DEPRESSION AND PERCEIVED REINFORCEMENT: AN EXTENSION

Thesis for the Degree of M. A.

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ABSTRACT

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By

Paula C. McNitt

The aim of this study was to further elucidate whether and how depressed persons differ from nondepressed in their preception of response contingent reinforcement. The study's main hypothesis is that depressed individuals require a higher rate of reinforcement in order to perceive these rewards as, in fact, contingent upon their own actions.

The perception of reinforcement, because it is a private event, can be assessed only indirectly. One means of doing so is to measure trial by trial changes in verbalized expectancies of future success following success and failures on an experimental task. Rotter and his colleagues, (Phares, 1957; Rotter, Crowne and Liverant, 1961) have found that people modify their verbalized expectancies more on skill tasks, where rewards are response dependent, than on chance tasks, where rewards are response independent. Thus one way of determining whether and how depressed persons differ from nondepressed in perceiving reinforcements is to compare their changes in verbalized expectancies for success on skill and on chance tasks.

In this Depression X Tasks X Reinforcement, with repeated measures on the Tasks factor, design study, changes in verbalized expectancies on skill and chance tasks, at 50% and 75% reinforcement levels were compared for depressed and nondepressed subjects. Three measures of change were employed: change in expectancy following the first, successful trial, verbalized expectancy following the final, successful trial, and total amount of appropriate expectancy change. Seven specific hypotheses were tested. These predicted a task x depression x reinforcement interaction. Nondepressed subjects would produce larger changes in expectancy on the skill task than would the depressed subjects, but only in the 50% reinforcement condition. When reinforced on 75% of the skill task trials, however, the depressed subjects would respond no differently than the nondepressed. On the chance task, there would be no difference between depressed and nondepressed groups, at either reinforcement level.

The 24 women and 16 men who volunteered for this study were recruited from summer session classes at Michigan State University. The 20 nondepressed subjects had all scored 5 or below on the Beck Depression Inventory: the 20 depressed subjects had all scored 9 or above on this scale. After determining each subject's level of depression, the experimenter assigned him, at random, to one of four Reinforcement X Task Order cells.

Each participant was allowed eight trials on both the skill and chance tasks. The skill task consisted of manipulating the Vertical Aspiration Board, a vertical frame in which a platform

block is set. The subject's task, here, is to raise the block to a specified point on the frame without dislodging a steel bearing placed on the platform. The chance task was a guessing game in which the subject had to anticipate which of two marked slides would be presented. The experimenter controlled the trial by trial outcomes on each task. All subjects were permitted to succeed on the first and last trials. Prior to each trial, each subject estimated, on a ten point scale, how certain he felt that he would succeed on that trial.

The results of this experiment were opposite to those predicted. On the skill task, the depressed subjects in no way differed from the nondepressed in modifying their expectancies for success. This was the case for both the 50% and 75% reinforcement groups. Obviously, this finding for the 75% reinforcement group lacks the import it would have had, had there been a difference between depressed and nondepressed subjects in the 50% reinforcement group. Thus, these findings do not support the hypothesis that depressed persons differ from nondepressed in their perception of response contingent reinforcement. This study yielded an additional, and wholly unexpected finding. The depressed subjects differed from the nondepressed in modifying expectancies on the chance task. When reinforced on 75% of the chance task trials, the depressed subjects produced significantly higher final expectancies and larger total amounts of expectancy change than did their nondepressed counterparts. This suggests that depressed persons differ from nondepressed

in their perception of response independent reinforcements. These data suggest that depressed persons respond to chance task rewards as if these were a product of their own skill.

The results of this study when considered together with those of other studies (Miller and Seligman, 1973) which have demonstrated differences between depressed and nondepressed subjects in their perception of response contingent reinforcement suggest a broader conceptualization of the relation between depression and the perception of reinforcement. This is that the depressed person harbors a faulty notion of the roles played both by his own skill and by factors outside of his control, and may misperceive either response dependent or response independent rewards, or both. He may either fail to recognize the rewards of his efforts as such or blame or credit himself for rewards and punishments he does not, in fact, control. This new conceptualization remains, of course, purely hypothetical.

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By

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A THESIS

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To my husband, Andrew

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CHAPTER I

INTRODUCTION

This study investigates rate of reinforcement as a potential mediator of the relation between depression and the perception of reinforcement. The study's main hypothesis is that depressed individuals require a higher rate of response contingent positive reinforcement, than do nondepressed, in order to perceive these rewards as response contingent. Two basic ideas underlie this hypothesis. The first is that depression is intimately related to the availability of positive reinforcers. A person becomes depressed if he loses either an important source of or means to these rewards. The second idea is that the reward value of any event, which is its capacity to uplift mood and strengthen behavior, depends, in part, upon the individual's recognition of this event as contingent on his behavior. Thus, the depressed person is less likely to feel rewarded and encouraged by the favorable outcome of his efforts because he is less likely to be convinced of the causal relation between these two.

This hypothesis attempts a synthesis of three theories of depression: operant behavioral, learned helplessness, and cognitive. These theories, which shall be presented following a discussion of the manifestations of depression, hardly exhaust the range of current conceptualizations of the nature and etiology of depression. Other

psychological theories, pre-eminently the psychoanalytic, offer interesting and useful approaches to the understanding and treatment of depressive disorders. Medical theories, which focus on the physical and physiological symptoms of depression, attend to the genetic and biochemical bases of the disorder. The behavioral-operant, learned helplessness, and cognitive theories are discussed because they directly address the issue of the inter-relations between behavior, environmental feedback, and depression. No one of the three theories is offered as the correct one; the complexity of the phenomena argues against a simple, all inclusive explanation. Rather, these theories are presented as starting points from which to begin to make sense of the phenomena of depression.

A discussion of "being depressed" is not unlike a discussion of "having a virus." Hardly any of us has never had a cold, though few of us have had viral pneumonia. Some of us are subject to more frequent and severe colds than others. Viral symptoms "blossom" in any number of combinations and intensities. Analagously, most of us have felt some aspect of depression at some time in our lives, but few of us have known severe, clinical depression. Some of us are more prone to depressive episodes than others. So too, the manifestations of depression appear in a wide range of combinations and intensities. It is precisely this variability which makes it well nigh impossible to formulate a concise definition of depression. It has been referred to as a "mood state" a "symptom complex," and even "a well defined clinical entity" (Beck, 1972, p. 6). The Diagnositc

and Statistical Manual II of the American Psychiatric Association includes five separate categories of depressive disorder: manic-depressive reaction, psychotic depressive reaction, schizo-affective reaction, psychoneurotic depressive reaction, and involutional psychotic reaction. These categories imply qualitative differences among depressive disorders. Some clinical researchers have drawn a dichotomous, qualitative distinction between neurotic and psychotic depressions, and between process/endogenous and reactive depressions. Others have suggested that the neurotic-psychotic and process/endogenous-reactive distinctions are differences of degree rather than of kind. Lewis, Mapother, and Hoch represent the latter camp; Gillespie, and Carney and Garside represent the former. [See Beck, 1972, pp. 64-67 and Becker, 1974, pp. 11-13, 41-48 for discussions of the issues and debates on the classification of depression.] Thus, one may question whether it is legitimate to refer to "depression" in general.

The very fact that these several disorders are all called instances of depression suggests that there is some continuity and similarity among their manifestations. Rather than wrangle with the ontological and etiological implications of a classificatory system for depression, this paper shall attempt only to describe depressive disorders. Following Beck's example, the manifestations of depression shall be described without reference to any underlying structure or cause. This paper will construe depression as a psychopathological dimension consisting of a number of behavioral and affective

manifestations. These symptoms appear in a variety of combinations and in a wide range of intensities. No one symptom is necessary for a diagnosis of depression. Any individual case of depression is best defined in terms of its position on the dimension, that is, in terms of the number and intensity of depressive symptoms. Although this investigation makes no attempt to resolve the issue of the unity versus plurality of depressive disorders, it shall restrict itself to those instances of depression of neurotic, as opposed to psychotic, intensity, for which environmental causes are presupposed.

A Description of Depression

The manifestations of depression are, to speak metaphorically, negations of basic life instincts towards activity and gratification. The experience of depression involves sadness, pessimism, apathy, a reduction in constructive activity, guilt feelings, self-devaluation, and loss of appetite and sexual desire. In a sense, depression constitutes a major breakdown in the functional interaction between the individual's behavior and environmental reinforcement. The depressed person drastically constricts his range of productive activities, believes he can do no better for himself, and feels his efforts are unrewarded, if not actually punished. Thus, depression estranges the individual from his customary life style of activity and interpersonal involvement. The paradox of depression is that it may be quite unwarranted by the person's actual life circumstances. Although depression has traditionally been understood as a primary mood

disorder, its manifestations are best categorized as emotional, cognitive, motivational, and physical.

Emotional Manifestations

The emotional signs of depression are the most obvious and familiar. Typically these include feelings of sadness and loneliness. Their pervasiveness and severity vary considerably. In cases of mild depression, one's mood may fluctuate during the day. A joke or compliment may relieve the "blueness." In more severe cases, however, the depressed patient feels overwhelmed by his mood; he simply cannot snap out of it. Crying spells become more frequent during depressive periods, especially among women. The inability to derive any gratification from one's efforts is a hallmark of depression. When a depression deepens, that is, when the feelings of sadness, helplessness and apathy intensify, the range of activities which afford the individual pleasure also contracts. For example, the depressed patient typically loses his capacity for humor. While he may perceive the point of a joke, he may not be able to respond to it. Emotional attachments may also be neglected or relinquished during depressive episodes. Depressed patients commonly report that they can neither love nor care for their friends and relatives.

Cognitive Manifestations

The cognitive manifestations of depression indicate that the depressed person systematically misinterprets his experiences. The degree of distortion varies with the severity of the depression. In

the most severe cases, such misinterpretations can assume the rigidity and intensity of delusions. The depressed person maintains a negative view of himself, his world, and the future. He sees himself as deficient and deprived. Ironically, he especially devalues those attributes which have traditionally afforded him pleasure and rewards. A beautiful woman will judge herself ugly; a talented academician decides he is really very stupid. The depressed person feels ineffective. Experimenters who have worked with severely depressed patients often report that such a patient's initial response to a task is that he cannot possibly do it (Seligman, 1974). The depressed person magnifies the significance of any and all incidents. Minor setbacks are catastrophes: errors are sure signs of personal inadequacy. Not only does the depressed person feel inadequate, but he also blames and criticizes himself for this. In milder depressions, this amounts to intolerance of one's shortcomings. In more severe cases, this self-blame extends to things for which the person is in no way responsible. As an illustration of this, Beck (1972, p. 232) relates the case of a woman who, when she took her children on a picnic and it stormed, blamed herself for not choosing a better day. The depressed person usually feels deprived of the love and material possessions he needs. Depression generally involves pessimism: the feeling that one's current failures and unhappiness are permanent and irreversible. As Melges and Bowlby (1969) point out, this negative attitude towards the future, in turn, influences and structures the person's thinking and behavior. In short, the attitudes of helplessness and hopelessness are central to depression.

Motivational Manifestations

The motivational manifestations of depression are regressive in character. The depressed person prefers passivity and dependency, and chooses those activities which demand little energy or responsibility. The decrement in spontaneous, productive activity is another hallmark of depression. In severe cases this inertia may spread to the most simple and commonplace activities, such as getting up out of bed in the morning and getting dressed. A severely depressed person may know very well what he ought to do, but feel incapable of doing so. Beck (1972, p. 28) has labelled this as a "complete paralysis of the will." The wish to escape difficulties and to avoid responsibility is commonplace in depression. In mild cases of depression, one procrastinates and seeks relief in such passive diversions as watching television or drinking. Escapist tendencies assume the most extreme form in suicidal wishes. Depression entails the desire not just to avoid responsibility, but also to receive help. Melges and Bowlby (1960) suggest that the depressed person feels he must rely on others because he believes himself unable to solve his problems on his own. Beck comments, though, (1972, p. 32) that this desire for help is more than a reaction to helplessness, and is, rather, experienced as a positive craving for help.

Physical Manifestations

The physical manifestations of depression are quite concrete and quantifiable; however, these correlate weakly with each other and

with clinical ratings of depression. Beck (1972, p. 33) reports correlation coefficients ranging from .20 to .35 between ratings of depth of depression and such physical symptoms as fatigability, sleep loss, and loss of appetite. The loss of appetite, often a first sign of depression, may develop into a veritable aversion to food. Food is not the only thing which loses its appeal; depressed patients commonly report a loss of interest in sex. Sleep disturbance is another common symptom of depression. There is strong evidence (see Beck, 1972, p. 34) derived from both direct observation and EEG recordings, that depressed patients sleep less and experience more restlessness while asleep than do other medical patients. Depressed persons often report that they waken earlier from their less restful sleep. Curiously, however, sleep disturbance is minimally related to the increased fatigability of which many depressed patients complain. Beck reports (1972, p. 36) a correlation of only 0.28 between reported sleep disturbance and fatigability. There appears also to be diurnal variation in this feeling of tiredness; it is most pronounced at waking and diminishes as the day wears on.

The most noticeable physical manifestation of depression is a change in activity level. Depression may be either retarded or agitated. Retarded depression entails a gross reduction in spontaneous activity. Movements and gestures are minimal and slow. In the most extreme cases, this retardation is a virtual stupor. Verbal output is reduced; it may degenerate to grunts and groans. Agitated depression, on the other hand, is characterized by ceaseless, but

purposeless, activity such as pacing, handwringing, and constant talking or mumbling. The emotional tone of the agitated person is one of anguish and frenzy. He is incapable of channeling his energy into constructive behavior.

Theories of Depression

Operant-Behavioral

The operant-behavioral theory of depression eschews the notion that depression is an illness and assumes that it can be described and explained by reference to the same concepts and behavioral principles as any other learned psychological disorder. Depression is best described quantitatively; that is, in terms of the relative frequencies of various behaviors. Thus, depression constitutes a continuum of intensities of a psychological state. Normal low mood and clinical depression are two points on the same psychological dimension. Secondly, depression is explicable in terms of the environmental stimuli which elicit and maintain it.

A topographical description does not distinguish the behavior of a depressed person from that of anyone else (Ferster, 1974, p. 34). There are no uniquely depressive behaviors. Rather, it is the relative frequency of various behaviors which differentiates among individuals. Depression is characterized by a drastic reduction of certain behaviors, particularly of active, productive behaviors. As noted earlier, the depressed person avoids demanding work and withdraws from social interaction. Lewisohn and his colleagues (see

Lewisohn, 1974) have stressed the presumably causal relation between depression and deficient and distorted social interaction. One of their studies (Libet and Lewisohn, 1973) found that in a small group setting, depressed subjects emitted interpersonal behaviors at a rate only one half that of nondepressed subjects. Other pleasurable pursuits also decrease, if not actually drop out of the depressive's response repertoire. Depressive episodes are also marked by an increase in unpleasant, and seemingly purposeless behaviors. Examples of these are statements of dysphoria, self-depreciation and guilt, somatic complaints, suicidal wishes, and, in some cases, agitated responses such as constant mumbling, pacing, and handwringing.

Changes in environmental reinforcement contingencies can account for these changes in behavior. Insofar as he is emitting fewer constructive behaviors than previously, the depressed person is presumed to be on a massive extinction schedule. The environment is simply no longer adequately rewarding his customary behaviors. As Ferster cautions (1974, p. 35), however, to say this is not equivalent to specifying the cause of depression. A number of factors can account for a reduced rate of behavior. First, the type of schedule on which a behavior is reinforced influences it considerably. Schedules which require a large, fixed amount of work prior to reinforcement ultimately weaken behavior, and prompt long periods of inactivity. Variable schedules, though, are less likely to strain the individual (Ferster, 1974, p. 36). A shift to a fixed reinforcement schedule may, in part, explain the work-related depression many

people experience in middle age. At this time, one has probably achieved a plateau in his profession, a stable position of responsibility which offers little variation in work requirements. One must settle into doing a good deal of work for unchanging rewards. Such a pattern of reinforcement generally weakens behavior, and may even prompt feelings of dysphoria. Radical changes in the environment also alter the reinforcement patterns which have shaped and maintained the individual's response repertoire. Death or separation from a loved one, a financial or professional setback, or even ordinary retirement from work may constitute a loss of a significant source of reinforcement. The more one has relied on a single person or job to provide rewards, the more profound will be the effects of that loss. Thus, the depressed person's reduced spontaneous productive activity and social interaction is a natural, predictable consequence of his interaction with a relatively unrewarding environment.

The operant theorists' explanations of the increase in depressive behaviors such as low-mood, self-depreciation, delusional thinking, and agitated pacing and handwringing, however, refer to additional assumptions. A behavioral theory assumes (Lewisohn, 1974, p. 158) that a low rate of response contingent positive reinforcement is itself an eliciting stimulus for feelings of sadness, fatigue, and apathy. In this sense, depressive behaviors are respondents. The cognitive manifestations of depression, such as low self-esteem and pessimism, are secondary elaborations of one's feelings of sadness (Lewisohn, 1974, p. 160). These are attempts at explanations of one's

emotional state. For example, a depressed person can explain his sadness as a natural consequence of his unworthiness. His blue mood must be a punishment for his wrongdoings. The bizarre, agitated, apparently purposeless behaviors associated with depression can be explained as emerging from an impoverished response repertoire. Ferster (1974, p. 32) has suggested that their emergence results simply from the lack of significant competing activities. Bizarre, purposeless behaviors are apt to appear in any situation where normal activity is restricted. A depressed patient may resort to pacing, picking at himself, and constant mumbling simply because his other constructive behaviors have been extinguished. Thus, these agitated behaviors are neither strongly motivated nor strongly maintained. A significant ramification of this outlook is that depressive-agitated behaviors, while diagnostically relevant, are not necessarily signs of a more serious underlying pathology.

Once elicited, depressive behaviors are further shaped and maintained by their environmental consequences. Complaints, crying, sadness, and protestations of worthlessness and guilt are reinforced by the attention and solicitude they elicit from the depressive's family and friends. Liberman and Raskin (1971) provide clinical evidence which supports this. These researchers report, as an example, the case of a depressed housewife whose family members were asked to record the woman's sadness, complaints, and crying, attending to these as usual, then to ignore these, and finally, to resume baseline observations. As anticipated, the frequency of these behaviors

dropped considerably while being ignored and returned to baseline while being attended to. Burgess (1968) similarly reports successful extinction of depressive behaviors through the therapist's intentional inattention to these.

The parsimony of a behavioral theory of depression, which makes the model so attractive, is also its major shortcoming. Because the behavioral model refuses to account for the inner workings of the "black box," two of its tenets remain unsubstantiated. These are: the loss of response contingent reinforcement is an eliciting stimulus for depressive affect, and, purposeless, agitated behaviors are mere "fillers" of an otherwise diminished response repertoire. Neither of these assumptions is intuitively obvious: why should the loss of reinforcement evoke sadness, rather than anger, for example? In the same way, the behavioral model fails to account for the motivational manifestations of depression: why does the depressed person actively avoid and escape difficult and demanding work? Can changes in reinforcement contingencies of themselves account for the paralysis of the will, which is a hallmark of depression? Even more puzzling from the behavioral viewpoint is the depressed person's inability to derive gratification from those activities and social relations which he had formerly found satisfying. Why does the depressed person feel he cannot love or care for others once dear to him? In short, the behavioral-operant model, by its very nature, cannot adequately deal with depression as a lived experience.

The Learned Helplessness Analogue

An operant theory holds that depression follows from the loss of response contingent reinforcement. Seligman's learned helplessness theory (Seligman, 1974) argues that depression results not simply from the loss of reinforcement, but rather from the loss of control of both positive and negative reinforcers. Although Seligman's theory is more specific, it is also the more modest of the two. First, it attempts to account for only one type of depression; namely, reactive depression which is characterized by passivity, feelings of helplessness and powerlessness, and negative expectations for the future. Secondly, insofar as learned helplessness in animals is an experimentally induced phenomenon it can serve, at best, as an analogue for depression in man. Learned helplessness and depression, though, can be compared in terms of their behavioral manifestations, etiology, cure, and prevention.

Defined behaviorally, learned helplessness is the interference with adaptive responding which results from experience with an uncontrollable aversive stimulus. More specifically, this means passivity in the face of trauma and retardation in subsequent learning of responses that can, in fact, produce relief. Overmier and Seligman (1967) and Seligman and Maier (1967) found that dogs given inescapable/unavoidable shock while restrained in a Pavlovian harness were later deficient in escaping shock when allowed to do so (in a shuttle box). A naive dog subjected to shock in a shuttle box will respond initially by howling, defecating, and running about, but

eventually will accidentally jump the barrier and thereby escape the shock. After several such trials, the dog will have learned to immediately jump the barrier to escape the punishing stimulus. Dogs which are first given inescapable shock do not readily learn to escape/avoid. When placed in the shuttle box these animals may at first react to shock as do naive dogs, but eventually they simply lie down and whine, passively accepting their punishment. If a dog does, by chance, jump to escape, it generally fails to learn from this experience. Rather than repeat the response and thus learn that it produces relief, the dog reverts to its passive stance.

Substantial evidence argues for the generality of the helplessness phenomenon. Seligman's (1972) review of the literature notes that only 6% of experimentally naive dogs, but two thirds of 150 dogs first subjected to inescapable shock, failed to learn to escape shock in a shuttle box. The helplessness phenomenon is not restricted to dogs; it has been demonstrated in rats, cats, fish, mice, and men (Seligman, 1974, p. 87). Experience with inescapable shock interferes with other adaptive responses such as food getting behaviors, pain elicited aggression, as well as a variety of avoidance behaviors (Seligman, 1974, p. 87). That learned helplessness has also been demonstrated in human subjects lends credence to it as an analogue for human depression. Thornton and Jacobs (1971) found that subjects who were first given reaction time task training to escape shock were significantly faster on a second shock avoidance task than were their yoked controls who had received equivalent

amounts of inescapable shock. On post experimental questioning 60% of the subjects given inescapable shock said they felt they could not control the shock and therefore did not try to do so on test trials. Of the subjects given initial escape training, though, 70% reported that they thought they could control the shocks. Similarly, Hiroto (1974), employing loud noise as the aversive stimulus, found that his subjects who first suffered inescapable noise were significantly poorer in learning a response to terminate noise than were subjects first given either escape training or no noise at all.

The behaviors which define learned helplessness parallel several major symptoms of depression. "Helpless animals are passive in the face of punishment. Their responses are retarded and reduced in amplitude. Analagously, the depressed person's behavior is characteristically passive and retarded. Secondly, "helpless" animals are slow to learn that their responses can produce relief. If a "helpless" dog does, by chance, escape shock by jumping the shuttle box barrier, it is unlikely to repeat the response. In order to cure chronically "helpless" dogs, Seligman, Maier, and Greer (1968) had to literally drag them from side to side in the shuttle box from 20 to 50 times before the dogs began to respond on their own. Analagously, depressed people appear to be convinced of the inefficacy of their actions. Experimental data comparing depressed and nondepressed psychiatric patients (Loeb, Beck and Diggory, 1971) indicates that the former are significantly more pessimistic in estimating the probability of their success on an experimental task. The depressed person

consistently anticipates defeat and misconstrues his performances accordingly. Moreover, the individual suffering through a depression is convinced that his failures, frustrations and unhappiness will continue indefinitely. He feels helpless and hopeless. In short, he believes, and acts as if, he has no control over the rewards and punishments he receives.

The etiologies of learned helplessness and of depression are, to some extent, comparable. Because the former is an experimentally induced phenomenon, it is possible to specify the conditions which produce it. Learned helplessness results from experience with uncontrollable trauma. In any learning situation, an animal presumably learns two conditional probabilities: the probability of reinforcement given a certain response, p (RFT/R), and the probability of reinforcement given the absence of that response, $p(RFT/\overline{R})$. A response controls a reinforcer if and only if p(RFT/R) is greater than $p(RFT/\overline{R})$. Reinforcement is response independent if these two probabilities are equal. For the dog restrained in the harness, shock termination is the relevant reinforcer. Seligman (1974, p. 95) has argued that what the dog learns here is that for any possible response, neither its emission nor omission will terminate shock.

The crucial variable, then, is not the shock per se, but rather, its uncontrollability. Seligman and Maier (1967) found that dogs which, though restrained, were able to press a panel to terminate shock, subsequently learned to jump the shuttle box barrier. Their yoked controls, which received an equivalent amount of

inescapable shock failed to learn this adaptive response. Alternative explanations of the helplessness phenomenon such as adaptation to shock or learned passivity have been disqualified by experimental data (Seligman, 1974, pp. 95-96). Maier's (1970) findings discredit the hypothesis that the animals learn passive responses antagonistic to barrier jumping when they are shocked while restrained. Maier (1970) placed dogs in so confining a chamber that they could terminate shock only by remaining perfectly still. When these dogs were later shocked in the shuttle box, they first reacted by becoming very still, but then learned to jump the barrier. Thus, the dogs' passivity was not a sign of helplessness, but rather, an adaptive response. A larger implication of this is that inactivity per se need not lead to depression, as an operant theorist might suggest. Intentional passivity can be a highly adaptive, controlling behavior. The reasonable conclusion, then, is that it is the experience of being unable to control a punishing situation which causes helplessness.

The causes of depression in man are less readily specifiable than those of helplessness in animals. The learned helplessness theory offers interesting possibilities. Seligman (1974, p. 98) has suggested that it is precisely the loss, and particularly the sudden loss, of control of a significant aspect of one's environment which precipitates a depression. While there is no human equivalent to being shocked while restrained in a Pavlovian hammock, there are many severe stresses which, apparently, precipitate depressive episodes. Usually, these are sudden losses or failures, such as the

death of or separation from a parent or spouse, a financial or academic failure, or physical illness or injury (see Beck, 1974, p. 7). The impact of such a stress is two-fold insofar as it entails the loss of a major source of positive reinforcement, as well as emotional pain. This suggests that depression follows from the loss of control not just of punishments, but also of rewards. That depression attends the loss of control of positive reinforcements is as yet a matter of speculation; the helplessness literature thus far has focussed on control of aversive stimuli. Seligman (1974, p. 100) has proposed that one can become depressed by receiving noncontingent rewards. He suggests that this is the case with beautiful women and successful executives who suffer depression. They are rewarded for who they are rather than for what they do. In that sense, their actions no longer control their environment's responses to them. One thorny problem which remains for the learned helplessness theory is that loss of a significant source of reinforcement does not necessarily lead to depression. Not everyone reacts to loss or failure by becoming clinically depressed. The question to be considered next is: what differentiates those people who become depressed from those who do not?

The developmental/learning history of the depression-prone individual may be a critical variable. Beck (1974, p. 7) discusses two types of childhood experiences which predispose a person to depression. They are the sudden loss of a loved one, and the adoption of perfectionistic standards for personal achievement. Both of these types of experiences teach the child that he is helpless in the

face of his environment. Traumatic loss, particularly the loss of a parent, may sensitize the child to losses in general. Such a trauma can predispose one to react to any loss or setback in the same extreme way as he did when a child (Beck, 1972, p. 278). In this sense, depression is akin to a conditioned response to loss or failure. In a study comparing depressed and nondepressed psychiatric patients, Beck and colleagues (reported by Beck, 1972, pp. 226-227) determined that the incidence of childhood loss of a parent was twice as high among depressed patients. The incidence for the depressed group was 27% and 12% for the nondepressed. Yet childhood loss obviously is not a necessary condition for susceptibility to depression. Helplessness and hopelessness can be learned without trauma. Beck notes (1974, p. 7) that depression prone individuals are also those who because they learned rigid, perfectionistic standards for themselves during childhood, necessarily leave themselves vulnerable to feelings of defeat and failure. Viewed from the learned helplessness model, one is bound to see his action as ineffective if he harbors excessively high standards of success. One will always feel helpless to achieve one's goal, if one's goal is perfection. It appears, then, that the depression prone individual is one who has learned, either traumatically or insidiously, that he has little likelihood of controlling his environment.

Both the operant and learned helplessness theories explain depression as a reaction to radical changes in environmental reinforcement contingencies. These theories have been generated, for the

most part, from experimental research with animals. Thus it is hardly surprising that these paradigms do not incorporate such "distinctly human" variables as cognitions and values. Yet it is quite reasonable to suppose that these variables do mediate the effects of environmental forces in the development of depression. Aaron Beck has developed a theory of depression which places cognition in a central causative role.

The Cognitive Theory

Depression has traditionally been treated as a primary mood disorder (Beck, 1971). The cognitive distortions accompanying depression have been relegated to the status of by-products of the affective disorder. Beck (1971, 1972) has argued the opposite: depressive affect follows depressive cognitions. His primary assumption is that one's emotional reaction to any situation depends on his appraisal of it, regardless of the veracity of that appraisal. What distinguishes a normal from a pathological affective response is precisely the degree of correspondence between the actual situation and the conceptualization one forms of it. Faulty conceptualizations provoke excessive and inappropriate emotional responses. Pathological emotions are actually reasonable responses to erroneous appraisals of one's experiences.

To determine which life experiences depressed persons misconstrue, and how they misconstrue these, Beck (1972, pp. 229-238) analyzed compared the thematic content of psychotherapy sessions of 50 depressed and 31 nondepressed psychiatric outpatients. Beck noted

that the depressives' dominant themes focussed on irretrievable loss, failure, deprivation, and personal deficiency. The depressed patients constantly berated and blamed themselves, complained of overwhelming, interminable problems, and proclaimed their inability to handle these. They downgraded their abilities and acquisitions, magnified their failures and ignored all their successes. Beck concluded that the depressive's thinking is dominated by the triad of negative views of the self, the world, and the future.

The distortions implicit in depressive cognitions are not haphazard; rather, they are systematic errors. The processes of depressive thinking can be classified as paralogic, stylistic, or semantic (Beck, 1972, p. 234). Paralogical processes include arbitrary inference, selective abstraction, and overgeneralization. Arbitrary inference is drawing a conclusion in the absence of supporting evidence. An example of this is interpreting the hurt or angry facial expression of a stranger as a sign of disapproval. This kind of depressive thinking is egocentric because it fails to consider alternative explanations. Selective abstraction involves focussing on a detail out of context. Beck (1972, p. 234) provides the example of one of his patients, who, when her supervisor requested that she no longer make extra carbon copies of his letters, concluded that he was generally dissatisfied with all of her work. Overgeneralization refers to drawing a general conclusion on the basis of a single fact or event. As an example of the depressive's tendency to overgeneralize, Beck (1972, p. 235) cites the case of a patient who, within half

an hour, judged himself a poor father because his children misbehaved at breakfast, an inadequate driver because other cars passed him on the road, and an undedicated worker because several of his colleagues were already at their desks when he arrived at work. Stylistically, depressive thinking is characterized by exaggeration. The depressed person magnifies all problems into catastrophes and reduces his talents and accomplishments to insignificance. The semantic distortion implicit in depressive cognition is that of inexact labelling: that is, calling some thing or event by an inappropriate name. Each of these types of distortion involves a negative interpretation of the situation. It is this negativity which engenders the emotions associated with depression.

Depressive cognitions are the product of the interaction between certain types of cognitive schema and certain kinds of experience. A cognitive schema is a structure by which one screens, codes, and evaluates information. The interaction of a schema with incoming information produces a cognition. This cognition can be an idea, judgement, wish daydream, self-instruction. Schemas vary both in their content and their congruency with reality. That is, schemas vary with respect to the veractiy of the cognitions they generate. Beck (1972, pp. 282-285) has speculated that the depression-prone person has developed highly idiosyncratic schemas which are activated by experiences of loss and failure. The products of this activation are those characteristically negative cognitions involving arbitrary inference, selective abstraction, and overgeneralization. As a

depression develops these schema dominate more and more of the person's thought processes. These schema are thus applied inappropriately, even to the point where virtually any stimulus input can activate a depressive cognition (Beck, 1972, p. 286). In this way, the depressed patient's thinking becomes entirely incongruent with his actual experiences.

Beck's cognitive theory further contends that the emotional and motivational manifestations of depression follow from depressive thinking. Beck's argument for this rests on his own experience with depressed patients. Beck (1972, p. 237) has asked his therapy patients to work backwards from their feelings of sadness, guilt, and humiliation and to try to focus on the precipitants of these feelings. Usually, these clients report that an unpleasant thought preceeded the emotion. Typically, this thought involved the kind of content and error characteristic of depressive thinking. The motivational manifestations of paralysis of the will, escapist tendencies, suicidal wishes, and increased dependency needs are also the products of specific types of depressive cognition. The lack of spontaneous motivation follows from the depressive's pessimism. Because he anticipates only failure and deprivation, he remains unmotivated to undertake any strenous activity. The depressed person wants to avoid any responsible task, for he sees this as overwhelmingly difficult. Suicidal wishes constitute the most extreme expression of the desire to escape. The depressed person seeks not only to be relieved of his problems, but also to be helped and taken care of. These

increased dependency needs can be attributed to the depressive's feelings of inadequacy and pessimism. In short, the depression-prone person's style in assessing himself and his predicament condemns him to misery, passivity, dependency, and escapism.

An intellectual understanding of the mechanisms of depressive thinking, unfortunately, does not immediately liberate one from depression. There are several reasons why depressive cognitions are especially difficult to deal with. First, depressive cognitions are automatic and involuntary; they seem to arise without reflection (Beck, 1972, p. 236). Beck's patients have reported that they often are unable to ward off these thoughts, even though they had resolved to do so (Beck, 1972, p. 236). This is especially the case with suicidal thoughts. Then, too, the depressed person finds his own thoughts quite plausible. He cannot see their falsity and irrationality. Indeed, once he can question their veracity, their affective value is reduced (Beck, 1972, p. 237).

Depression and the Perception of Reinforcement

By any theoretical account, the depressed person experiences his life and his world as singularly unrewarding. His assessment, however, does not necessarily accord with the reality of his predicament. This is because none of us lives in complete accordance with "objective reality." Rather, the reality each of us experiences is also shaped and colored by one's values, needs, attitudes, and concepts. Events are neither inherently punishing nor inherently rewarding. Thus, any one person's behavior is not necessarily reinforced

by events that are customarily thought rewarding. Indeed, even so orthodox an operant theorist as Ferster concedes that internal, organismic variables modify the effects of environmental reinforcement contingencies. Ferster (1974, p. 39) comments that the individual's ability to be rewarded by his environment depends on his perception of it. Unless one accurately perceives the consequences of his (and others') actions, he is likely to persist in unrewarded behaviors and to fail to adopt rewarded ones. Extending this consideration to the topic of clinical depression, the question which arises is whether, and to what extent, the depressed person differs from the nondepressed in his perception of the rewards and punishments he receives. Researchers espousing the learned helplessness and cognitive theories have addressed this issue.

In his discussion of the cognitive set implicit in learned helplessness, Seligman (1974, p. 95) emphasizes that inescapable trauma teaches both animals and men that their responses do not control reinforcement. The depressed person, then, views his rewards and punishments as independent of his own actions. Miller and Seligman (1973) found that depressed students reacted to their response dependent rewards as if these were response independent. In other words, depressed people view their rewards and successes as if they were the product of chance or good luck.

The perception of reinforcement, because it is a private event, can be assessed only indirectly. One means of doing so is to measure trial by trial changes in expectancy of future success

following successes and failures on an experimental task. Rotter and his colleagues have found that subjects change their verbalized expectancies differently on skill and chance tasks. Rewards on a skill task are response dependent, and on a chance task, response independent. Verbalized expectancies are usually expressed as a numerical self-rating of degree of certainty of success. Generally, subjects utilize feedback, that is, positive or negative reinforcement, in adjusting expectancy levels to the extent that they perceive these reinforcements as consequences of their efforts. Phares (1957) found that subjects given "skill" instructions for an experimental task produced significantly more and larger changes in expectancy level than did subjects given "chance" instructions for the same task. In a more comprehensive study, Rotter, Crowne, and Liverant (1961) compared changes in expectancy on separate skill and chance tasks under four reinforcement conditions: 25%, 50%, 75% and 100%. In this study, [as well as those of Phares (1957) and Miller and Seligman (1973)] "success" and "reinforcement" are considered equivalent terms. Although these experimenters also used small monetary rewards, they considered knowledge of results to be the primary reinforcing stimulus. Rotter et al. (1961) determined that, while expectancies prior to the first trial were equivalent for skill and chance groups, skill task subjects raised expectancies following the first, successful trial significantly higher than did chance task subjects. Verbalized expectancies following the final, reinforced trial were significantly higher for skill than for chance

group subjects. Total change over trials was significantly greater for skill than for chance subjects, in the 25% and 50% reinforcement groups. The failure to demonstrate differences on this measure for the 75% and 100% conditions was ascribed to the tendency for expectancies to approach asymptote on the last, consistently reinforced trials. Miller and Seligman (1973) reflecting on this data, reasoned that differential expectancy changes on skill and chance tasks would demonstrate that depressed persons differ from nondepressed in their perception of reinforcement contingencies.

Miller and Seligman (1973) hypothesized that depressed subjects generally perceive the reinforcements they receive as response independent. While this perception is correct for a chance task, it is erroneous for a skill task. Consequently, depressed subjects would not modify their verbalized expectancies on a skill task according to their successes and failures. Nondepressed subjects, however, accurately perceive their rewards as response contingent in a skill task and as response independent in a chance task. Miller and Seligman's (1973) principal hypothesis, then, was that nondepressed subjects would modify expectancies more than would depressed subjects on the skill task. On the chance task, these groups would not differ. These researchers also predicted that depth of depression would be inversely related to accuracy of perception of reinforcement on a skill task.

Miller and Seligman's (1973) study compared two groups of college student volunteers. Subjects were assigned to either the

depressed or nondepressed groups according to their scores on the Beck Depression Inventory (BDI). Their cutting score was 9. According to Miller's earlier research (unpublished thesis referred to by Miller and Seligman), 9 is the mean score for college students on this scale. Although the mean BDI score of 12.5 for the depressed groups falls well below scores associated with clinical depression, Miller and Seligman (1973) demonstrated significant differences between this group and the nondepressed group. Their experiment required each subject to perform both a skill task and a chance task. The chance task was basically a guessing game, consisting of ten trials of five presentations of slides marked either "X" or "O." The subject's task was to anticipate which slide would appear next. The experimenter determined the outcome of each trial by manipulating his presentation of "X"s and "O"s. The skill task required the subject to manipulate the "vertical aspiration board." This equipment consists of a tilted platform block set in a vertical frame. The platform can be raised and lowered by a pulley string. The task is to raise the platform near to the top of the frame without dislodging a steel bearing resting on that block. This bearing is actually held in place by a concealed electromagnet which the experimenter can switch on and off. In this way, the experimenter controlled each subject's performance. All subjects were allowed to succeed on five of the ten trials. For all subjects, two of these five success trials were the first and the last.

Prior to each trial, the subject rated his certainty of success. The eleven point scale assigned "0" to certainty of failure

and "10" to certainty of success. The three dependent measures were change in expectancy level following the first, reinforced trial, final expectancy level following the tenth, successful trial, and the sum of the absolute values of all shifts in level of expectancy. These last two were interpreted as measure of overall change in expectancy. As predicted, on the skill task nondepressed subjects showed significantly greater changes than did depressed subjects, but only on the first two measures. Nondepressed subjects increased expectancies following success trials, but did not lower expectancies following failure trials, significantly more than did depressed subjects. As predicted, there were no significant differences between groups on the chance task. Moreover, Beck Depression Inventory Scores correlated negatively and significantly with total amount of expectancy change on the skill task. From this data, Miller and Seligman (1973) concluded that depressed people do not perceive response dependent reinforcement as, in fact, response dependent. What this implies is that the depressed person is insensitive to his own successes.

Aaron Beck, reflecting on his clinical experience, has argued an opposite position: that the depressed person is supersensitive to any information about his performance. Even a minor success or failure will affect his evaluation of himself and of his likelihood of future success. Loeb, Beck, and Diggory (1971) compared depressed and nondepressed psychiatric patients' reactions to success or failure on a difficult card-sorting task. Patients were assigned to either

depressed or nondepressed groups according to Beck Depression Inventory scores and to a psychiatrist's independent rating of depth of depression. The criterion BDI score was 22. The patient's job on each of two similar tasks was to sort 20 cards in 20 seconds. By varying the actual length of each trial, the experimenter controlled each subject's performance. On the first five trials of the first task, all subjects failed to reach criterion. On the sixth and seventh trials only the success group subjects reached criterion. All subjects failed on the second task. Prior to each trial, each patient gave his estimate of his probability of success. On the first task depressed subjects gave significantly lower estimates than did nondepressed, yet for both depressed and nondepressed groups, probability estimates on the second task varied with success on the first. Success group patients gave significantly more optimistic estimates than did their failure group counterparts. Yet even under conditions of success, depressed patients gave lower estimates of probability of success than did nondepressed. Loeb et al. (1971) concluded that depressed patients do respond favorably to success, though they remain more pessimistic than nondepressed patients.

The findings of Miller and Seligman (1973) and of Loeb, Beck, and Diggory (1971) suggest somewhat different conceptions of the relation between depression and the perception of reinforcement. A comparison of these two studies, though, has inherent limitations. First, these two experiments drew their subjects from markedly different populations. Miller and Seligman (1973) worked with college

students, none of whom were clinically depressed. Loeb et al. (1971) drew their subjects from a psychiatric patient group. Their depressed subjects were clinically depressed. Secondly, the studies used somewhat different dependent measures. The former examined changes in expectancy level, the latter simply looked at expectancy levels. Miller and Seligman (1973) found that their depressed subjects did not significantly alter expectancies for success given previous success on a skill task. Moreover, this failure could not be attributed to simple pessimism, for if the depressed students were simply more pessimistic, this should also have manifested itself on the chance task. This was not the case. On the other hand, Loeb and his colleagues (1971) found that highly depressed patients who succeeded on the first task raised their expectancy for successful performance on the second task. That they did so suggests that depressed people can perceive and respond to the efficacy of their own actions.

To view these two sets of findings as inconsistent presupposes that the perception of reinforcement is an all or none phenomenon. One either does or does not perceive his response contingent reinforcement as in fact, response contingent. This assumption is debatable. The perception of reinforcement is probably determined by several factors. One of these may be the individual's definition of mastery of a task. To perceive oneself as mastering a task is to view the reinforcements one receives as a function more of one's developing skill than of good luck. If one's definition of mastery

is rigidly perfectionistic, any performance short of complete success, fails to qualify as mastery. Thus, the more stringent one's definition, the larger the percentage reinforcements one needs in order to accept these as the outcome of one's skill. As noted earlier, the depression prone person often maintains rigid and perfectionistic standards of success. He draws a false dichotomy between perfect performance and failure. He allows himself little credit for mediocre, though adequate, performance. The depressed person rarely sees himself as effective because he maintains excessively high criteria for mastery of various life tasks. Thus, what may differentiate depressed from nondepressed persons is not simply that the former do not see their reinforcements as response dependent, but rather, that they require relatively more reinforcements to do so. If they are reinforced on a sufficiently large percentage of task trials, depressed persons will view their successes as response dependent and adjust their expectancies for future success accordingly.

The hypothesis that depressed people require more positive feedback in order to see themselves as mastering a task may resolve the discrepancy between the findings of Miller and Seligman (1973) and those of Loeb et al. (1971). In the latter study, the experimenter controlled each patient's performance such that he better approximated criterion on each trial. Thus, even highly depressed subjects could perceive themselves as mastering this task. In Miller and Seligman's (1973) experiment, the distribution of reinforced trials was random. This may have made it more difficult for

subjects, and particularly the depressed ones, to determine whether they were mastering their task. Had the depressed subjects been reinforced on a larger percentage of task trials, they might have been persuaded, by this unambiguous feedback, that they were mastering the skill task.

The focus of the present study was to test the generality of Miller and Seligman's (1973) findings. This was done through an expanded replication of Miller and Seligman's (1973) procedures. The perception of reinforcement on skill and chance tasks, on either a 50% or a 75% reinforcement schedule, was compared for depressed and nondepressed college students. This perception, which is reflected in changes in expectancy of success on proceeding trials, was assessed by three dependent measures: change in expectancy level following the first, reinforced trial, expectancy level following the last, reinforced trial, and the sum of the absolute values of all trial-by-trial changes in expectancy level. Seven specific hypotheses were tested.

Hypothesis 1: When reinforced on 50% of the trials on the skill task, nondepressed subjects will modify expectancy levels significantly more than depressed subjects, as reflected by all three dependent measures.

When reinforced on only half of the skill task trials, nondepressed subjects, but not depressed subjects, will correctly perceive reinforcements as response dependent.

Hypothesis 2: When reinforced on 75% of the trials on the skill task, depressed and nondepressed subjects will not differ in modifying expectancies, as reflected by the second and third dependent measures. Nondepressed subjects,

however, will raise expectancies following the first, successful trial significantly more than the depressed subjects.

Depressed subjects, like nondepressed, if reinforced on a large percentage of skill task trials, correctly perceive these successes and response contingent and adjust their expectancies accordingly. Depressed subjects, though, require more than one success in order to perceive their rewards correctly. Thus depressed subjects should differ from the nondepressed on the first dependent measure.

Hypothesis 3: Although reinforced at the same 75% rate, depressed subjects will alter trial-by-trial expectancy levels on the skill task, differently than nondepressed. On the first half of the trials, trial-by-trial changes will be smaller for the depressed than for the nondepressed subjects. On the second half of the trials, these changes will be smaller for the nondepressed subjects.

Depressed subjects are slower to perceive their rewards as response dependent. For this reason their expectancy levels should reach asymptote later (in the task session) than those of nondepressed subjects. Only after a few successful trials will the depressed subjects begin to appreciably shift their expectancy levels.

Hypothesis 4: On the chance task, for both 50% and 75% reinforcement schedules, depressed and nondepressed subjects will not differ in changing expectancy levels, as reflected by all three dependent measures.

Both depressed and nondepressed subjects correctly perceive chance-task successes as response independent.

Hypothesis 5: Nondepressed subjects will modify expectancies significantly more on the skill task than on the chance task, at both 50% and 75% reinforcement schedules.

Nondepressed subjects differentiate between response contingent and response independent reinforcements, and adjust their expectancy levels appropriately.

Hypothesis 6: When reinforced on 50% of the trials, depressed subjects will modify expectancies no differently on the skill task than on the chance task, as reflected by all three dependent measures.

When reinforced on only half the trials, depressed subjects fail to perceive skill task successes as response contingent. Thus these subjects respond no differently to skill task successes than to chance task successes.

Hypothesis 7: When reinforced on 75% of trials, depressed subjects modify expectancies on the skill task significantly more than on the chance task-on final expectancy level. On the first dependent measure, there should still be a significant skill versus chance difference.

Depressed subjects, when sufficiently reinforced, perceive response-reinforcement relations correctly. However, these subjects need more than one successful trial to differentiate between tasks.

CHAPTER II

METHODS

Subjects

The 40 subjects who participated in this study were all students attending summer session psychology classes at Michigan State University. They were recruited from a pool of 137 students who had completed the Beck Depression Inventory (BDI) and the Empathic-Similarity Scale. This latter instrument was used as a "filler." The subject pool was limited to students between the ages of 17 and 25. The mean BDI score for this group was 7.16, and the standard deviation was 5.64. Students whose BDI scores were either 5 or below, or 9 or above were subsequently invited to participate in the laboratory experiment phase of the study. Table 1 presents the BDI scores,

TABLE 1

Beck Depression Inventory Scores, Age and Sex Characteristics of the Two Experimental Groups

Group	N	Mean BDI	Mean Age	Sex
Nondepressed	20	2.95	20.10	12F, 8M
Depressed	20	14.45	20.45	12F, 8M

age and sex characteristics of the nondepressed and depressed subject groups. Within both of these groups, half of the subjects were assigned to the 50% reinforcement condition and half to the 75% reinforcement condition. Half of the subjects in each of the four Depression X Reinforcement cells were assigned to the skill-chance task order and half to the chance-skill order. For each of the depression level groups, a separate, prespecified random order determined the Reinforcement X Task Order cell to which each subject was assigned. All subjects whose BDI scores qualified them for participation in the experiment were contacted by telephone in order to set up individual times for them to come for the experiment. These appointments were scheduled within ten days, and in most cases within five days following completion of the BDI. All students received course credit for both completing the Beck inventory and participating in the laboratory procedure.

Instruments

The Beck Depression Inventory is a self-report instrument which measures depth of depression. Its construction presupposes that this varies directly with the number and intensity of depressive symptoms. The BDI includes 21 clinically derived categories of attitudes and physical symptoms specific to depression (Beck, 1972, p. 189). Each category item consists of four or five graded self-report statements. Numerical values for these range from 0, for neutral, to 3, for maximal severity. Individual scores, which range from 0 to 63, are determined by the number and severity of symptoms

reported. Beck (1972, p. 196) reports mean scores associated with clinical ratings of depression for a psychiatric population. These range from 18.7 for mildly depressed patients to 30 for severely depressed.

The body of data on the reliability and validity of the BDI is impressive (Beck, 1972, pp. 184-202). The scale is internally consistent; split half reliability is .93, and item total correlations range from .31 to .68. Concurrent validity of the inventory has been established by its high correlations with other measures of depression. Beck (1972, pp. 197-198) reports correlations of .65 and .75 between BDI scores and clinicians ratings of severity of depression. BDI scores also correlate well with scores on Lubin's Depression Adjective Check List (r=.66) and the MMPI D-Scale (r=.75) (Beck, 1972, p. 198). Unlike these latter two, the BDI discriminates between depression and anxiety. Moreover, changes in BDI scores can predict changes in clinicians' ratings (Beck, 1972, p. 198). Construct validity of the inventory has been supported by confirmation of several hypotheses. These are: Depressed patients are more likely to report dreams with themes of deprivation, failure, and frustration, to identify with "the loser" in projective tests dealing with success and failure, to have a history of childhood deprivation, and to respond to experimentally induced failure with a disproportionate drop in self-esteem. In short, the Beck Depression Inventory is as good a measure of depression as one can reasonably expect of a brief, easily administered self-report questionnaire.

Apparatus

Chance Task

The equipment used in this phase of the experiment was a Kodak Carousel 800 slide projector. The revolving slide tray contained three slides: one marked with an "X," one marked with an "O," and one blank. The blank slide was projected onto the wall between presentations on the other two slides. In this way, the experimenter controlled the sequences of "X"s and "O"s.

Skill Task

The Vertical Aspiration Board employed in the skill task is the same as that used by Rotter et al. (1961). It consists of a movable wooden platform block set within a vertical wooden frame, just over two feet tall. The platform can be raised and lowered by pulling on an eight foot long string which is attached to the top of the platform and passes through a pulley. A one-half inch steel bearing placed on the platform is actually held in place by a concealed electromagnet, which is inserted into a three-fourths inch hole in the back of the platform. Strips of spring brass are connected to the electromagnet and attached to both sides of a wooden flange at the back of the platform block. The interior track of the frame is lined with brass strips. The spring brass on the flange thus remains in contact with the strips as the platform is raised and lowered. Concealed wires connect the brass strips to a hidden six-volt dry cell and to a concealed silent switch. Both of these are concealed under the table top to which the apparatus is bolted. The top of the

platform tilts forward slightly so that the bearing will roll off the platform, unless it is held in place by the electromagnet. The silent switch controls the electromagnet. The subject, who stood six feet from the apparatus was required to raise the platform almost to the top of the frame without dislodging the steel bearing.

Procedure

When each subject reported to the laboratory, the experimenter first noted his BDI score and then assigned him to one of four Reinforcement X Task Order cells, according to a prespecified random order. The experimenter then very briefly explained the nature of the two experimental tasks. Following this she read the instructions for performing either the skill task on the chance task and for estimating degree of certainty of success. These were:

> Skill: This task has two purposes. The first is to see how well you can succeed in raising the platform without letting the ball fall off. The second is to see how accurate you are in estimating your success. Your objective is to try, by pulling the string, to raise the platform to the "90" mark without letting the ball drop off. The apparatus tilts forward slightly so that the ball is more likely to drop off the higher the platform is raised. Of course, if you raise the platform very quickly, the ball cannot drop off because of its momentum. Therefore, you should raise the platform slowly. We will repeat this eight times. Any questions?
>
> Chance: This task [also] has two purposes. The first is to see how well you can tell me beforehand which of two types of slide will appear on the wall. The second is to see how accurately you can estimate your success. In this projector I have some slides marked either with an "X" or an "O." I shall be showing you these in sets of five. Their order of presentation will be random; that is, the sets of five presentations have no special patterns, nor will they necessarily have the same number of "X"s and "O"s. Your job is to guess which slide will appear next before I present it. Each set of 5 slide presentations will count as one trial. In order to be successful on a trial, you must get at least four of the five slides

right. Any number correct, less than four will mean you have not succeeded. We will repeat this eight times. Any questions?

Estimating Certainty of Success: Now, before each trial I would like you to estimate how certain you are that you will raise the platform to the "90" mark. [Get at least four of the five slides right.] You are to estimate your degree of certainty of success on a scale going from 0 to 10. For example, if you feel fairly certain you will succeed, you may rate yourself with a high number such as 9 or 10. If you feel moderately sure that you will succeed, you may rate yourself with a number at the middle of the scale, such as a 4, 5, or 6. If you feel pretty sure you will not be successful, you may rate yourself with a low number such as 0 or 1. You may use any number from 0 to 10, inclusive. But it is important that you select your estimates carefully, and that they correspond closely with how certain you really are. So, before we begin, make an estimate on the 0 to 10 scale as to how likely you think you are to succeed on this first trial.

Each subject was given eight trials on each task. The experimenter controlled trial-by-trial outcomes on both. On the skill task, she did this by turning the switch which controlled the electromagnet. On failure trials, she would turn off the magnet before the platform block reached the "90" mark on the vertical frame; on success trials the bearing was held in place until the criterion was reached. Success and failures on the chance task were manipulated by controlling the presentation of "X"s and "O"s so that these might either coincide or disagree with the subject's predictions. Right and wrong guesses within each trial of five presentations were randomized. The experimenter allowed the subject either two or three correct guesses on failure trials. On success trials the subject was allowed four correct guesses. The order of reinforced and nonreinforced trials was:

	1	2	3	4	5	6	7	8
50%	+	-	-	+	+	-	-	+
75%	+	+	-	+	+	-	+	+

No reinforcer other than the knowledge of having succeeded was employed.

Several subjects either recognized how the experimenter controlled the Vertical Aspiration Board, or jerked the pulley string too quickly for her to control the outcome of each trial. Their data was discarded, and replaced by conducting the procedure for additional subjects.

After completing both tasks, subjects were de-briefed and thanked for their participation.

Dependent Measures

Three dependent measures assessed the effects of task type, level of depression, and amount of reinforcement, on verbalized expectancy of success. The first measure was change in expectancy level following the first, reinforced trial, that is, the difference between expectancy prior to Trial 2 and expectancy prior to Trial 1. The other two measures assessed the cumulative effects of successes and failures. These were expectancy following the last trial and the sum of the absolute values of all increases following success and decreases following failure.

CHAPTER III

RESULTS

In order to assess the effects of both level of depression and rate of reinforcement on changes in expectancy level over task trials, a Depression X Task X Reinforcement analysis of variance, with repeated measures on the Task factor was computed for each of the three dependent measures. These analyses assessed both the overall Depression X Task interaction and specific Depression X Task X Reinforcement interactions. The specifically hypothesized differences between depressed and nondepressed subjects on each task were tested by simple t-tests.

A between groups comparison of changes in level is unambiguous only if these groups are equivalent on initial expectancy level. Thus a preliminary Depression X Task X Reinforcement ANOVA, with repeated measures on the Task factor, was computed for verbalized expectancies given just prior to the first trial on each task. This yielded no significant main effects and no significant interactions on Task X Depression, Depression X Reinforcement, and Depression X Task X Reinforcement (all ps > .05). A Task X Reinforcement interaction was significant at the .05 level. A post hoc examination [Tukey test] of this interaction indicated that the 75% reinforcement

group subjects gave higher estimates of succeeding on the first skill task trial than on the first chance task trial. The 50% Reinforcement group subjects responded no differently to the skill task than to the chance task. How or why rate of reinforcement should affect expectancy of success prior to any experience with the task is not obvious. One possible explanation of this Task X Reinforcement interaction is that it is actually due to a task-order effect. A complex Latin Square design analysis of variance, however, revealed no significant order effects. The only remaining factor to account for this unexpected interaction is random subject variability: it just happened that the 75% reinforcement group subjects initially responded differently to the two tasks. While this initial difference must be considered in any further interpretation of the data, it does not seem a significant obstacle to further data analyses.

Table 2 presents the mean scores on the three dependent measures, on skill and chance tasks for each of the four groups. Tables 3, 4, and 5 present the results of overall F tests and t tests computed for each of the dependent measures. Overall, these data support neither the Task X Depression interaction predicted from the learned helplessness theory nor the variation in this interaction according to reinforcement level as hypothesized by this author. There is, however, some evidence for a Depression X Task interaction in a direction opposite to that predicted. Depressed subjects differed from nondepressed in adjusting expectancies on the chance task, rather than on the skill task.

TABLE 2

Means for Each of the Four Groups on Skill and Chance Tasks

Measure	Nondepressed				Depressed			
	50%		75%		50%		75%	
	S	C	S	C	S	C	S	C
Change from Trial 1 to Trial 2	4.2	1.0	2.8	1.3	4.3	1.5	2.8	2.1
Expectancy after Final Trial	9.3	8.5	9.7	6.2	8.5	6.1	9.7	8.0
Total Amount of Expectancy Change	9.6	4.6	6.0	5.2	11.4	6.8	7.2	8.3

TABLE 3

Analysis of Variance of Change in Expectancy
from Trial 1 to Trial 2

Source	df	ms	F
Between	39		
Depression	1	2.45	<1
Reinforcement	1	5.00	1.47
D x Rf	1	.50	<1
Error	36	3.39	
Within	40		
Tasks	1	84.05	42.67***
T X D	1	1.80	<1
T X Rf	1	18.05	9.11**
T X D X Rf	1	.25	<1
Error	36	1.98	<1

	t-tests	
A. Nondepressed vs. Depressed	t	(df = 1/36)
50% Skill	1	
75% Skill	1	
50% Chance	1	
75% Chance	1.27	
B. Skill vs. Chance		
50% Nondepressed	5.08***	
75% Nondepressed	2.38*	
50% Depressed	4.45***	
75% Depressed	1.11	

*$p < .05$
**$p < .01$
***$p < .001$

TABLE 4

Analysis of Variance of Expectancy Following the Final Trial

Source	df	MS	F
Between	39		
Depression	1	3.20	<1
Reinforcement	1	22.05	5.02*
D X RF	1	5.00	1.11
Error	36	4.39	
Within	40		
Task	1	162.45	92.30****
T X D	1	12.80	7.27**
T X Rf	1	1.25	<1
T X D X Rf	1	.20	<1
Error	36	1.76	

t-tests

		t	
A.	Nondepressed vs. Depressed	t	(df = 36)
	50% Skill	1.35	
	75% Skill	0	
	50% Chance	1.01	
	75% Chance	3.03***	
B.	Skill vs. Chance		
	50% Nondepressed	6.40****	
	75% Nondepressed	5.90****	
	50% Depressed	4.03****	
	75% Depressed	2.86***	

*$p < .05$
**$p < .025$
***$p < .01$
****$p < .001$

TABLE 5

Analysis of Variance of Total Amount of Expectancy Change

Source	df	MS	F
Between	39		
Depression	1	86.13	3.92
Reinforcement	1	40.63	1.8
D X Rf	1	12.50	<1
Error	36	21.95	
Within	40		
Task	1	108.13	10.29**
T X D	1	6.60	<1
T X Rf	1	68.50	6.52*
T X D X Rf	1	44.43	4.23*
Error	36	10.50	

	t-tests (df = 36)
	t
A. Nondepressed vs. Depressed	
50% Skill	1.24
75% Skill	<1
50% Chance	1.55
75% Chance	2.13*
B. Skill vs. Chance	
50% Nondepressed	3.45**
75% Nondepressed	<1
50% Depressed	2.48*
75% Depressed	1

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

The results of this experiment do not support the first hypothesis that when reinforced on 50% of the skill task trials, nondepressed subjects will change expectancies for success more than depressed subjects. Simple inspection of the mean changes in expectancy following the first trial shows that these groups did not differ. The *t* test comparison of mean final expectancies, skill task, 50% reinforcement, presented in Table 4, indicated no significant differences between the depressed and nondepressed groups. Similarly, these groups did not differ on the third dependent measure: total amount of expectancy change (see Table 5).

The second specific hypothesis tested was that nondepressed and depressed subjects, when reinforced on 75% of the skill task trials, would not differ with regard to final expectancy and total expectancy change. With regard to change following the first, successful trial, nondepressed subjects would still show larger changes than depressed subjects. This hypothesis was supported for the most part. As can be seen from Tables 4 and 5, *t* tests revealed no significant differences between groups (both $t < 1$, $ps > .05$). On the first dependent measure, on which a significant difference was expected, there was no difference between depressed and nondepressed (Table 4, $t < 1$, $p > .05$).

The third hypothesis stated: when reinforced on 75% of the skill task trials, nondepressed and depressed groups would manifest different patterns in modifying their expectancy levels. The nondepressed subjects were expected to modify expectancies more on the

first few trials and to reach asymptote sooner than the depressed subjects. The latter were expected to shift expectancies less on the first several trials and to then compensate for this on the later trials. An analysis of variance, presented in Table 6, of the eight changes in expectancy from trial to trial showed no interaction between depression and task trials.

TABLE 6

Analysis of Variance of Trial by Trial Changes in Expectancy on the Skill Task - 75% Rf

Source	df	MS	F
Between	19		
Depression	1	.90	1
Error	18	1.44	
Within	140		
Trials	7	14.05	15*
Trials x Depression	7	.20	<1
Error	126	.9	

*$p < .001$

Hypothesis 4: On the chance task, at both 50% and 75% reinforcement, nondepressed and depressed subjects would not differ in adjusting their expectancies; was not confirmed. As can be seen from Table 3, nondepressed and depressed subjects did not differ on the first dependent measure. On final expectancy on the chance task, there were significant differences between these groups. A t-test

comparison of the 75% reinforcement groups, (Table 4) showed that depressed subjects verbalized significantly higher final expectancies than did their nondepressed counterparts. The overall F test for this measure yielded a significant Depression X Task interaction. Analysis of the simple main effects of depression showed no difference between groups on the skill task and a significantly higher mean final expectancy on the chance task for the depressed groups ($F = 8.5$, $p < .01$, df 1/36). On the third measure, total amount of expectancy change, the nondepressed group did not differ from the depressed at 50% reinforcement (see Table 5). The depressed, 75% reinforcement group subjects, however, manifested significantly larger total changes in expectancies on the chance task than did their nondepressed counterparts.

The fifth hypothesis tested was that nondepressed subjects, in both reinforcement groups, would change expectancies on the skill task significantly more than on the chance task. This was confirmed. When reinforced on 50% of task trials, these subjects raised skill task expectancies significantly more on all three dependent measures (all $ps < .01$) (see Tables 3, 4, and 5). For the 75% reinforcement group subjects the skill-chance difference was significant on the first two dependent measures (both $ps < .05$). The third measure, total expectancy chance, did not reflect this difference. This discrepancy is consistent with findings of Rotter et al. (1961) that under conditions of high reinforcement skill-chance differences on this measure wash out because verbalized expectancies tend to reach asymptote on final, consistently reinforced trials.

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Hypothesis 6: When reinforced on 50% of the trials, depressed subjects will modify expectancies no differently on the skill than on the chance task; was not confirmed. On all three dependent measures, these subjects modified skill task expectancies significantly more than chance task expectancies (all $\underline{p}$s < .01).

The final hypothesis: depressed subjects, reinforced on 75% of task trials would show a significant skill-chance difference on final expectancy, but not on change following the first reinforced trial, was confirmed. As can be seen from the $\underline{t}$ values presented on Tables 3, 4, and 5, only on the second measure did these subjects respond differently to the two tasks.

CHAPTER IV

DISCUSSION

The guiding premise of this study was that depressed people differ from nondepressed in their perception of response contingent reinforcement. Learned helplessness theory, as presented and supported in Miller and Seligman's (1973) paper, argues that depressed individuals are impervious to the relation between their actions and the rewards these yield. Clinical and experimental evidence presented by Beck and his colleagues (Beck, 1972, Loeb et al., 1971) suggests an opposite view: depressed patients are actually hypersensitive to any feedback about their performances on tasks. In an attempt to reconcile these apparently disparate views, this author has suggested a somewhat different approach to the perception of reinforcement. The perception of reinforcement as either response dependent or response independent is not an all or none phenomenon, but varies according to several factors. Two of these factors are the individual's definition of mastery of a task and the rate at which his efforts are rewarded. The more stringent the person's definition of mastery, the more successes he needs in order to see these as dependent more on his skill than on his luck. As Beck has noted (1972, p. 7), depression prone persons maintain rigid and perfectionistic standards for themselves. The main hypothesis of the present

study, thus, is that depressed persons require a higher rate of reinforcement in order to correctly perceive these rewards as response dependent. Clearly, support for this hypothesis would limit the generality of Miller and Seligman's (1973) conclusion.

Any test of the generality of an experimental finding requires a replication of it as well as a test of it under different conditions. The present study failed to replicate Miller and Seligman's (1973) findings. The comparison of the 50% reinforcement group subjects yielded no difference between depressed and nondepressed subjects in modifying their expectancies for success on the skill task. Moreover, contrary to prediction, depressed subjects, as well as nondepressed, manifested significantly larger changes in expectancy on the skill task than on the chance task. As predicted, there were no significant differences between the depressed and nondepressed groups who were successful on 75% of the skill task trials. Obviously, this finding lacks the import it would have had, were there the anticipated differences between groups in the 50% reinforcement condition. The results of this experiment indicate that the depressed subjects perceived and responded to their successes on the skill task as appropriately as did the nondepressed subjects. In short, these findings support neither the learned helplessness theory nor the reformulation of it this author proposed.

Had the results of this experiment simply shown that depressed subjects did not differ from nondepressed in their perception of skill task reinforcements, this discussion would conclude with a

recommendation for additional experimentation. This is because the results of this one experiment can no more invalidate learned helplessness theory than Miller and Seligman's (1973) results can validate it. Yet this study yielded another significant and wholly unexpected result: the depressed subjects differed from the nondepressed in modifying expectancies on the chance task.

The depressed subjects who were reinforced on 75% of the chance task trials produced higher final expectancies and larger amounts of total expectancy change than did their nondepressed counterparts. This finding suggests that these groups differed in their perception of chance task successes. The depressed subjects were far more encouraged by their successes on this task than were the nondepressed subjects. With each success, the depressed subjects grew even more certain of succeeding again. Such an increase in certainty is a totally illogical response to a chance task. Anyone who comprehends the nature of chance events knows their outcomes are independent of each other. Thus, the most reasonable strategy for estimating one's probability of succeeding on chance task trials is to pick one estimate for all task trials. To modify one's expectancies according to prior successes and failures is to misinterpret these outcomes. In this sense, both the depressed and nondepressed subjects misinterpreted their successes on the chance task; however, the former were even more seriously mistaken in their response to this success. The depressed subjects responded to the chance task in a manner actually appropriate to the skill task. This suggests

that these subjects attributed their consistent success on the chance task to their own skillful intuition.

This conclusion is opposite to that drawn by Miller and Seligman (1973). While the latter study concluded that depressed subjects respond to both skill and chance task successes as if these were response independent, the present study suggests that these subjects respond to both types of success as if they were response dependent. These opposite findings present a paradox. There are two ways out of a paradox. One way is to assume that one of the conclusions is false and that further research will demonstrate this. The other way is to search for a wider conceptual base from which the paradox can be resolved. Further consideration of all of the available data, together with our current understanding of the cognitive aspects of depression points to a broader conceptualization of the relation between depression and the perception of reinforcement.

This reformulation assumes that the dichotomy between response dependent and response independent reinforcement applies almost uniquely to the experimental laboratory. In "real life" one's successes and failures are rarely a function solely of skill or of chance. Rather, most events are determined both by one's skill and by factors beyond one's control. A reasonable, healthy reaction to one's circumstances presupposes a realistic assessment of the roles played by one's own efforts and by other, uncontrollable factors. The well-adjusted, nondepressed person can maintain such an assessment and can take his gains and losses pretty well in stride. The depressed

person, however, maintains a distorted view of what he can and cannot control. He may feel helpless, but also responsible for events he could not possibly determine. Beck (1972, p. 232) offers an extreme example of this in the case of the depressed housewife who, when she took her children on a picnic and it stormed, blamed herself for not picking a better day. Seligman (1974, p. 95) emphasizes that the critical feature of depression is the perceived loss of control of one's punishments and rewards. Yet Seligman has apparently divided rewards into response dependent and response independent and referred this perceived loss of control only to the former. This may be too narrow a premise.

A more comprehensive premise is that the depressed person has a faulty notion of the roles played both by his own skillful effort and by factors external to himself in shaping his predicament. Thus he may either underestimate or overestimate the effects of his own behavior on his situation. He may either fail to recognize the rewards of his efforts or blame or credit himself or events which were not of his doing. In short, the depressed individual may misperceive either primarily response dependent or primarily response independent rewards, or both. This reformulation of the relation between depression and the perception of reinforcement may reconcile the results of the present study with those of Miller and Seligman (1973).

The hypothesis that depressed individuals may misinterpret response dependent and/or response independent reinforcements cannot

by itself, explain the discrepancy between Miller and Seligman's (1973) results and those of the present study. Additional factors are necessary to explain why these particular two groups of depressed subjects perceived their skill and chance task successes in opposite ways. There are two possible reasons for this difference. The first possibility is that the skill and chance tasks actually differed significantly between the two studies. The other possibility is that the depressed subjects differend between the two studies. Both of these explanations are, however, mere speculations.

There were minor differences between the ways these two studies conducted the experimental tasks. In the present study, the experimenter timed skill task failures (i.e., turned off the "silent switch" so that the steel bearing rolled off the platform block) so that the subjects almost succeeded on those trials. In this way the skill task may have appeared more controllable to the depressed subjects than the task did to Miller and Seligman's (1973) depressed subjects. This may explain why the former, but not the latter, group modified their skill task expectancies appropriately. The chance task in the current study may also have appeared somewhat different from that in Miller and Seligman's (1973) experiment. In the present experiment the presentation of each "X" and "O" was preceeded by a blank slide. Thus, the sequence of "S"s and "O"s may not have appeared truly random to the subjects in that study. While this might account for the behavior of the depressed subjects in the 75% reinforcement group, it cannot account for the chance-task

appropriate behavior of all of the 50% reinforcement group and of the nondepressed 75% reinforcement group subjects.

A second possibility is that the depressed subjects in these two experiments were, in fact, different. The depressed subjects in Miller and Seligman's (1973) study were given the Beck Depression Inventory immediately prior to the experimental procedure. In the current study, however, several days elapsed between these two parts of the study. It might be that, because of this passage of time, the depressed subjects were no longer so depressed at the time of the laboratory procedure. This possibility can account for this study's failure to replicate Miller and Seligman's (1973) results, but not for the difference between depressed and nondepressed subjects on the chance task.

The upshot of this study is that the relation between depression and the perception of reinforcement remains unclear. The hypothesis that depressed individuals misconstrue both response dependent and response independent reinforcements is worth investigating. This hypothesis presupposes that the depressed person maintains a faulty notion of which events he can and cannot control by his own efforts. This presupposition might be tested by comparing depressed and nondepressed subjects' responses to a task in which the subjects' rewards are contingent both on his skill and on factors outside of his control. For example, the Vertical Aspiration Board skill task could be varied so that the subject receives monetary rewards for his "successes" on a random basis, or a puzzle or anagram task could

Name: _____ Class: _____

Age: _____ Sex: _____ Telephone: _____

EMPATHIC - SIMILARITY SCALE

Instructions: Please read each statement and circle T or F as it applies to you.

T F 1. I like to have people around me practically all of the time.
T F 2. I always prefer to work with others.
T F 3. I would rather listen to a story than tell one.
T F 4. I am cautious about undertaking anything which may lead to humiliating experiences.
T F 5. I am almost never embarrassed.
T F 6. I am fairly easily moved to laughter or tears.
T F 7. I am moderate in my tastes and sentiments.
T F 8. I think much and speak little.
T F 9. I have strong likes and dislikes.
T F 10. It takes a great deal to make me emotional.
T F 11. I become emotional fairly easily.
T F 12. I have sometimes corrected others, not because they were wrong, but only because they irritated me.
T F 13. I am mainly interested in ideas that are very practical.
T F 14. I get an intense pleasure from just looking at a beautiful building.
T F 15. I generally seek whatever makes me happy here and now.
T F 16. I always keep control of myself in an emergency situation.
T F 17. I find it rather hard to keep to a rigid routine.
T F 18. It is necessary to retain the belief that God exists as a personal being.
T F 19. In matters of conduct I conform very closely to custom.
T F 20. The thought of God gives me a complete sense of security.
T F 21. I control my sexual impulses by instituting prohibitions and restrictions.
T F 22. Some of my friends think my ideas are a bit wild and impractical.
T F 23. I am temperamentally more a sceptic than a believer.
T F 24. The European attitude toward mistresses is more sensible than ours.

be devised which can be rigged so that the subject can solve it only on certain randomly selected trials. The subject, in either case, would be told that his own efforts would not necessarily insure a reward. If depressed and nondepressed subjects' changes expectancy of success on this task, as well as the usual skill and chance tasks, under low, medium, and high reinforcement rate conditions, were compared, a clearer picture of the relationship between depression and the perception of reinforcement might emerge.

APPENDIX

SCALES OF MEASUREMENT

Name: _____ Telephone #: _____

Age: _____ Sex: _____

BECK'S D.I.

Instructions: Please read each set of statements completely, then circle the number of the one which most represents how you feel right now. For example, read all the statements in category "A", reflect for a minute, then choose one of them and circle it. Then continue to the next set until you have chosen one statement for every letter through "U".

A. I do not feel sad
I feel blue or sad
I am blue or sad all the time and I can't snap out of it
I am so sad or unhappy that it is quite painful
I am so sad or unhappy that I can't stand it

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

C. I do not feel like a failure
I feel I have failed more than the average person
I feel I have accomplished very little that is worthwhile or that means anything
As I look back on my life all I can see is a lot of failures
I feel I am a complete failure as a person (parent, husband, wife)

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

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

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

G. I don't feel disappointed in myself
I am disappointed in myself
I don't like myself
I am disgusted with myself
I hate myself

H. I don't feel I am any worse than anybody else
I am critical of myself for my weaknesses or mistakes
I blame myself for my faults
I blame myself for everything bad that happens

I. I don't have any thoughts of harming myself
I have thoughts of harming myself but I would not carry them out
I feel I would be better off dead
I feel my family would be better off if I were dead
I have definite plans about committing suicide
I would kill myself if I could

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

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

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

M. I make decisions about as well as ever
I try to put off making decisions
I have great difficulty in making decisions
I can't make any decisions at all any more

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

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

P. I can sleep as well as usual
I wake up more tired in the morning that I used to
I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
I wake up early every day and can't get more than 5 hours sleep

Q. I don't get any more tired than usual
I get tired more easily than I used to
I get tired from doing anything
I get too tired to do anything

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

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

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

U. I have not noticed any recent change in my interest in sex
I am less interested in sex than I used to be
I am much less interested in sex now
I have lost interest in sex completely

Name: _____ Class: _____

Age: _____ Sex: _____ Telephone: _____

EMPATHIC - SIMILARITY SCALE

Instructions: Please read each statement and circle T or F as it applies to you.

T F 1. I like to have people around me practically all of the time.
T F 2. I always prefer to work with others.
T F 3. I would rather listen to a story than tell one.
T F 4. I am cautious about undertaking anything which may lead to humiliating experiences.
T F 5. I am almost never embarrassed.
T F 6. I am fairly easily moved to laughter or tears.
T F 7. I am moderate in my tastes and sentiments.
T F 8. I think much and speak little.
T F 9. I have strong likes and dislikes.
T F 10. It takes a great deal to make me emotional.
T F 11. I become emotional fairly easily.
T F 12. I have sometimes corrected others, not because they were wrong, but only because they irritated me.
T F 13. I am mainly interested in ideas that are very practical.
T F 14. I get an intense pleasure from just looking at a beautiful building.
T F 15. I generally seek whatever makes me happy here and now.
T F 16. I always keep control of myself in an emergency situation.
T F 17. I find it rather hard to keep to a rigid routine.
T F 18. It is necessary to retain the belief that God exists as a personal being.
T F 19. In matters of conduct I conform very closely to custom.
T F 20. The thought of God gives me a complete sense of security.
T F 21. I control my sexual impulses by instituting prohibitions and restrictions.
T F 22. Some of my friends think my ideas are a bit wild and impractical.
T F 23. I am temperamentally more a sceptic than a believer.
T F 24. The European attitude toward mistresses is more sensible than ours.

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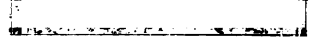

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