

the reliability and validity of data. Reliability involves the consistency of the measure (Robb, Bernardoni, & Johnson, 1972) or the agreement between two "maximally similar" measures of the same dependent variable (Campbell & Fiske, 1959). Reliability coefficients are interpreted as measuring the "accuracy" of the assessment device. For instance, test-retest reliability indicates that results from the measure are stable over time. Split-half reliability suggests that results from one half of the test correlate with results from the other half. Parallel-forms reliability indicates that different forms of the same test are equivalent (Cronbach, 1970).

Similarly, in classical psychometric terms "validity" is the extent to which a test measures what it "purports to measure" (Cronbach, 1970). Types of validity include content validity (the extent to which relevant samples of the criterion situation are represented in the "test" situation), construct validity (the extent to which the "test" results relate to theorizing), and criterion-related validity (the degree to which the "test" results correlate with an external measure assessing the same variable that the "test" purports to measure. Criterion-related validity is divided into two components: concurrent validity (the degree to which the test correlates with some other simultaneous measure of the same variable) and predictive validity (the extent to which test results correlate with some other measure administered at a future date).

The second alternative for evaluating behavioral assessment is generalizability theory (Cronbach, Gleser, Nanda, & Rajaratnam, 1972). In generalizability theory, the psychometric standards are relabeled as "universes of generalization" or "facets" and are placed in analyses of variance to determine the proportion of variance accounted for by each universe of generalization. Cone (1977) identified the following six universes of generalization and their parallels in psychometrics: (a) score (parallel-forms reliability); (b) item (split-half reliability); (c) time (test-retest reliability); (d) setting (temporal consistency of external validity); (e) method (convergent validity); and (f) dimension (construct validity, concurrent validity, and discriminant validity).

Although Nelson and Hayes (1981) acknowledged some specific uses for psychometric standards within behavioral assessment, they are opposed to using psychometrics as the major method for evaluating behavioral assessment. Nelson and Hayes (1981); Nelson (1983); and Nelson, Hay, and Hay (1977) argue that the theoretical assumptions underlying psychometric theory and behavioral assessment conflict. Furthermore, Nelson (1983) has asserted recently that the application of psychometrics to behavioral assessment raises practical, conceptual, and philosophical problems.

First, Nelson has argued that since behavioral assessment is an approach rather than a technology, it is difficult to list the devices within it. (Even if such a task were appropriate conceptually, Nelson maintained, different

types of disorders, responses, and situations and their interactions would all need to be described and evaluated.)

Second, Nelson asserted that the assumptions underlying psychometrics and those underlying assessment conflict conceptually. That is, (a) if behavior can be modified, it is not surprising that poor test-retest reliability occurs; (b) if behavior is situationally specific, concurrent validity across different assessment situations is not predicted; and (c) if behavior varies across response systems, concurrent validity across methods of assessment is not expected. In general, Nelson argued that within behavioral assessment the lack of psychometric validation reflects the properties of behavior rather than faulty assessment devices. Similarly, Nelson pointed out that differing levels of analysis are deemed appropriate within behavioral assessment (i.e., the individual) and psychometrics (i.e., the group).

Finally, Nelson stated that the philosophical basis of psychometrics and behavioral assessment are incompatible. Specifically, psychometric criteria rest on structuralism and stress "stable internal entities." In contrast, the philosophical foundation of behavioral assessment is functionalism.

Thus, the preceding concerns with psychometrics and generalizability theory led Nelson (1983) to call for a functional evaluation of behavioral assessment. Such motivation led Nelson and Hayes (1979) to offer treatment validity as a viable option for evaluating the quality of behavioral

assessment. Questions which concern "the treatment validity of behavioral assessment" involve evaluating the contribution which assessment makes to treatment effectiveness. If behavioral assessment is viewed as a process, then the "treatment validity" (or the contribution to treatment effectiveness) of each step can be evaluated. Relevant "steps" within behavioral assessment include selecting target behaviors, performing a functional analysis, selecting a strategy for treatment, and evaluating the outcome of treatment. The question is: How much does each assessment step contribute to the effectiveness of treatment?

The first demonstration of treatment validity compared the relative contribution which a functional and static analysis made to treatment effectiveness (Jarrett, 1980, unpublished master's thesis). Although null results were obtained in the previous study, treatment validity did warrant further study as a methodology for evaluating behavioral assessment (Jarrett, Nelson, & Hayes, 1981). Similarly, a study within the Nelson and Hayes laboratory compared a treatment matched to subjects' specific problems within interpersonal relationships to a treatment which was not matched (i.e., yoked treatment). Preliminary analyses, although not significant at conventional levels ($p = .10$), indicated a trend for the matched subjects to improve more than the yoked subjects.

Many studies within the current literature which were done for other purposes can be interpreted as treatment validity studies. For example, several studies demonstrate

the treatment validity of selecting particular target behaviors. McKnight, Nelson, Hayes, and Jarrett (submitted for publication) showed that depressed women improve more on global and specific measures of depression when treatment is matched (rather than not matched) to their problem areas. Similarly, Wahler and Fox (1980) found that contingency contracting for solitary play was a more effective procedure for reducing aggressive, oppositional behavioral than contingency contracting for social play. A study by Trower, Yardley, Bryant, and Shaw (1978) supported the treatment validity of differentiating subjects with social-skills deficits from subjects with social anxiety excesses. That is, the subjects with social skills deficits improved more when given social skills training than when given systematic desensitization, while subjects with identified problems in anxiety excesses improved equally when given either social-skills training or systematic desensitization. In a similar vein, Ost, Jerremalm, and Johansson (1981) showed that greater effects were achieved when the particular treatment of social phobia matched the subject's pattern of responses (i.e., when subjects with social-skills deficits received social skills training, and subjects with anxiety excesses received relaxation training). In addition, Kupke, Calhoun, and Hobbs (1979) showed that higher ratings of female attraction were obtained when the males were trained to demonstrate attention during a conversation with a female (i.e., the male used "you" statement when conversing with the female) than when the males were trained to encourage conversation (i.e., the male used phrases such as "go on").

Studies demonstrating the treatment validity of identifying specific subject characteristics are also available. For example, Borkovec, Grayson, O'Brien, and Weerts (1979) demonstrated that subjects identified as idiopathic insomniacs (by electroencephalograph) improved more on objective sleep measures when treated with a tension-release mode of relaxation than subjects classified as pseudoinsoniacs. In addition, Altmaier, Ross, Leary, and Thornbrough (1982) have demonstrated differential treatment outcomes when treatment components are matched to the client's "anxiety mode" (i.e., cognitive or somatic). Similarly, Elder, Edelstein, and Fremouw (1981) showed that socially anxious freshmen who had high scores on the Social Anxiety and Distress Scale were more likely to improve when they were exposed to cognitive restructuring than when given social skills training. In addition, Shafer and Merbaum (1981) demonstrated the treatment validity of distinguishing between the following two subtypes of socially anxious individuals: (a) subjects with strong physiological reactions (when exposed to social stress) and strong "autonomic perception" (as assessed by a questionnaire) and (b) subjects with strong physiological reactions and weak autonomic perception. They found that systematic desensitization was more effective than rational restructuring for the first subtype than for the second subtype. For the second subtype, they found that rational restructuring produced greater gains than systematic desensitization. Currently, Amodei, Nelson, and Jarrett are conducting a similar

investigation which examines the differential response of subjects reporting congestive or spasmodic dysmenorrhea to various components of a treatment package.

In summary, although examples are available which suggest that some types of treatment are effective independently of the subjects' target behaviors (Zeiss et al., 1979) or subjects' characteristics (Akins, Hollandsworth, & O'Connell, 1982), the majority of the relevant research seems to support a treatment validity notion. That is, it is clinically valuable to identify specifically a client's problematic response(s) or characteristics before selecting a treatment strategy. Future treatment validity studies could evaluate assessment's contribution to treatment effectiveness by the use of a single subject design(s), the use of multiple assessment devices, and the continual use of dependent measures during ongoing treatment.

Treatment Validity: Its Relevance for Depression

Treatment validity, or the contribution which the results of assessment make to treatment effectiveness, is relevant to depression when one attempts to match the depressive's "characteristics" or problematic target behaviors to specific types of treatment for depression. Although the results of factor analytic studies have identified clusters of responses which many people who report feeling depressed share (Grinker, Miller, Sabshin, Nunn, & Nunally, 1961), there is no one defining feature which all depressed individuals share (Beck, 1967). For particular individuals depression appears to

involve different combinations of problematic responses. For example, Rapp and Fremouw (personal communication) submitted to cluster analysis the data of 100 depressed subjects on the following measures: the Pleasant Events Schedule--Mood Related Subscale (PES; MacPhillamy & Lewinsohn, 1971); the Unpleasant Events Schedule--Mood-Related Subscale (UES; Lewinsohn & Talkington, 1979); the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978; see Beach et al., 1981); the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980); the Attributional Style Questionnaire--Good Outcome Subscale (ASQ; Seligman, Abramson, Semmel, & Von Baeyer, 1979); and the Attributional Style Questionnaire--Bad Outcome Subscale (ASQ; Seligman et al., 1979). The cluster analysis suggested four distinct subtypes. Twenty-five percent of the subjects' scores on all variables were similar to those of nondepressed persons (i.e., the "low overall dysfunctional subtype"); 31% obtained high scores on the measure of unpleasant events (i.e., the "high unpleasant events" subtype); 25% obtained high scores on all measures (i.e., the "high overall dysfunctional subtype"); and 19% obtained low scores on the measure of pleasant events and reported a maladaptive attributional style for pleasant outcomes (i.e., the "pleasure-disrupted" subtype). These results would show "treatment validity" if identifying a particular subtype and matching that subtype to a corresponding treatment produced more improvement than would have occurred if no such matching had

been done; but this research has yet to be conducted.

Prior to discussing the link between assessment and treatment in depression, it should be noted that the behavior of therapists actually does differ when providing various treatments for depression. Contrary to a skeptical belief that all therapy is the same, therapists purporting to use different therapies for depression do, in fact, behave differently. For example, DeRubeis, Hollon, Evans, and Bemis (1982) found that when therapists' behavior was rated according to specific dimensions on a questionnaire, cognitive therapy and interpersonal therapy could be distinguished. Similarly, Greenwald, Kornblith, Hersen, Bellack, and Himmelhoch (1981) showed that ratings of audio-taped sessions suggested differences between "behavior therapists" (who were teaching social skills) and "psychotherapists" (using a dynamic orientation). Although both groups of therapists were treating depressives, ratings indicated that behavior therapists used more directive and nondirective statements, took more initiative, and appeared more supportive than their counterparts.

Two such studies relevant to the relationship between treatment validity and depression have been done. One study by the present author (Jarrett, 1980) attempted to compare the contribution which a "functional analysis" (i.e., a condition in which the treatments that subjects received were matched to their identified problems) to a "static" analysis (i.e., a condition in which subjects received a treatment which

was "yoked" to another depressive's problem areas and thus was not matched to their identified problems). Since the null results produced by this study were attributed primarily to methodological difficulties, McKnight, Nelson, Hayes, and Jarrett (submitted for publication, 1983; McKnight, 1982 Master's thesis) conducted a similar study to evaluate the treatment validity of matching different treatments to different "subtypes" of depressives (i.e., depressives with different problematic target behaviors). The three patterns of target behaviors in this study were (a) a high frequency of dysfunctional thoughts, (b) social skill deficits, or (c) dysfunctional thoughts and social skills deficits, in combination. Results showed that not only the global measures of depression, but also the specific measures of each related target behavior (i.e., dysfunctional thoughts or social skills deficits) improved more when treatment was matched to the target behavior than when it was not.

Several "nonbehavioral" comparisons of client characteristics and treatment outcome are relevant to treatment validity and depression. For example, Bielski and Friedel, in their 1976 review, found that higher social class, insidious onset, anorexia, weight loss, middle and late insomnia, and psychomotor disturbance were all positively related to a favorable response to tricyclic medication. In contrast, neurotic, hypochondriacal, and hysterical traits; multiple prior episodes; and delusions predicted a poor response to imipramine and amitriptyline.

Likewise, several studies have indicated that a particular type of treatment affects a particular response in depression.

For example, Friedman (1975) showed that antidepressants were more likely than marital therapy to reduce depressive symptoms; yet, marital therapy was more likely than antidepressants to improve marital relationships. Similarly, Klerman, DiMascio, Weissman, Prusoff, and Paykel (1974) found that antidepressants, psychotherapy, and their combination were equally effective in reducing depressive symptoms, but only psychotherapy improved the client's social adjustment and relationships. Finally, Paykel, Prusoff, Klerman, Haskell, and DiMascio (1973) performed a cluster analysis identifying four subtypes of depressive patients (i.e., psychotic depressives, anxious depressives, hostile depressives, and young depressives with personality disorders) which predicted outcome to tricyclics. Specifically, they found that psychotic depressives improved most, anxious depressives improved least, and the other two subtypes "showed intermediate improvement."

Within the behavioral literature on depression, it is noteworthy that three chapters in Behavior Therapy for Depression: Present Status and Future Directions (Rehm, 1981) are devoted to matching particular types of treatment to depressed patients (see McLean, 1981, on outpatients; see Liberman, 1981, for a model; see Shaw, 1981, on inpatients). Shaw (1981) has suggested the following three methodologies for investigating the relationship between client "characteristics" and treatment: (a) calculate correlations between client characteristics and outcome measures; (b) assign

different types of clients to the same treatment, and (c) assign different types of clients to specific treatment components within the treatment based on the client's needs.

Independent of what methodology is used to investigate client-treatment interactions in depression, it appears that the logic of "strong inference" (Platt, 1964) would suggest that this literature may advance further and faster if clients' responses rather than their demographic characteristics are assessed with reference to treatment efficacy. Although such an assertion stands in contrast to Shaw's (1981) recommendation to begin with demographic characteristics, Klerman and Weissman's finding (1976, cited by Shaw, 1981) supports the assertion. Klerman and Weissman found that age, race, social class, marital status, religion, number of previous depressions, number of suicide attempts, early deaths or separations as a child, neurotic childhood traits, amount and type of stress six months before depression, severity of symptoms, and severity of social impairment did not predict treatment outcome.

The suggestion that the client's problematic target behaviors be matched to treatment is what Liberman (1981) has termed a "modular approach" to treating depression. The modular approach stands in contrast to a broad-spectrum approach, which typically employs a package of techniques designed for a combination of assumed (rather than assessed) difficulties. It is the contrasting, modular approach which is related most to evaluating treatment validity in the behavioral assessment

of depression.

Acknowledgment of Relevant Interpretational
and Philosophical Issues

While asserting that the relationship between assessment and treatment is important in identifying the mechanism(s) through which components of cognitive-behavioral treatment have their effects, it is important to acknowledge some inherent interpretational and philosophical issues. In so doing, the following section will distinguish between (a) treatment efficacy and a disorder's etiology and maintenance; (b) treatment efficacy and its mechanism of change; and (c) mediational and nonmediational stances on depression.

Treatment Efficacy Versus a Disorder's
Etiology and Maintenance

First, it must be acknowledged that the etiology, maintenance, and treatment of depression are separate issues. Although an etiological theory may be useful in stimulating and guiding treatment design (see Beach et al., 1981, and Rush & Giles, 1982, for comments on the use of theories in clinical practice), the effectiveness of a particular treatment does not validate its parent theory. Rimland (1964, cited by Davison, 1969), for example, discussed the etiology and treatment of autism. He argued that although operant procedures remedy some developmental disabilities occurring in autism, the effectiveness of such procedures does not indicate that autism was operantly conditioned. Rimland further illustrated his point by analogy: Although it is true that

aspirin effectively treats a headache, the medical profession does not assert that headaches result from aspirin deficiencies. In the present case, when cognitive-behavioral therapy or any of its elements is shown to alter dysfunctional thoughts and to ameliorate depression, this effect does not necessarily show that depression is caused by faulty thinking.

Similarly, even when the variables which have precipitated depression or ameliorated depression can be identified conclusively, questions regarding maintenance can be raised. For instance, it is possible that a depression which developed following a series of unpleasant events is maintained currently by attention from a significant other. If the precipitating factors (i.e., the aversive events) are removed, yet the maintaining variable (i.e., attention) remains, it is likely that therapy which does not focus on both types of controlling variables will be ineffective.

This dissertation avoids the preceding interpretational errors by acknowledging that the investigation does not address the etiology or maintenance of depression. At the same time, data from studies like the present one offer fruitful sources for hypotheses to be tested in later research.

Treatment Efficacy Versus Its Mechanism of Change

It must be acknowledged that often within depression research, theorists use demonstrations of treatment efficacy as evidence that change occurs through a particular process. For example, Beck et al. (1979) have argued that

cognitive-behavioral therapy produces its effect by altering faulty patterns of thinking. It goes without saying, however, that alternative hypotheses abound.

The present author uses the following alternative to conceptualize the effects of cognitive-behavioral therapy. This therapy is viewed as an environmental manipulation which affects global measures of depression, as well as specific measures of responses within the depressive cluster. The author predicted that certain changes are unique to each therapeutic component (i.e., Component A, self-monitoring, and Component B, logical analysis, influence global measures of depression and cognitive measures while Component C, hypothesis testing, influences global measures of depression and measures of dysfunctional thoughts, pleasant events, and interpersonal relationships). The process that the present author offers to explain such effects follows. Cognitive-behavioral therapy may increase the probability that depressed people will approach situations that they would otherwise avoid. Such "approach" is significant in that many depressive behaviors include behavioral deficits. Also, this approach is important in that exposure to natural, environmental contingencies may reduce some of the behavioral excesses within the depressive disorder (e.g., dysfunctional thoughts). Such a process is analogous to the effects of exposure in anxiety-based disorders. Beck's treatment may be "capable" of achieving compliance with strategies that expose people to natural contingencies because the rationale offered has a high degree of "face validity" and initially

requires little effort on the part of the depressive. That is, depressives are always "in contact" with their dysfunctional thoughts and initially must do very little to self-monitor them since these thoughts typically occur with a high frequency. It is reasoned that Component A (self-monitoring), increased the probability that people would attempt the strategies suggested in Components B (logical analysis) and C (hypothesis testing). It was hypothesized Component B would have a narrow effect and Component C would have a more general effect. Here it is argued that the generalized effect of Component C may occur since subjects learn problem-solving skills which are applicable to a variety of situations.

While speculating on such mechanisms of change, it is important to avoid interpretational errors. To avoid typical interpretational errors and to increase the internal validity of process research, Kazdin (1980) suggested: (a) ascertaining that the independent variable was, in fact, implemented; (b) using a "dismantling" strategy (i.e., isolating treatment components and examining the necessary and/or sufficient conditions to produce behavior change), and (c) using a dependent variable that directly measures the process in question.

This dissertation does not assume that the effective mechanism in Beck's therapy is the modification of dysfunctional thoughts. One purpose of the dissertation was to further the identification of therapeutic processes that contribute to the established effectiveness of Beck's cognitive-behavioral therapy of depression. Kazdin's suggestions were implemented in this dissertation by (a) using detailed treatment plans

for each session, (b) dismantling Beck's therapy into three components; and (c) using several specific and global measures of depression, including specific measures thought to be related to the proposed efficacious processes.

To conclude, it is noteworthy that this research and other similar studies which attempt to identify the processes essential for the efficacy of a therapy can never rule out every potential, contributing variable. Although such studies (and their replication) can increase the probability that the essential ingredients are identified, no single study can be expected to prove that component X produces the effectiveness of treatment Y.

Mediational Versus Nonmediational

Stances on Depression

This dissertation must acknowledge that (a) the cognitive model of depression is embedded in the mediational-nonmediational controversy (Beck & Mahoney, 1979; Wolpe, 1978) and (b) Beck would favor a mediational interpretation of any results this dissertation would produce. Although this study does not attempt to support or to refute either a mediational or a nonmediational stance on behavior in general or on depression in particular, the author must acknowledge that she questions many of Beck's crucial assumptions. For example, she questions Beck's assumption that negative thoughts precede depressed affect and are thus causally related. First, one might question the methodology Beck used to obtain data

supportive of such an assumption. That is, Beck's reliance on the often retrospective self-report of his clients in outlining what thoughts occurred before which affective response is questionable. Pertinent theoretical questions include that of whether subjects in general, and depressives in particular, can "accurately" remember and report their thoughts? Similarly, are people "well-trained" enough that they label the same "affective" states with corresponding names? It is possible, for instance, that some of Beck's depressives "felt" what other people might label "anxiety"? Yet, the thoughts they reported were more typical of depression than of anxiety. The content of the thought thus may not always predict the emotion experienced.

More important, however, than the method that Beck employs is the underlying logic. Naturally, in conducting a causal analysis it is important in what temporal sequence variables are arranged. At the same time, by using thoughts to explain affect, Beck's brand of causal inference follows the principle of "post hoc, ergo propter hoc." As has been pointed out by Skinner (1974), events which preceded other events do not always cause them (e.g., flipping a light switch results in illumination; yet, the manual movement required to flip the light switch is not the essential event which results in lighting the room). Also, as pointed out earlier the efficacy of Beck's treatment neither demonstrates that dysfunctional thoughts cause depression nor that the therapy works by ameliorating dysfunctional thoughts.

The issues being raised are components of the radical behavioral/mediational controversy apparent in psychology currently. The controversy revolves around the issue of how completely the causal chain should be specified. Radical behaviorists (nonmediationalists) typically identify the precipitants of responses as environmental events, while mediational advocates include in their analysis other responses, which are often covert. It is the opinion of this author that these two types of analysis represent alternative philosophical positions and that their selection is a product of the psychologist's personal history (training) and of his or her assessment of which perspective serves as the most useful heuristic. While Beck has selected a mediational viewpoint, this author finds its alternative to be more useful. A mediational viewpoint is viewed as the least useful alternative since it is more difficult to operationalize rigorously, and to study the effect of covert responses on other behaviors.

Statement of Purpose

In summary, although cognitive-behavioral therapy has been shown to ameliorate nonbipolar depression, its critical components have not been identified. In other words, researchers do not understand why encouraging a person to expose his or her negative thoughts or depressive assumptions to a logical or empirical test should decrease the probability of such cognitions and of other depressive symptoms. The basic purpose of this research was to examine the mechanism(s) through which a cognitive-behavioral treatment

had its effect and to identify the response classes which each therapy component influenced, for two distinct subtypes of depressives.

Three major research questions were posed in this dissertation: (a) What components within cognitive-behavioral therapy produce the greatest change in depression?, (b) What are some of the response classes within the depressive cluster which are influenced by each therapeutic component?, and (c) Will subject classification produced by behavioral assessment help predict responsiveness to the different components of cognitive-behavioral therapy for depression? It was argued that not only the components of treatment, but also their relationship to assessment would be an important factor influencing the outcome of therapy. Specifically, the present investigation analyzed each therapeutic component in terms of its potential differential effectiveness for two subtypes of depressives, subjects with high and subjects with low frequency of dysfunctional thoughts, using several dependent measures.

Although the present dissertation did not attempt to refute or to support any of the related philosophical or theoretical frameworks, this presentation is thought to be important because, to date, only limited research exists on process variables in the treatment of depression. The few examples are found primarily under the heading of "client-treatment interactions" (McLean, 1981; McKnight,

1982; Shaw, 1981). Process research (i.e., research on the mechanisms through which treatments have their effects) on cognitive-behavioral therapy for depression does not, as yet, exist in a published form. It is noteworthy, however, that research by Robert Zettle (personal communication) is currently investigating the active ingredients in cognitive-behavioral therapy for depression.

Analyzing each component of cognitive-behavioral therapy for its potential differential effectiveness in terms of several measures for two subtypes of depressives (i.e., those with high or low frequencies of dysfunctional thoughts) using several dependent measures is important for several reasons. Such a component analysis of Beck's therapy should not only enhance the understanding of depression, but should also have practical implications. The practical implications might include encouraging the clinician to insure that cognitive-behavioral therapy is used with clients with appropriate problems and that clients who receive cognitive-behavioral therapy learn the skills which most effectively ameliorate depression. Theoretically, data from this study may contribute to speculation regarding the relationship among stimuli, cognition, and other behavior. Conceptually, these data may aid in the understanding of depression by examining the relationship(s) among responses, for particular subtypes of depression. Likewise, by

furthering research on treatment validity, this investigation may contribute to the study of evaluation strategies within the field of behavioral assessment.

In so doing, given the topography of depression, it seems reasonable to use "specific" measures of the problematic responses within the depressive cluster, as well as to use "global" measures of depression. Here the global measures of depression included the Beck Depression Inventory, the Minnesota Multiphasic Personality Inventory--Depression Scale, and the Depression Adjective Check List. The specific problems often implicated in depression included problematic cognitions, low activity level, and problematic interpersonal relationships as assessed in this investigation through the Automatic Thoughts Questionnaire (frequency and belief scores), the Pleasant Events Schedule--Mood-Related Subscale, and the Interpersonal Events Schedule--Dysphoria Subscale.

The first process examined in this study was the set of components within a behavioral-cognitive therapy for depression which are integral to its success. The components isolated for analysis here included Component A: giving the subject a rationale for the relationship among thoughts, feelings, and behavior; and teaching the subject to discriminate adaptive from dysfunctional thoughts (termed "self-monitoring"); Component B: teaching the subject to increase the frequency of adaptive thoughts and to decrease the frequency of dysfunctional thoughts by logically

analyzing the dysfunctional thoughts (termed "logical analysis"); and Component C: teaching the subject to state his/her dysfunctional thoughts in the form of a hypothesis and to put the hypothesis to an empirical test (termed "hypothesis testing").

The following predictions regarding overall treatment effectiveness and differential effectiveness of each therapeutic component in treating depression were made:

1. It was predicted that the global measures of depression (i.e., the Beck Depression Inventory, the Minnesota Multiphasic Inventory--Depression Scale, and the Depression Adjective Check List) collected after subjects were exposed to any of the components of treatment (i.e., A, B, or C) would show significantly less depression than the measures collected before treatment began. Such a prediction was based on the assumption that all of the strategies would ameliorate depression to some degree.

2. It was predicted that scores on the global measures of depression collected after exposure to Component B (logical analysis) or after exposure to Component C (hypothesis testing) would indicate significantly more adaptiveness than scores collected after exposure to Component A (self-monitoring). It was reasoned that self-monitoring is used typically for assessment rather than for treatment, because it produces only weak reactive effects. By elimination, it was assumed that logical analysis and/or hypothesis testing

were, therefore, the probable active ingredients within cognitive-behavioral therapy.

3. It was predicted that scores on the global measures of depression collected after subjects were exposed to Component C (hypothesis testing) would indicate significantly less depression than these scores collected after subjects were exposed to Component B (logical analysis). It was presumed that the differential effectiveness of Component C would result from its "broad" or "general" influence. That is, it was reasoned that if Component C influenced several of the response classes relevant to depression simultaneously, then this influence on a broad range of behavior would be reflected on the global measures of depression.

A second issue raised in this dissertation was that of which problematic responses within the depressive cluster were affected by what components within a cognitive-behavioral therapy for depression. In addressing this question, the following predictions were made:

1. It was predicted that Component C (hypothesis testing) would be the essential ingredient within the package not only for producing adaptive changes on the global measures of depression but also for producing adaptive changes outside the "cognitive realm" (i.e., pleasant events as measured by the Pleasant Events Schedule--Mood-Related Subscale and interpersonal relationships as measured by the Interpersonal Events Schedule--Dysphoria-Related Subscale).

It was reasoned that Component C might produce "generalized improvement" (i.e., improvement on global measures of depression and on all of the specific measures of depression) because, during Component C, depressives learn problem-solving skills that could be applied across a wide range of problems or situations.

2. It was predicted that exposure to only Component C would result in more adaptive scores on the Pleasant Events Schedule--Mood-Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale than preintervention scores. This prediction was based on the assumption that hypothesis testing was the only component which "targeted" the areas of pleasant events and interpersonal relationships.

3. It was predicted that after exposure to Component C improvement in the pleasant events and interpersonal relationships would be maintained across time, even when Component B was emphasized (i.e., when Component C is introduced before Component B, gains on the Pleasant Events Schedule--Mood-Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale would be maintained after Component C was no longer stressed in the sessions).

4. It was predicted that Component C would be just as effective in decreasing the frequency and belief of dysfunctional thoughts (according to the frequency and belief scores from the Automatic Thoughts Questionnaire) as either Component A or B since, within Component C,

dysfunctional thoughts would prompt problem solving (i.e., dysfunctional thoughts were viewed as hypotheses to be tested empirically). It was presumed that subjects' noting of the results from the experiments would decrease the probability of dysfunctional thoughts.

5. It was predicted that Components B and C would reduce the frequency and belief of dysfunctional thoughts (according to the frequency and belief scores from the Automatic Thoughts Questionnaire) more than Component A. At the same time, it was predicted that these scores collected after exposure to Component A would be more adaptive than these scores collected before treatment began. It was reasoned that Component A was a necessary element, practically and logically, of Components B and C. The basic skill learned in Component A was the self-monitoring of dysfunctional thoughts. If subjects did not learn to self-monitor, it would be difficult for them to master the strategies taught to cope with dysfunctional thoughts in Component B or C. It was predicted that Component A would decrease the frequency of dysfunctional thoughts since the literature suggests that self-monitoring responses with a negative valence decreases their probability (Nelson, 1977). At the same time it was reasoned that the "therapeutic" effect of self-monitoring would be less than either logical analysis or hypothesis testing.

In short, it was reasoned that Component C would teach subjects a set of problem-solving skills which could be

applied to dysfunctional thoughts, lack of enjoyment, and interpersonal relationships. In contrast to Component C, it was reasoned that Component B would influence a more narrow range of behavior (i.e., only dysfunctional thoughts). Because the skills that subjects learn in Component B might apply to only specific problems, changes in other areas were not expected. For example, it may be ineffective to use "retribution" when one needs to find a babysitter. It was presumed that the generalized influence of Component C compared to the narrow influence of Components A and B would be reflected on the global measures of depression and would indicate differential effectiveness of Component C over Components A and B.

The third issue investigated was the necessity of matching treatment and identified response classes relevant to depression. It was hypothesized that matching treatment to relevant response classes may be one mechanism through which cognitive-behavioral therapy has its effect. A series of studies within Nelson's and Hayes' laboratories have evaluated treatment validity and suggest that the quality of the data generated by behavioral assessment may be evaluated by examining the contribution which assessment makes to treatment effectiveness. Depression is an ideal disorder for such studies since depression is a heterogeneous combination of measurable, specific, problematic responses.

In the present investigation, the specific treatment validity question which was examined was that of whether subject classification produced by behavioral assessment would help predict responsiveness to the different components of cognitive-behavioral therapy. Generally, it was reasoned that matches between assessment and treatment may be essential when a very specific, discrete effect is desirable. When the clinician wants to influence several response classes simultaneously, specific matches between assessment and treatment may be less essential.

The following predictions regarding the attempt to predict treatment outcome from subject classification were made:

1. It was predicted that, after exposure to either Component A or B, subjects with a high frequency of dysfunctional thoughts would have more adaptive scores on the Automatic Thoughts Questionnaire (frequency and belief scores), on the Beck Depression Inventory, on the Minnesota Multiphasic Personality Inventory--Depression Scale, and on the Depression Adjective Check List than subjects with a low frequency of dysfunctional thoughts. It was reasoned that Components A or B focused on dysfunctional thoughts (a specific but narrow range of behavior) and the "high" subtype needed treatment within this area more than the "low" subtype. In other words, the high subtype and Components A and B were well matched in terms

of dysfunctional thoughts. It was reasoned that substantiation of this prediction would suggest that the assessment distinction (between "high" and "low" subtypes) would be clinically relevant and show "treatment validity."

2. In contrast to the prediction above, it was hypothesized that only Component C would produce gains on the Pleasant Events Schedule--Mood-Related Subscale and on the Interpersonal Events Schedule--Dysphoria-Related Subscale for both subtypes. It was predicted that there would be no difference between subjects with a high and low frequency of dysfunctional thoughts, since this distinction was irrelevant to the measures at hand (i.e., subscales of PES and IES). In other words, since Component C might influence a range of behavior broader than dysfunctional thoughts, classifying the subjects only in terms of their frequency of dysfunctional thoughts would probably not predict the subjects' responsiveness to Component C.

3. It was predicted that for subjects with either a high or a low frequency of dysfunctional thoughts, either Component B or C would be equally effective in reducing dysfunctional thoughts. However, it is hypothesized that for both subtypes Component C would produce more improvement in the global measures of depression than Component B. Again it was reasoned that the differential effectiveness of Component C would reflect its broad influence on several response classes relevant to depression.

In conclusion, the present study utilized a single subject design in which the components of therapy were presented in the two following sequences: (a) preintervention assessment, Component A, Component B, and Component C; and (b) preintervention assessment, Component A, Component C, and Component B. It should be noted that a no-treatment or placebo control group was omitted from the design used here for two reasons. First, as mentioned previously, past research has compared cognitive-behavioral therapy to no no-treatment and placebo controls, and researchers have concluded that cognitive-behavioral therapy is significantly more effective. Second, the goal of this research was not to demonstrate the effectiveness of cognitive-behavioral therapy, but was instead to compare the differential effects of Components A, AB, and AC.

The global and specific measures of depression were collected before therapy began and after each component of therapy was provided(i.e., at the beginning of the first session of each component, before the session began). Sessions were conducted semi-weekly in small groups over a six-week period. Such a procedure produced four measurement occasions. For each sequence, subjects were divided into those with a high frequency of dysfunctional thoughts and those with a low frequency of dysfunctional thoughts, at preintervention assessment.

CHAPTER II

METHOD

SubjectsRecruiting Subjects

Volunteer subjects were recruited through psychology classes, community organizations, university publications, area newspapers, and local radio and television announcements. Appendix A contains a descriptive flyer which illustrates how the project was presented to the community.

No less than 205 people inquired about participating in the investigation. As these volunteer subjects telephoned, they were invited to participate in a screening session if they met the following criteria: (a) stated that they had been free from anti-depressant or tranquilizing medication for a minimum of two weeks; (b) reported that they were not receiving psychiatric or psychological treatment elsewhere; (c) stated that they had two blocks of time per week (for seven weeks) to come to group therapy meetings; and (d) stated that they did not have or did not want a significant other to participate in their treatment. Subjects who had or wanted a significant other involved in their treatment (approximately 44 people) were referred for participation in another study on the treatment of depression. Subjects who did not qualify on the basis of the other criteria were referred to the sources listed in Appendix B.

Differential Diagnosis

In order to obtain a sample of individuals whose primary problem was nonbipolar depression, the principal investigator used the following "two-step" screening procedure (i.e., a self-report measure plus a diagnostic interview recommended by Lewinsohn and Teri(1982). Lewinsohn and Teri's data suggest that this procedure reduces the rate of "false positives."

Screening sessions. The screening sessions were conducted between February and April of 1983 with 1 to 18 people in attendance, depending on the interest at any given time. Ninety-nine subjects came to a screening session and completed the following questionnaires which are described in the section entitled "Dependent Measures." First, these potential subjects completed the Beck Depression Inventory (BDI) (Beck, Ward, Mendlesohn, Mock, & Erbaugh, 1961; see Appendix C). If the person's score on the Beck Depression Inventory was 20 or greater, the person then completed the Minnesota Multiphasic Personality Inventory--Depression Scale (MMPI-D) (Hathaway & McKinley, 1942; see Appendix D). If his raw score on the Minnesota Multiphasic Personality Inventory--Depression Scale was 26 or greater or her raw score on the Minnesota Multiphasic Personality Inventory--Depression Scale was 29 or greater (i.e., the T score for both males and females was 70 or greater), then he or she was scheduled for a diagnostic interview.

Twenty-eight subjects did not qualify on the basis of their scores on the Beck Depression Inventory, and two subjects

did not qualify on the basis of their scores on the Minnesota Multiphasic Personality Inventory--Depression Scale. These subjects received explanations for their ineligibility and referrals for treatment elsewhere. One subject qualified on the basis of her questionnaire responses, but was excluded and referred because she took reserpine (a hypertensive medication with potential depressive side effects). Five other subjects qualified on the basis of their questionnaire responses, but either canceled or did not attend their diagnostic interviews.

Diagnostic interviews. Sixty-three potential subjects (13 males and 50 females) were interviewed, using a portion of the questions from the Schedule for Affective Disorders and Schizophrenia (SADS) (Endicott & Spitzer, 1978). This shortened version, suggested by Lewinsohn, Biglan, & Zeiss (1976) is outlined in Appendix E-1. On the basis of the interview data, 48 subjects (10 males and 38 females) who later began treatment in this study were diagnosed, according to the Research Diagnostic Criteria (RDC) (Spitzer, Endicott, & Robins, 1978; see Appendix E-2), as displaying major depressive disorders. Five subjects met the Research Diagnostic Criteria for depressive diagnoses, but chose to pursue treatment at a later time or in another setting. Seven subjects were excluded from the study on the basis of the interview because depression was not judged to be the primary clinical problem (e.g., one subject was depressed, but also met the criteria for pedophilia). Three subjects expressing strong suicidal tendencies were excluded from the sample for ethical reasons.

All subjects who were excluded from the study for any reason were given appropriate explanations and referrals.

Description of the Resulting Sample

The two-step screening described above produced 48 subjects who agreed to participate in this investigation. Eleven subjects dropped out after treatment began. Descriptive data on the 37 subjects who completed the project are provided in Table 1 (Table 1 and all subsequent tables are contained in Appendix F). The eight men and 29 women had an average age of 37 years and an average of 14.5 years of education. The sample's "occupations" included managers, salespeople, students, unemployed, homemakers, health professionals, and retired. Every marital status was represented, and many of the subjects had children. Table 1 also includes each subject's prorated raw scores from the Beck Depression Inventory and from the Minnesota Multiphasic Personality Inventory--Depression Scale which were collected before and after treatment.

Experimental Design

A 2 (subtypes) X 2 (sequences) X 4 or 5 (measurement occasions) experimental design was employed over a seven-week period. (See Table 2 for a sketch of the experimental design.) It should be noted that the number of measurement occasions varies with some dependent measures.

The first factor, subtypes, was a between-subjects factor which refers to the "severity" of the subject's score on the Automatic Thoughts Questionnaire. As is described in

detail in the section on "Independent Variables," a median split was used to divide the sample into two groups based on their prorated frequency scores on the Automatic Thoughts Questionnaire (collected before Component A was provided). For convenience, these two subtypes will be labeled "highs" ($N = 17$) and "lows" ($N = 20$). In other words, the "high" subtypes' prorated frequency scores on the Automatic Thoughts Questionnaire were more dysfunctional than the "low" subtypes' prorated frequency scores on the Automatic Thoughts Questionnaire.

The second factor, the sequence in which therapeutic components are provided, was a between-subjects factor. Groups of subjects were randomly assigned to the sequences in which the therapeutic components were administered. Each group contained four to eight subjects. Subjects with high and low scores on the Automatic Thoughts Questionnaire were present in each group. Subjects received either Component A first, Component B second, and Component C third, or Component A first, Component C second, and Component B third. Seventeen subjects received the sequence ABC, and 20 subjects received the sequence ACB. Table 4 describes the six therapy groups. The purpose of this factor was to control for the possibility that the order in which treatment was provided influenced the outcome. It is noteworthy that Component A always preceded Components B and C since Component A was related to the other elements, conceptually and practically. Therefore, throughout this dissertation, the words "logical analysis" (Component B) and "hypothesis testing" (Component C) are actually abbreviations for self-monitoring plus logical analysis (Components A,

B) and self-monitoring plus hypotheses testing (Component A, C), respectively. Such a plan allowed comparisons between AB and AC, under similar circumstances.

The third factor, measurement occasions (a within subjects factor), refers to the times at which the dependent measures (listed below) were collected. With a few exceptions, the dependent measures were collected at the research site at the beginning of the first treatment session (i.e., before Component A was provided), at the beginning of the fifth treatment session (i.e., after all sessions of Component A had been provided), at the beginning of the ninth treatment session (i.e., after all sessions of Component B or C had been provided), and at the post-intervention diagnostic interview (i.e., after all components had been provided). This plan resulted in four measurement occasions (i.e., before Component A, after Component A, after Component B, and after Component C). Treatment components were provided semi-weekly over a six-week period.

The dependent measures which were collected more often than upon the four occasions described above were as follow. Scores on the Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory--Depression Scale were collected at the screening sessions in addition to the four measurement occasions described above, thus resulting in five measurement occasions. Similarly, the Depression Adjective Check List was administered at the beginning of every treatment session, before the post-intervention diagnostic interview, and at the debriefing session. The Depression Adjective Chek List's initial scores, the means

corresponding to each therapeutic component (i.e., average scores from sessions consisting of Components A, B, and C), and the score at the debriefing session were used in one analysis, producing five measurement occasions.

Diagnoses using the Research Diagnostic Criteria were made at the diagnostic interviews held before and after treatment, thus resulting in only two measurement occasions. (See Table 3 to aid in conceptualizing measurement occasions for each dependent variable.)

Independent Variables

One goal of the research presented here was to examine the relationship between assessment and treatment, in an effort to discern the process through which cognitive-behavioral therapy has its effect and to determine the target behaviors that it influences. In so doing, assessment, treatment, and their relationship were conceptualized in terms of two independent variables. The first independent variable was the set of components within cognitive-behavioral therapy. The following three therapeutic components were examined: Component A--teaching subjects to detect and to monitor dysfunctional thoughts; Component B--teaching subjects to evaluate and correct dysfunctional thoughts through a logical means; and Component C--teaching subjects to evaluate and to correct dysfunctional thoughts through an empirical means. The second independent variable (a grouping factor) was the division of subjects on the basis of the severity

of one problematic target behavior--dysfunctional thoughts. It was hypothesized that this division is important when one examines the contribution which assessment makes to treatment effectiveness (i.e., its treatment validity) and when one attempts to predict what problematic target behaviors each element of cognitive-behavioral therapy affects.

Components of Treatment

The treatment offered in this study was modeled after cognitive-behavioral treatment detailed in Cognitive Therapy of Depression by Beck and his associates (1979). In this investigation, treatment was divided into three components. Each therapeutic component involved four sessions, and these sessions are described in detail in Appendix G. (The treatment plans draw heavily on Beck et al., 1979; Hollon & Beck, 1979; and Rush & Watkins, 1981.) Because the treatment plans are so described, only a general overview of the conceptual and operational similarities and differences among the components will be provided here.

Component A. Component A, labeled "monitoring" for convenience, involved teaching subjects to detect and to monitor their dysfunctional thoughts (i.e., "negative automatic thoughts and depressive assumptions"). Negative automatic thoughts, according to Beck (1976), are idiosyncratic to particular subjects, yet share the following common characteristics: (a) they are specific and discrete; (b) they are spontaneous; (c) they seem reasonable to the subject; (d) although they vary across situations, they often

share a common theme (e.g., "loss"); and (e) they are not typically supported by the evidence. Depressive assumptions (Beck et al., 1979, use the term "depressogenic assumptions") are faulty assumptions usually learned when a child is exposed to an "unfavorable life situation." Beck argues that the depressive assumptions predispose the individual to develop a depressive disorder in later life. (In this study, the term "dysfunctional thoughts" was used to refer to both "negative automatic thoughts" and "depressogenic assumptions.")

The basic purposes of Component A were (a) to provide the subject with a rationale for and description of cognitive-behavioral therapy; (b) to describe the general guidelines for participating in the group therapy and the research project; (c) to teach the subject to detect and to self-monitor "automatic thoughts" and "depressive assumptions"; and (d) to establish rapport among the group members and therapist. All subjects received Component A first in as much as the rationale that Beck et al. (1979) give for treatment (i.e., the assertion that dysfunctional thoughts cause depression) makes Component A a logical part and a practical part of the other components. That is, before subjects could learn skills to cope with dysfunctional thoughts and depression, they had to learn to self-monitor the dysfunctional thoughts.

In short, Component A "socialized" subjects into the research project and into cognitive-behavioral therapy and taught them to self-monitor dysfunctional thoughts. It was

reasoned that these antecedent skills "set the conditions" for Component B and Component C to influence the depressive cluster.

Component B. Component B, labeled "logical analysis" for convenience, involved teaching subjects to evaluate and to correct their dysfunctional thoughts through a logical means. The purpose of Component B was to teach subjects to evaluate the logical evidence for and against dysfunctional thoughts and to increase the frequency of adaptive thoughts. The strategies used in Component B included teaching subjects to (a) use alternative responses to dysfunctional thoughts; (b) distinguish between "thoughts" and "facts"; (c) examine the advantages and disadvantages of the short-term and long-term consequences of dysfunctional thoughts (i.e., as evidence for abandoning the depressive assumption and substituting an alternative); and (d) recognize the processes which make dysfunctional thoughts illogical (e.g., overgeneralization, magnification), and to respond more appropriately.

It was reasoned that these strategies taught the subjects to evaluate their dysfunctional thoughts through "other thoughts" or through a logical means. Subjects were not encouraged to evaluate their thoughts by "collecting empirical data" on their thoughts while they were exposed to Component B.

Component C. Component C, labeled "hypothesis testing" for convenience, involved teaching subjects to evaluate and to correct their dysfunctional thoughts through the means of

designing experiments. The purpose (i.e., rationale that Beck gives) of Component C was the same as that for Component B, but the strategies differed. Component C encouraged subjects to conceptualize their thoughts as hypotheses to be tested empirically. Subjects were taught the general steps involved in testing hypotheses (i.e., deduce from a general assumption a specific hypothesis to test, state the hypothesis in a testable form, test it empirically, record the results from the experiment in an objective manner, compare the results with the prediction, and ask whether other experiments are necessary).

In addition, subjects were taught specific methods of testing "typical" depressive thoughts. For example, subjects were taught to use graded task assignment to evaluate thoughts which concern the inability to solve problems. They were taught activity scheduling in order to test hypotheses relevant to doubts about accomplishing goals (both recreational and task-oriented). Finally subjects were taught to collect data on the "pleasure" and "mastery" (i.e., sense of accomplishment) they experienced when engaging in activities to test hypotheses relevant to the "quality" of their experiences.

It was reasoned that although the rationale that Beck gives for Components C and B is the same, the technology differs; moreover, it was reasoned that the functions of Component C and Component B differed. Specifically, it was hypothesized that Component B would teach subjects to cope

with a particular target behavior (i.e., dysfunctional thoughts). In contrast, it was hypothesized that Component C would teach subjects a problem-solving strategy applicable in a variety of situations or to many problematic target behaviors. It was predicted that when subjects learn this approach to solving problems (i.e., receive Component C), such skills may generalize to other target behaviors implicated in depression (i.e., the frequency of pleasant events, and interpersonal problems), in addition to decreasing the probability of dysfunctional thoughts.

In summary, it was predicted that Component B would teach subjects a specific skill (i.e., increasing the frequency of adaptive thoughts and decreasing the frequency of dysfunctional thoughts), whereas Component C would teach subjects a strategy applicable to a number of problems relevant to depression.

Assessing the Severity of Dysfunctional Thoughts

The initial 48 prorated frequency scores on the Automatic Thoughts Questionnaire (ATQ-30; Hollon & Kendall, 1980; see Appendix H) were divided into two groups, using a median split. These prorated frequency scores on the Automatic Thoughts Questionnaire served as a "grouping factor." The half of the subjects scoring below the median (termed the "low" subtype) displayed a low frequency of dysfunctional thought (mean = 83.522; range = 55-97). The half of the subjects scoring above the median (termed the "high" subtype) displayed

a high frequency of dysfunctional thoughts (mean = 117.989; range = 100-139).

At the first measurement occasion (i.e., before exposure to Component A), the 48 subjects who were classified as depressed completed the Automatic Thoughts Questionnaire, a 30-item questionnaire designed to assess the frequency with which negative automatic thoughts, assumed to covary with depression, occur. Examples of items from the Automatic Thoughts Questionnaire included: "I can't stand this anymore," and "My future is bleak." In responding to the 30 items listed on this questionnaire, subjects were asked to use the time framework of the "last two weeks." (It should be noted that the typical time framework for the ATQ-30 is "last week.") Subjects were instructed to rate the "frequency" of the thought (i.e., 1, "not at all" through 5, "all the time") and the "believability" of the thought (i.e., 1, "not at all" through 5, "totally"). Therefore, high numbers for either the frequency or belief scores indicate dysfunctional thoughts. Scores were prorated when subjects omitted items in order to facilitate valid comparisons.

Only prorated frequency scores were used to divide the sample into the two subtypes. The median split was performed on all 48 subjects' data before the 11 drop-outs occurred. After the drop-outs occurred, there were 17 low subtypes and 20 high subtypes. Although subjects were not placed in groups according to their initial frequency scores on the Automatic Thought Questionnaire, each therapy group contained

subjects with both high and low scores. (See Table 1 for a list of each subject's frequency score on the Automatic Thoughts Questionnaire.)

Hollon and Beck (1980) reported that the Automatic Thoughts Questionnaire was cross-validated and that it discriminated depressed from nondepressed college students. These researchers report correlations between the Automatic Thoughts Questionnaire and the Beck Depression Inventory or the Minnesota Multiphasic Personality Inventory--Depression Scale that range between .45 and .70. Hollon and Beck stated that a factor analysis of this measure revealed the following four factors: (a) personal maladjustment and desire for change; (b) negative self-concept and negative expectations; (c) low self-esteem; and (d) giving up/helplessness.

The Automatic Thoughts Questionnaire was selected here to distinguish between depressive subtypes because (a) the measure is related conceptually to Beck's therapy and theory, and (b) Hollon and Kendall (1980) and Dobson and Breiter (1983) have demonstrated that basic psychometric standards have been met. For example, Hollon and Kendall report a split-half reliability coefficient, calculated on odd versus even items of .97, $p < .001$, and a coefficient alpha of .96, $p < .001$.

Dependent Measures

In this investigation, measures of the dependent variables were collected before intervention (i.e., before exposure to Component A) and after subjects had received each therapeutic component (i.e., after sessions 4, 8, and 12, or after Components A, B, and C). Such a plan allowed comparisons

to be made among measures collected after subjects had been exposed to Component A, Components A and B, or Components A and C (depending on sequence) and Components A, B, and C. In addition to administration on the occasions outlined above, the Depression Adjective Check List was collected at the beginning of every session and the Beck Depression Inventory and Minnesota Multiphasic Personality Inventory--Depression Scale were collected at the screening session.

The diagnostic interview using portions of questions from the Schedule for Affective Disorders and Schizophrenia (SADS) (Endicott & Spitzer, 1978) was conducted before intervention (i.e., at the preintervention diagnostic interview) and after the subjects had been exposed to all therapeutic components (i.e., after the fourth measurement occasion). The purpose of the final interview was to determine whether subjects continued to meet the criteria for minor or major depression after treatment has been provided and to determine whether they needed additional treatment. (See Table 3 to aid in conceptualizing measurement occasions.)

The dependent measures were divided into three categories--diagnoses made using the Research Diagnostic Criteria, global measures of depression (i.e., the Beck Depression Inventory, the Minnesota Multiphasic Personality Inventory--Depression Scale, and the Depression Adjective Checklist), and measures of specific response classes assumed to be associated with depression (i.e., the Automatic Thoughts Questionnaire--Frequency and Belief Scores, the Pleasant Events Schedule--Mood

Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale). These scores from dependent measures were collected in order to evaluate the effect of each therapeutic component on global depression, as well as on some of the specific response classes assumed to covary with depression. One specific response class, dysfunctional thoughts, as measured by the Automatic Thoughts Questionnaire, was tied theoretically by Beck to the treatment offered. The other two specific response classes, pleasant events and interpersonal skills, were related more directly to Lewinsohn's theoretical framework. Descriptions of the diagnoses, and the "global" and "specific measures of depression" follow.

Diagnoses from the Research Diagnostic Criteria

According to Lewinsohn and Lee (1981, p. 138), the Research Diagnostic Criteria (RDC) (Spitzer, Endicott, & Robins, 1978) "is the most elaborated and probably the best currently available diagnostic system for the affective disorders." The advantages of using the Research Diagnostic Criteria (see Appendix E-2) are that (a) it allows comparisons with past research, (b) it uses operational criteria in order to distinguish not only between affective disorders and any other psychiatric disorders, but also between the various subtypes of depression, and (c) it has generated data which suggest that such diagnoses can be made with reliability (i.e., kappa coefficients to assess inter-rater reliability are above chance levels, Lewinsohn & Lee, 1981).

In order to apply the Research Diagnostic Criteria, the principal investigator used a portion of questions from the Schedule for Affective Disorders (SADS) (Endicott & Spitzer, 1978; shortened version suggested by Lewinsohn, Biglan, Zeiss, 1976) to interview potential subjects before treatment (see Appendix E-1) and after treatment. Diagnoses from the RDC were based on these data. Reliability of diagnoses was assessed and is reported in the Results section.

Global Measures of Depression

The three following global measures of depression were selected because they are mentioned frequently within the depression literature. Such commonality permits comparisons to be made across studies.

Beck Depression Inventory (BDI). According to Hammen (1981, p. 262), the Beck Depression Inventory (Beck et al., 1961) "is probably the most satisfactory of the multisymptom self-rating scales" and is often used not only as a pre- and posttreatment measure but also as a periodic measure in depression research. The Beck Depression Inventory (Appendix C) is used best in evaluating the severity of depression. Subjects were instructed to endorse one answer within each of the 21 items, and the time frame was "the way you feel today, that is, right now." The inventory was scored by simply summing the highest numbers for each item that subjects endorse. (Therefore, high scores on the Beck Depression Inventory were more indicative of depression than

low scores. Scores were prorated when subjects omitted items, in order to facilitate valid comparisons.)

Although this measure is not without flaws (particularly when it is used to diagnose depression) (Hammen, 1981), the Beck Depression Inventory correlates highly with clinical ratings of severity of depression (Beck et al., 1961), with behavioral ratings of depression (Williams, Barlow, & Agras, 1972), and with other self-report measures of depression (Hammen, 1981).

Scores on the Beck Depression Inventory can range from 0 to 63. To be included in this study, subjects reported moderate to severe levels of depression (i.e., a prorated score of 20 or greater, the same criterion used by Beck and his associates).

Minnesota Multiphasic Personality Inventory--Depression Scale (MMPI-D). The Minnesota Multiphasic Personality Inventory--Depression Scale (see Appendix D) was developed originally to identify severely depressed patients using the "group contrast" method of test construction. The Depression Scale is a subscale within the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1942) and is used widely in depression research and in clinical settings. The Depression Scale consists of 60 heterogeneous true-false items which can be grouped into five subscales (i.e., subjective depression, psychomotor retardation, somatic complaints, complaints about mental dullness, and brooding) (Lewinsohn & Lee, 1981). The

Depression Scale was scored using its corresponding grading template, and high scores on this scale signified depression (scores were prorated when subjects omitted items in order to facilitate valid comparisons). To be included in this study, female subjects had to have a raw score of 29 or greater and male subjects had to have a prorated raw score of 26 or greater (i.e., both males' and females' scores were at least two standard deviations above the mean; T score of 70 or greater).

Depression Adjective Check List. The Depression Adjective Check List (DACL) (Lubin & Himelstein, 1976) was developed to assess "state depression" or an individual's mood at a given moment. The Depression Adjective Check List (see Appendix I) consists of seven parallel forms which instruct the subject to "Check the words which describe How You Feel Now-Today." The advantages of using the DACL include (a) its brevity and (b) its psychometric properties (e.g., high split half, alternative form, and internal consistency reliabilities) (Lewinsohn & Lee, 1981).

Specific Measures of Response Classes

Relevant to Depression

The three following specific measures were selected because there is evidence that dysfunctional thoughts, infrequent pleasant events, and problematic relationship covary with depression.

Automatic Thoughts Questionnaire. The Automatic Thoughts Questionnaire (ATQ-30) (Hollon & Kendall, 1980) was described previously and was used to assess the "frequency" and

"believability" of negative thoughts assumed to covary with depression. Here the Automatic Thoughts Questionnaire (see Appendix H) was not only used to operationalize depressive subtypes but was also used as a dependent measure.

Again the measure was selected because dysfunctional thoughts are assumed to be part of the depressive cluster, and Hollon and Kendall (1980) and Dobson and Brieter (1983) indicated that the psychometric standards of the measure are acceptable. Frequency scores and belief scores were considered separately. In order to facilitate comparisons, scores were prorated when subjects omitted items. High scores were indicative of dysfunction.

Pleasant Events Schedule--Mood-Related Subscale. The Pleasant Events Schedule (PES) (MacPhillamy & Lewinsohn, 1971) consists of a list of 320 events which Lewinsohn and MacPhillamy's sample rated as pleasurable. In this study, only the "mood-related subscale" (i.e., the activities which were correlated with improved mood) was used in order to economize on the effort required by the subjects.

The modified directions printed on the questionnaire instructed subjects to reflect upon the past two weeks (the original Pleasant Events Schedule specified a month) and to respond to every listed event, rating the event's "frequency" (0, has not happened in the past 14 days, through 2, has happened often in the past 14 days), and the event's "impact" (0, was neutral or unpleasant, through 2, was extremely pleasant). (The subscale and its

sample items taken from the Pleasant Events Schedule can be found in Appendix J.)

"Average cross-product" scores were calculated by multiplying the frequency and impact ratings for each event, summing across all events, and dividing by the number of events that the subject rated. Average cross-product scores could range between 0 (least adaptive) and 4 (most adaptive) and were assumed to reflect the amount of "response contingent positive reinforcement" that an individual has experienced during the past two weeks.

Interpersonal Events Schedule--Dysphoria-Related Subscale.

The Interpersonal Events Schedule (IES) (Youngren, Zeiss, & Lewinsohn, 1975) consists of 160 items which involve activities and conditions concerning interpersonal events. Again, in this study only the "dysphoria-related subscale" (i.e., the activities which were correlated with fluctuations in mood) was used.

The modified directions printed on the questionnaire instructed the subject to reflect upon the past two weeks (the original Interpersonal Events Schedule specifies a month) and to respond to every event, rating the event's "frequency" (0, has not happened in the past 14 days, through 2, has happened often in the past 14 days) and the event's "impact" (-2, felt very upset, through 2, felt very comfortable). (The Interpersonal Events Schedule--Dysphoria-Related Subscale and its corresponding directions are included in Appendix K.)

"Average cross-product" scores were calculated by multiplying the frequency and impact ratings for each event, summing across all events, and dividing by the number of events that the subject rated. Average cross-product scores could range between -4 (least adaptive) and 4 (most adaptive). These scores were interpreted as reflecting the "response-contingent positive social reinforcement" or "interpersonal aversiveness" the subject has received during the past "two weeks."

Participants

The participants in this study included the principal investigator, two raters, and six assistants. The principal investigator served as diagnostician and therapist in this study. Two raters listened to portions of the audiotaped interviews or sessions for the following purposes: (a) to demonstrate adequate diagnostic reliability in using the Research Diagnostic Criteria; and (b) to demonstrate that the three therapeutic components could be discriminated. Five psychology graduate students and one psychology undergraduate assisted in scoring the questionnaires. All questionnaires were scored at least twice in order to facilitate accuracy.

Procedure

Screening Sessions

Potential subjects who contacted the principal investigator expressing an interest in the research project and who met the criteria specified in the section entitled "Recruiting

Subjects" were scheduled for a screening session. The screening sessions were conducted with 1 to 18 people in attendance depending on the current level of interest.

First, the principal investigator described the procedures to be followed during that session and obtained subjects' informed consent for participation (see Appendix L for Consent Form I). In addition, the investigator described the details of the treatment contract (see Appendix M for Consent Form II), but emphasized that at the time the subjects were participating only in a screening session. In describing the research project and "treatment contract," the investigator emphasized that the primary motivation for this project was research on the assessment and treatment of depression and mentioned that other, alternative forms of treatment were available (i.e., a list of referrals was available to the potential subjects; see Appendix B).

All interested subjects completed the Beck Depression Inventory (see Appendix C), and if their scores were 20 or greater they completed the Minnesota Multiphasic Personality Inventory--Depression Scale (see Appendix D). The questionnaires were scored at the screening session, and subjects whose scores fell within the depressed range were scheduled for a diagnostic interview. Subjects who did not meet the criteria outlined previously were given an explanation for their exclusion and appropriate referrals (see Appendix B).

Preintervention Diagnostic Interview

The potential subjects scheduled for a diagnostic interview were asked questions from a portion of the Schedule for Affective Disorders and Schizophrenia (see Appendix E-1). Subjects who did not express strong suicidal tendencies but who received a diagnosis of major depressive disorder were included in the sample. Again, inappropriate subjects were given explanations and a list of referrals (see Appendix B).

The principal investigator reviewed the treatment contract which described the procedures, and eligible subjects provided informed consent (see Appendix M for Consent Form II). Subjects who were still interested in participating were given either an appointment for their first session or a date on which the principal investigator would telephone them to arrange the time for the first therapy session.

Periodic Assessment

Assessment packet. At the beginning of the first, fifth, and ninth treatment sessions and before the postintervention diagnostic interview (i.e., before exposure to Component A, before exposure to Components B and C, and after exposure to all components) the subjects completed an "assessment packet." This packet contained the Beck Depression Inventory, the Minnesota Multiphasic Personality Inventory--Depression Scale, the Depression Adjective Check List, the Automatic Thoughts Questionnaires, the Pleasant Events Schedule--Mood-Related Subscale, and the Interpersonal Events Schedule--Dysphoria-Related Subscale (see Appendices C, D, I, H, J, and K).

A measure of suicidal tendencies. At each therapy session, subjects were asked to rate the following statement on a 5-point Likert scale (i.e., 1, not at all, through 5, often). "I have been bothered by suicidal thoughts since our last session." The principal investigator interviewed subjects whose scores were greater than 1 in order to determine whether they continued to be appropriate subjects for a research project. No subject had to withdraw from this investigation because of suicide risk.

Therapy Groups

After screening sessions and diagnostic interviews were completed, the first group therapy session began. Six groups of subjects were formed as subjects became available. Groups 1 and 2 began in mid-March of 1983. Group 3 began in mid-April of 1983, and Groups 4-6 began in early May 1983.

Groups 1, 4, and 6 received the treatment components in the following sequence: Component A, Component B, and Component C. Groups 2, 3, and 5 received the treatment components in the following order: Component A, Component C, and Component B. The groups were randomly assigned to each sequence with the following constraints. Attempts were made to maintain equal numbers of subjects within each sequence, and both sequences were distributed over the time period in which the study was conducted. (See Table 4 for a description of the six therapy groups.)

Group 1 included four subjects (two "low" subtypes and two "high" subtypes). Group 2 contained five subjects

(two "low" subtypes and three "high" subtypes). Group 3 included seven subjects (four "low" subtypes and three "high" subtypes). Group 4 had six subjects (two "low" subtypes and four "high" subtypes), and Group 5 had eight subjects (four "low" subtypes and four "high" subtypes). Group 6 included seven subjects (three "low" subtypes and four "high" subtypes). Groups 1, 2, 5, and 6 contained at least one male. Groups 3 and 4 contained only females. (See Table 1 for breakdown of groups by subjects' sex.)

Treatment Sessions

All 37 subjects participated in 12 treatment sessions. If a subject was absent from a session, he or she had to make the session up by listening to an audiotape of the session missed. (Twenty-nine make-up sessions were held.) The session had to be made up before the subject could progress to the next session. The sessions lasted approximately 120 minutes each. (These 12 sessions are described in Appendix G.) The sessions occurred twice a week for six weeks. At the beginning of every session, the subjects completed the Depression Adjective Check List and the measure of suicidal tendencies. At the beginning of sessions 1, 5, 9, and before the postintervention diagnostic interview (i.e., after exposure to each component), subjects completed the assessment packet described above.

All subjects received Component A (i.e., detecting and monitoring dysfunctional thoughts) first. The subjects then received either Component B (i.e., evaluating and correcting

dysfunctional thoughts through a logical means) second or third and received Component C (i.e., evaluating and correcting dysfunctional thoughts through an empirical means) second or third.

Postintervention Diagnostic Interview

At the 12th treatment session, subjects were reminded of their postintervention diagnostic interview. Before the interview, subjects completed the assessment packet. The interview repeated questions from a portion of the Schedule for Affective Disorders and Schizophrenia (see Appendix E-1). Referrals were made if subjects continued to meet the criteria for a depressive diagnosis or if they requested a referral.

Debriefing Session

After the subjects had been exposed to all therapeutic components and had completed the assessment packet and post-intervention diagnostic interview, they attended a debriefing session (see Appendix N). The purposes of this session were to (a) provide appropriate termination to the group therapy; (b) debrief subjects regarding the nature of the research hypotheses; and (c) provide referrals for potential future or further treatment.

During the debriefing session, subjects completed the Depression Adjective Check List and a questionnaire which was designed to assess their evaluation of the research project (see Appendix O). All subjects indicated that they would recommend the project to a friend who was depressed.

The sample's average rating of amount of improvement during the study was 6.688 (possible range 0, no improvement, through 9, complete improvement; actual range of 5-9).

Follow-up Telephone Call

One to two months after treatment, 34 of the 37 subjects (three subjects were unavailable) received a follow-up telephone call in order to (a) assess whether the subject wanted additional assistance locating other psychological services and (b) to provide appropriate closure to this investigation. (The questions the principal investigator asked and the form she completed during the telephone conversation can be found in Appendix P). This follow-up telephone call indicated that three subjects described themselves as "very depressed," 13 subjects described themselves as "mildly depressed," and 18 subjects described themselves as "not depressed at all." Seven subjects were continuing psychological treatment (not always for depression), and one person requested and was given a referral.

CHAPTER III

RESULTS¹Checks on ManipulationsDifferent Therapeutic Components

A judge was used to determine whether the three different therapeutic components (A, B, and C) were discriminable from each other and were adequately implemented. The judge listened to audiotapes of 12 therapy sessions. The audiotapes were randomly selected within the following constraints: two different components were selected for each therapy group, and each component was represented at least twice across the six groups. These constraints resulted in the following audiotapes being selected: Component A (fourth session for Group 2, 3, and 5; first session for Group 6), Component B (fourth session for Group 1 and second session for Group 4), and Component C (first session for Group 1 and 6; second session for Group 4; third session for Groups 2 and 5; and fourth session for Group 3). The judge, a psychology graduate student entering her second year of clinical training, correctly identified each component from the 12 audiotaped sessions (see Appendix Q for the rating sheet used). With the exception of one minute on one audiotape, the judge maintained that the subjects talked about the component being taught (rather than a different component). The judge rated the subjects' average understanding of the skills and

concepts taught as 5.667 (1, no understanding, through 7, complete understanding), and rated the therapist's average demonstration of clinical skill as 6.833 (1, skills poorly demonstrated, through 7, skills clearly demonstrated).

Differential Severity of Dysfunctional Thoughts

Analyses of variance performed on prorated frequency and belief scores from the Automatic Thoughts Questionnaire suggested that there were in fact two distinct subtypes of depressives in the study. (Prorating on these measures, as well as all other prorated measures, was conducted by forming a proportion in the following manner: the subject's score on the items answered was multiplied by the total number of items on the questionnaire, and this result was divided by the number of items answered.) The two subtypes consisted of subjects with a high frequency of dysfunctional thoughts (termed "highs") and of subjects with a low frequency of dysfunctional thoughts (termed "lows"). The mean of the subjects with high prorated frequency scores on the Automatic Thoughts Questionnaire (Mean = 103.424) differed significantly from the mean of the subjects with low prorated frequency scores (Mean = 74.108), $F(1, 33) = 21.80$, $p \leq .0001$. Similarly, the mean of the subjects with high prorated belief scores on the Automatic Thoughts Questionnaire (Mean = 102.453) differed significantly from the mean of the subjects with low prorated belief scores (Mean = 75.290), $F(1, 33) = 15.32$, $p \leq .0004$. Each subject's initial

prorated frequency score from the Automatic Thoughts Questionnaire can be found in Table 1 (Appendix F).

Interobserver Agreement for the Diagnoses from
the Research Diagnostic Criteria

A rater was used to determine whether the diagnoses made from the Research Diagnostic Criteria were reliable in this investigation. A rater listened to 25% of the audiotaped diagnostic interviews (see Appendix E-2 for the Schedule of Affective Disorders and Schizophrenia Outline: Shortened Version) conducted before treatment began (15 audiotapes) and 25% of the interviews--conducted after treatment began (9 audiotapes). In selecting the pretreatment audiotapes, all of the subjects who were excluded from the study because depression was "secondary" to another psychological disorder were included (seven audiotapes). The other eight audiotapes were randomly selected from all diagnostic interviews completed before treatment began. The nine post-treatment audiotapes were randomly selected from the diagnostic interviews conducted with the 37 subjects completing the study. The rater, a psychology graduate student entering his fourth year of clinical training, was blind to (a) the "pre" or "post" status of each tape, and (b) the experimental condition or diagnostic category of each subject (primary depression, secondary depression, or not depressed). The rater completed the questionnaire in Appendix R to facilitate his ratings. Interobserver

agreement on the diagnostic categories selected for each subject by the principal investigator and the rater was calculated using the following formula: agreements divided by agreements plus disagreements. Agreements were defined as both diagnosticians agreeing on the diagnosis: (a) the subject met the criteria for a major or minor depressive disorder; (b) the subject met the criteria for a depressive disorder, but depression was secondary to another psychological disturbances; or (c) the subject did not meet the criteria for either a minor or major depressive disorder. Disagreements were defined as the diagnosticians selecting different combinations of the diagnostic categories listed above for the same subject. Thus, calculated interobserver agreement equaled .75.

Overall Treatment Effectiveness and Differential

Effectiveness of Therapeutic Components

in Treating Depression

Overview of the Results

All analyses from this study supported the prediction that scores collected after subjects were exposed to cognitive-behavioral therapy would indicate significantly less depression than the scores collected before treatment began. The therapeutic components were differentially effective in treating depression. In particular, teaching subjects to evaluate and to correct their thoughts through "logical analysis" (Component B) or by "hypothesis testing" (Component C) had a more positive

effect than teaching subjects to detect and to monitor their dysfunctional thoughts (Component A). For some measures, the component received last (B or C) produced the greatest effect. Generally, the pattern of results suggested that the combination of self-monitoring, logical analysis, and hypothesis testing more effectively reduces depression than any of the components used alone.

The statistical analyses used to address the questions of overall treatment effectiveness and of differential effectiveness of the therapeutic components in ameliorating depression included the binominal test on the diagnoses from the Research Diagnostic Criteria and multivariate and univariate analyses of variance on the global measures of depression (i.e., the Beck Depression Inventory, the Minnesota Multiphasic Personality Inventory--Depression Scale, and the Depression Adjective Check List). Following multivariate and univariate analyses of variance, post hoc tests were performed.

Diagnoses from the Research Diagnostic Criteria

Before treatment began, all of the 37 subjects were diagnosed by the principal investigator as meeting the Research Diagnostic Criteria for a major depressive disorder. After receiving cognitive-behavioral therapy, only 7 subjects continued to meet the criteria for a major depressive disorder, according to the principal investigator's diagnoses. The binominal test compares the values obtained to the binominal sampling distribution, "a sampling distribution of

the proportions we might observe in random samples drawn from a two-class population" (Siegel, 1956, p. 36). Here the probability of obtaining seven depressive diagnoses after treatment was compared to the expected probability of .50. According to Table A (Siegel, 1956), containing probabilities associated with the binominal test, this test demonstrated that the probability of obtaining 37 depressive diagnoses before treatment ($N = 37$) and of obtaining seven depressive diagnoses after treatment ($\underline{x} = 7$) by chance was $\leq .0002$, where $z = -.362$. This statistically significant result supported the prediction that subjects would not be depressed after treatment.

Global Measures of Depression

Multivariate analyses. A multivariate analysis of variance done on the global measures of depression supported the prediction that overall cognitive-behavioral therapy produced positive change in the subjects' depression. The global measures of depression, collected before treatment began and after each therapeutic component was administered, included prorated raw scores from the Beck Depression Inventory, prorated raw scores from the Minnesota Multiphasic Personality Inventory--Depression Scale, and raw scores from the Depression Adjective Check List.

The multivariate analysis of variance on the weighted combination of global measures of depression (Table 5) revealed a significant main effect for measurement occasions with a Wilks' lambda of .340, which is equivalent to $F(9, 236) = 14.63$, $p \leq .0001$, and a significant sequence X measurement occasion interaction with a Wilks' lambda of .785

which is equivalent to $F(9, 236) = 2.75, p \leq .005$). No other main effects or interactions were statistically significant.

Within the significant effect for measurement occasions the Depression Adjective Check List was weighted most, the Beck Depression Inventory received the next highest weight, and the Minnesota Multiphasic Personality Inventory--Depression Scale received the smallest weight. For the significant sequence X measurement occasion interaction, the variables were weighted in the following order: Beck Depression Inventory (most), the Minnesota Multiphasic Personality Inventory--Depression Scale, and the Depression Adjective Check List (least).

The Scheffé post hoc test (Gaebelin, n.d.) comparing the means of the weighted combinations of the global measures of depression comprising the significant sequence X measurement occasion interaction (Table 6 and Figure 1) supported the prediction that at Sequence ABC scores collected after hypothesis testing (Component C Canonical Mean = .455), logical analysis (Component B Canonical Mean = .460), and self-monitoring dysfunctional thoughts (Component A Canonical Mean = .668) would show significantly less depression than scores collected before treatment began (Before A Canonical Mean = .829).

(Lower scores indicated less depression.) A similar pattern was found at Sequence ACB, where scores collected after logical analysis (Component B Canonical Mean = .506) and after

hypothesis testing (Component C Canonical Mean = .630) indicated less depression than the scores collected before treatment began (Before A Canonical Mean = .955). In contrast to the predicted effectiveness of Component A, however, and in contrast to the results for Sequence ABC, scores collected after Component A, at Sequence ACB, (Component A Canonical Mean = .851) did not show significantly less depression than scores collected before treatment began.

With reference to the differential effectiveness of therapeutic components, the following results were obtained. As predicted for either sequence, both logical analysis and hypothesis testing produced greater improvement in depression than self-monitoring. In contrast to the predicted superiority of hypothesis testing over logical analysis, there was no statistically significant difference between the two components, for either sequence. At the same time, the most adaptive scores for either sequence were found at the component that subjects received last (although scores after Components B and C did not statistically differ). That is, for Sequence ABC, Component C (hypothesis testing) produced the most adaptive scores; and for Sequence ACB, Component B (logical analysis) produced the most adaptive scores. Scheffé's post hoc test (Table 7) also demonstrated that, before treatment began, subjects who received the sequence of treatment ABC (Canonical Means = .829) were significantly less depressed than subjects who received the sequence of treatment ACB (Canonical Mean = .955).³

Similarly, after exposure to Components A and C, the subjects in the sequence ABC (after A Canonical Mean = .668; after C mean = .455) were significantly less depressed than subjects in the sequence ACB (After A Canonical Mean = .851, after C Canonical Mean = .630). After exposure to Component B, subjects' scores in the two sequences did not differ significantly. These results suggested that after exposure to Component A, the differences between the two sequences, apparent before treatment began, were maintained. However, the difference between the two sequences after subjects were exposed to Component C reflected the different combinations of treatment to which subjects had been exposed. That is, the subjects in sequence ABC had been exposed to Components A, B, and C when the scores after C were collected. Yet subjects in the Sequence ACB had been exposed only to Components A and C. Although it could be argued that the differences between the two sequences reflect pretreatment differences, this is unlikely, since comparable differences were not found after subjects were exposed to Component B. Instead, these results suggest that after Component C, the combination of Components A, B, and C more effectively ameliorated depression, according to the combined and weighted global measures, than just the Components A and C. It is also possible, however, that these results reflect the superiority of the component received last.

Beck Depression Inventory. An analysis of variance on the prorated raw scores from the Beck Depression Inventory supported the prediction that therapy would be effective in

ameliorating depression. This analysis of variance was performed on prorated raw scores collected at screening, before treatment, and after each therapeutic component was administered. This analysis (Table 8) indicated a significant main effect for measurement occasion $F(4, 132) = 53.80; p \leq .0001$. The means comprising this main effect were 31.865 (screening), 29.28 (before A), 25.9 (after A), 17.149 (after B), and 17.676 (after C). The analysis also showed a significant effect for sequence X measurement occasion, $F(4, 132) = 3.74, p \leq .01$. All other effects were nonsignificant.

The Newman-Keuls post hoc comparisons among the means comprising the significant sequence X measurement occasion interaction (Table 9 and Figure 2) did not completely support the prediction that, for both sequences, the scores collected after exposure to each therapeutic component would show significantly less depression than either the scores collected at the screening sessions or the scores collected before treatment began. In contrast to the predicted effectiveness of Component A, for both sequences scores collected after Component A (ABC Mean = 27.312; ACB Mean = 24.7) did not show significantly less depression than scores collected before treatment (ABC Mean = 30.882; ACB Mean = 27.912). However, when the scores collected after Component A for either sequence are compared to the scores collected at the screening session (ABC Mean = 34.059; ACB Mean = 30.0), the scores collected after Component A show significantly less depression. (Lower scores indicated less depression.) As would be

expected (since no treatment occurred), the scores collected at the screening session did not differ significantly from the scores collected before Component A, for either sequence. In support of the predicted effectiveness of all components, at Sequence ABC, scores collected after logical analysis (Component B Mean = 21.706) and after hypothesis testing (Component C Mean = 17.0) indicated significantly less depression than scores collected before Component A or at the screening session. The same pattern of results occurred within Sequence ACB, where scores collected after hypothesis testing (Component C Mean = 18.250) and after logical analysis (Component B Mean = 13.275) showed significantly less depression than scores collected before Component A or at the screening session.

With reference to the differential effectiveness of therapeutic components, the following results were obtained. As predicted for both sequences, logical analysis and hypothesis testing produced significantly less depression than self-monitoring. Results comparing the effectiveness of hypothesis testing and logical analysis were influenced by the sequence in which subjects received treatment. For Sequence ABC, exposure to hypothesis testing (Component C) produced significantly less depression than exposure to logical analysis (Component B). The treatment received last (Component C) produced the least depressed scores. For sequence ACB, exposure to logical analysis (Component B)

produced significantly less depression than exposure to hypothesis testing. For either sequence, the treatment received last resulted in the most adaptive scores.

Newman-Keuls post hoc test (Table 10) also demonstrated that at the screening session, subjects who received the sequence of treatment ACB (Mean = 30.0) were significantly less depressed than subjects who received the sequence of treatment ABC (Mean = 34.058).³ After receiving Component B, subjects in treatment sequence ACB (Mean = 13.275) were significantly less depressed than subjects in the treatment sequence ABC (Mean = 21.706). The difference between the two sequences reflected the different combinations of treatment to which subjects had been exposed. The subjects in sequence ABC had been exposed only to Components A and B when scores "after B" were collected. However, the subjects in sequence ACB had been exposed to Components A, B, and C when the scores "after B" were collected. The statistically significant differences between the two sequences suggests that for logical analysis, the combination of Components A, B, and C more effectively reduces depression than just the Components A and B. It is also possible that these results reflect the superiority of the component received last. When the combination of Components A, B, and C is compared to only Components A and C for hypothesis testing, no significant differences were revealed.

Minnesota Multiphasic Personality Inventory--Depression Scale. An analysis of variance on the prorated raw scores from

the Minnesota Multiphasic Personality Inventory--Depression Scale upheld the predicted effectiveness of treatment. This analysis of variance was performed on the prorated raw scores collected at screening, before treatment, and after each therapeutic component had been completed. This analysis (Table 11) showed a significant main effect for measurement occasion, $F(4, 132) = 17.45, p \leq .0001$. All other main effects and interactions were not significant.

The Newman-Keuls post hoc comparisons among the means producing the significant measurement occasions effect (Table 12) did not completely support the prediction that the scores collected after subjects were exposed to each therapeutic component would show significantly less depression than the scores collected at the screening session or the scores collected before treatment began. In contrast to the predicted effectiveness of self-monitoring, the scores collected after Component A (Mean = 37.276) did not indicate significantly less depression than the scores collected either at the screening session (Mean = 37.269) or before exposure to Component A (Mean = 37.482). (Lower numbers indicated less depression.) In support of the predicted effectiveness of all components, scores collected after exposure to logical analysis (Component B Mean = 31.408) and after exposure to hypothesis testing (Component C Mean = 32.207) showed significantly less depression than scores at the screening session or before exposure to Component A.

The following results were obtained regarding the differential effectiveness of each therapeutic component.

As predicted, both logical analysis and hypothesis testing ameliorated depression more than self-monitoring. In contrast to the predicted superiority of hypothesis testing, there was no difference between logical analysis and hypothesis testing in reducing depression.

Depression Adjective Check List. Two analyses of variance performed on raw scores of the Depression Adjective Check List supported the prediction of treatment efficacy. The first analysis of variance was conducted on raw scores collected before treatment started and after each therapeutic component had been completed. This analysis (Table 13) revealed a significant effect for measurement occasion $F(3, 99) = 40.55, p \leq .0001$. No other main effects or interactions were statistically significant.

The Newman-Keuls post hoc test of the means within the significant effect for measurement occasion (Table 14) supported the prediction that all components would effectively ameliorate depression. The results showed that after receiving Component A (Mean = 16.541), Component B (Mean = 10.486) or Component C (Mean = 10.892), subjects reported less depression than before treatment (before A Mean = 20.405). (Lower scores indicated less depression.)

The Newman-Keuls test produced the following results in relation to predictions concerning the differential effectiveness of components. As predicted, subjects reported significantly less depression after receiving Components B or C than after receiving Component A. In contrast to the predicted

superiority of Component C over B, there was no significant difference between the two components in ameliorating depression.

The second analysis of variance was performed on the Depression Adjective Check List raw scores collected at the beginning of the first treatment session, on three different means of the scores collected at the beginning of the four sessions corresponding to Components A, B, and C, and on raw scores collected at the debriefing session (i.e., score at first session, $Mean_A$, $Mean_B$, $Mean_C$, and score at debriefing session.² The second analysis was performed in order to analyze the data collected at every session. This analysis (Table 15) indicated a significant main effect for measurement occasion, $F(4, 127) = 46.25, p \leq .0001$. All other effects were nonsignificant.

The pattern of results produced by the second analysis replicated those produced by the first analysis. The Newman-Keuls test of means comprising the significant effect for measurement occasions (Table 16) supported the prediction that all components would reduce depression. That is, after receiving Component A (Mean = 15.975), Component B (Mean = 12.234), or Component C (Mean = 12.975) subjects were significantly less depressed than they were before treatment began (before A Mean = 20.405). Additional support for the predicted effectiveness of all components is the fact that at the debriefing session (Mean = 9.562), subjects' scores showed significantly less depression than did the scores

collected after A, B, or C and the scores collected before treatment began.

Results pertaining to the differential treatment effectiveness of components follow. As predicted, after exposure to Component B or Component C, subjects were significantly less depressed than they were after exposure to Component A. In contrast to the predicted superiority of Component C, there was no significant difference between subjects' scores on the Depression Adjective Check List after Component B and scores after Component C.

Summary

Both multivariate and univariate analyses supported the prediction that scores would indicate less depression after subjects were exposed to cognitive-behavioral therapy than before treatment began. All analyses on all dependent measures supported the predicted effectiveness of logical analysis (Component B) and hypothesis testing (Component C). The therapeutic effectiveness of self-monitoring (Component A) was supported only by the multivariate analysis of variance at Sequence ABC, the univariate analysis of variance on the Depression Adjective Check List, and the univariate analysis of variance on the Beck Depression Inventory, and only when scores collected after Component A were compared to scores collected at screening. (Scores collected before A did not differ significantly from those collected after A.) The analyses of the Minnesota Multiphasic Personality Inventory--Depression

Scale did not support the predicted effectiveness of self-monitoring.

All measures and their analyses supported the prediction that logical analysis and hypothesis testing would ameliorate depression more than self-monitoring. No measures supported the prediction that hypothesis testing, because of its generalized influence, would reduce global measures of depression more than logical analysis. Multivariate analyses of the global measures and univariate analyses of both the Minnesota Multiphasic Personality Inventory--Depression Scale and the Depression Adjective Check List revealed no significant difference between Components B and C. Multivariate analyses revealed that the component subjects received last produced the most adaptive scores. Univariate analysis of the Beck Depression Inventory also suggested that the component received last ameliorated depression most. According to the Beck Depression Inventory logical analysis reduced depression significantly more than hypothesis testing only, when hypothesis testing preceded logical analysis (at Sequence ACB). Conversely, when logical analysis preceded hypothesis testing, hypothesis testing reduced depression significantly more than logical analysis. Univariate analyses also showed that the therapeutic effect of logical analysis was significantly greater when used in combination with self-monitoring and hypothesis testing than when used only with self-monitoring. These analyses demonstrated that the effect of hypothesis testing

was significantly greater when used in combination with self-monitoring and logical analysis than when used only with self-monitoring or reflected the superiority of the component received last.

The Influence of Each Therapeutic Component
on Specific Measures of Response Classes
Relevant to Depression

Overview of the Results

The second research question addressed was--What are some of the response classes within the depressive cluster which are influenced by each therapeutic component? Exposure to Component A positively influenced scores on the Interpersonal Events Schedule--Dysphoria-Related Subscale (rather than Component A influencing only measures of dysfunctional thoughts, as was predicted). Exposure to Component B or C positively influenced frequency and belief scores on the Automatic Thoughts Questionnaire, scores on the Pleasant Events Schedule--Mood-Related Subscale, and scores on the Interpersonal Events Schedule--Dysphoria-Related. These results were in contrast to the predicted exclusive effect of Component C on the subscales of the Pleasant Events Schedule and Interpersonal Events Scale. Reasoning that both Components B and C target dysfunctional thoughts, it was predicted that both components would be equally effective in reducing dysfunctional thoughts. However, this prediction was not supported, as Component B reduced dysfunctional thoughts significantly more than Component C. (However,

it should be noted that, on the frequency scores from the Automatic Thoughts Questionnaire, this effect was influenced by sequence of treatment.) Reasoning that Component C would have a "broad" influence and Components A and B would have a "narrow" influence, it was predicted that only Component C would influence positively pleasant events and interpersonal relationships. This prediction was not supported. Instead, exposure to both logical analysis and hypothesis testing resulted in treatment gains. Surprisingly, after exposure to Component B, scores on the subscales of the Pleasant Events Schedule and the Interpersonal Events Schedule were significantly more adaptive than after exposure to Component C.

Multivariate and univariate analyses of variance were used to address questions involving the influence of each therapeutic component on the specific measures of response classes relevant to depression and were followed by post hoc tests. The "specific measures" of response classes relevant to depression included the prorated frequency scores from the Automatic Thoughts Questionnaire, prorated belief scores from the Automatic Thoughts Questionnaire, average cross-product scores from the Pleasant Events Schedule--Mood-Related Subscale, and average cross-product scores from the Interpersonal Events Schedule--Dysphoria-Related Subscale. All of these "specific measures" were collected before treatment began and after subjects were exposed to each therapeutic component.

Specific Measures of Response Classes

Relevant to Depression

Multivariate analyses. A multivariate analysis of variance conducted on the specific measures of response classes relevant to depression upheld the prediction of overall treatment efficacy. These measures included prorated frequency scores from the Automatic Thoughts Questionnaire, prorated belief scores from the Automatic Thoughts Questionnaire, average cross-product scores from the Pleasant Events Schedule--Mood-Related Subscale, and average cross-product scores from the Interpersonal Events Schedule--Dysphoria-Related Subscale. These measures were collected before treatment started and after the subjects were exposed to each component of therapy.

The multivariate analysis of variance conducted on the weighted combinations of specific measures of response classes relevant to depression (Table 17) showed a significant main effect for subtype with a Wilks' lambda of .586, which is equivalent to $F(4, 30) = 5.29, p \leq .002$; and for measurement occasion with a Wilks' lambda of .438, which is equivalent to $F(12, 254) = 7.75, p \leq .0001$.

Within the significant effect for subtype, the univariate means on all specific measures for the high subtypes were less adaptive than the univariate means on all specific measures for the low subtypes. (Mean frequency scores, Automatic Thoughts Questionnaire, highs = 103.424, lows = 74.108; Mean belief scores--Automatic Thoughts Questionnaire

highs = 102.453, lows = 74.108; Mean subscale scores--Pleasant Events Schedule, highs = 1.399, lows = 1.770; and Mean subscale scores Interpersonal Events Schedule, highs = -.5151, lows = -.2402). Within the significant main effect for subtype, the specific measures were weighted in the following order: subscale scores on the Pleasant Events Schedule (most), frequency scores on the Automatic Thoughts Questionnaire, belief scores on the Automatic Thoughts, Questionnaire, and subscale scores on the Interpersonal Events Schedule (least).

Within the significant main effect for measurement occasions, the specific measures were weighted in the following order: belief scores on the Automatic Thoughts Questionnaire (most), frequency scores on the Automatic Thoughts Questionnaire, subscale scores on the Pleasant Events Schedule, and subscale scores on the Interpersonal Events Schedule (least). Scheffé post hoc tests were performed to compare the weighted combinations of the specific measures of response classes which are relevant to depression and comprise the significant effect for measurement occasion (Table 18, Figure 3). This analysis demonstrated that the canonical means were significantly more adaptive after subjects were exposed to Component B (Canonical Mean = .199) or Component C (Canonical Mean = .264) than after subjects were exposed to Component A (Canonical Mean = .377) or before treatment (before A Canonical Mean = .394). (In all of these comparisons, the univariate means on all specific measures were more

adaptive for Components B or C than for Component A or before treatment.) The post hoc analysis also showed that the canonical means were not significantly more adaptive after exposure to Component A than before exposure to Component A. The combined and weighted combinations of specific measures collected after exposure to Component B did not differ significantly from those collected after exposure to Component C.

Automatic Thoughts Questionnaire--Frequency Scores. An analysis of variance performed on prorated frequency scores from the Automatic Thoughts Questionnaire demonstrated that the high subtype's frequency of dysfunctional thoughts was significantly greater than the lows and also supported the prediction that all subjects' frequency of dysfunctional thoughts would be lower after treatment than before. This analysis (Table 19) revealed significant main effects for subtype, $F(1, 33) = 21.80, p \leq .0001$; and for measurement occasion, $F(3, 99) = 27.38, p \leq .01$; and a significant sequence by measurement interaction $F(3, 99) = 3.87, p < .01$.

The means comprising the main effect for subtype showed that the high subtype (Mean = 103.424) reported significantly more dysfunctional thoughts than the low subtype (Mean = 74.108). (Lower scores are more adaptive.)

Newman-Keuls post hoc analysis of the means comprising the sequence X measurement occasion interaction (Table 20 and Figure 4) did not support the hypothesis that exposure

to all therapeutic components would reduce the frequency of dysfunctional thoughts over baseline. Comparisons at Sequence ABC showed that only Component B (Mean = 82.882) and Component C (Mean = 76.00) significantly reduced the frequency of dysfunctional thoughts when compared to the frequency of dysfunctional thoughts before treatment began (before A Mean = 103.817). At Sequence ABC, the frequency of dysfunctional thoughts reported after exposure to Component A (Mean = 102.91) did not differ significantly from the frequency before exposure to Component A. Similarly, comparisons at Sequence ACB indicated that only Component B (Mean = 67.85) and Component C (Mean = 85.15) significantly reduced the frequency of dysfunctional thoughts when compared to pre-treatment levels (before A Mean = 100.739). Comparisons of the frequency of dysfunctional thoughts were not significantly less after exposure to Component A (Mean = 100.156) than before treatment began.

As predicted, for both sequences exposure to Components B and C reduced dysfunctional thoughts more than exposure to Component A. Reasoning that Components B and C both target dysfunctional thoughts, it was predicted that they would be equally effective in reducing dysfunctional thoughts. However, at Sequence ACB (when hypothesis testing preceded logical analysis), Component B reduced the frequency of dysfunctional thoughts significantly more than Component C. Since scores collected after exposure to Components B and C

did not differ significantly in Sequence ABC, thus the superiority of logical analysis over hypothesis testing in reducing dysfunctional thoughts may only occur when subjects have been exposed first to hypothesis testing. For either sequence, the treatment received last resulted in the most adaptive scores (although Components B and C produced significantly different scores only for Sequences ACB).

Newman-Keuls post hoc test (Table 21) also demonstrated that, after receiving Component B, subjects in the treatment sequence ACB (Mean = 67.85) reported significantly fewer dysfunctional thoughts than subjects in the treatment sequence ABC (Mean = 82.882). The difference between the two sequences reflects the different combinations of treatment. Subjects ABC had been exposed only to Components A and B when scores "after B" were collected; however, the subjects in the sequence ACB had been exposed to Components A, B, and C when the scores "after B" were collected. Complementary findings occurred after subjects received Component C. That is, "after C" subjects in the treatment sequence ABC (Mean = 76.0) reported significantly fewer dysfunctional thoughts than subjects in the sequence ACB (Mean = 86.15). Such results suggest that for either logical analysis or hypothesis testing, the combination of Components A, B, and C more effectively reduces dysfunctional thoughts than either Component A and B or Components A and C. It is also possible, however, that these results reflect the superiority of the component received last. No significant

differences were found between the sequences before treatment or after exposure to Component A.

Automatic Thoughts Questionnaire--Belief Scores. An analysis of variance performed on the prorated belief scores from the Automatic Thoughts Questionnaire showed that the high subtypes' belief in dysfunctional thoughts was significantly greater than the lows' and supported the prediction that all subjects' belief in dysfunctional thoughts would be lower after treatment than before. This analysis (Table 22) produced a significant main effect for subtype, $F(1, 33) = 15.32, p \leq .0001$ and for measurement occasions, $F(3, 99) = 26.20, p \leq .0001$. The other effects were not significant.

The means comprising the main effect for subtype indicated the high subtype (Mean = 102.453) believed their dysfunctional thoughts significantly more than the low subtypes (Mean = 75.290).

The Newman-Keuls post hoc comparisons of the means within the significant main effect for measurement occasion (Table 23) disconfirmed the hypothesis that all of the components would significantly reduce the credence that subjects placed in their dysfunctional thoughts. When compared to preintervention scores (before A Mean = 100.401), only Component B (Mean = 74.231) and Component C (Mean = 83.809) significantly reduced subjects' "degree of belief" in dysfunctional thoughts. Subjects' scores after exposure

to Component A (Mean = 100.41) did not differ significantly from scores before treatment. Both Components B and C reduced credence in dysfunctional thoughts significantly more than Component A, as predicted. In contrast to the predicted equivalence between Components B and C (reasoning that both components targeted dysfunctional thoughts), post hoc comparisons showed that Component B reduced credence in dysfunctional thoughts significantly more than Component C.

Pleasant Events Schedule--Mood-Related Subscale. An analysis of variance conducted on average cross-product scores from the Pleasant Events Schedule--Mood-Related Subscale substantiated the prediction that exposure to treatment would increase the subjects' average frequency and enjoyability of pleasant events. The analysis of variance (Table 24) indicated that the main effect for measurement occasion was significant, $F(3, 147) = 13.333$, $p < .0001$. The other effects in the analysis were not significant at conventional significance levels. However, it is noteworthy that the main effect for subtype, $F(1, 33) = 3.75$, $p = .06$, tended to show that the high subtypes (Mean = 1.399) engaged in and enjoyed pleasant events less than the low subtypes (Mean = 1.77). (Higher scores were more adaptive.) The Newman-Keuls post hoc comparisons of the means comprising the significant main effect for measurement occasion refuted the prediction that average cross-product

scores on the Pleasant Event Schedule--Mood-Related Subscale would increase (i.e., subjects would engage in and enjoy more pleasant events) only after exposure to hypothesis testing (Component C). Average cross-product scores increased significantly more after subjects were exposed to Component B (Mean = 1.85) and Component C (Mean = 1.66) than the average cross-product scores before treatment (before A Mean = 1.33) or after exposure to Component A (Mean = 1.43). Average cross-product scores collected after exposure to Component A did not differ significantly from the scores collected before exposure to Component A. In contrast to the prediction, after exposure to Component B, subjects reported significantly greater numbers and enjoyment of pleasant events than they did after exposure to Components C.

It was predicted that subjects who received Component C first would maintain their gains on the Pleasant Events Schedule--Mood-Related Subscale at the final measurement occasion. In contrast, it was predicted that subjects who received Component B first would gain on this measure only after they received Component C. Since there was no significant sequence X measurement occasion interaction, this post hoc comparison was not performed.

Interpersonal Events Schedule--Dysphoria-Related Subscale. An analysis of variance conducted on average cross-product scores from the Interpersonal Event Schedule--Dysphoria-Related Subscale supported the prediction that

after treatment subjects would report more positive interactions. The analysis of variance (Table 26) produced significant results only for the main effect for measurement occasions, $F(3, 99) = 17.48$, $p \leq .0001$. All other effects were not significant at conventional levels. The main effect for subtype $F(1, 33) = 3.19$, $p = .08$, however, is noteworthy. It tended to show that the quality of interpersonal relationships was worse for high subtype (Mean = $-.515$) than for low subtypes (Mean = $-.240$). (Higher scores were more adaptive.)

The Newman-Keuls post hoc test comparing the means within the significant main effect for measurement occasion disconfirmed the hypothesis that average cross-product scores on the Interpersonal Events Schedule--Dysphoria-Related Subscale would increase (i.e., subjects would report more frequent and positive interactions) only after exposure to Component C (Table 27). Instead post hoc comparisons showed that positive interpersonal events increased significantly more after subjects were exposed to Component A (Mean = $-.524$), Component B (Mean = $-.105$) and Component C (Mean = $-.284$) than before treatment began (before A Mean = $-.642$). Average cross-product scores collected after both Components B and C were significantly greater than scores after A. In addition, exposure to Component B produced significantly greater scores than exposure to Component C.

It was predicted that subjects who received Component C first would maintain their gains on the Interpersonal

Events Schedule--Dysphoria-Related Subscale at the final measurement occasion. In contrast, it was predicted that subjects who received Component B first would gain on this measure only after they received Component C. Since there was no significant sequence X measurement occasion interaction this post hoc comparison was not performed.

Summary

It was predicted that self-monitoring (Component A) and logical analysis (Component B) would have a "narrow" influence, affecting only the measures of dysfunctional thoughts. In contrast to this prediction, the following results were obtained: Self-monitoring appeared to be ineffective in reducing either the frequency of or the belief in dysfunctional thoughts (according to the Automatic Thoughts Questionnaire), but did enhance the quality of interpersonal relationships (according to the subscale of the Interpersonal Event Schedule). Exposure to logical analysis resulted in adaptive scores on every specific measure of response class relevant to depression.

It was reasoned that exposure to hypothesis testing would teach subjects a problem-solving strategy applicable to a wide range of problem areas. Thus it was predicted that hypothesis testing would positively influence every specific measure. Also, it was predicted that only hypothesis testing would influence pleasant events and interpersonal relationships (since the other two components

did not directly target these areas). As predicted, hypothesis testing did improve scores on all specific measures, et, as can be seen from the results outlined above it was not the only component to affect pleasant or interpersonal events. In contrast to predictions, Component C was not the most powerful influence on pleasant events or interpersonal relationships. Analyses of variance on both the Pleasant Events Schedule--Mood-Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale demonstrated that exposure to logical analysis resulted in more adaptive scores than exposure to hypothesis testing.

It was predicted that hypothesis testing and logical analysis would be equally effective in reducing the frequency and belief of dysfunctional thoughts. Instead, the following results were obtained. The analyses of the frequency scores from the Automatic Thoughts Questionnaire suggested that the component presented last produced the most improvement. In addition it appeared that the combination of all components (A, B, and C) more effectively reduced dysfunctional thoughts than either A and B or A and C. The analyses of the belief scores from the Automatic Thoughts Questionnaire revealed that logical analysis more effectively reduced the subjects' belief in dysfunctional thoughts than hypothesis testing.

Finally, it was predicted that both logical analysis and hypothesis testing would more effectively ameliorate dysfunctional thoughts than self-monitoring. Analyses of

the frequency and belief scores from the Automatic Thoughts Questionnaire supported this prediction. In addition, the superiority of logical analysis and hypothesis testing over self-monitoring was found on every specific measure of response classes relevant to depression.

The Relationships Among the Dependent Measures

To determine the relationships among the dependent measures, a Pearson Product Moment correlational analysis was performed on the global measures of depression and on the specific measures of response classes relevant to depression (Table 28). All subjects' scores on every dependent measure collected at the four measurement occasions were included in this analysis. A wide range of correlation coefficients resulted.

The correlational analysis showed that the relationships among the global measures of depression (i.e., Beck Depression Inventory, Minnesota Multiphasic Personality Inventory--Depression Scale, and the Depression Adjective Check List) were generally moderate (greater than .50), except for a weaker relationship between the Minnesota Multiphasic Personality Inventory--Depression Scale and the Depression Adjective Check List ($r = .413$).

When the relationships among the global measures of depression and the specific measures of response classes relevant to depression (i.e., frequency and belief scores from the Automatic Thoughts Questionnaire, the Pleasant Events Schedule--Mood-Related Subscale, and the Interpersonal

Events Schedule--Dysphoria-Related Subscale) are examined, results varied with the measures. Correlation coefficients which were equal to or greater than .60 were obtained between the Beck Depression Inventory and frequency and belief scores from the Automatic Thoughts Questionnaire and between the Depression Adjective Check List and frequency scores from the Automatic Thoughts Questionnaire. All other correlation coefficients were modest (\underline{r} less than .50). It is noteworthy that, as expected, negative correlation coefficients are obtained when the Pleasant Events Schedule--Mood-Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale are combined with any other measure since high scores are "adaptive" on these two measures. However, low scores are "adaptive" on the other measures.)

When the intercorrelations among specific measures of response classes relevant to depression were examined, the following pattern was noted. As expected the frequency and belief scores from the Automatic Thoughts Questionnaire were strongly correlated ($\underline{r} = .88$). The intercorrelations among the frequency and belief scores and the other "specific measures" were negative and modest (\underline{r} less than -.60). The correlation coefficient between the Pleasant Events Schedule--Mood-Related Subscale and the Interpersonal Events Schedule--Dysphoria-Related Subscale was positive and minimal ($\underline{r} = .23$).

The Attempt to Predict Treatment Outcome
from Subject Classification

The third research question addressed was--Will subject classification produced by behavioral assessment help predict responsiveness to the different components of cognitive-behavioral therapy for depression? In this investigation, subject classification (i.e., dividing the subjects into two subtypes--those with initial high versus low frequencies of dysfunctional thoughts, according to the Automatic Thoughts Questionnaire) did not show "treatment validity." That is, initial frequency scores on the Automatic Thoughts Questionnaire did not predict the subjects' responsiveness to any of the therapeutic components. In contrast to these results, it was predicted that after exposure to logical analysis or to self-monitoring, the high subtype would improve significantly more on the global measures of depression and the measures of dysfunctional thoughts than the low subtype. This prediction was based on the assumption that logical analysis and self-monitoring targeted dysfunctional thoughts and that therefore, subjects with a high frequency of dysfunctional thoughts would be better matched to these treatment components than subjects with a low frequency of dysfunctional thoughts. This prediction was extended to the global measures of depression because it was assumed that the benefits of matching subjects to the appropriate treatment might influence depression in general. No difference was predicted between highs and lows on either the global or

specific measures of depression after exposure to hypothesis testing, it being assumed that this component would have a "broad" influence. It was assumed that the broad influence of hypothesis testing would make the match between a subject's identified problem area and a specific treatment less essential.

The pattern of results outlined above was not obtained from either the multivariate and univariate analyses, either on the global measures of depression or on the specific measures of response classes relevant to depression.

Global Measures of Depression

Neither multivariate or univariate analyses of variance on the global measures of depression confirmed the prediction that the subtype with a high frequency of dysfunctional thoughts would have lower scores on the global measures of depression after treatment than would the subtype with a low frequency of dysfunctional thoughts. A multivariate analysis of variance on prorated raw scores from the Beck Depression Inventory, on prorated raw scores from the Minnesota Multiphasic Personality Inventory--Depression Scale, and on raw scores from the Depression Adjective Check List (Table 5) produced nonsignificant effects for subtype, with a Wilks' lambda of .941, which is equivalent to $F(3, 31) = .65, p > .10$; for subtype X sequence Wilks' lambda of .972, which is equivalent to $F(3, 31) = .30, p > .10$; subtype X measurement occasion, with a Wilks'

lambda of .907, which is equivalent to $\underline{F}(9, 236) = 1.08$, $\underline{p} > .10$; and for subtype X sequence X measurement occasion, with a Wilks' lambda of .98, which is equivalent to $\underline{F}(9, 236) = .22$, $\underline{p} > .10$.

The univariate analysis of variance produced a similar pattern of nonsignificant results. The analysis of variance performed on prorated raw scores from the Beck Depression Inventory (Table 8) resulted in nonsignificant effects for subtype, $\underline{F}(1, 33) = .95$, $\underline{p} > .10$; for subtype X sequence, $\underline{F}(1, 33) = .14$, $\underline{p} > .10$; for subtype X measurement occasion, $\underline{F}(4, 132) = .22$, $\underline{p} > .10$; and for subtype X sequence X measurement occasion, $\underline{F}(4, 132) = .22$, $\underline{p} > .10$. The analysis of variance conducted in the prorated raw scores from the Minnesota Multiphasic Personality Inventory--Depression Scale (Table 11) showed nonsignificant results for subtype, $\underline{F}(1, 33) = .0$, $\underline{p} > .10$; for subtype X sequence, $\underline{F}(1, 33) = .14$, $\underline{p} > .10$; for subtype X measurement occasion, $\underline{F}(4, 132) = 1.82$, $\underline{p} > .10$; and for subtype X sequence X measurement occasion, $\underline{F}(4, 132) = .20$, $\underline{p} > .10$. The analysis of variance on the Depression Adjective Check List (Table 13) indicated that the following effects were nonsignificant--subtype, $\underline{F}(1, 33) = 1.63$, $\underline{p} > .10$; subtype X sequence, $\underline{F}(1, 33) = .75$, $\underline{p} > .10$; subtype X measurement occasion, $\underline{F}(3, 99) = .12$, $\underline{p} > .10$; and subtype X sequence X measurement occasion, $\underline{F}(3, 99) = .26$, $\underline{p} > .10$.

Specific Measures of Response Classes

Relevant to Depression

Multivariate analyses. The multivariate analysis of variance on prorated frequency and belief scores from the Automatic Thoughts Questionnaire, on average cross-product scores from the Pleasant Events Schedule--Mood-Related Subscale, and on average cross-product scores from the Interpersonal Events Schedule--Dysphoria-Related Subscale (Table 17) produced a significant effect for subtype, with a Wilks' lambda of .586, which is equal to $F(4, 30) = 5.29$, $p < .002$. The canonical mean for the high subtype (.580) was significantly less adaptive than the canonical mean (.426) for the low subtype. All other effects involving subtype were nonsignificant, including subtype X sequence, with a Wilks' lambda of .892, which is equivalent to $F(4, 30) = .91$, $p > .10$; subtype X measurement occasion, with a Wilks' lambda of .848, which is equivalent to $F(12, 254) = 1.36$, $p > .10$; and subtype X sequence X measurement occasion, with a Wilks' lambda of .892, which is equivalent to $F(12, 254) = .94$, $p > .10$.

Automatic Thoughts Questionnaire--Frequency and Belief Scores. The analyses of variance on the frequency and belief scores from the Automatic Thoughts Questionnaire did not substantiate the prediction that subject classification would predict responsiveness to the overall treatment package. In particular, these analyses did not substantiate the

prediction that subject classification would predict responsiveness to the overall treatment package. In particular, these analyses did not substantiate the prediction that subtypes with an initial high frequency of dysfunctional thoughts would have more adaptive scores on the Automatic Thoughts Questionnaire following treatment than subtypes with an initial low frequency of dysfunctional thoughts. The analysis of variance conducted on prorated frequency scores from the Automatic Thoughts Questionnaire (Table 19) produced a significant effect for subtype $F(1, 33) = 21.80$, $p \leq .0001$, which supports the assertion that the sample in fact included two distinct subtypes. The high subtypes (Mean = 103.424) had significantly more dysfunctional thoughts than the low subtypes (Mean = 74.108). This analysis also produced the following nonsignificant effects: subtype X sequence, $F(1, 33) = .35$, $p > .10$, subtype X measurement occasion, $F(3, 99) = .58$, $p > .10$, and subtype X sequence X measurement occasion, $F(3, 99) = .31$, $p > .10$.

In a like manner, the analysis of variance performed on the belief scores from the Automatic Thoughts Questionnaire (Table 22) produced a significant main effect for subtype, $F(1, 33) = 15.32$, $p \leq .0001$. The high subtypes (Mean = 102.453) believed their dysfunctional thoughts significantly more than the low subtypes (Mean = 75.29). All other effects were nonsignificant: subtype X sequence, $F(1, 33) = .19$, $p > .10$; subtype X measurement

occasion, $F(3, 99) = .12, p > .10$; and subtype X sequence X measurement occasion, $F(3, 99) = .81, p > .10$.

The preceding results did not support the prediction that, after exposure to logical analysis or self-monitoring, the high subtypes would have significantly lower scores on the measures of dysfunctional thoughts than the low subtypes. (This prediction was based on the assumption that logical analysis and self-monitoring represented a better match between the highs' identified problem than might occur between these components and the problem of subjects with a low frequency of dysfunctional thoughts.)

Because the interaction between subtype and measurement occasion was not significant for any of the specific measures, post hoc analysis after exposure to Component C (hypothesis testing) were not conducted on any of the specific measures of responses classes relevant to depression.

CHAPTER IV

SYNOPSIS

The research presented here examined the therapeutic components within Beck's cognitive-behavioral treatment in relation to changes they produced in global measures of depression and in specific measures of response classes relevant to depression. In addition, the dissertation noted which response classes were influenced by each therapeutic component and attempted to predict treatment outcome by subject classification on frequency of dysfunctional thoughts.

In short, the results showed that all scores were significantly more adaptive after subjects were exposed to the therapeutic components termed "logical analysis" or "hypothesis testing" than they were before treatment began. Moreover, on every dependent measure, logical analysis (Component B) and hypothesis testing (Component C) produced significantly more adaptive change than did self-monitoring (Component A). Logical analysis and hypothesis testing influenced positively every dependent measure while self-monitoring generally produced effects only on the Depression Adjective Check List and on the Interpersonal Events Schedule--Mood-Related Subscale. Classification of subjects into two subtypes, those with low and high frequencies of dysfunctional thoughts, did not predict subjects' responsiveness to components. In other words, independent of their initial frequency of dysfunctional thoughts, the depressives' scores on all measures

gathered after treatment were more adaptive than the scores gathered before treatment.

On 3 of the 7 dependent measures (i.e., the Automatic Thoughts Questionnaire--Belief Scores, Pleasant Events Schedule--Mood-Related Subscale, and Interpersonal Events Schedule--Dysphoria-Related Subscale), logical analysis resulted in significantly greater change than hypothesis testing. On the Beck Depression Inventory, the component presented last reduced depression the most. On the Automatic Thoughts Questionnaire--Frequency Scores, the superiority of logical analysis over hypothesis testing was apparent only when logical analysis was presented last (i.e., when hypothesis testing preceded logical analysis). In addition, post hoc analysis on the Beck Depression Inventory and the Automatic Thoughts Questionnaire--Frequency Scores showed that the combination of self-monitoring, logical analysis, and hypothesis testing produced significantly more change than self-monitoring and logical analysis alone. On the Automatic Thoughts Questionnaire--Frequency Scores, the combination of components (A, B, C) produced significantly more change than self-monitoring plus hypothesis testing. The superiority of the combination of components could reflect however, the superiority of any component received last.

The multivariate analyses of the global measures showed that the scores collected after exposure to logical analysis or to hypothesis testing were significantly more adaptive than the scores collected before treatment began or after

exposure to self-monitoring. This analysis suggested that self-monitoring had no therapeutic effect on the combined and weighted global measures of depression. There was no statistically significant difference between the effect of logical analysis and hypothesis testing. Although the difference between Components B and C was not statistically significant, there was a trend for the component presented last to produce the greater change. After exposure to hypothesis testing, the combination of self-monitoring, logical analysis, and hypothesis testing produced change significantly greater than only self-monitoring and hypothesis testing.

The multivariate analyses of the specific measures again showed that the scores collected after exposure to logical analysis or to hypothesis testing showed more adaptive change than the scores collected before treatment began or after exposure to self-monitoring. Again, self-monitoring did not appear to produce therapeutic changes. This analysis showed no significant differences between the therapeutic changes produced by logical analysis and those produced by hypothesis testing.

The preceding pattern of results raised the following questions: (a) Why was self-monitoring of dysfunctional thoughts generally ineffective in producing adaptive change?, (b) What mechanisms are involved in the superiority of logical analysis over hypothesis testing in reducing the credence of dysfunctional thoughts, increasing pleasant events, and improving interpersonal relationships?, (c) Why might the combination of therapeutic components produce greater change on some measures than subsets of the

components?, (d) Why did the frequency of dysfunctional thoughts not predict the subjects' response to the various therapeutic components? As these questions are being discussed the research findings will be compared to initial predictions and past research.

Predictions, Findings, and Speculation

Overall Treatment Effectiveness and Differential Effectiveness of Therapeutic Components in Treating Depression

The first set of predictions involved the effectiveness of each component of cognitive-behavioral therapy as well as the differential effectiveness of each component on the global measures of depression. The most basic prediction made was that subjects would report less depression on the global measures after exposure to each therapeutic component than they reported at screening or before treatment began (i.e., before Component A). This prediction was based, first, on the demonstrated overall effectiveness of Beck's cognitive-behavioral treatment package in treating depression and, second, on the demonstrated effectiveness of the various components which make up the package.

Overall Effectiveness

Cognitive-behavioral therapy as a package. Although the present study did not compare cognitive-behavioral therapy to a control group or to any other form of psychological intervention, the present data are consistent with the demonstrated

effectiveness of the overall treatment package. That is, in the present investigation, scores (on every dependent measure) collected after subjects were exposed to all therapeutic components were significantly more adaptive than scores collected before treatment began. These data parallel past studies which showed that, as a package, cognitive-behavioral therapy is effective. For example, past research has shown that cognitive-behavioral therapy was more effective than "insight-oriented therapy," a waiting list control group (Morris, 1975 cited in Hollon, 1981), or antidepressant drugs (Rush et al., 1977), and was just as effective as cognitive-behavioral therapy plus psychopharmacological intervention (Beck et al., 1979).

Component A. The present study did not support the prediction that scores on global measures of depression would be more adaptive after subjects were taught to self-monitor dysfunctional thoughts than before. Most analysis of the global measures of depression suggested that self-monitoring was generally ineffective in ameliorating depression. Exceptions included the following three analyses. First, the multivariate analyses of global measures showed less depressed scores after Component A than before treatment for sequence ABC, but not for sequence ACB. Since the subjects in sequence ACB were significantly more depressed in terms of global measures than those in sequence ABC, the therapeutic effect of self-monitoring may

not have been strong enough to influence the more depressed subjects. Second, the analyses of the Beck Depression Inventory revealed that self-monitoring showed reduced depression only when the scores collected after self-monitoring are compared to those collected at screening (and not those collected before Component A). Again, these results suggest that self-monitoring dysfunctional thoughts was not a powerful treatment in reducing depression. Third, the analyses of the Depression Adjective Check List were the only analyses that demonstrated, without qualification, that self-monitoring could reduce depression.

Incidental data suggested that self-monitoring was ineffective in that several subjects stated that self-monitoring was not helping them or made them feel worse. In a like manner, a few subjects impatiently questioned, "When will we go on to something else or when will we learn what to do with these dysfunctional thoughts?" It is also relevant that post hoc analyses of the frequency and belief scores showed that neither the frequency nor the believability of dysfunctional thoughts decreased after subjects were exposed to self-monitoring.

The preceding results were in contrast to past research which showed that self-monitoring can sometimes effectively reduce negative cognition. Self-monitoring decreased ruminative thinking (Frederiksen, 1975), psychotic hallucinations (Rutner & Bugle, 1969), and paranoid thoughts

(Williams, 1976). Similarly, Harmon et al. (1980) found that self-monitoring either of mood or pleasant events decreased depression (according to the Depression Adjective Check List).

It is noteworthy that the present study produced results similar to the Harmon et al. study (i.e., elevation in mood following self-monitoring) when the changes in mood were measured by the Depression Adjective Check List (but not by the Minnesota Multiphasic Personality Inventory Depression--Depression Scale, nor by the Beck Depression Inventory). If it is assumed that the Depression Adjective Check List is a more sensitive measure than either the Beck Depression Inventory or the Minnesota Multiphasic Personality Inventory--Depression Scale, then these results are better understood. That is, the Depression Adjective Check List may assess the transient features of "mood," while the other two global measures may assess the more enduring features of "affect." Such an assumption was supported by the fact that the Depression Adjective Check List was the most heavily weighted global measure in the significant main effect for measurement occasion (produced by the multivariate analysis of variance). If the Depression Adjective Check List is a more sensitive measure than the other two global measures of depression, then it may have reflected subtle changes in mood produced by self-monitoring.

Even when the global measures of depression are assumed to reflect somewhat different features of depression, the therapeutic effect of self-monitoring dysfunctional thoughts remains, at best, weak and inconsistent in this study. Self-monitoring of dysfunctional thoughts may not consistently reduce dysfunctional thoughts and correlated global measures of depression unless subjects can replace the dysfunctional thoughts with more adaptive ones. In this study, subjects self-monitored dysfunctional thoughts for two weeks before they were taught skills that might be used to increase the frequency of more adaptive thoughts.

It is also noteworthy that since dysfunctional thoughts were the "starting point" in this treatment, subjects were not praised during sessions for reporting decreases in dysfunctional thoughts. That is, in implementing Beck's treatment, the therapist made the assumption that, if depressives did not report dysfunctional thoughts, they were not using the recommended procedures (rather than assuming that they had no or few dysfunctional thoughts). Therefore, during the treatment sessions associated with self-monitoring, subjects were "encouraged" to report dysfunctional thoughts. Such "encouragement" may have minimized the chance that self-monitoring of dysfunctional thoughts would decrease their frequency or decrease correlated measures of depression.

Components B and C. Analyses of all the global measures of depression supported the prediction that scores on these

measures would be more adaptive after exposure to logical analysis or hypothesis testing than before treatment. In comparing this study to past research, it is evident that one of the contributions of the present study was that the procedures used within each treatment component were described in detail (see Appendix G) and could be discriminated by a naive judge (see section on Different Therapeutic Components). In contrast, many studies have used labels like "cognitive," "behavioral," or "combined" which leave the reader wondering what specific procedures were actually used.

The procedures used here were taken directly from Beck's treatment package, which is a "combined" approach. Even when the therapeutic components were separated from the package, Beck's rationale continued to be used. For example, when subjects scheduled pleasant events (a procedure used by Lewinsohn and called "behavioral"), the activity scheduling was presented as a procedure useful in testing hypotheses regarding their "ability to have fun." This rationale is not the rationale that Lewinsohn typically uses. Although there were subtle differences, and possible important differences, it is useful to assume that the procedures used in logical analysis most closely matched what is often labeled "cognitive" treatment of depression and that the procedures used in hypothesis testing most closely matched what is often labeled "behavioral" treatment of depression. Such an assumption allows comparisons between this research and past studies. The finding here that

scores on global measures showed significantly less depression after subjects were exposed to logical analysis or hypothesis testing than did the scores collected before treatment paralleled the demonstrated superiority of both cognitive therapy and behavioral therapy over a waiting list control in treatment depression (Taylor & Marshall, 1977).

Differential Effectiveness of Therapeutic Components

Component A versus Components B or C. The finding that logical analysis and hypothesis testing significantly reduced depression, according to all the global measures, more than self-monitoring had been predicted. This prediction was based on the reasoning that self-monitoring has been used typically for assessment (rather than for treatment) because the therapeutic effects of self-monitoring are transitory (Lipinski & Nelson, 1974). By process of elimination, it was assumed that logical analysis and hypothesis testing were likely to be the components within Beck's package producing the greatest amount of change. The preceding results add to the outcome literature on depression since they compare the therapeutic effect of self-monitoring to logical analysis and hypothesis testing.

Component B versus Component C. The results did not support the predicted superiority of hypothesis testing over logical analysis in reducing global measures of depression. This prediction was based on the assumption

that hypothesis testing would have a "broad" effect (i.e., would influence all the specific measures) and that logical analysis would have a "narrow" effect (i.e., would influence only the measures of dysfunctional thoughts). In other words, it was assumed that hypothesis testing would reduce the global measures more (when compared to pretreatment) than logical analysis because it targeted more of the relevant response classes.

Instead, the multivariate analyses on all global measures of depression, and the univariate analyses on the Minnesota Multiphasic Personality Inventory--Depression Scale and the Depression Adjective Check List did not show any significant differences, when the scores collected after hypothesis testing were compared to those collected after logical analysis. Although the multivariate analyses did not show significant differences between levels of depression after subjects received Component B or C, the component presented last within each sequence tended to produce the most adaptive changes (see Figure 1). Analyses of the Beck Depression Inventory showed that the component presented last reduced depression most (see Figure 2). The analyses of the Beck Depression Inventory showed that after subjects were exposed to logical analysis, the combination of self-monitoring, logical analysis, and hypothesis testing was more effective than only self-monitoring plus logical analysis. The multivariate analyses of global measures produced similar results, suggesting that after hypothesis testing, the combination of self-monitoring, logical analysis, and

hypothesis testing was more effective than only self-monitoring and logical analysis.

One explanation of these results is that the closer subjects come to the end of a treatment program, the more likely they are to endorse adaptive items. Because the pattern of results found here is consistent with past findings, this interpretation is not favored. That is, the preceding pattern of results is consistent with the varied results reported in the treatment of depression. These varied results have included: the effects of "cognitive" treatment equal those of "behavioral" treatment (Wilson, 1983), the effects of "cognitive" treatment exceed those of "behavioral" treatment (Shaw, 1977); the effects of "behavioral" treatment exceed those of "cognitive" treatment (Besyner, 1979); the combination of cognitive and behavioral treatment exceed the effects of either treatment alone (Taylor & Marshall, 1977); and the effects of all of the above treatments exceed those of no treatment (see dissertation section entitled "Overall Effectiveness"; and Blaney, 1977; Hollon & Beck, 1979; Rehm & Kornblith, 1979).

In the present study, not every analysis of every global measure showed that the combination of components was more effective than either self-monitoring plus logical analysis or self-monitoring plus hypothesis testing. It is noteworthy that the superiority of the combination may reflect the superiority of the component received last. In speculating on the mechanisms through which logical analysis and hypothesis

testing influenced the global measures of depression, it is useful to examine exactly which response classes relevant to depression were influenced by each therapeutic component.

The Influence of Each Therapeutic Component on
Specific Measures of Response Classes
Relevant to Depression

It was predicted that all of the therapeutic components in this investigation would positively influence the measures of dysfunctional thoughts, as all components were believed to target this response class. It was predicted that the influence of logical analysis and hypothesis testing on dysfunctional thoughts would be equal and that the influence of both of these components on dysfunctional thoughts would exceed that of self-monitoring. These predictions were based on the assumption that logical analysis and hypothesis testing were both more powerful treatments than self-monitoring. (Again, the therapeutic effects of self-monitoring are often short-lived.)

In addition, it was predicted that therapeutic effects in the areas of pleasant events and interpersonal relationships would be seen only after subjects were exposed to hypothesis testing. This prediction was based on the assumption that only hypothesis testing directly targeted these two response classes. Because the results obtained were very different from the predictions, each component will be examined in terms of its influence on each specific measure, and then the components will be compared in terms of their differential

effectiveness for each specific measure. Interpretations follow brief comparisons between the results and predictions.

Overall Effectiveness

Cognitive-behavioral therapy as a package. The present findings supported the conclusion that cognitive-behavioral therapy as a package positively influenced all the specific measures of responses classes relevant to depression (e.g., dysfunctional thoughts, pleasant events, and interpersonal relationships). That is, scores on every dependent measure collected after subjects were exposed to all therapeutic components were significantly more adaptive than scores collected before treatment began. This finding may be important, since past treatment studies have rarely measured the specific responses which covary with depression.

Anecdotal data suggested that the treatment package (Components A, B, and C) was effective in increasing the frequency and the enjoyment of pleasant events and was effective in improving the quality of interpersonal events. Without any organization on the part of the principal investigator, at least 4 out of the 6 therapy groups arranged social events for their therapy group after the study ended (e.g., going to lunch together, meeting at a bar, convening for a cook-out and pool party). These social events were notable, considering the social withdrawal and reduction in activity level typical of depressed individuals.

Component A. The multivariate analyses of the combined and weighted specific measures and the univariate analyses of the frequency and belief scores from the Automatic Thoughts Questionnaire, and of the Pleasant Events Schedule--Mood-Related Subscale suggested that self-monitoring had no therapeutic effect. Only the analyses of the Interpersonal Event Schedule--Dysphoria-Related Subscale showed that the scores after self-monitoring were more adaptive than the scores before treatment began. Such results were in contrast to the prediction that self-monitoring would have a therapeutic effect only on dysfunctional thoughts.

It has been argued previously here that self-monitoring may not have positively influenced dysfunctional thoughts because subjects were "encouraged" to report dysfunctional thoughts.

It is possible that the improvement in interpersonal events, after exposure to self-monitoring, reflected the "care" given by significant others to the client once they learned that the client was "in treatment." In other words, since self-monitoring was the initial treatment component and since its effect was typically weak, the author is reluctant to conclude that self-monitoring of dysfunctional thoughts positively influenced interpersonal relationships. Instead, it is possible that this result was the product of a "third variable" or of the many statistical analyses.

Components B and C. All multivariate and univariate analyses of the specific measures of response classes relevant

to depression suggested that logical analysis and hypothesis testing significantly "improved" (in comparison to pre-treatment) not only measures of dysfunctional thoughts, but also measures of pleasant events and interpersonal relationships. These results were in contrast to the predicted exclusive effect of hypothesis testing on pleasant events and interpersonal relationships. Yet, the results supported the prediction that both logical analysis and hypothesis testing would positively influence dysfunctional thoughts. These results are interpreted in a section which follows.

Differential Effectiveness of Therapeutic Components

Component A versus Components B or C. The therapeutic effectiveness of logical analysis and of hypothesis testing exceeded that of self-monitoring, according to both multivariate and univariate analyses of the specific measures. For the measure of dysfunctional thoughts, it was predicted that the effects of logical analyses and hypothesis testing would exceed those of self-monitoring because the effectiveness of self-monitoring is short-lived. The superiority of logical analysis and hypothesis testing over self-monitoring on the subscale of the Pleasant Events Schedule and the Interpersonal Events Schedule was not predicted since Components B and C were not expected to influence these measures. However, given the short-lived effects of self-monitoring and the effectiveness of logical analysis and hypothesis testing demonstrated here, it is not surprising

that the effects of self-monitoring were weaker.

Component B versus Component C. Analyses of the belief scores from the Automatic Thoughts Questionnaire, the Pleasant Events Schedule--Mood-Related Subscale, and the Interpersonal Events Schedule--Dysphoria-Related Subscale suggested that logical analysis produced more adaptive changes than hypothesis testing. Analyses of the frequency scores from the Automatic Thoughts Questionnaire suggested that the superior effects of logical analysis occurred only when logical analysis followed hypothesis testing (i.e., for sequence ACB). Generally, the component received last reduced the frequency of dysfunctional thoughts most (see Figure 4). In addition, logical analysis was more effective when used in combination with both self-monitoring and hypothesis testing than when used only with self-monitoring. Similarly, hypothesis testing more effectively reduced dysfunctional thoughts when used in combination with both self-monitoring and logical analysis than when used only with self-monitoring.

The preceding pattern of results raised the following questions: Why did logical analysis influence pleasant events or interpersonal events at all? Why was logical analysis more effective than hypothesis testing in producing adaptive change in credence in dysfunctional thoughts, pleasant events, and interpersonal relationships? Why might the combination of components be more effective than their

subsets in reducing the frequency of dysfunctional thoughts?

The mechanisms through which logical analysis influenced belief in dysfunctional thoughts, pleasant events, and interpersonal relationships could also be the mechanisms through which logical analysis influenced pleasant events and interpersonal relationships at all. Three possibilities will be offered here.

Three possible explanations are offered for the first two questions. First, it is possible that the finding that logical analysis influenced dysfunctional thoughts, pleasant events, and interpersonal relationships may result from an interaction between the response mode assessed and the response mode treated. Generally, it may be that therapeutic changes are most likely to be noted when the response mode treated matches the response mode assessed. In particular, logical analysis directly targeted the verbal response mode (i.e., what people "said"), and only questionnaires were used as dependent measures. It is possible that because people were taught to replace their dysfunctional verbal responses, their responses to questionnaires changed without any corresponding, significant change in overt motor responses (outside the assessment setting). For example, consider the item, "having a frank and open conversation," from the Pleasant Events Schedule--Mood-Related Subscale. Assuming that the frequency of frank and open conversations was constant across phases of treatment, it is possible that only what the subject reports changed across phases. Specifically,

after being exposed to logical analysis, the subjects may have re-evaluated their conversations and noticed at least some instances of "frankness and openness" which were ignored before treatment.

Logical analysis may have produced greater changes on the questionnaires (i.e., ATQ-belief scores and the subscale of the PES and IES) than hypothesis testing because logical analysis directly targeted the verbal response mode. Hypothesis testing, on the other hand, may target a wider range of behavior (i.e., what people actually do), not all of which match the response mode assessed here by questionnaires. These changes produced by hypothesis testing may not have been strongly reflected since only the verbal mode of responding was assessed. Changes in dysfunctional thoughts produced by hypothesis testing may not have been reflected as strongly as those produced by hypothesis testing since the mode of assessment does not match the response mode which hypothesis testing is most likely to influence. In order to assess (a) whether logical analysis influences verbal categories of behavior without concomitant change in overt behavior and (b) whether hypothesis testing produces changes in overt behavior not reflected by questionnaires, investigators would need to include direct observation of relevant, overt behavior.

Even if the therapeutic effects and the superior effects of logical analysis were "only" a product of changing "what

depressives say," the finding remains important. What depressives report is central to a diagnosis of depression; therefore, a therapeutic component which changes verbal responses is important. For example, if an individual does not report dysphoria or loss of interest or pleasure, but reports other symptoms of depression (e.g., somatic concerns), then he or she will not meet the criteria for a depressive diagnosis. Therefore, a finding that logical analysis "only" changes verbal responses without changing motoric responses would be important both practically and conceptually. The finding would be important practically since characteristic verbal responses are central in diagnosing and therefore in treating depression. The finding would be important conceptually since it would indicate that logical analysis only influences self-report.

A second possibility is that the differential effectiveness of logical analysis over hypothesis testing was not an artifact of assessing only the verbal response mode, but instead logical analysis actually improved the behavior in question (i.e., dysfunctional thoughts, engaging in pleasant events, and relating to others) more than hypothesis testing. In changing covert responses, overt responses may also change. Such a statement does not attribute causality to cognitions, but instead simply reflects the possibility that changes in thinking can occur simultaneously with changes in overt behavior and reflects the possibility that cognitions and overt behavior can occur in a chain.

In the study, teaching depressives to re-evaluate and to replace their dysfunctional thoughts decreased their belief in dysfunctional thoughts, increased their frequency and enjoyment of pleasant events, and improved their interpersonal relationship more than teaching people to test their dysfunctional thoughts. It is possible that adaptive thoughts are antecedent to engaging in pleasant events or improving the relationship. For instance, although thinking, "I'll have fun at the party" may not actually produce the enjoyment, the thought may be one stimulus involved in setting the conditions for attendance. The natural environmental contingencies (i.e., what happens at the party) may determine whether future party attendance ultimately increases or decreases; however, cognitive responses may serve as important discriminative stimuli.

In other words, teaching depressives to re-evaluate and to replace their dysfunctional thoughts may increase the chance that depressives behave in ways that change their environment more than hypothesis testing does. Adaptive changes in depressives' behavior are noteworthy since as Coyne (1982, p. 10) noted: "Much of the persistence of depression may be the result of persons being in depressing situations that are in part maintained by their ineffective behavior."

The superiority of logical analysis over hypothesis testing in producing adaptive behavior may reflect a third possibility, that subjects were more likely to comply

with the strategies suggested in Component B than Component C. Assuming that dysfunctional thoughts occur at a high frequency, it is much simpler to re-evaluate the thoughts than to design experimental strategies to test the thoughts. From the depressed subjects' perspective, logical analysis may simply represent a more practical approach to the problem. If logical analysis sets the conditions for putting the depressive in touch with natural contingencies from which they may have withdrawn previously, then re-evaluating dysfunctional thoughts could in fact lead to changes in overt behavior. These hypotheses could be assessed by (a) assessing subjects' compliance with homework assigned during logical analysis compared to hypothesis testing, and (b) assessing whether dysfunctional thoughts are correlated with the lack of increases in adaptive overt behaviors and assessing whether adaptive thoughts are correlated with corresponding adaptive changes in overt behavior.

In considering the process through which the combination of self-monitoring, logical analysis, and hypothesis testing exceeded the effectiveness of self-monitoring plus logical analysis (according to the Beck Depression Inventory and Automatic Thoughts Questionnaire--Frequency Scores) or the effectiveness of self-monitoring plus hypothesis testing (according to the Automatic Thoughts Questionnaire--Frequency Scores and multivariate analyses of the global measures), the following possibilities exist. The superiority of the combination of Components A, B, and C over only Components A

plus B may reflect this process. If exposure to Component B (logical analysis) sets the conditions for the depressives to perform adaptive behavior, then it may be that exposure to hypothesis testing teaches the depressives what steps to perform. Obviously, the individuals will be better off if they know what steps to perform (a result of hypothesis testing) and are likely to perform the steps (a result of hypothesis testing).

The superiority of the combination of Components A, B, and C over only Components A plus C may reflect instances in which the individual's attempts to solve problems are initially unsuccessful. The combination of learning to re-evaluate dysfunctional thoughts or to test the validity of dysfunctional thoughts may increase the chance that depressives continue to work on resolvable problems (even in the face of thwarted initial attempts at solutions) and to adjust to unfortunate circumstances (when repeated attempts at solutions fail). The combination of these two skills appeared to decrease subjects' reports of depression and dysfunctional thoughts more than their subjects.

The Attempt to Predict Treatment Outcome from Subject Classification

The third set of predictions involved the necessity of matching treatment to identified response classes within depression. In this section, predictions and results are compared briefly, and interpretations follow. It was argued that matches between treatment and assessment are essential if

the treatment is to have a discrete, specific effect. However, if the treatment influences several response classes simultaneously, matches between treatment and the identified response class(es) may be less essential. It was argued that assessment strategies show "treatment validity" when they contribute to treatment effectiveness. That is, assessment shows treatment validity when the results of assessment add to the treatment effect more than what would have occurred in the absence of assessment.

It was predicted that classifying subjects into two subtypes (those with a high and a low frequency of dysfunctional thoughts) would predict subjects' responsiveness to the various therapeutic components. It was predicted that dividing subjects into these two subtypes would show treatment validity if one subtype responded to a component more than the other. These distinctions could then be used to enhance the effects of any other effective treatment by matching the appropriate subtype to the component that produced the most change in that subject's problem area (dysfunctional thoughts, in this study).

In particular, it was predicted that, following treatment, subjects with an initial high frequency of dysfunctional thoughts ("highs") would report less depression (on the global measures of depression) and would report and believe fewer dysfunctional thoughts than subjects with an initial low frequency of dysfunctional thoughts ("lows"). This prediction was based on the assumption that these

components targeted dysfunctional thoughts and thus were used best with depressives with severe problems in this area. For both subtypes, it was predicted that exposure to hypothesis testing would be followed by fewer reports of depression on the global measures than exposure to logical analysis. This prediction was based on the predicted "broad" influence of hypothesis testing and the assumption that this influence would be reflected on the global measures. For both subtypes, it was predicted that logical analysis and hypothesis testing would be equal in their influence on the frequency and credence of dysfunctional thoughts. This prediction was based on the assumption that both components targeted and influenced dysfunctional thoughts.

Neither the multivariate nor the univariate analyses of variance on any of the dependent measures supported the prediction that classifying subjects into two subtypes, according to their initial frequency scores on the Automatic Thoughts Questionnaire, predicted subjects' responsiveness to the various therapeutic components. These null results occurred even though the independent variable subtype appeared to have been adequately manipulated. That is, the univariate analysis of variance on the specific measures of response classes relevant to depression suggested that the high subtypes' scores were significantly worse than the low subtypes' scores. Still, this dimension of severity did not predict subjects' responsiveness to the therapeutic components.

The initial prorated frequency scores on the Automatic Thoughts Questionnaire may not have predicted responsiveness to the components for two reasons. First, it may be that in order for behavioral assessment to show treatment validity, distinctions must be made across different responses classes rather than within the same response class. For example, in the present study the "severity" of dysfunctional thoughts (a "within" response class comparison) did not predict responsiveness to components. Yet, in the McKnight et al. study, matching the depressives' treatment to their identified problem area (cognitive, interpersonal, or cognitive plus interpersonal) (a "between" response class comparison) did affect subjects' responsiveness to treatment. In other words, if a treatment has a strong effect and the individual has some problem in the area influenced by the treatment, then there is a match between what is needed and what is provided. The severity of the individual's problem may be somewhat irrelevant. The severity of the treated response class compared to untreated response classes, however, may be very important. For example, take an individual who has severe problems in interpersonal relationships but only limited problems in dysfunctional thoughts. Suppose the selected treatment influences only dysfunctional thoughts. Assessment which compared responses classes would suggest that interpersonal relationships needed treatment more than dysfunctional thoughts and would suggest that a treatment targeting this area should be selected. This match between problem

areas and treatment may be critical only when assessment comparisons are made "across" response classes.

In the present study, subject classification may have been more likely to predict responsiveness to treatment components if comparisons had been made across response classes (e.g., if subjects with a high frequency of dysfunctional thoughts were compared to subjects with a low frequency of pleasant events). A disadvantage of this research approach is that it requires a large pool of depressive subjects; many subjects may be screened who do not have the combination of response classes being examined in a given treatment validity study.

The second reason that the severity of dysfunctional thoughts may not have predicted responsiveness to components follows. It could be argued that cognitive-behavioral treatment would have "helped" any depressive regardless of the initial problem. Support for this argument comes from the fact that the subjects' scores on every measure (not just on measures of dysfunctional thoughts) were more adaptive after treatment than before. At least one argument counters the reasoning the cognitive-behavioral therapy will "help anyone," however.

That argument is the fact that seven subjects were diagnosed as depressed at the end of the study, and many scores at the end of the study continued to fall outside the normal range (see Table 1). In short, there were differences in the subjects' responsiveness to treatment, even though this study did not select the crucial variable

which predicts these differences. In other words, although the initial prorated frequency scores on the Automatic Thoughts Questionnaire did not predict subjects' responsiveness to each component, differences in responses to treatment existed within the sample. These differences may be the product of difference between subjects in their compliance with the suggested strategies or differences in matches between subjects' problems and the problems that cognitive-behavioral therapy is the most likely to influence.

Conclusion

This study complements previous research by demonstrating that after exposure to cognitive-behavioral therapy, non-bipolar depressives report fewer depressive symptoms than before treatment. The study contributed to the existing body of literature by demonstrating that cognitive-behavioral therapy also reduced depressives' frequency and credence of dysfunctional thoughts, increased their frequency of pleasant events, and improved their interpersonal relationships, according to self-report. These findings are important, inasmuch as Beck has argued that cognitive-behavioral therapy ameliorates depression by changing dysfunctional thoughts. Although Beck's treatment affected both depression and numerous response classes, it cannot be concluded that these response classes cause depression. Nonetheless, changes in specific response classes are noteworthy, both conceptually and practically.

When the therapeutic components within cognitive-behavioral therapy were compared, exposure to logical

analysis or hypothesis testing resulted in more adaptive scores (on all measures) than exposure to self-monitoring or than scores collected before treatment began. It appears that the component logical analysis was more effective in reducing the credence of dysfunctional thoughts, in increasing the frequency and enjoyment of pleasant events, and in enhancing interpersonal events than hypothesis testing. On the Beck Depression Inventory and the Automatic Thoughts Questionnaire--Frequency Scores, it appeared that the combination of self-monitoring, logical analysis, and hypothesis testing was more effective than self-monitoring plus logical analysis (for both measures), or than self-monitoring plus hypothesis testing (for the Automatic Thoughts Questionnaire--Frequency Scores). These results may suggest that the combination of self-monitoring, logical analysis, and hypothesis testing is more effective than its subsets. This conclusion must be viewed as tentative, however, because the therapeutic component received last often resulted in the greater change.

Although subjects in this study were divided into two distinct subtypes, those with high and low frequencies of dysfunctional thoughts, this distinction did not predict subjects' responsiveness to treatment. However, differences in subjects' responsiveness to treatment were apparent.

The implications that these results have for clinical practice follow. Until more research is done, it is likely

that cognitive-behavioral therapy is more effective when it is used as a unit rather than divided into components. Similarly, this study showed that cognitive-behavioral therapy can be successfully implemented in a group setting.

One of the primary weaknesses of this study was the reliance on self-report data. As mentioned earlier, future research would need to assess overt behavior to demonstrate whether these findings are replicable or that they are an artifact of questionnaires. Assessment of overt, motoric behavior, as well as verbal behavior, might provide clues to the relationship between these two types of responses when depression is being treated.

The present findings must be interpreted with some caution, in that the division of Beck's treatment into Components A, B, and C was based on the author's judgment. Another researcher might divide the package into different units and thus might produce different results.

In order to understand the mechanisms through which treatments for depression, including cognitive-behavioral therapy, have their effects, the following areas must be assessed: (a) the presenting problem area(s) of a given depressed subject/client, (b) the effect of a given treatment on a particular response class, (c) the relationship among response classes. Discerning the relationships among response classes would allow one to learn whether response classes within the depressive cluster are independent or

interdependent. Such information would assist in predicting whether changes in one response class would be followed by changes within another response class. Attention to the proceeding issues would advance not only the assessment and treatment of depressive disorders, but also the understanding of depressive disorders.

Footnotes

¹In an attempt to clarify the results, two additional analyses were performed. The first analysis was performed on a 2 (sequences) X 3 (measurement occasions) experimental design. In this design, the first three chronological measurement occasions comprised the within subjects factor (Before A, After A, and After B for Sequence ABC; and Before A, After A, and After C for Sequence ACB). The second analysis was performed on the sequences at the third chronological measurement occasion only (B versus C for ACB and ABC, respectively). Using either design, there were no significant differences between Components B and C on any dependent measures (in contrast to the results of other analyses reported in the text). These nonsignificant results may have occurred because the n had been halved. In the comparisons reported in the text, n = 37, whereas in the analyses reported in this footnote, the n per condition was either 17 or 20, depending on sequence. A second reason for the loss of significant results in the analyses reported in the text was that approximately half of the subjects had received both Component B and C at each comparison point. For example, "After B" 20 subjects (in Sequence ACB) received A, B, C, and the other 17 subjects (in Sequence ABC) had received only A and B.

²In order to assess whether there were differences among the six therapy groups, means (for each therapy group) from

the Depression Adjective Check List at five occasions were inspected. The scores at the five measurement occasions included raw scores collected at the beginning of the first treatment session, three means from the scores collected at the beginning of the four sessions corresponding to Components A, B, and C, and raw scores, collected at the debriefing session. Scores from the Depression Adjective Check List were selected for inspection because it was weighted most in the main effect for measurement occasion within the multivariate analysis of variance on the global measures and because it was collected at each session. Inspection of the means for each therapy group at the occasions outlined above showed that the differences among therapy groups were very small, especially after subjects were exposed to Components B and C. A typical analysis of variance was not performed on the therapy group means at each occasion because there were only six therapy groups. Thus, the probability of obtaining differences was low because of the small n.

³Neither a multivariate analysis of covariance on the global measures of depression or a univariate analysis of covariance on the Beck Depression Inventory was pursued because the covariate adjustments equal zero for the within subjects factor (measurement occasion) in this design (Winer, 1971).

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APPENDIX A
DESCRIPTIVE FLYER

THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO



Department of Psychology

Descriptive Flyer

If you have been feeling depressed, you may be interested in participating in one of the research-treatment studies being conducted in the Psychology Department of the University of North Carolina at Greensboro. If you meet the following criteria, you may be interested in obtaining further information. To be in the studies, you must:

1. be feeling depressed,
2. be 18 years old or older,
3. be free from any anti-depressant or tranquilizing drugs for a minimum of two weeks,
4. not be under psychological or psychiatric treatment somewhere else.

If you would like further information about this study, please call Robin Jarrett or Suzanne Brannon at the UNC-G Psychology Clinic Monday through Friday after 1:00 P.M. (379-5662). If you call at other times, you may leave a message on the answering machine, and your call will be returned.

Thank you for your interest.

Please note: There will be no charge for any of the interviews or treatments..

GREENSBORO, NORTH CAROLINA / 27412

THE UNIVERSITY OF NORTH CAROLINA is composed of the sixteen public major institutions in North Carolina
an equal opportunity employer

APPENDIX B

REFERRALS

APPENDIX B

Referrals

1. Guilford County Mental Health Clinic 373-3630
300 N. Edgeworth Street
Greensboro, NC
2. Guilford County Mental Health Clinic 883-1341
236 Boulevard
High Point, NC
3. Practicing psychologists in the Guilford County area can
be found in the Yellow Pages of the phone book under
Psychologists
4. Dr. Steven C. Hayes 379-5013
Private Practice
Department of Psychology
UNC-G
5. Dr. Scott Lawrence 379-5013
Private Practice
Department of Psychology
UNC-G
6. Dr. W. Floyd Heiney 275-9889
Heiney, Prescott & Springs
822 N. Elm Street
Greensboro, NC
7. Dr. Susan McMullen 272-4426
303 West Greenway Drive N.
Greensboro, NC
8. Dr. John Edwards 379-5884
Counseling Center
UNC-G
9. UNC-G Psychology Clinic 379-5662
Department of Psychology
10. Practicing psychiatrists in the Guilford County area can
be found in the Yellow Pages under Physicians & Surgeons--
Psychiatry
11. Raouf Badawi, M.D. 854-2391
Hours by appointment only
522 N. Elam Avenue
Greensboro, NC

APPENDIX C

BECK DEPRESSION INVENTORY

PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

179-181

183-185

269-271

273

275-278

280-284

University
Microfilms
International

300 N. ZEEB RD., ANN ARBOR, MI 48106 (313) 761-4700

APPENDIX D

MINNESOTA MULTIPHASIC PERSONALITY INVENTORY--

DEPRESSION SCALE (MMPI-D)

APPENDIX E

1. SCHEDULE OF AFFECTIVE DISORDERS AND SCHIZOPHRENIA
INTERVIEW OUTLINE: SHORTENED VERSION
2. RESEARCH DIAGNOSTIC CRITERIA

APPENDIX E-1

SADS Interview Outline: Shortened Version

Dysphoria

How is it going? (Work, school, home life)

Feeling good or bad about it?

Worried?

Feeling under pressure? From where?

If things are bad, what are the prospects for improvement in the
immediate or distant future?

Major happenings during the past year: best? worst?

Goals for the future? Expectations for attainment?

Self-description: good points? bad points?

Aspects of self that would be desirable to change?

Mood: ups and downs? How severe and long-lasting are the downs?

Any highs?

Any thoughts or ideas about suicide? Previous attempts? Plans?

Reduced Rate of Behavior

Describe typical day.

Interests and activities that are enjoyable?

Any change from previous level of activity or enjoyment?

Difficulty in initiating action?

Having to exert a lot of effort to do things?

Problems making decisions?

Social-Interactional Problems

How involved with other people?

Number of close friends? Acquaintances?

Ability to share with friends?

Are relationships a source of discomfort, anxiety, and/or conflict?

Feelings of social adequacy/inadequacy?

Guilt

Religious background; importance of religion at present?

Concern for welfare of family and friends?

Blame self for present condition?

Perceive self as failure in important responsibilities?

Material Burden

Depression attributed to external problems (e.g., finances, children, demands of relatives or employers)?

If external problem could be resolved, would that affect the depression?

Somatic Manifestations (not attributable to physical condition)

Feeling slow? Tired all the time? Without energy?

Problems sleeping? Difficulty in falling asleep? Waking frequently during the night? Sleep not restful? Problems with waking early in the morning and not being able to get back to sleep?

Sleeping more than usual?

How is appetite? Any weight loss?

Gastrointestinal problems?

Headaches?

Schizophrenia

Have you ever had any unusual experiences, like hearing voices which others did not hear or feeling that something was controlling your actions?

APPENDIX E-2

Criteria for Major Depressive Disorder

- A. One or more distinct periods with dysphoric mood or pervasive loss of interest or pleasure. The disturbance is characterized by symptoms such as the following: depressed, sad, blue, hopeless, low, down in the dumps, "don't care any more," or irritable. The disturbance must be prominent and relatively persistent but not necessarily the most dominant symptom. It does not include momentary shifts from one dysphoric mood to another dysphoric mood, e.g., anxiety to depression to anger, such as are seen in states of acute psychotic turmoil.
- B. At least five of the following symptoms are required to have appeared as part of the episode for definite and four for probable (for past episodes, because of memory difficulty, one less symptom is required).
1. Poor appetite or weight loss or increased appetite or weight gain (change of 0.5 kg a week over several weeks or 4.5 kg a year when dieting).
 2. Sleep difficulty or sleeping too much.
 3. Loss of energy, fatigability, or tiredness.
 4. Psychomotor agitation or retardation (but not mere subjective feeling of restlessness or being slowed down).
 5. Loss of interest or pleasure in usual activities, including social contact or sex (do not include if limited to a period when delusional or hallucinating). (The loss may or may not be pervasive.)
 6. Feeling of self-reproach or excessive or inappropriate guilt (either may be delusional).
 7. Complaints or evidence of diminished ability to think or concentrate, such as slowed thinking, or indecisiveness (do not include if associated with marked formal thought disorder).
 8. Recurrent thoughts of death or suicide, or any suicidal behavior.

- C. Duration of dysphoric features at least one week, beginning with the first noticeable change in the subject's usual condition (definite if lasted more than two weeks, probable if one to two weeks).
- D. Sought or was referred for help from someone during the dysphoric period, took medication, or had impairment in functioning with family, at home, at school, at work, or socially.
- E. None of the following that suggest schizophrenia is present:
 - 1. Delusions of being controlled (or influenced), or of thought broadcasting, insertion, or withdrawal (as defined in this manual).
 - 2. Nonaffective hallucinations of any type (as defined in this manual) throughout the day for several days or intermittently throughout a one-week period.
 - 3. Auditory hallucinations in which either a voice keeps up a running commentary on the subject's behaviors or thoughts as they occur, or two or more voices converse with each other.
 - 4. At some time during the period of illness had more than one month when he exhibited no prominent depressive symptoms but had delusions or hallucinations (although typical depressive delusions such as delusions of guilt, sin, poverty, nihilism, or self-deprecation, or hallucinations with similar content are not included).
 - 5. Preoccupation with a delusion or hallucination to the relative exclusion of other symptoms or concerns (other than typical depressive delusions of guilt, sin, poverty, nihilism, self-deprecation or hallucinations with similar content).
 - 6. Definite instances of marked formal thought disorder (as defined in this manual), accompanied by either blunted or inappropriate affect, delusions or hallucinations of any type, or grossly disorganized behavior.
- F. Does not meet the criteria for schizophrenia, residual subtype.

From Archives of General Psychiatry, Vol. 35, June 1978
Research Diagnostic Criteria--Spitzer et al.

APPENDIX F

TABLES

Table 1

Descriptive Data on Subjects Completing the Project

Subject Number	Group Number ^a	Sex	Age	Years Educated	Occupation	Pre-intervention			Post-intervention	
						ATQ-F ^b	BDI ^c	MMPI-D ^d	BDI ^c	MMPI-D ^d
1	1	M ^e	38	13	Salesman	84	31	31	24	34
2	1	F ^f	54	12	Housewife	68	23	40	20	39
3	1	F	27	15	Student	123	41	46	18	44
4	1	F	19	13	Student	101	26	39	10	25
5	2	M	32	15	Manager	116	20	38	12	28
6	2	M	36	16	Salesman	61	21	41	11	33
7	2	F	51	13	Secretary	63	31	34	21	35
8	2	F	20	15	Student	100	21	38	14	30
9	2	F	43	12	Secretary	128	35	40	36	37
10	3	F	32	13	Beautician	78	22	45	15	38
11	3	F	31	13	Clerical Worker	88	22	30	22	33
12	3	F	57	10	Retired	130	41	41	31	36
13	3	M	23	12	Unemployed	94	29	39	16	32
14	3	F	32	18	Housewife	132	43	37	21	38
15	3	F	24	16	Teacher	117	37	35	20	32
16	3	F	49	13	Secretary	87	39	37	23	32
17	4	F	35	17	Clerical Worker	80	27	35	27	30
18	4	F	30	16	Student	100	27	32	23	36
19	4	F	41	18	Student	86	31	37	7	36
20	4	F	36	17	Student	125	42	45	10	26
21	4	F	42	16	Salesperson	139	42	40	43	41
22	4	F	37	14	Salesperson	119	45	43	20	38
23	5	F	42	13	Secretary	87	24	34	21	38
24	5	F	39	14	Secretary/Student	133	26	36	10	23
25	5	F	43	15	Health Professional	101	28	39	14	37
26	5	M	41	17	Manager	83	27	32	10	25
27	5	F	54	16	Industrial Supervisor	107	24	29	6	23

Table 1 (cont'd.)

Subject Number	Group Number ^a	Sex	Age	Years Educated	Occupation	Pre-intervention			Post-intervention	
						ATQ-F ^b	BDI ^c	MMPI-D ^d	BDI ^c	MMPI-D ^d
28	5	F ^f	34	12	Business Representative	87	41	39	17	33
29	5	M ^e	30	14	Unemployed	96	31	33	23	34
30	5	F	42	14	Salesperson	126	38	39	22	37
31	6	M	41	15	Salesman	124	32	34	19	33
32	6	F	27	16	Photographer	97	38	43	8	25
33	6	F	41	12	Industrial Supervisor	100	27	36	10	22
34	6	F	55	13	Housewife	89	31	36	4	25
35	6	M	36	18	Unemployed	113	26	30	2	21
36	6	F	26	19	Health Professional	92	44	36	7	24
37	6	F	29	12	Secretary	125	46	40	37	39

^aGroups 1, 4, and 6 received Sequence ABC, and Groups 2, 3, and 5 received Sequences ACB. Each group contained subjects with high and low prorated frequency scores on the Automatic Thoughts Questionnaire.

^bATQ-F = prorated frequency scores from the Automatic Thoughts Questionnaire collected before Component A.

^cBDI = prorated raw score from Beck Depression Inventory.

^dMMPI-D = prorated raw score from Minnesota Multiphasic Personality Inventory--Depression Scale.

^eM = Male

^fF = Female

Table 2
Sketch of Experimental Design

Initial Scores on Automatic Thoughts Questionnaire	Measurement Occasions ^a				
	Number 0 Screening	Number 1 Before A	Number 2 After A	Number 3 After B	Number 4 After C
High					
Sequence ABC					
Sequence ACB					
Low					
Sequence ABC					
Sequence ACB					

^aFive measurement occasions were used only with dependent variables collected during the screening session (i.e., the Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory--Depression Scale), and with the Depression Adjective Check List data (collected at each treatment session, but averaged to form five measurement occasions).

Table 3
Measurement Occasions

Treatment Stage	Screening	Pre-intervention	Component A	Component B or Component C ^a	Component C or Component B ^a	Post-intervention
Duration of each Treatment Stage	Typically 1 week	Not applicable	2 weeks	2 weeks	2 weeks	1 week
Sessions Involved	2 Sessions (1) Screening Session a. Beck Depression Inventory b. Minnesota Multiphasic Personality Inventory-- Depression Scale (2) Pre-intervention diagnostic interview (RDC) used for diagnosis	Not applicable	Sessions 1,2, 3,4	Sessions 5,6, 7,8	Session 9,10 11,12	2 Sessions (1) Post-interven diagnostic interview (RDC used for diagnosis ^b) (2) Debriefing Session
Intervals at which measurement occurs		Screening	Before A	After A	After B or ^a After C	After C or ^a After B

^aThe therapeutic component subjects received and the measurement occasion analyzed depended on whether subjects were assigned to the sequence ABC or ACB.

^bRDC = Research Diagnostic Criteria.

^cThe following dependent measures were included Before A, After A, and After B or C:

- (1) Beck Depression Inventory (BDI)
- (2) Minnesota Multiphasic Personality Inventory--Depression Scale (MMPI-D)
- (3) Depression Adjective Check List (DACL)
- (4) Automatic Thoughts Questionnaire--Frequency and Belief Scores (ATQ-30)
- (5) Pleasant Events Schedule--Mood Related Subscale (PES)
- (6) Interpersonal Events Schedule--Dysphoria-Related Subscale (IES)

Table 4
Description of the Therapy Groups

Sequence		Subtypes	
		Low Subtype (<u>N</u> = 17)	High Subtype (<u>N</u> = 20)
ABC (<u>N</u> = 17)	Group 1	2	2
	Group 4	2	4
	Group 6	3	4
ACB (<u>N</u> = 20)	Group 2	2	3
	Group 3	4	3
	Group 5	4	4

Table 5

Subtype (2) X Sequence (2) X Measurement Occasion:
 (4) Multivariate Analysis of Variance for the
 Global Measures of Depression

	Wilks' Lambda	<u>df</u>	<u>F</u>	<u>p</u>
Subtype	.941	3, 31	.65	.587
Sequence	.927	3, 31	.81	.496
Subtype X Sequence	.972	3, 31	.30	.826
Subjects (Subtype X Sequence)				
Measurement Occasion	.340	9, 236	14.63	.0001****
Subtype X Measurement Occasions	.907	9, 236	1.08	.381
Sequence X Measurement Occasions	.785	9, 236	2.75	.005**
Subtype X Sequence X Measurement Occasion	.980	9, 236	.22	.990
Subject (Subtype X Sequence) X Measurement Occasion				

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 6

Scheffé Post Hoc Tests: Canonical Means of the
Global Measures of Depression for Sequence
and Measurement Occasion

Sequence ABC

	.455 (After C)	.460 (After B)	.668 (After A)	.829 (Before A)
.455 (After C)	-	.005	.213**	.374**
.460 (After B)	-	-	.208**	.369**
.668 (After A)	-	-	-	.161**
.829 (Before A)	-	-	-	-

Sequence ACB

	.506 (After B)	.630 (After C)	.851 (After A)	.955 (Before A)
.506 (After B)	-	.124	.346**	.449**
.630 (After C)	-	-	.221**	.325**
.851 (After A)	-	-	-	.104
.955 (Before A)	-	-	-	-

* $\underline{p} \leq .05$
** $\underline{p} \leq .01$

Table 7
 Scheffé Post Hoc Tests: Canonical Means of
 the Global Measures of Depression for
 Measurement Occasion and Sequence

Before A	.829 (ABC)	.955 (ACB)
.829 (ABC)	-	.126**
.955 (ACB)	-	-
After A	.668 (ABC)	.851 (ACB)
.668 (ABC)	-	.183**
.851 (ACB)	-	-
After B	.460 (ABC)	.506 (ACB)
.460 (ABC)	-	.046
.506 (ACB)	-	-
After C	.455 (ABC)	.630 (ACB)
.455 (ABC)	-	.175**
.630 (ACB)	-	-

* $\underline{p} \leq .05$

** $\underline{p} \leq .01$

Table 8
 Subtype (2) X Sequence (2) X Measurement
 Occasion (5) Analysis of Variance for the
 Beck Depression Inventory
 (Including Screening)

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	209.864	.95
Sequence	1	379.925	1.72
Subtype X Sequence	1	30.203	.14
Subject (Subtype X Sequence)	33	221.415	
Measurement Occasion	4	1623.522	53.80****
Subtype X Measurement Occasion	4	6.552	.22
Sequence X Measurement Occasion	4	112.733	3.74**
Subtype X Sequence X Measurement Occasion	4	6.612	.22
Subject (Subtype X Sequence) X Measurement Occasion	132	30.177	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 9

Newman-Keuls Post Hoc Tests: Prorated Means of the Beck
 Depression Inventory for Sequence and Measurement
 Occasion (Including Screening)

Sequence ABC

	17.000 (After C)	21.706 (After B)	27.312 (After A)	30.882 (Before A)	34.059 (Screening)
17.000 (After C)	-	4.706 *	10.312**	13.882**	17.059**
21.706 (After B)	-	-	5.606*	9.176**	12.353**
27.312 (After A)	-	-	-	3.570	6.747**
30.882 (Before A)	-	-	-	-	3.177
34.059 (Screening)	-	-	-	-	-

Sequence ACB

	13.275 (After B)	18.250 (After C)	24.700 (After A)	27.912 (Before A)	30.000 (Screening)
13.275 (After B)	-	4.975**	11.425**	14.637**	16.725**
18.250 (After C)	-	-	6.45**	9.662**	11.75**
24.700 (After A)	-	-	-	3.212	5.3
27.912 (Before A)	-	-	-	-	2.088
30.000 (Screening)	-	-	-	-	-

*p ≤ .05

**p ≤ .01

df = 132

Table 10
 Newman-Keuls Post Hoc Tests: Prorated Means of the
 Beck Depression Inventory for Measurement
 Occasions (Including Screening)
 and Sequence

Screening	30.000 (ACB)	34.059 (ABC)
30.000 (ACB)	-	4.059*
34.059 (ABC)	-	-
Before A	27.918 (ACB)	30.882 (ABC)
27.918 (ACB)	-	2.964
30.882 (ABC)	-	-
After A	24.700 (ACB)	27.312 (ABC)
24.700 (ACB)	-	2.612
27.312 (ABC)	-	-
After B	13.275 (ACB)	21.706 (ABC)
13.275 (ACB)	-	8.431**
21.706 (ABC)	-	-
After C	17.00 (ABC)	18.250 (ACB)
17.000 (ABC)	-	1.25
18.250 (ACB)	-	-

* $p < .05$
 ** $p < .01$

df = 132

Table 11

Subtype (2) X Sequence (2) X Measurement Occasion
 (5) Analysis of Variance for the Minnesota
 Multiphasic Personality Inventory--
 Depression Scale (Including Screening)

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	.000	.0
Sequence	1	45.424	.41
Subtype X Sequence	1	15.870	.14
Subject (Subtype X Sequence)	33	110.465	
Measurement Occasion	4	350.546	17.45****
Subtype X Measurement Occasion	4	36.580	1.82
Sequence X Measurement Occasion	4	30.227	1.50
Subtype X Sequence X Measurement Occasion	4	3.968	.20
Subject (Subtype X Sequence) X Measurement Occasion	132	20.085	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 12
 Newman-Keuls Post Hoc Tests: Prorated Means of the
 Minnesota Multiphasic Personality Inventory--
 Depression Scale for Measurement Occasion
 (Including Screening)

	31.408 (After B)	32.207 (After C)	37.269 (Screening)	37.276 (After A)	37.482 (Before A)
31.408 (After B)	-	.799	5.861**	5.868**	6.074**
32.207 (After C)	-	-	5.062**	5.069**	5.275**
37.269 (Screening)	-	-	-	.007	.213
37.276 (After A)	-	-	-	-	.206
37.482 (Before A)	-	-	-	-	-

*p ≤ .05

**p ≤ .01

df = 132

Table 13

Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Analysis of Variance for the Depression
 Adjective Check List (Included in Packets)

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	127.357	1.63
Sequence	1	2.468	.03
Subtype X Sequence	1	58.867	.75
Subject (Subtype X Sequence)	33	78.039	
Measurement Occasion	3	837.286	40.55****
Subtype X Measurement Occasion	3	2.512	.12
Sequence X Measurement Occasion	3	19.460	.94
Subtype X Sequence X Measurement Occasion	3	5.422	.26
Subject (Subtype X Sequence) X Measurement Occasion	99	20.649	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 14

Newman-Keuls Post Hoc Test: Means of the Depression Adjective
 Check List (Included in Packets) for
 Measurement Occasions

	10.486 (After B)	10.892 (After C)	16.541 (After A)	20.405 (Before A)
10.486 (After B)	-	.406	6.055**	9.919**
10.892 (After C)	-	-	5.649**	9.513**
16.541 (After A)	-	-	-	3.864**
20.405 (Before A)	-	-	-	-

*p ≤ .05

**p ≤ .01

df = 99

Table 15
 Subtype (2) X Sequence (2) X Measurement Occasion
 (5) Analysis of Variance for the Depression
 Adjective Check List (Administered
 at Sessions)

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	161.932	2.72
Sequence	1	.031	.000
Subtype X Sequence	1	80.329	1.35
Subjects (Subtype X Sequence)	33	59.501	
Measurement Occasion	4	567.845	46.25****
Subtype X Measurement Occasion	4	3.466	.28
Sequence X Measurement Occasion	4	23.163	1.89
Subtype X Sequence X Measurement Occasion	4	7.882	.64
Subjects (Subtype X Sequence) X Measurement Occasion	127	12.277	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 16
 Newman-Keuls Post Hoc Tests: Scores and Means of the
 Depression Adjective Check List (Included at all
 Sessions) for Measurement Occasions

	9.562 (Debriefing)	12.234 (Sessions B)	12.975 (Sessions C)	15.975 (Sessions A)	20.405 (Before A)
9.562 (Debriefing)	-	2.672**	3.413**	6.413**	10.843**
12.234 (Sessions B)	-	-	.741	3.741**	8.171**
12.975 (Sessions C)	-	-	-	3.000**	7.43**
15.975 (Sessions A)	-	-	-	-	4.43**
20.405 (Before A)	-	-	-	-	-

* $p \leq .05$

** $p \leq .01$

df = 127

Table 17
 Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Multivariate Analysis of Variance for the
 Specific Measures of Depression

Source	Wilks' Lambda	F Equivalent		
		df	F	p
Subtype	.586	4, 30	5.29	.002**
Sequence	.924	4, 30	.62	.653
Subtype X Sequence	.892	4, 30	.91	.473
Subjects (Subtype X Sequence)				
Measurement Occasion	.438	12, 254	7.75	.0001****
Subtype X Measurement Occasion	.848	12, 254	1.36	.186
Sequence X Measurement Occasion	.845	12, 254	1.39	.171
Subtype X Sequence X Measurement Occasion	.892	12, 254	.94	.508
Subjects (Subtype X Sequence) X Measurement Occasion				

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 18

Scheffé Post Hoc Tests: Canonical Means of the Specific
Measures of Response Classes Relevant to
Depression for Measurement Occasion

	.199 (After B)	.264 (After C)	.377 (After A)	.394 (Before A)
.199 (After B)	-	.065	.178**	.195**
.264 (After C)	-	-	.113*	.13**
.377 (After A)	-	-	-	.017
.394 (Before A)	-	-	-	-

*p < .05

**p < .01

Table 19

Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Analysis of Variance for the Automatic
 Thoughts Questionnaire--Frequency Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	25711.006	21.800****
Sequence	1	3.566	.00
Subtype X Sequence	1	409.318	.35
Subjects (Subtype X Sequence)	33	1179.286	
Measurement Occasion	3	6948.301	27.38****
Subtype X Measurement Occasion	3	147.567	.58
Sequence X Measurement Occasion	3	982.214	3.87**
Subtype X Sequence X Measurement Occasion	3	77.551	.31
Subjects (Subtype X Sequence) X Measurement Occasion	99	253.768	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 20

Newman-Keuls Post Hoc Tests: Prorated Means of the
Automatic Thoughts Questionnaire Frequency Scores
for Sequence and Measurement Occasion

Sequence ABC				
	76.000 (After C)	82.882 (After B)	102.910 (After A)	103.817 (Before A)
76.000 (After C)	-	6.882	26.91**	27.817**
82.882 (After B)	-	-	20.028**	20.936**
102.910 (Before A)	-	-	-	.907
103.817 (Before A)	-	-	-	-
Sequence ACB				
	67.850 (After B)	86.150 (After C)	100.156 (After A)	100.739 (Before A)
67.850 (After B)	-	18.300**	32.306**	32.889**
86.150 (After C)	-	-	14.006**	14.589**
100.156 (After A)	-	-	-	.583
100.739 (Before A)	-	-	-	-

*p < .05

**p < .01

df = 99

Table 21

Newman-Keuls Post Hoc Tests: Prorated Means of the
Automatic Thoughts Questionnaire Frequency Scores
for Measurement Occasions and Sequence

Before A

	100.739 (ACB)	103.817 (ABC)
100.739 (ACB)	-	3.078
103.817 (ABC)	-	-

After A

	100.156 (ACB)	102.910 (ABC)
100.156 (ACB)	-	2.754
102.910 (ABC)	-	-

After B

	67.850 (ACB)	82.882 (ABC)
67.850 (ACB)	-	15.032**
82.882 (ABC)	-	-

After C

	76.000 (ABC)	86.150 (ACB)
76.000 (ABC)	-	10.15*
86.150 (ACB)	-	-

*p < .05

**p < .01

df = 99

Table 22

Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Analysis of Variance for the Automatic
 Thoughts Questionnaire--Belief Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	22472.823	15.32***
Sequence	1	300.849	.21
Subtype X Sequence	1	275.728	.19
Subjects (Subtype X Sequence)	33	1466.767	
Measurement Occasion	3	6457.480	26.20****
Subtype X Measurement Occasion	3	29.935	.12
Sequence X Measurement Occasion	3	362.143	1.47
Subtype X Sequence X Measurement Occasion	3	200.239	.81
Subjects (Subtype X Sequence) X Measurement Occasion	99	246.504	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 23
 Newman-Keuls Post Hoc Tests: Prorated Means of the
 Automatic Thoughts Questionnaire--Belief Scores
 for Measurement Occasions

	74.231 (After B)	83.809 (After C)	100.401 (Before A)	101.450 (After A)
74.231 (After B)	-	9.578**	26.170**	27.219**
83.809 (After C)	-	-	16.592**	17.641**
100.401 (Before A)	-	-	-	1.049
100.450 (After A)	-	-	-	-

*p < .05

**p < .01

df = 99

Table 24

Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Analysis of Variance for the Pleasant Events
 Schedule--Mood-Related Subscale

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	4.397	3.75
Sequence	1	1.462	1.25
Subtype X Sequence	1	1.990	1.70
Subjects (Subtype X Sequence)	33	1.173	
Measurement Occasion	3	1.873	13.33****
Subtype X Measurement Occasion	3	.185	1.32
Sequence X Measurement Occasion	3	.335	2.39
Subtype X Sequence X Measurement Occasion	3	.178	1.27
Subjects (Subtype X Sequence) X Measurement Occasion	99	.140	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 25

Newman-Keuls Post Hoc Tests: Average Cross-Product
of the Pleasant Events Schedule--Mood-Related Subscale
for Measurement Occasions

	1.850 (After B)	1.664 (After C)	1.432 (After A)	1.332 (Before A)
1.850 (After B)	-	.186*	.418**	.518**
1.664 (After C)	-	-	.232**	.332**
1.432 (After A)	-	-	-	.100
1.332 (Before A)	-	-	-	-

*p < .05

**p < .01

df = 99

Table 26

Subtype (2) X Sequence (2) X Measurement Occasion
 (4) Analysis of Variance for the Interpersonal
 Events Schedule--Dysphoria-Related Subscale

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Subtype	1	2.241	3.19
Sequence	1	.366	.52
Subtype X Sequence	1	.122	.17
Subjects (Subtype X Sequence)	33	.703	
Measurement Occasion	3	2.110	17.48****
Subtype X Measurement Occasion	3	.126	1.04
Sequence X Measurement Occasion	3	.145	1.20
Subtype X Sequence X Measurement Occasion	3	.063	.52
Subjects (Subtype X Sequence) X Measurement Occasion	99	.121	

*p < .05

**p < .01

***p < .001

****p ≤ .0001

Table 27

Newman-Keuls Post Hoc Tests: Average Cross-Product Means
of the Interpersonal Events Schedule--Dysphoria-Related
Subscale for Measurement Occasion

	-.105 (After B)	-.284 (After C)	-.524 (After A)	-.642 (Before A)
-.105 (After B)	-	.179*	.419**	.537**
-.284 (After C)	-	-	.240**	.358**
-.524 (After A)	-	-	-	.118*
-.642 (Before A)	-	-	-	-

*p ≤ .05

**p ≤ .01

df = 99

Table 28

Correlations Between All Dependent Measures at all Measurement Occasions

Beck Depression Inventory ^a	Minnesota Multiphasic Personality Inventory--Depression Scale ^a	Depression Adjective Check List	Automatic Thoughts Questionnaire--Frequency Scores ^a	Automatic Thoughts Questionnaire--Belief Scores ^a	Pleasant Events Schedule--Mood-Related Subscale ^b	Interpersonal Events Schedule--Dysphoria-Related Subscale ^b
Beck Depression Inventory ^a	.604 G to G ^c	.705 G to G ^c	.762 G to S ^d	.706 G to S ^d	-.484 G to S ^c	-.480 G to S ^d
Minnesota Multiphasic Personality Inventory--Depression Scale ^a		.413 G to G ^c	.467 G to S ^d	.430 G to S ^d	-.496 G to S ^d	-.369 G to S ^d
Depression Adjective Check List			.639 G to S ^d	.365 G to S ^d	-.409 G to S ^d	-.376 G to S ^d
Automatic Thoughts Questionnaire--Frequency Scores ^a				.884 S to S ^e	-.565 S to S ^e	-.457 S to S ^e
Automatic Thoughts Questionnaire--Belief Scores ^a					-.551 S to S ^e	-.376 S to S ^e
Pleasant Events Schedule--Mood-Related Subscale ^b						.231 S to S ^e

^aProrated scores^bAverage-cross product scores^cGlobal measure of depression and global measure of depression^dGlobal measure of depression and specific measure relevant to depression^eSpecific measure of depression and specific measure relevant to depression

APPENDIX G

TREATMENT MANUAL

Component A: Detecting and monitoring dysfunctional thoughts

All subjects in this study received Component A first. The basic purposes of Component A were: (a) to provide the subject with a general rationale for and description of cognitive-behavioral therapy; (b) to describe the general guidelines for participating in the group therapy and research project; (c) to teach the subject to detect and to self-monitor "dysfunctional thoughts"; and (d) to establish rapport among the group members and therapist. The major technique used in Component A was self-monitoring. Component A included four sessions. Each session lasted approximately 120 minutes.

Component A: Session 1

1. As the group members gather, they complete the "assessment packet."
2. Therapist introduces herself and outlines agenda for the session. The agenda which is written on the board includes:
 - a. describing the therapy used in the project
 - b. reviewing the guidelines for participating in the group therapy and research project
 - c. giving each client an opportunity to describe the problems which were involved in his/her decision to participate in the project (i.e., the problem related to depression)
 - d. learning a skill--detecting and monitoring automatic thoughts
 - e. preparing to do the assigned homework (Allow 5 minutes)
3. The therapist gives the following, general rationale for and description of cognitive-behavioral therapy: The treatment offered in this project is called cognitive-behavioral therapy. The main idea behind the therapy is that what people think influences the way they feel and the way they behave. This therapy assumes that as depressed people develop, they have learned to take a negative view of themselves (e.g., "I'm no good"), of the world (e.g., "The world's unfair"), and of the future (e.g., "Things won't work out"). This negative view includes a set of assumptions that people use when they are stressed. These assumptions influence the way depressed people deal with world and what they think of themselves (e.g., "I can't concentrate," "I'm not good at anything," "I can't get along with anybody."). The depressive assumption which people make are unique to each depressed individual, although common things often occur (e.g., a theme of loss). Although depression is a serious disorder, research has suggested that cognitive-behavioral therapy represents an effective approach. That is, most depressed people who are selected for this treatment begin to feel better by the end of treatment. If at the end of the seven weeks we should find that the treatment has not been effective in a particular case, we will offer referrals for alternative forms of treatment. (Allow 10 minutes)
4. The therapist reviews the following guidelines for participating in the group therapy and research project and elicits agreement from the group members.

- a. The therapist mentions issues of confidentiality: Members are free to discuss their own goals, progress, and procedures with anyone they choose. However, no other member is identified, nor are any member's concerns discussed outside the group setting.
 - b. The therapist mentions the notion of "setting agendas": The therapist acknowledges the time-limited nature of cognitive-behavioral therapy and suggests that an "agenda" will be written on the board at the beginning of each session in order to facilitate the group's coverage of all the material.
 - c. The therapist mentions the notion of "going around": Essentially the therapist is encouraging participation from each member in all sessions. When new skills are learned or homework is reviewed, each member will be given an opportunity to raise one of his/her concerns.
 - d. The therapist provides a rationale for homework:
 1. Homework is a vital part of therapy, and there is some suggestion that homework is instrumental in maintaining clients' improvement after termination.
 2. Homework allows clients to practice what they learn in the session in their every day world.
 3. Homework provides useful data for the sessions. Homework helps the therapist review the client's weekly activities. During each session homework from the previous session will be reviewed by "going around."
 - e. The therapist asks the group to discuss briefly, the preceding points and raise any questions or concerns. (Allow 10 minutes)
5. The therapist asks each member to introduce himself/herself and give no more than a five minute description of the factors which were involved in his/her decision to participate in the project (i.e., his/her "presenting problems"). (Allow 30 minutes)
6. The therapist introduces the concepts "cognition" and "automatic thoughts" by stating that treatment will begin by learning a new skill (i.e., to detect and to self-monitor automatic thoughts). The therapist notes that the first four sessions will be spent learning to detect and to monitor automatic thoughts. The last eight sessions will be spent learning skills to cope with automatic thoughts.

- a. The therapist defines "cognition"--"either a thought or a visual image that you may not be very aware of unless you focus your attention on it." In depression, these cognitions are called "automatic thoughts" and have a negative theme. Some of the characteristics of automatic thoughts follow. They are:
 1. automatic (they just seem to happen)
 2. based on a low opinion of oneself
 3. unreasonable, inaccurate, and dysfunctional although they seem plausible at the time--the more one believes them, the more discomfort they cause
 4. they are involuntary--one has difficulty turning them off.
- b. The therapist further elaborates the relationship between thoughts, feelings, and behavior.
 1. Therapist illustrates relationship by contrasting differences between thoughts and feelings when one's at home alone in the evening and hears a noise and things, "It's a burglar" vs. "It's my spouse."
 2. The therapist asks group to shut eyes and imagine an unpleasant scene and note their emotional response. Therapist gives some instruction with pleasant scene and stresses contrast.
 3. The therapist further illustrates negative automatic thoughts by describing Beck's example of a client who described her anxieties regarding sexual activity and noted her correlated negative automatic thoughts about describing such anxieties (e.g., "The therapist must think I'm dumb." "He probably wishes I wasn't his client." "This isn't going to help.")
 4. Other examples of negative automatic thoughts may be:
 1. "Being depressed means I'm weak."
 2. "I should be able to solve this alone."
 3. "I'll never meet all the requirements of the project."
 4. "The other group members may not like me."
- c. The therapist suggests the following to aid in identifying automatic thoughts:
 1. increases in negative and positive emotions
 2. troublesome situations or life events
- d. The therapists attempts to elicit automatic thoughts from group by asking--would some of you share the thoughts you had prior to the group meeting today? (Response may include negative automatic thoughts which are related to feeling depressed and/or coming to group therapy.) (Allow 15 minutes)

7. Therapist provides rationale for the following homework assignment (i.e., self-monitoring automatic thoughts) and passes out Daily Record of Dysfunctional Thoughts--Form I (one record for each day).
 - a. Automatic thoughts are the core of cognitive-behavior therapy, so it is important that we identify them. The Daily Record of Dysfunction Thoughts--Form I will aid in meeting this goal.
 - b. This form should be completed every day each time your emotions change (i.e., feel happy or sad, calm or anxious) or each time you experience dysphoria. Ideally the form should be completed when the automatic thoughts occur; however, if this is impossible you need to have a standard time each day (e.g., 15 minutes after supper) to complete the form. You need to make several entries each day since we will use these data in the next session.
 - c. Therapist explains how to complete all parts of the Daily Record of Dysfunctional Thoughts--Form II by referring to sample form she passes out.
 1. A positive or negative change in emotion or a depressed mood is a cue to complete the form. Therefore, complete the "EMOTION" column first (i.e., describe emotion and rate its degree).
 2. Fill in the date.
 3. Complete the "SITUATION" column (i.e., describe event and thoughts preceding the emotion).
 4. Complete the "AUTOMATIC THOUGHT(S)" column (i.e., describe the negative thoughts that preceded the emotion and rate its believability).
 - d. The therapist answers questions and has the group practice several entries. (Allow 10 minutes)

Component A: Session 2

1. As the group members gather, the therapist review each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or a positive or negative change in affect). The subjects complete the Depression Adjective Check List. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the concepts covered in Session 1
 - b. discuss each member's expectation of therapy
 - c. review homework from Session 1
 - d. assign homework (Allow 5 minutes)
3. The therapist begins a discussion of the concepts covered in Session 1 by stating: During the last session we covered a lot of important material. To make sure that we understand each other, I wonder if some group members would tell me in their own words what we mean by:
 - a. automatic thoughts and cognitions
 - b. the importance of automatic thoughts
 - c. the focus of and rationale for cognitive-behavioral therapy? (See Session 1 for answers.) If misconceptions occur, the therapist corrects them. (Allow 10 minutes)
4. The therapist raises the issue that negative automatic thoughts can occur during treatment. "For example, negative thoughts may occur in relation to the treatment sessions, the therapist, or the homework. If such automatic thoughts occur, it is important that you record them and bring them and bring them up for us to discuss."
 - a. The therapist attempts to elicit examples from group.
 - b. The therapist provides typical examples taken from Beck, Rush, Shaw, and Emery et al., 1979, Chapter 14. See Handout entitled "Examples of Negative Automatic Thoughts Regarding Therapy."
 - c. The group discusses negative automatic thoughts concerning therapy from both sources a and b.
5. The therapist asks each group member to:
 - a. describe his/her thoughts regarding the homework assignment
 - b. detail the negative automatic he/she self-monitored (Allow 50 minutes)

Note: If the client makes any errors completing the homework, then the therapist provides feedback.

6. The therapist collects Daily Record of Dysfunctional Thoughts--Form I and passes out blank records. Therapist reviews rationale and cues for completion. (Allow 10 minutes)

Component A: Session 3

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect.) The subjects complete the Depression Adjective Check List. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. introduction to new concepts--depressive assumptions
 1. what they are
 2. how to identify them
 - b. "go around" and review homework
 1. individual identifies themes
 2. group learns how to identify logical errors in an effort to identify depressive assumptions
 3. individual identifies assumptions
 - c. assign homework (Allow 5 minutes)
3. The therapist defines, describes, and stresses the importance of depressive assumptions: "Faulty assumptions appear to be involved in the likelihood that a person will become depressed. It is important that we detect these faulty assumptions to decrease the chance that you will become depressed in the future. In order to identify these depressive assumptions, we will pay particular attention to the automatic thoughts which you have recorded. Often common "themes" can be identified from the automatic thoughts. Yet, every person has his/her own set of assumptions which they probably learned during childhood from their parents or peers. For example, a parent may say to the child, "Be nice or Nancy won't like you." After repeating such phrases the child may develop a more general rule: "My worth depends on what others think of me." Examples of faulty assumptions that increase the chance that a person will become depressed include (from Beck et al., 1979):
 - a. "In order to be happy, I have to be successful in whatever I undertake."
 - b. "To be happy, I must be accepted by all people at all times."
 - c. "If I make a mistake, it means that I am inept."
 - d. "I can't live without you."
 - e. "If somebody disagrees with me, it means he doesn't like me."
 - f. "My value as a person depends on what others think of me." (Allow 10 minutes)
4. The therapist introduces aids for identifying depressive assumptions: "In identifying depressive assumptions

it helps to use the following steps:

- a. monitor automatic thoughts
- b. identify them
- c. infer the primary assumption or rule

(Therapist provides illustration) For Example, one client reported these automatic thoughts. "My work is of poor quality. I can't fix the bicycle. I can't cut the grass. I can't make a sale. The wallpaper wasn't lined up well."

- d. What are the themes? (Performance and perfectionistic standards)
 - e. What is a possible primary assumption? (My worth depends on the quality of my work.) (Allow 5 minutes)
5. The therapist introduces the group's exercise. "We will use these steps (4a-c) to help you identify your depressive assumptions." It is very important for each member to think for himself/herself in identifying depressive assumptions. Yet, the group can help each member by looking for "signals" that as depressive assumptions may be occurring or the therapist can help by asking questions. Helpful signals include:
- a. the frequent use of global, vague words (e.g., stupid, silly, dumb)
 - b. "absolute words" (e.g., never, always, should)
 - c. "logical errors" or "thinking errors"
- Therapist passes out hand-out entitled, "Logical Errors or Thinking Errors" and discusses it. (Allow 15 minutes.)
6. The therapist suggests that each person share his/her Daily Record of Dysfunction Thoughts using the following framework:
- a. Look back over your homework and identify any common themes and/or assumptions. (If necessary, self-monitoring from Session 1 and 2 can also be reviewed.)
 - b. As we "go around" the group can help by identifying signals of depressive assumptions.
 - c. On the board, we'll fill in this diagram for each person:
 1. emotions
 2. automatic thoughts
 3. themes
 4. depressive assumptions
 - d. Subjects are instructed to copy their diagram on the back of a Daily Record of Dysfunctional Thoughts.

Note: In this section as members "go around" the therapist makes very few statements. Instead the therapist asks questions. Questions which may be helpful when anyone gets "stumped" are:

1. What made you particularly happy or unhappy about this event? (e.g., "I did well because someone praised me.")
 2. How do you look at the behavior of others? (e.g., "Mary is happy because she has a husband.")
 3. How are you justifying your feelings? (e.g., "Anyone who always makes mistakes would feel this depressed.") (Allow 45 minutes)
7. The therapist collects Daily Record of Dysfunctional Thoughts--Form I and passes out blank records. The therapist instructs the group to continue to complete the forms as usual, but at the end of each day, on the back of the form, identify:
- a. common themes
 - b. depressive assumptions (Allow 5 minutes)

Component A: Session 4

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect, to note the common themes, and to infer the depressive assumptions.) The subjects complete the Depression Adjective Check List. (Allow 10 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the concepts covered in Session 3
 - b. review the homework from Session 3
 - c. assign homework (Allow 5 minutes)
3. The therapist begins a discussion of the concepts covered in Session 3 by stating: "During the last session we covered a lot of important material. To make sure that we understand each other, I wonder if some group members would tell me in their own words what we mean by:
 - a. faulty or depressive assumptions?
 1. What are some examples of depressive assumptions?
 2. Why are faulty assumptions important?
 3. What are the steps involved in identifying depressive assumptions?
 4. What are some "signals" of depressive assumptions?
 - b. logical errors or thinking errors
 1. What are some examples?
 2. Why are logical errors important? (Allow 20 minutes)
4. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts using the following framework:
 - a. Look back over your homework and identify any common themes and/or assumptions.
 - b. As we "go around" the group can help by identifying the signals of depressive assumptions.
 - c. On the board, we'll fill in this diagram for each person:
 1. emotions
 2. automatic thoughts
 3. themes
 4. depressive assumptions
 - d. Subjects are instructed to copy their diagram on the back of a Daily Record of Dysfunctional Thoughts--Form I.

Note: Again the therapist asks many questions during this section and makes few statements. (See Session 3, #6). (Allow 45 minutes)

5. The therapist collects Daily Record of Dysfunctional Thoughts--Form I and passes out blank records. The therapist instructs the group to continue to complete the forms as usual, but at the end of each day, on the back of the form, identify:
 - a. common themes
 - b. depressive assumptions (Allow 5 minutes)

6. The therapist passes out the questionnaires for "Assessment A" (i.e., Assessment of Component A). Clients are instructed to complete the questionnaires before the next group meeting. Therapist stresses the importance of completing the questionnaires for:
 - a. research project
 - b. evaluating progress (Allow 5 minutes)

Daily Record of Dysfunctional Thoughts--Form I

DATE	SITUATION Describe 1. Actual event leading to unpleasant emotion, or 2. Stream of thoughts, day-dream, or recollection leading to unpleasant emotion.	EMOTION(S) 1. Specify sad, anxious, angry, etc. 2. Rate degree of emotion. 1:100	AUTOMATIC THOUGHT(S) 1. Write automatic thought(s) that preceded emotion(s) 2. Rate belief in automatic thought(s). 0:100%

EXPLANATION: When you experience an unpleasant emotion, note the situation that seemed to stimulate the emotion. (If the emotion occurred while you were thinking, daydreaming, etc., please note this.) Then note the automatic thought associated with the emotion. Record the degree to which you believe this thought. 0% = not at all, 100% completely. In rating degree of emotion: 1 = a trace; 100 = the most intense possible.

Adapted from Beck, Shaw, Rush, and Emery, 1979, p. 403.

Examples of Negative Automatic Thoughts Regarding Therapy*

1. "Cognitive therapy is a rehash of 'the power of positive thinking'."
2. "I'm not depressed because I distort reality, but because things really are bad. Anyone would become depressed."
3. "I know I look at things in a negative way, but I can't change my personality."
4. "I believe what you are saying intellectually, but not emotionally."
5. "Since I don't like these negative thoughts, the reason they come must be that I want to be depressed."
6. "I'm afraid once I'm over being depressed, I'll become anxious like I was before."
7. "I want a guarantee this therapy will cure my depression."
8. "Cognitive therapy is concerned with mundane things in life and not with the serious problems that make me depressed."
9. "If negative cognitive distortions make me unhappy, does that mean that positive cognitive distortions make me happy?"
10. "I have been coming to therapy for several weeks, and I'm not any better."
11. "You can't treat my depression without seeing my spouse, too. He/she caused the depression."
12. "I'm smarter than the therapist. How can she help me?"
13. "You are more interested in doing research than in helping me."
14. "Cognitive therapy won't work because my depression is biological."
15. "I have to assert my independence by not letting the therapist get the best of me."

*Beck, Shaw, Rush, and Emery, 1979.

Logical Errors or Thinking Errors
(These signal depressive assumptions)

Cognitive Error	Assumption
1. Overgeneralizing	If it's true in one case, it applies to any case which is even slightly similar.
2. Selective abstraction	The only events that matter are failures, deprivation, etc. Should measure self by errors, weakness, etc.
3. Excessive responsibility (Assuming Personal Causality)	I am responsible for all bad things, failures, etc.
4. Assuming Temporal Causality (Predicting without sufficient evidence)	If it has been true in the past, then it's always going to be true.
5. Self-references	I am the center of everyone's attention--especially my bad performances. I am the cause of misfortunes.
6. "Catastrophizing"	Always think of the worst. It's most likely to happen to you.
7. Dichotomous thinking	Everything either is one extreme or another (black or white; good or bad).

Taken from Beck, Rush, Shaw, and Emery, 1979, p. 261.

Component B: Evaluating and correcting dysfunctional thoughts through logical means.

All subjects in this study received Component B as their second or third element of treatment. The purpose of Component A was to teach subjects to evaluate the logical evidence for and against their dysfunctional thoughts. Subjects were encouraged to decrease the frequency of dysfunctional thoughts and to increase the frequency of adaptive thoughts through such methods as noting that the dysfunctional thoughts are illogical, listing the consequences of holding depressive beliefs, noting that thoughts are not facts, etc. These verbal strategies were contrasted with experimental strategies in Component C, which teach the subjects to validate or refute their assumptions by actually gathering data. Component B included four sessions. Each session lasted approximately 120 minutes.

Note regarding review of the concepts and rationale covered in Component A; These particular treatment plans were written as if Component B was the second component which subjects received. When Component B was the third component received, review sections were not stressed as much. Specifically, the therapist reviewed only the main ideas and asked fewer questions of the group.

Component B: Session 1

1. As the group members gather, they complete the "assessment packet." The therapist reviews each member's homework (praising the completion). If a client did not complete the homework assignment, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect. (Allow 15 minutes.)
2. The therapist outlines the following agenda which is written on the board:
 - a. description of next step in therapy--evaluating and correcting dysfunctional thoughts
 - b. group discussion of alternative explanations using negative expectations about therapy as an example
 - c. review homework looking for alternative explanations or for negative thoughts
 - d. assign homework (Allow 5 minutes)
3. The therapist describes the next step in treatment:

"We have been practicing and will continue to practice detecting automatic thoughts and depressive assumptions because we think that there is a relationship between feeling depressed and looking at the self, the world, and the future in a negative manner. However, just as important as the skill of identifying depressive thoughts and assumptions is the skill of correcting them. The goal of this step in therapy is for you to examine the evidence for and against your thoughts, using standards which a nondepressed person would use. Some of the steps which are important in correcting negative automatic thoughts include:

 - a. recognizing that thoughts and beliefs are inferences about the world rather than facts.
 - b. examining the logical evidence for and against the thought or belief
 - c. providing an alternative response to the negative cognition." (Allow 10 minutes)
4. The therapist begins discussion of some of the negative thoughts which may occur in relation to therapy: "In Session 2 we noted that negative automatic thoughts can occur in relation to therapy, the therapist, or homework.
 - a. What were some of the examples we raised? (If needed, the therapist refers to the Handout entitled "Examples of Negative Automatic Thoughts Regarding Therapy".)

- b. What evidence is there to support and to refute the thought?
- c. What are some alternative explanations for each thought? (See Chapter 14 in Beck et al., 1979 for alternative explanations.)

For example, regarding the following negative automatic thought: "You are more interested in doing research than in helping me":

1. Evidence to support--the project does involve research. Evidence to refute--the research and the treatment are not incompatible.
 2. Alternative response--"My participation in this research-treatment project stands to help me and to help others as researchers learn more about depression, its assessment, and treatment." (Allow 15 minutes)
5. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts using the following framework: "As we 'go around,' please:
- a. identify your negative automatic thoughts
 - b. describe the evidence you have to support and to refute the thoughts
 - c. suggest an alternative interpretation for your negative automatic thoughts."

"If you get 'stumped' in suggesting an alternative response, the following questions may aid you:

1. What part of this situation is a fact and what part is my belief?
2. How would a nondepressed person evaluate this event?
3. Even if it is true, is it as bad as it seems?"

Note: Again the therapist's major activity is asking questions rather than making statements, as the group members "go around." (Allow 30 minutes)

6. The therapist collects Daily Record of Dysfunctional Thoughts--Form I and passes out the Daily Record of Dysfunctional Thoughts--Form II. Therapist instructs clients to:
- a. Complete this form every day each time you feel sad and depressed or each time your emotions change. Ideally the form should be completed when the automatic thoughts occur; however, if this is impossible you need to have a standard time each day (e.g., 15 minutes after supper) to complete the form. You need to make several entries each

day since we will use these data in the next session. (See Component A, Session 1 for directions on how to complete the first four columns of the Daily Record of Dysfunctional Thoughts.)

- b. Provide a "RATIONAL RESPONSE" to each automatic thought and to rate the believability of the response. (Therapist reminds group of questions to aid alternative, rational response.)
- c. Write the "OUTCOME" of the automatic thought (i.e., re-rate believability and emotion).
- d. Therapist explains how to complete all parts of the form by reviewing the sample; answers questions; has the group practice one entry. (For a-c allow 15 minutes)

Component B: Session 2

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood of positive or negative change in affect and to supply the rational responses to go with each negative automatic thought.) The subjects complete the Depression Adjective Check List. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the steps of and rationale for providing alternatives to automatic thoughts
 - b. review depressive assumptions acknowledging the fact that they are difficult to give up, but suggesting skills for coping with depressive assumptions
 - c. review homework; identify depressive assumptions from homework, their pros and cons and long-term and short-term consequences; supply alternatives
 - d. assign homework (Allow 5 minutes)
3. The therapist begins review of the skills covered in Session B, 1. "During the last session we focused on correcting negative automatic thoughts. As a brief review, I wonder if any would tell me in their own words:
 - a. Why is it important to evaluate and to correct negative automatic thoughts?
 - b. What are some of the steps involved in correcting negative automatic thoughts?
 - c. What types of questions might you ask yourself if you have difficulty providing an alternative response to a negative automatic thought? (Allow 10 minutes)
4. The therapist begins a review of depressive assumptions and the importance of evaluating them and providing alternative responses to them: "During this session, we will apply the skills that we have been practicing to depressive assumptions. You may remember that depressive assumptions are important because their presence and use increases the likelihood that a person will become depressed. Some examples of the depressive assumptions we talked about included: "To be happy, I must be accepted by all people at all times." "If I make a mistake, it means that I am inept." We mentioned that the following cues often signal the presence of depressive assumptions:
 - a. the frequent use of global, vague words (e.g., stupid, silly, dumb)

- b. the frequent use of "absolutes" (e.g., should, ought, never)
- c. "logical errors" (e.g., overgeneralization, magnification).

In identifying depressive assumptions, we examined the common themes of negative automatic thoughts and inferred the depressive assumptions. (Allow 5 minutes)

5. The therapist provides rationale for group exercise used in this session: Since depressive assumptions are important in the reoccurrence of depression, we are going to practice evaluating the logical evidence for and against the assumptions, and reevaluate the depressive assumptions. However, it is first important to recognize that it is difficult to "give up" an assumption or rule you have used your entire life which you may have learned from someone very significant to you. In order to cope with this reluctance we will examine the pros and cons, and the long-term and short-term consequences of each of the depressive thoughts that you identify.

The therapist applies the above to the following depressive assumption: "I'm only as good as my work."

- a. short-term consequences: work hard, promoted
- b. long-term consequences: loses job, thinks he/she is a loser
- c. pros: encourage effort
- d. cons: insecure when job is insecure; effort seems motivated by fear (Allow 5 minutes)

6. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts using the following framework:
 - a. "Look back over your homework and identify any common themes and/or assumptions.
 - b. As we 'go around' the group can help by identifying the signals of depressive assumptions.
 - c. On the board, we'll fill in this diagram for each person:
 1. emotions
 2. automatic thoughts
 3. themes
 4. depressive assumptions
 5. advantages of keeping this assumption
 6. disadvantages of keeping this assumption
 7. short-term effects of operating under this assumption
 8. long-term effects of operating under this assumption
 9. alternative assumption that is more useful than the depressive assumption"

- d. Subjects are instructed to copy their diagram on the back of a Daily Record of Dysfunctional Thoughts Form

Note: Again the therapist asks many questions during this section and makes few statements. (Allow 55 minutes)

7. The therapist collects Daily Record of Dysfunctional Thoughts--Form II and passes out blank forms. The therapist instructs the group to continue to complete the forms as usual, but at the end of each day, on the back of the form, identify:
 - a. common themes
 - b. depressive assumptions
 - c. alternatives to the depressive assumption (Allow 5 minutes)

Component B: Session 3

1. As the group members gather, the therapist reviews each member's homework, and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect, to note the common themes and to infer the depressive assumptions, and to provide alternative rational responses to each automatic thought and depressive assumption.) The subjects complete the Depression Adjective Check List. (Allow 10 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review logical errors
 - b. describe the skills one can use to cope with logical errors
 - c. review homework; look for logical errors; apply skills to cope with logical errors in offering alternative to negative automatic thoughts and depressive assumptions. (Allow 5 minutes)
3. The therapist begins a review of "logical errors" or "thinking errors": "In our early sessions, we discussed 'logical errors' or 'thinking errors' as signals of depressive assumptions. During this session we will review these logical errors and will practice skills designed to cope with them or decrease their likelihood." (Allow 5 minutes)
4. The therapist distributes handout entitled, "Skills to Cope with Logical Errors." For each of the seven cognitive errors, the therapist:
 - a. describes the error
 - b. gives an example of the error
 - c. elicits examples from the group members
 - d. describes the skill used to cope with the cognitive error (Allow 20 minutes)
5. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts--Form II using the following framework:
 - a. "Look back over your homework and identify any of the logical errors we have discussed.
 - b. As we 'go around', we'll fill in this diagram on the board for each person:
 1. emotions
 2. automatic thoughts
 3. themes
 4. depressive assumptions and logical errors

5. skills to cope with logical errors
 6. an alternative assumption that is more useful than the depressive assumption
- c. Subjects are instructed to copy their diagram on the back of a Daily Record of Dysfunctional Thoughts--Form II

Note: Again the therapist asks many questions during this section and makes few statements. (Allow 45 minutes)

6. The therapist collects Daily Record of Dysfunctional Thoughts--Form II and passes out blank forms. The therapist instructs the group to continue to complete the form as usual and at the end of each day, on the back of the form, identify:
- a. common themes
 - b. depressive assumptions
 - c. alternatives to the depressive assumptions (Allow 5 minutes)

Component B: Session 4

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative changes in affect, to note common themes, to infer the depressive assumptions, and to provide alternative rational responses to each automatic thought and depressive assumption.) The subjects complete the Depression Adjective Check List. (Allow 10 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the concepts and the skills we have used in the four sessions
 - b. review homework using the skills and concepts that we have learned
 - c. assign homework (Allow 5 minutes)
3. The therapist begins the review of the basic concepts and skills covered in the last four sessions:
 - a. negative automatic thoughts
 1. Why is it important to evaluate and to correct negative automatic thoughts? (They are related to depression)
 2. What are some of the steps involved in correcting negative, automatic thoughts?
 - a. recognizing that thoughts and beliefs are inferences not facts
 - b. examining the evidence for and against the thought or belief
 - c. providing an alternative response to the negative thought
 3. What are some questions you can ask yourself if you have difficulty substituting a rationale response?
 - a. What's my evidence?
 - b. Is there any other way of looking at that?
 - c. Even if it is true, is it as bad as it seems?
 - d. How would a nondepressed person look at it?
 - b. logical errors
 1. What are some examples of logical errors? (See Handout entitled, "Skills to Cope with Logical Errors")
 2. Why are logical errors important? (They signal depressive assumptions)
 3. What skills can be used to cope with logical errors? (See Handout)

- c. depressive assumptions:
 1. Why are depressive assumptions important?
(They increase the likelihood that any individual will become depressed.)
 2. Why are depressive assumptions difficult to "give up"? (We learn them from significant others and have used them for years.)
 3. What exercises can be useful in examining the evidence for and against "giving up" depressive assumptions? (Listing the pros and cons of "giving up: the assumption, listing the short-term and long-term consequences of operating under the assumption.) (Allow 20 minutes for review)

The therapist introduces the group exercise as an opportunity to practice the skills we have learned.

4. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts using the following framework:
 - a. "Look back over your homework and identify any common themes and/or assumptions."
 - b. On the board, we'll fill in this diagram for each person:
 1. emotions
 2. automatic thoughts
 3. themes
 4. depressive assumptions
 5. logical errors
 6. alternative to logical error and depressive assumption
 7. advantages vs. disadvantages of depressive assumption
 8. short-term vs. long-term consequences of using the depressive assumption
 9. alternative assumption after reviewing all the evidence (i.e., Steps 1-8)

Note: Again the therapist asks many questions during this section and makes few statements. (Allow 45 minutes)

5. The therapist collects Daily Record of Dysfunctional Thoughts--Form II and passes out blank forms. The therapist instructs the group to continue to complete the form as usual. At the end of each day, on the back of the form, identify:
 - a. common themes
 - b. depressive assumptions
 - c. alternatives to the depressive assumptions (Allow 5 minutes)

Daily Record of Dysfunctional Thoughts--Form II

DATE	SITUATION Describe 1. Actual event leading to unpleasant emotion, or 2. Stream of thoughts, daydream, or recollection, leading to unpleasant emotion.	EMOTION(S) 1. Specify sad, anxious, angry, etc. 2. Rate degree of emotion, 1:100	AUTOMATIC THOUGHT(S) 1. Write automatic thought(s) that preceded emotions(s). 2. Rate belief in automatic thought(s). 0:100%	RATIONAL RESPONSE 1. Write rational response to automatic thought(s). 2. Rate belief in rational response. 0:100%	OUTCOME 1. Re-rate belief in automatic thought(s), 0:100% 2. Specify and rate subsequent emotions. 0:100

EXPLANATION: When you experience an unpleasant emotion, note the situation that seemed to stimulate the emotion (If the emotion occurred while you were thinking, daydreaming, etc., please note this.) Then note the automatic thought associated with the emotion. Record the degree to which you believe the thought: 0% = not at all; 100% completely. In rating degree of emotion: 1 = a trace; 100 = the most intense possible.

Adapted from Beck, Rush, Shaw, and Emery, 1979, p. 403.

Skills to Cope with Logical Errors

Cognitive Error	Assumption	Skill
1. Overgeneralizing	If it's true in one case, it applies to any case which is even slightly similar.	Exposure of faulty logic. Establish criteria of which cases are "similar" and to what degree.
2. Selective abstraction	The only events that matter are failures deprivation, etc. Should measure self by errors, weaknesses, etc.	Use "log" to identify successes patient forgot.
3. Excessive responsibility (Assuming Personal Causality)	I am responsible for all bad things, failures, etc.	Disattribution technique.
4. Assuming Temporal Causality (Predicting without sufficient evidence)	If it has been true in the past, then it's always going to be true	Expose faulty logic. Specify factors which could influence outcome other than past events.
5. Self-references	I am the center of everyone's attention--especially my bad performances. I am the cause of misfortunes.	Establish criteria to determine when patient is the focus of attention and also the probable facts that cause bad experiences.
6. "Catastrophizing"	Always think of the worst. It's most likely to happen to you.	Calculate real probabilities. Focus on evidence that the worst did not happen.
7. Dichotomous thinking	Everything either is one extreme or another (black or white; good or bad)	Demonstrate that events may be evaluated on a continuum.

Taken from Beck, Rush, Shaw, and Emery, 1979, p. 261.

Component C: Evaluating and correcting dysfunctional thoughts through an empirical means

All subjects in this study received Component C as their second or third element of treatment. As with Component B, the purpose of Component C was to teach subjects to evaluate the evidence for and against their dysfunctional thoughts. However, Component C encouraged subjects to operationalize their thoughts and put these thoughts to an empirical test. The subjects were taught a general skill of hypothesis-testing which they used in evaluating their dysfunctional thoughts, and the subjects were taught general problem solving strategies which were used to test typical depressive thoughts (e.g., graded task assignment, activity schedules, and mastery/pleasure technique). Component C includes four sessions. Each session lasted approximately 120 minutes.

Note regarding review of concepts and rationale covered in Component A: These particular treatment plans were written as if Component C was the second component which subjects received. When Component C was the third component received, review sections were not stressed as much. Specifically, the therapist reviewed only the main ideas and asked fewer questions of the group.

Component C: Session 1

1. As the group members gather, they complete the "assessment packet." The therapist reviews the homework. If a client did not complete the homework assignment, he/she is instructed to make at least three entries relevant to dysphoric mood of positive or negative change in affect. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. description of the next step in therapy--evaluating and correcting dysfunctional thoughts and assumptions by designing experiments
 - b. steps involved in designing experiments
 - c. examples of experiments
 - d. discuss new homework assignment
 - e. practice new homework assignment by "going around" (Allow 5 minutes)
3. The therapist describes the next step in treatment: "We have been practicing and will continue to practice detecting automatic thoughts and depressive assumptions because we think that there is a relationship between feeling depressed and looking at the self, the world, and the future in a negative manner. To review, you may remember that depressive assumptions are important because their presence and use increases the likelihood that a person will become depressed. Some examples of the depressive assumptions we talked about included: "To be happy, I must be accepted by all people at all times." "If I make a mistake, it means that I am inept."

We mentioned that the following cues often signal the presence of depressive assumptions:

- a. the frequent use of global, vague words (e.g., stupid, silly, dumb)
- b. the use of "absolutes" (e.g., should, ought, never)
- c. "logical errors" (e.g., overgeneralization, magnification)

In identifying depressive assumptions, we examined the common themes of negative automatic thoughts and inferred the depressive assumptions. However, just as important as the skill of identifying depressive thoughts and assumptions is the skill of correcting them. Since we have stated earlier that there is a difference between a thought and a fact, we will try now to subject thoughts to an experimental test. We will look at thoughts as hypotheses to be tested empirically and will gather data to refute and/or to support the hypotheses. (Allow 5 minutes)

4. The therapist illustrates: For example, one depressed person used the assumption--"If I assert myself (express myself openly and honestly), I will be rejected." The negative automatic thoughts which went along with this assumption were--"If I tell my supervisor I want to take the day off she will think that I am lazy and that I'm trying to avoid work." The experiment consisted of actually talking with the supervisor, recording what happens, and comparing these results with the predictions.

A depressed student predicted that she would be a failure in college because her English professor suggested many revisions on her essay. One of her automatic thoughts included--"The professor probably wishes I wasn't in his class since I am doing so poorly." The experiment consisted of going to talk with the professor, who said that the student's paper was very creative, and it needed revising. He pointed out that he had written a lot to guide her revisions and make them easier. (Allow 5 minutes)

5. The therapist mentions that there are several types of experiments. Some automatic thoughts are examined best by taking data on oneself (like the two outlined above). Other automatic thoughts are tested best by "surveying" others. For example, one depressed woman assumed: "Only unattractive women go out alone." When this client actually counted the numbers of attractive women who went out alone vs. the number of unattractive women who went out alone, she found the numbers were approximately equal. (Allow 5 minutes)
6. The therapist outlines the steps involved in testing assumptions:
 - a. identify the depressive or faulty assumption to be tested
 - b. deduce a specific prediction from this general rule (often it helps to look at the automatic thoughts in order to deduce a specific prediction)
 - c. state this prediction in a form that can be tested. Define vague terms and list behaviors necessary to carry out the test. Look at the situation in which corresponding negative, automatic thoughts occur for ideas about how to specify the hypothesis.
 - d. record the results from the experiment in an objective manner. That is, record the outcomes of the experiment in terms of what happened, rather than in terms of what you think about what happened.

- e. compare the results you got to the prediction that you made
 - f. ask yourself if other experiments are necessary
(Allow 10 minutes)
7. The therapist introduces the new homework assignment Daily Record of Dysfunctional Thoughts--Form III as an aid in learning to test assumptions and/or negative, automatic thoughts.
- a. The therapist points out that the first four columns (e.g., date, situation, emotions, automatic thoughts) are identical to Forms I and II. The therapist reminds the group that the cues for completing the form are dysphoria or a change in emotion. "If it is impossible to complete the form at that moment, go back to the form at a standard time each day."
 - b. The therapist mentions that column five, "WAYS TO TEST," (the negative thought or depressive assumption) involves creating a method which would support or refute the thought. This column is used to specify how you will collect your data.
 - c. The therapist mentions that column six "OUTCOME OF TEST" involves recording the results of the experiment. Clients are encouraged to record the results of your experiment like "you would like for a newspaper reporter to report the news."
 - d. The therapist mentions that column seven "THOUGHTS AND BELIEFS" involves re-rating the belief in the initial automatic thought or assumption and specifying and rating the new emotion. (Allow 10 minutes)
8. The therapist suggests that the group "go around" using the new Form III to review their homework from the last session. The following format is used:
- a. What depressive assumption would you like to test? (If client can't identify a depressive assumption, the therapist reviews. Such review is accomplished by listing emotions, automatic thoughts, themes, and deducing the assumptions.)
 - b. What specific prediction can you deduce from this general assumption? (Aids: look at corresponding situations and automatic thoughts.)
 - c. How can we state this prediction in a testable form?
 - d. (Define vague terms. List behaviors necessary to carry out the test.)
 - d. What type of data would you record? Are there any precautions you might take to make sure these data are objective?
 - e. If any applicable examples arise, the therapist has group members conduct the experiment in the group setting. In so doing the client practices:
 - 1. recording data objectively
 - 2. comparing the results with the prediction
 - 3. asking if other experiments are necessary

(When this is done, the therapist makes sure that the client has another or similar experiment to conduct as homework.) (Allow 40 minutes)

9. The therapist assigns homework:
 - a. Carry out the experiments which you designed and record the results.
 - b. Complete the Daily Record of Dysfunctional Thoughts--Form III. Complete Columns 1-5 each time you feel dysphoric or your emotions change. Complete Columns 6 and 7 (i.e., actually perform an experiment) once a day. (Allow 5 minutes)

Component C: Session 2

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect, completing columns 1-5, Form III. Then the therapist stresses the importance of actually carrying out the experiments and attempts to get the subject to agree to carry out one of these experiments as his/her new homework.) The subjects complete the Depression Adjective Check List. (Allow 5 minutes)

2. The therapist outlines the following agenda which is written on the board:
 - a. review the rationale for and steps for hypothesis testing
 - b. review homework (Form III)
 - c. learn a new skill which is particularly useful in testing hypotheses regarding problems (e.g., graded task assignment)
 - d. apply graded task assignment to a problem/hypothesis relevant to you
 - e. assign homework (Allow 5 minutes)

3. The therapist begins review of the skills covered in Session C-1: "During the last session we focused on correcting negative automatic thoughts and depressive assumptions by hypothesis-testing or by setting up experiments. As a brief review, I wonder if anyone would tell me:
 1. Why is it important to set up experiments to evaluate automatic thoughts and depressive assumptions? (Automatic thoughts and depressive assumptions are beliefs, not facts. Experiments help in establishing or refuting their validity.)
 2. What are the steps involved in testing assumptions?
 - a. identify the depressive or faulty assumption to be tested
 - b. deduce a specific prediction from this general rule (often it helps to look at the automatic thoughts in order to deduce a specific prediction)
 - c. state this prediction in a form that can be tested. Define vague terms and list behaviors necessary to carry out the test. Look at the situation in which corresponding negative, automatic thoughts occur for ideas about how to specify the hypothesis
 - d. record the results from the experiment in an objective manner. That is, record the outcomes of the experiment in terms of what happened, rather than in terms of what you think about what happened.

- e. compare the results you got to the prediction that you made
 - f. ask yourself if other experiments are necessary (Allow 10 minutes)
4. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts--Form III by "going around." Therapist asks each member to review one experiment, beginning with Column 1 through Column 7. If a group member has not carried out an experiment, the therapist helps him/her design an experiment that he/she can carry out in the group session, at this time. (Allow 30 minutes)
5. The therapist introduces the rationale for and steps involved in graded task assignment:
- a. Rationale:

Graded task assignment offers one way of testing hypotheses that have to do with problems or doubts. This strategy is designed to help test automatic thoughts or assumptions like: "I can't do anything" or "I'll never be able to solve this problem." Graded task assignment will offer you a method of solving problems through your own effort and skill.
 - b. Steps:
 1. identify the problem (i.e., belief) on which you would like to work (e.g., "I can't accomplish my goals.")
 2. formulate a project. That is, write down the behaviors which are involved in the task. Start with the simplest and move to the more complicated
 3. perform these behaviors. Check off the parts of the task as you do them
 4. compare the results with the prediction that you made (Allow 5 minutes)
6. The therapist suggests that the group practice using graded task assignment to test hypotheses which are relevant to each group member using this format:
- a. The therapist gives the group a chance to ventilate and to express any cynical doubts they have regarding the utility of this task. (The therapist responds with, "This is an experiment. We can test your automatic thoughts.")
 - b. The therapist suggests that clients refer to the Daily Record of Dysfunctional Thoughts--Form III during this exercise. The therapist suggests that the client write down the "plan" in the following places.
 - c. Identify the assumption which can be tested through the use of graded task assignment. (Write in Column 4)

d. Write down the steps involved in the task, Column 5.

Note: The therapist aids client in setting modest goals.
(Allow 30 minutes)

7. For homework the therapist instructs the group to:
- a. perform the behaviors listed in 6d, checking off the tasks as they are accomplished
 - b. complete Columns 6 and 7
 - c. use graded task assignment to test at least one other belief before the next session
 - d. continue to complete Daily Record of Dysfunctional Thoughts--Form III, Columns 1-5, at least. (Allow 5 minutes)

Component C: Session 3

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the task, then he/she is instructed to make at least three entries relevant to dysphoric mood or positive or negative change in affect, completing Columns 1-5, Form III. Then the therapist stresses the importance of actually carrying out one of these experiments as his/her new homework.) The subjects complete the Depression Adjective Check List. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the rationale and steps involved in using graded-task assignment to test hypotheses
 - b. review homework, Form III
 - c. learn a new skill which is particularly useful in testing hypotheses regarding fulfilling daily goals (e.g., activity scheduling)
 - d. apply activity scheduling to a hypothesis relevant to you
 - e. assign homework (Allow 5 minutes)
3. The therapist begins a review of the skills covered in Session C-2: "During the last session we focused on correcting negative automatic thoughts related to problems or doubts by graded task assignment. As a brief review, I wonder if anyone would tell me:
 1. What are the steps involved in graded task assignment?
 - a. identify the problem (i.e., belief) on which you would like to work
 - b. formulate a project. That is, write down the behaviors which are involved in the task. Start with the simplest and move to the more complicated
 - c. perform the behaviors. Check off the parts of the task as you do them
 - d. compare the results with the prediction that you made" (Allow 5 minutes)
4. The therapist suggests that each person share his/her Daily Record of Dysfunctional Thoughts--Form III by "going around." Therapist asks each member to review one experiment in which he/she used graded task assignment to test a hypothesis. The therapist instructs the members to review what they place in Columns 1 through 7 on the Daily Record of Dysfunctional Thoughts--Form III. If a group member has not carried out an experiment using graded task assignment, the therapist helps him/her design an experiment that he/she can carry out in the group session, at this time. (In some cases this may not be

possible; therefore, the client is encouraged to implement the experiment as homework.) (Allow 20 minutes)

5. The therapist introduces the rationale for and steps involved in activity scheduling:

a. Rationale:

Activity scheduling offers one way of testing hypotheses that have to do with not accomplishing enough, being unable to carry out, and not doing anything pleasurable. Activity scheduling offers a method for collecting data on these hypotheses.

- b. Steps: (The therapist hands out Activity Schedules and blank Form III, asking the group to complete the steps involved in planning activities as she describes them.)

1. identify a hypothesis you use or have used which is related to inability to accomplish daily activities and not doing anything pleasurable (e.g., "I can't get anything done" or "I don't do anything fun.") Write this hypothesis in Column 4 of the Daily Record of Dysfunctional Thoughts--Form III. (Members "go around" and state hypotheses).
2. In Column 5 write that activity scheduling will be your method of testing the hypothesis
3. On the Activity Schedule, go through and write down all the standing appointments you have made (e.g., go to work, come to group meeting). (Members "go around" and list activities.)
4. On the Activity Schedule, go through and write down something for each day that you want to do (e.g., watch the evening news, play with my pet, write a letter, etc.) (Members "go around" and list activities.)
5. Leave some time each day unscheduled. "Right now what's more important than actually accomplishing the activity is planning the activity. Nobody accomplishes everything that he/she plans. Even if you don't carry out every activity, trying to carry them out and carrying out some of the activities is very important.
6. For homework on the Activity Schedule, check off the tasks as you complete them.
7. For homework on the Daily Record of Dysfunctional Thoughts--Form III in Column 6, write down the outcome of the experiment which involved scheduling activities.
8. For homework, complete Column 7 of the Daily Record of Dysfunctional Thoughts--Form III. (Allow 45 minutes)

6. For homework the therapist instructs the group to:
 - a. carry out their experiments on Activity Scheduling (review steps 1-7 above).
 - b. continue to complete Form III, Columns 1-5, at least (Allow 10 minutes)

Component C: Session 4

1. As the group members gather, the therapist reviews each member's homework and praises his/her completion of the task. (If a client did not complete the Activity Schedule and related columns of the Daily Record of Dysfunctional Thoughts--Form III, retrospectively. Then the therapist stresses the importance of actually carrying out the experiments and attempts to get the subject to agree to implement his/her experiments from Session 4.) The subjects complete the Depression Adjective Check List. (Allow 5 minutes)
2. The therapist outlines the following agenda which is written on the board:
 - a. review the homework from Session 3 by "going around"
 - b. learn a new skill for testing hypotheses rated to "mastery and pleasure" (e.g., "I did tasks, but not well." "I did it, but didn't enjoy it.")
 - c. review the concepts and skills learned in the past three sessions
 - d. practice skills by designing new experiments
 - e. assign homework (Allow 5 minutes)
3. The therapist suggests each member share his/her test of a hypothesis using Activity Scheduling. The therapist "goes around" asking each member to refer to the Daily Record of Dysfunctional Thoughts--Form III and the Activity Schedule to answer the following questions:
 - a. What hypothesis were you using Activity Scheduling to test?
 - b. What was the outcome of your test?
 - c. How much did you believe the hypothesis after the test?
 - d. What emotions did you experience after the test?
 - e. Are other experiments necessary? (Allow 25 minutes)
4. The therapist reviews the rationale for Activity Scheduling and introduces a related skill, mastery and pleasure ratings:
 - a. To review briefly, will someone tell me how Activity Scheduling is related to automatic thoughts and depressive assumptions? (Activity Scheduling offers a methodology for actually examining the evidence for and against thoughts regarding inability to accomplish daily tasks or to engage in pleasant events.) The therapist hands our blank Activity Schedules for clients to complete as homework.
 - b. Why is important to test out negative automatic thoughts and depressive assumptions? (Untested they increase the likelihood of becoming depressed.)

This new skill, called mastery and pleasure ratings, deals with some of the thoughts people often have when using an activity schedule. Sometimes people state that they experience no sense of accomplishment (i.e., no mastery) although they are engaging in a task. Similarly, often people state that they experience no pleasure after engaging in an activity. The idea here is that depressed people often "devalue" what the future may hold in terms of accomplishment or pleasure. These mastery and pleasure ratings may aid you in noting some degree of accomplishment or pleasure you experience when engaging in activities. These ratings are designed to test such hypotheses as: "Even though I'll go to work, I'll do a completely Unacceptable job" or "I will play tennis, but it won't be any fun." That is, this exercise is designed to help you test hypotheses regarding lack of mastery or pleasure. This exercise simply adds one step onto the Activity Schedule which you have already used. When you "check off" activities, give each event a "mastery" and "pleasure" rating. Use the following scale: 0 = no mastery or pleasure and 5 = maximum mastery or pleasure. In using these ratings simply write a M beside each event for mastery (and rate) and write a P beside each event for pleasure (and rate). Then as usual, you would complete Columns 6 and 7 of the Daily Record of Dysfunctional Thoughts--Form III to note the outcome of your experiment. (Allow 10 minutes)

5. The therapist, asks one member to volunteer and uses his/her data to provide an example of all of the following steps involved in mastery and pleasure ratings:
 - a. identify the hypothesis that you are going to use mastery and pleasure ratings to test. Write this hypothesis in Column 4 of the Daily Record of Dysfunctional Thoughts--Form III. (These hypotheses typically involve negative expectations about future mastery or pleasure.)
 - b. in Column 5 write that mastery and pleasure ratings will be your method of testing the hypothesis
 - c. for homework, gather the data by rating each event in terms of its mastery and pleasure on the Activity Schedule as you check off the events
 - d. for homework, on the Daily Record or Dysfunctional Thoughts--Form III in Column 6, write down the results of your experiment regarding mastery and pleasure
 - e. for homework, complete Column 7 of the Daily Record of Dysfunctional Thoughts--Form III (Allow 5 minutes)

6. The therapist begins a review of the remaining skills covered in the past four sessions:

- a. graded task assignment
 1. For what types of hypotheses is graded task assignment a useful method of testing hypotheses? (Hypotheses regarding problems or inability to accomplish goals.)
 2. What are the steps involved in graded task assignment?
 - a. identify the problem (i.e., belief) on which you would like to work
 - b. formulate a project. That is, write down the behaviors which are involved in the task. Start with the simplest and move to the more complicated
 - c. perform the behaviors. Check off the parts of the task as you do
 - d. compare the results with the prediction that you made
 - b. hypothesis testing in general (which is not bound by a particular strategy--see Session C-1)
 1. What are the two types of experiments that a person can use in testing experiments? (Conducting a survey on other people or using yourself as an experimental subject)
 2. What are the steps involved in testing an assumption?
 - a. identify the depressive or faulty assumption to be tested
 - b. deduce a specific prediction from this general rule (often it helps to look at the automatic thoughts in order to deduce a specific prediction)
 - c. state this prediction in a form that can be tested. Define vague terms and list behaviors necessary to carry out this test. Look at the situation in which corresponding negative, automatic thoughts occur for ideas about how to specify the hypothesis.
 - d. record the results from the experiment in an objective manner. That is, record the outcomes of the experiment in terms of what happened, rather than in terms of what you think about what happened
 - e. compare the results you got with the prediction that you made
 - f. ask yourself if other experiments are necessary (Allow 10 minutes)
7. The therapist suggest that the group practice using the skills reviewed by "going around" and designing new experiments. The therapist suggests that each member write his/her experiment on the Daily Record of Dysfunctional Thoughts--Form III in the appropriate columns. The following questions are posed:

- a. What depressive assumption would you like to test? (If client can't identify a depressive assumption, the therapist reviews. Such a review is accomplished by listing emotions, automatic thoughts, themes, and deducing the assumptions.) (Column 4)
 - b. What specific prediction can you deduce from this general assumption? (Aids: look at corresponding situations and automatic thoughts)
 - c. How can we state this prediction in a testable form? (Define vague terms. List behaviors necessary to carry out the test.) (Column 5)
 - d. What type of data would you record? Are there any precautions you might take to make sure these data are objective?
 - e. If any applicable examples arise, the therapist has group members conduct the experiment in the group setting. In so doing, the client practices:
 1. recording data objectively
 2. comparing the results with the prediction; asking if other experiments are necessary (When this is done, the therapist makes sure that the client has another or similar experiment to conduct as homework.) (Allow 30 minutes)
8. The therapist assigns homework:
- a. Carry out the experiments which you designed and record the results on the Daily Record of Dysfunctional Thoughts--Form III. There will be two types of experiments:
 1. experiments designed in #7
 2. experiments designed to test thoughts regarding mastery and pleasure (Clients are reminded of the blank Activity Schedules they were given to complete)
 - b. Complete the Daily Record of Dysfunctional Thoughts--Form III. At a minimum complete Columns 1-5. Actually test the experiments which you design when possible. (Allow 10 minutes)

Daily Record of Dysfunctional Thoughts--Form III

DATE	SITUATION Describe 1. Actual event leading to unpleasant emotion, or 2. Stream of thoughts, daydream, or recollection, leading to unpleasant emotion.	EMOTION(S) 1. Specify sad, anxious, angry, etc. 2. Rate degree of emotion, 1-100	AUTOMATIC THOUGHT(S) 1. Write automatic thought(s) that preceded emotion(s). 2. Rate belief in automatic thoughts(s). 0-100%	WAYS TO TEST Define terms and specify test situation to refute thought	OUTCOME OF TEST Record results objectively.	THOUGHTS AND BELIEFS 1. Re-rate belief in automatic thought(s) 0-100% 2. Specify and rate subsequent emotion 0-100%

EXPLANATION: When you experience an unpleasant emotion, note the situation that seemed to stimulate the emotion. (If the emotion occurred while you were thinking, daydreaming, etc., please note this.) Then note the automatic thoughts associated with the emotion. Record the degree to which you believe this thought. 0% = not at all, 100% = completed. In rating degree of emotion, 1 = a trace, 100 = the most intense possible.

Adapted from Beck, Rush, Shaw, and Emery, 1979, p. 403.

WEEKLY ACTIVITY SCHEDULE

	M	T	W	Th	F	S	S
9-10							
10-11							
11-12							
12-1							
1-2							
2-3							
3-4							
4-5							
5-6							
6-7							
7-8							
8-12							

Mastery: (M)

Pleasure: (P)

0 1 2 3 4 5
 no mastery maximum mastery
 or pleasure or pleasure

APPENDIX H

AUTOMATIC THOUGHTS QUESTIONNAIRE

APPENDIX I

DEPRESSION ADJECTIVE CHECK LIST

APPENDIX J

PLEASANT EVENTS SCHEDULE--

MOOD-RELATED SUBSCALE

APPENDIX K

INTERPERSONAL EVENTS SCHEDULE--

DYSPHORIA-RELATED SUBSCALE

APPENDIX L

CONSENT FORM I

APPENDIX L

Consent Form I

I understand that I am answering questions (by completing questionnaires and being interviewed) to be used in selecting subjects who report that they are depressed for a psychological investigation involving the assessment and treatment of depression. I have been informed that although the information I supply will be available to my therapist and my therapist's supervisors, the information will remain confidential. I have been informed that my screening interview may be audiotaped and agree to this. In addition, I have been informed that I am participating in research and alternative treatment for my problem is available through my local mental health clinic or through psychologists or psychiatrists involved in private practice. I have also been informed that I may withdraw from this screening session at any time.

I understand that if I am not eligible for participation in this program, I will be referred to the UNC-G Psychology Clinic, to my community mental health center, and to private practitioners, for evaluation and treatment. However, if I am eligible I understand that experimental procedures will be explained to me more fully before I continue to participate.

Signed: _____

Witness: _____

Date: _____

Please Note:

Responsibility for the professional aspects of this research is shared by Dr. Rosemary O. Nelson and Robin B. Jarrett. The University of North Carolina at Greensboro, the Psychology Department, and the Human Subjects Committee are not responsible for the professional aspects of the research.

APPENDIX M

CONSENT FORM II

APPENDIX M

Consent Form II

I, _____, hereby agree to participate in psychological research to be conducted under the direction of Dr. Rosemary O. Nelson, Professor of Psychology, involving assessment and treatment for depressive disorders. As explained to me, for the next six and one-half weeks, I will be required to attend group therapy sessions twice a week (i.e., attend 13 group therapy sessions) and to complete the homework assigned to me by my therapist. I have agreed to complete a packet of questionnaires at four different points during this project. At the end of therapy, I have agreed to be interviewed again. I have been assured that all data that I supply will be kept confidential.

I understand that my therapist is an advanced graduate student in clinical psychology who has received training in the techniques employed here. The therapist(s) will be supervised by Dr. Rosemary O. Nelson, Professor of Psychology and Robin B. Jarrett, principal investigator. I am aware that these supervisors will observe some of my treatment sessions through a one-way mirror and/or listen to audiotapes of the sessions.

I understand that if I miss a session, I need to telephone my therapist for a make-up session. I understand that this "make-up" session will consist of (a) discussing the past and present homework assignment; (b) listening to an audiotape of the group session which I missed and must be scheduled before the group meets again (e.g., if I miss Session 2 I must reschedule before the group meets for Session 3). I understand that if I miss two group sessions, the principal investigator will consider finding me an alternative form of treatment.

I understand that if I become dissatisfied with this program I can withdraw and an appropriate referral can be arranged.

I understand that the purpose of this investigation is doctoral dissertation research to investigate an approach to assessing and treating depressive disorders, an approach which has shown some promise in the past. However, I also realize that there can be no guarantee that I will not be depressed because I participate in this research. Hopefully, my participation here will contribute to the development of effective assessment and treatment for others, as well as for myself. I

have been informed that there is no deception in this research and, at the end of the study, the research will be explained to me. In addition, at the end of this investigation, if I am not satisfied with my progress I will receive a referral for continued evaluation and treatment.

Signed: _____

Witness: _____

Date: _____

Please Note:

Responsibility for the professional aspects of this research is shared by Rosemary O. Nelson, Ph.D. and Robin B. Jarrett, M.A. The University of North Carolina at Greensboro, the Psychology Department, and the Human Subjects Committee are not responsible for the professional aspects of the research.

APPENDIX N
DEBRIEFING SESSION

APPENDIX N

Session 13: Debriefing Session

All subjects in this study will be exposed to the debriefing session after they have received Components A, B, and C. The purposes of this session are to: (a) deal with termination issues; (b) debrief the subjects regarding the nature of the research hypotheses; (c) provide referrals for potential future or further treatment.

1. The therapist reviews each client's homework individually and deals with any questions or problems regarding the homework. The subjects complete the Depression Adjective Check List and the Questionnaire Administered at the Debriefing Session. (Allow 20 minutes)
2. The therapist outlines the following agenda which is written on the board: (a) review any part of the project or deal with any negative automatic thoughts or depressive assumptions the group wants to raise; (b) deal with negative thoughts regarding the termination of therapy; (c) describe the hypotheses involved in this research; (d) provide referrals for further or future treatment. (Allow 5 minutes)
3. The therapist asks the group if there are any parts of the project they would like to review or if there are any negative automatic thoughts or depressive assumptions they would like to raise? (Allow 20 minutes)
4. The therapist inquires about any thoughts group members may have about terminating treatment. The therapist suggests that these thoughts are just like the others we have been working on during therapy. (Therapist should refer to Beck et al. (1979), Chapter 15 for ideas about how to deal with termination issues. (Allow 20 minutes)
5. The therapist passes out the debriefing statement and verbally describes the rationale for and hypotheses of this dissertation. The therapist answers any questions raised. (Allow 15 minutes)
6. The therapist provides each client with a list of possible referrals should they want to continue treatment or need assistance in the future. (Allow 5 minutes)
7. The therapist thanks subjects for their participation. (Allow 5 minutes)

APPENDIX O

QUESTIONNAIRE ADMINISTERED AT
DEBRIEFING SESSION

APPENDIX O

Questionnaire Administered at the
Debriefing Session

Name: _____ Date: _____

1. Circle the number which best indicates how much you think that you have improved during the course of this project

1	2	3	4	5	6	7	8	9	
no improvement at all									complete improvement

2. Would you recommend this project to a friend who was feeling depressed?

_____ yes _____ maybe _____ no

3. What did you hope to accomplish by participating in this project?

4. What could we have done to have made it easier for you to meet these goals?

5. What do you think was the strongest component of this project?

6. At this time, do you feel it will be necessary for you to continue your treatment for depression?

_____ yes _____ no

7. Any additional comments, suggestions, concerns are welcome:

APPENDIX P

FOLLOW-UP TELEPHONE CALL

APPENDIX P

Follow-up Telephone Call:

Depression Project

Therapist: _____

Client: _____ Telephone: _____

Date Telephone call was made: _____

Please telephone this client during the week of _____.
 Converse with the client briefly asking the following
 questions and recording the relevant information.

1. Ask how the client feels in general:

_____ very depressed

_____ mildly depressed

_____ not depressed at all

2. Ask whether the client is continuing his/her therapy elsewhere?

_____ Yes _____ No

3. Ask whether the client wants to continue therapy elsewhere:_____ Yes (if so see list of appropriate referrals
attached)

_____ No

4. What is your judgment of this client's condition?
(i.e., should we make an effort to call her again?)

5. Other comments:

APPENDIX Q

CHECK ON MANIPULATION

APPENDIX Q

Check on Manipulation

Group Number: _____
 Session Number: _____

Rater: _____
 Date: _____

You have been asked to listen to audiotapes of group therapy sessions and to discriminate which treatment component was implemented. The treatment components are described on pp. 67 - 71 and their labels follow:

Component A: teaching subjects to detect and to monitor their dysfunctional thoughts (i.e., "negative automatic thoughts and depressive assumptions")

Component B: teaching subjects to evaluate and to correct their dysfunctional thoughts through a logical means

Component C: teaching subjects to evaluate and to correct their dysfunctional thoughts by designing experiments or by "hypothesis testing"

Please remember that Component A is included in both Component B and Component C.

1. The therapist was using Component _____ in this session.

2. Group members (subjects):
 (Check one).

_____ a. followed the procedures proposed by the therapist (i.e., the therapist and subjects used the same component)

_____ b. incorporated components that the therapist was not emphasizing

3. If 2.b. is checked:

a. How many subjects incorporated a component the therapist did not use? _____

b. How many times did this/these subject(s) incorporate a component the therapist was not using?

c. Approximately how many minutes did the subject(s) spend on the component not emphasized by the therapist? _____

4. How well do you think that the majority of the subjects understood the skills and concepts taught in this session?

1	2	3	4	5	6	7
no						complete
understanding						understanding

5. Rate the therapist's use of clinical skill (i.e., professional manner, good rapport with group members, and adequate understanding of the problems group members described).

1	2	3	4	5	6	7
these skills						these skills were
were poorly						clearly demonstrated
demonstrated						

APPENDIX R
INTER-OBSERVER AGREEMENT
ON SADS INTERVIEW

APPENDIX R

Interobserver Agreement on SADS Interview

Subject's initials: _____ Rater: _____
 Circled Number or Letter: _____ Date: _____

Criteria for Major Depressive Disorder

Instructions: Record as subject mentions.

- A. One or more distinct periods with dysphoric mood or pervasive loss of interest or pleasure. The disturbance is characterized by symptoms such as the following: depressed, sad, blue, hopeless, low, down in the dumps, "don't care any more," or irritable. The disturbance must be prominent and relatively persistent but not necessarily the most dominant symptom. It does not include momentary shifts from one dysphoric mood to another dysphoric mood, e.g., anxiety to depression to anger, such as are seen in states of acute psychotic turmoil.
- _____ present _____ absent
- List descriptors, if present:
- B. At least five of the following symptoms are required to have appeared as part of the episode for definite and four for probable (for past episodes, because of memory difficulty, one less symptom is required).
- _____ Poor appetite or weight loss or increased appetite or weight gain (change of 0.5 kg a week over several weeks or 4.5 kg a year when dieting).
- _____ Sleep difficulty or sleeping too much.
- _____ Loss of energy, fatigability, or tiredness.
- _____ Psychomotor agitation or retardation (but not mere subjective feeling of restlessness or being slowed down).
- _____ Loss of interest or pleasure in usual activities, including social contact or sex (do not include if limited to a period when delusional or hallucinating). (The loss may or may not be pervasive.)
- _____ Feeling of self-reproach or excessive or inappropriate guilt (either may be delusional).
- _____ Complaints or evidence of diminished ability to think or concentrate, such as slowed thinking, or indecisiveness (do not include if associated with marked formal thought disorder).
- _____ Recurrent thoughts of death or suicide, or any suicidal behavior.
- C. Duration of dysphoric features at least one week, beginning with the first noticeable change in the subject's usual condition (definite if lasted more than two weeks, probable if one to two weeks).
- _____ = Duration
- D. Sought or was referred for help from someone during the dysphoric period, took medication, or had impairment in functioning with family, at home, at school, at work, or socially. (Unless stated otherwise, assume subject has requested help).
- _____ present _____ absent

E. None of the following that suggest schizophrenia is present:

- _____ Delusions of being controlled (or influence), or of thought broadcasting, insertion, or withdrawal (as defined in this manual).
- _____ Nonaffective hallucinations of any type (as defined in this manual) throughout the day for several days or intermittently throughout a one-week period.
- _____ Auditory hallucinations in which either a voice keeps up a running commentary on the subject's behaviors or thoughts as they occur, or two or more voices converse with each other.
- _____ At some time during the period of illness had more than one month when he exhibited no prominent depressive symptoms but had delusions or hallucinations (although typical depressive delusions such as delusions of guilt, sin, poverty, nihilism, or self-deprecation, or hallucinations with similar content are not included).
- _____ Preoccupation with a delusion or hallucination to the relative exclusion of other symptoms or concerns (other than typical depressive delusions of guilt, sin, poverty, nihilism, self-deprecation, or hallucinations with similar content).
- _____ Definite instances of marked formal thought disorder (as defined in this manual), accompanied by either blunted or inappropriate affect, delusions, or hallucinations of any type, or grossly disorganized behavior.

F. Does not meet the criteria for schizophrenia, residual subtype.

G. Depression is the MAJOR form of psychological disturbance (i.e., the depressive disorder is not secondary to another psychological disturbance (e.g., organicity, sexual deviation, marital discord, alcoholism, obsessive-compulsive disorder.))

_____ is the major psychological disturbance.

H. Conclusion:

- _____ Subject meets the criteria for a major depressive disorder.
- _____ Subject meets the criteria for a minor depressive disorder. (Meets all of the above criteria and has at least two of the symptoms listed under B).
- _____ Subject meets the criteria for a major or minor depressive disorder, but depression is secondary to another psychological disturbance.
- _____ Subject does not meet the criteria for a major or minor depressive disorder.

Comments:

APPENDIX S

FIGURES

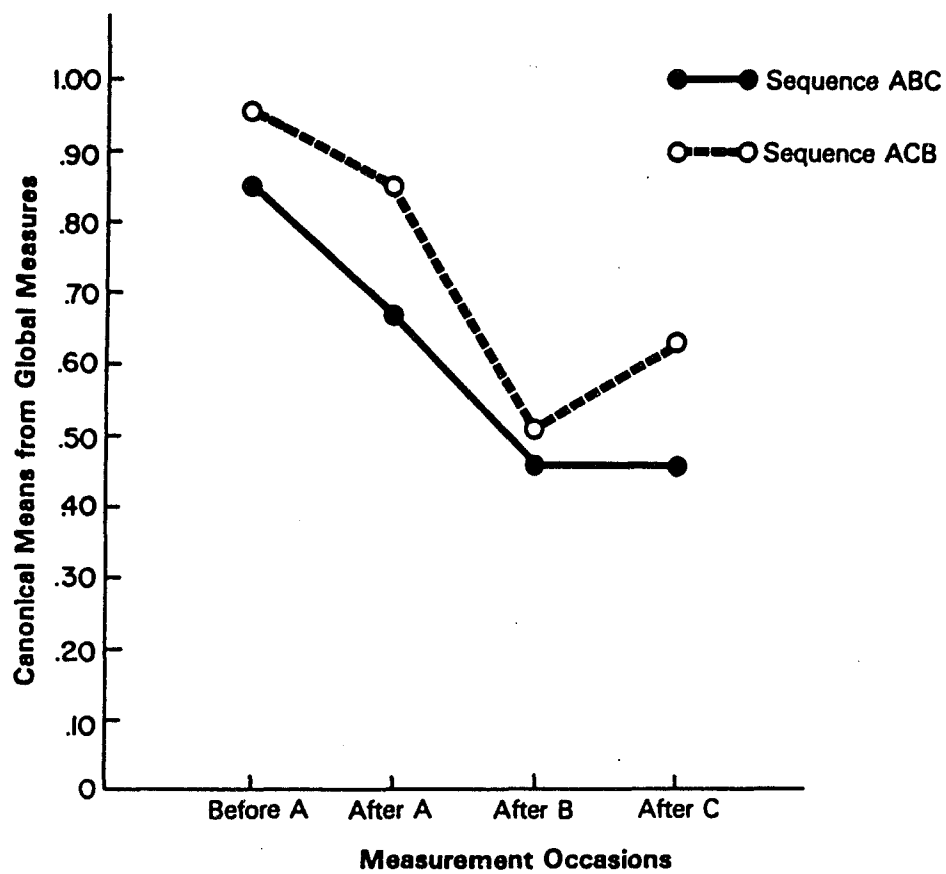


Figure 1: Canonical Means from the Global Measures of Depression for the Significant Sequence x Measurement Occasion Interaction

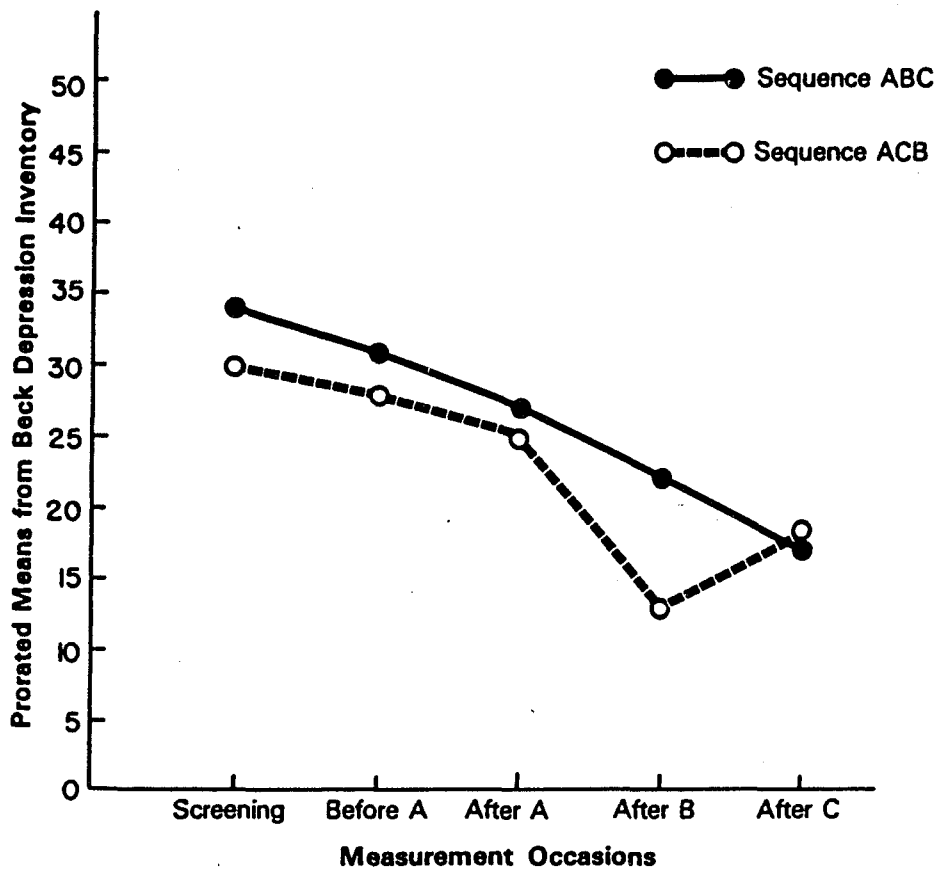


Figure 2: Prorated Means from the Beck Depression Inventory for the Significant Sequence x Measurement Occasion Interaction

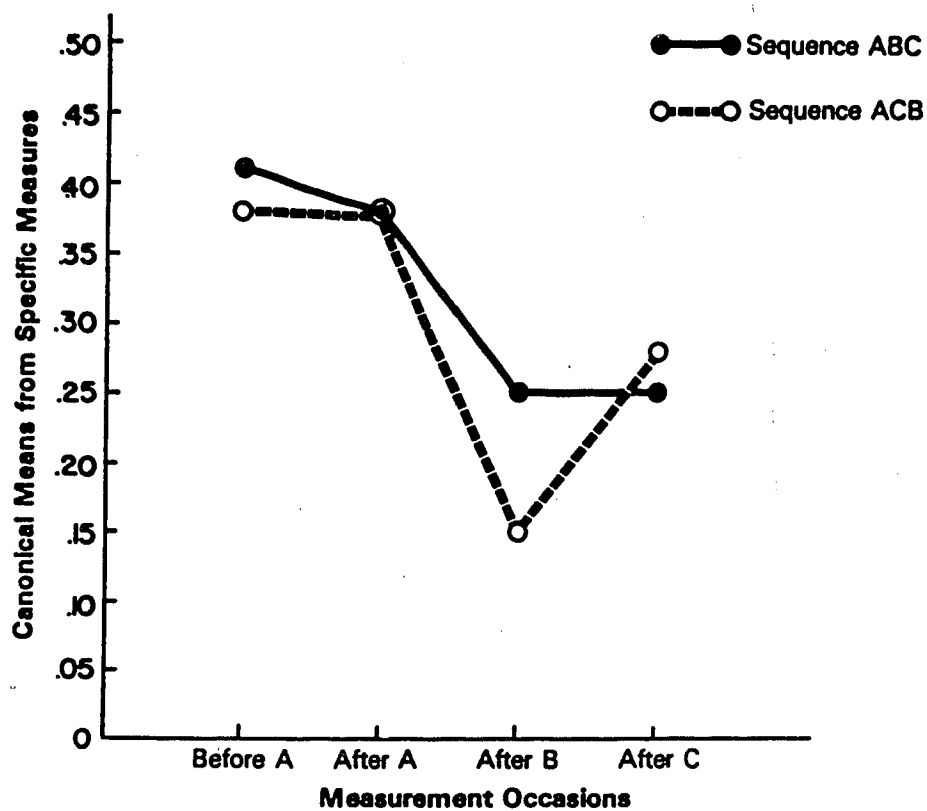


Figure 3: Canonical Means from the Specific Measures of Response Classes Relevant to Depression for the Nonsignificant Sequence x Measurement Occasion Interaction

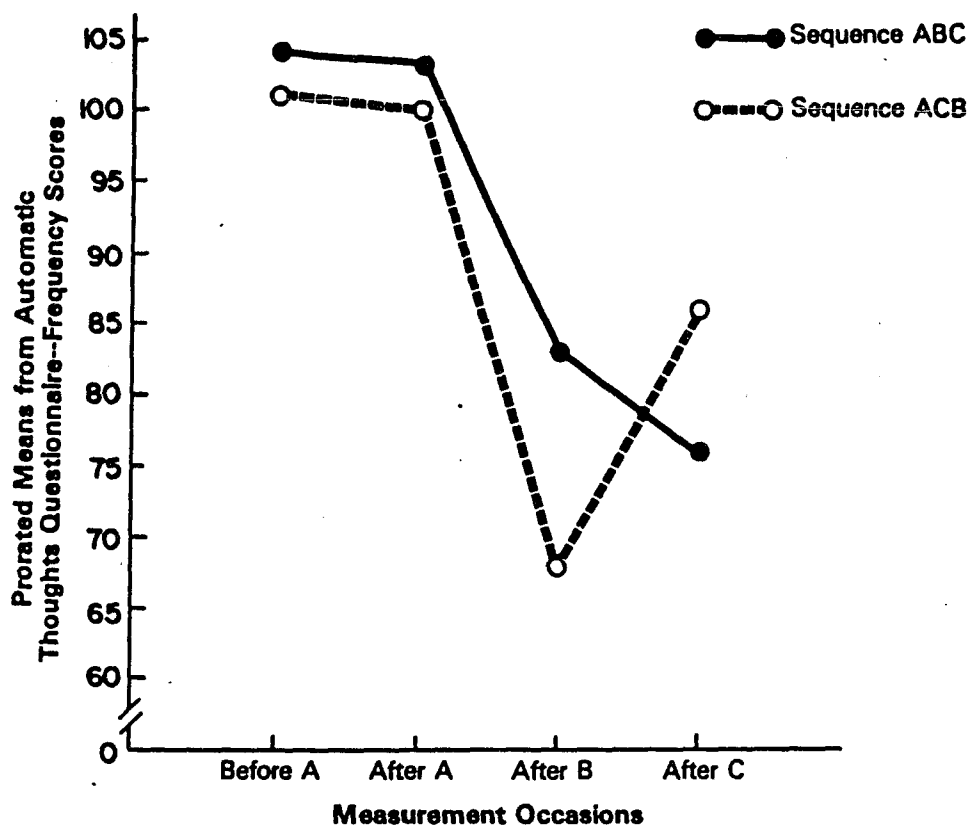


Figure 4: Prorated Means from the Automatic Thoughts Questionnaire-Frequency Scores for the Significant Sequence x Measurement Occasion Interaction