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AN ABSTRACT OF THE THESIS OF Marilyn Frances Barnowe-Meyer for the
Master of Science in Psychology presented May 19, 1981.

Title: Success Expectancy in Depressives.

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

Richard W. Wollert, Chairman

Adriane M. Gaffuri

David F. Wrench

This thesis was an attempt to investigate two important cognitive aspects of depression: expectation of success, and changes in this expectation. Recent studies in these areas have yielded inconsistent results. It has generally been concluded that subclinical depressives do not differ from nondepressives in initial expectation of success, though they do at times exhibit smaller changes in success expectancy following personal experiences of success or failure. Two main cognitive theories of depression have attempted to account for this difference between the two populations. Beck (1967) has proposed that depression results from specific negative cognitive processes, among them a denial of personal responsibility of positive events and an

exaggeration of personal responsibility for negative events. According to this theory, depressives would have a lower initial expectation of success than nondepressives and would exhibit a smaller increase in success expectancy following success and a larger decrease in success expectancy following failure. Seligman (1975) has proposed that depression results when an individual learns that responses and outcomes are independent of one another, and then makes negative, internal attributions about the cause of that independence. On the basis of Seligman's theory, one could conclude that since depressives see action and outcome as independent, they would shift success expectancy less following both success and failure.

This thesis sought to investigate the predictions of these two theories of depression and to determine what role other task-related perceptions might play in depression. In this study, 19 depressed and 22 nondepressed subjects, classified on the basis of two depression scales, were asked to rate their success expectancy initially and following each of eight trials on an outcome-controlled "manual dexterity" task, and initially and following two trials on an outcome-controlled "light perception" task. Approximately half of these subjects succeeded and approximately half failed in their initial trial on the "manual dexterity" task, and on both trials of the "light perception" task.

Neither Beck's (1967) nor Seligman's (1975) theories were supported by the results of this study. Analyses of variance indicated that there was no difference between depressives and nondepressives in initial expectation of success on the "manual dexterity" task, nor were

there any differences between the shifts of the two groups as the result of experiencing either success or failure. Depressives did exhibit a lower initial success expectancy on the "light perception" task, which they perceived as requiring more skill to perform than did the nondepressives. Analyses of other assessment measures indicated that, contrary to a theory proposed by Wollert (1979), depressives were not more certain of the accuracy of their expectations. It was also determined that a significantly larger rating of success expectancy could be elicited from depressives by varying the instructional set given to the depressed subjects.

SUCCESS EXPECTANCY IN DEPRESSIVES

by

MARILYN FRANCES BARNOWE-MEYER

A thesis submitted in partial fulfillment of the
requirements for the degree of

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in
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TO THE OFFICE OF GRADUATE STUDIES AND RESEARCH:

The members of the Committee approve the thesis of Marilyn
Frances Barnowe-Meyer presented May 19, 1981.

Richard W. Wollert, Chairman

Adriane M. Gaffuri

David F. Wrench

APPROVED:

Robert E. Jones, Head, Department of Psychology

Stanley E. Rauch, Dean, Graduate Studies and Research

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CHAPTER I

INTRODUCTION

Depression is one of the most common forms of mental disorder to afflict the population of this country, directly affecting an estimated two million people in its most severe form and perhaps as many as 53 million individuals to a milder, subclinical extent (Coleman, Butcher, & Carson, 1980, p. 4). Despite this prevalence, relatively little is known about its etiology or effective treatment. This may be due to several factors, among them the varying severity of the illness and the heterogeneous nature of its symptoms, which may include physical, emotional, motivational, or cognitive distortions of various types.

Although the importance of the affective components in depression have traditionally been emphasized (Enelow, 1970; Gallant & Simpson, 1976; Usdin, 1977), the significance of cognitive distortions in depression has recently come to be appreciated. Beck (1972), for example, has proposed that depression revolves around specific maladaptive cognitions, among them a negative view of the world, a negative self-concept, and a negative appraisal of the future. In treating this disorder, Beck advises pinpointing specific cognitive distortions and demonstrating their invalidity to the patient, thereby restructuring the cognitive processes that have fueled the depression. A similar theory and treatment was proposed by Ellis (Ellis, 1972; Corsini, 1973; Meichenbaum, 1977), who considered "maladaptive self-verbalizations"

as a major factor contributing to depression, and to mental illness in general. Ellis advocates challenging these cognitions to alter the individual's irrational and self-defeating beliefs about his or her self, thus eliminating the source of the illness. A third approach to cognition in this disorder was taken by Seligman, who with his "learned helplessness" model (Seligman, 1975) has theorized that depression results when an individual first learns that his or her actions and subsequent outcomes are independent of one another, and then attributes the cause of this independence to various factors (Abramson, Seligman, & Teasdale, 1978). It is his contention that by changing these attributions, the depression will be alleviated.

Theories involving similar constructs and treatment approaches have proliferated despite the fact that the cognitive dynamics underlying this disorder are still only poorly understood. The inconsistency of recent findings in this area (Huesmann, 1978; Willis & Blaney, 1978) and the lack of comprehensiveness in the applicability of current theories may be due to several factors. Among these are the multi-dimensional nature of depression, the resulting lack of a clear definition of the disorder, and the unresolved issue of whether subclinical depression (the most commonly investigated) is analogous to the more severe and incapacitating clinical forms (Huesmann, 1978). Clearly, more empirical work relating to the cognitive dynamics of depression is needed, and may lead the way toward an awareness of more effective therapeutic intervention.

This thesis is an attempt to achieve a more complete understanding of two important cognitive facets of depression: expectation of

success, and shifts in this expectation. A review of the empirical literature in each of these areas will be presented, during which several theoretical and methodological issues will be raised. The results of an empirical study designed to address these issues will then be reported and discussed.

LITERATURE REVIEW AND PURPOSE

Initial Success Expectancy

Perhaps the most extensive body of cognitive research on depression has dealt with the relationship between depression and expectation of success. This has been traditionally defined as the certainty an individual holds that his or her performance on a task will meet a stated criterion for success (Wollert, 1979). Informal expressions of low expectancies are considered by Beck (1967) to be both a manifestation of the low self-esteem characteristic of depression and also part of the depression-generating process.

Recent studies in this area involving clinical populations have supported the hypothesis that depression is accompanied by low self-esteem and expression of low performance expectations. Friedman (1964) administered items from the Clyde Mood Scale and an extensive battery of cognitive, perceptual, and psychomotor tasks to a group of psychotic depressives and a matched sample of nondepressives. He found that, though the depressed group rated themselves lower on 82% of the Clyde Mood Scale items than the matched group, they actually performed worse on only 4% of the 82 tasks. On the basis of his empirical data and clinical observations, Friedman concluded that severely depressed individuals have unrealistically low self-images and low expectancies

that are inconsistent with their actual performance potential. The same conclusion was reached by Loeb, Beck, and Diggory (1971) who in studying 20 depressed psychiatric outpatients, found that depressives gave significantly lower probability estimates of success when compared to a nondepressed psychiatric comparison group, even though their actual success rate on a card sorting task was held constant and equal by the experimenter.

Studies involving subclinical depressives, individuals who score high on depression scales but who are not seeking treatment (Wollert & Buchwald, 1979), have been less consistent than those involving clinical populations. Miller and Seligman (1973) tested subclinically depressed and nondepressed subjects performing tasks of skill ("manual dexterity") and chance (matching randomly presented X and O slides) and discovered no differences in initial expectation of success. A partial replication of this study by Klein and Seligman (1976) produced similar results. Miller, Seligman, and Kurlander (1975) found no difference in expectancy between depressives and nondepressives using a line-matching task, nor did Miller and Seligman (1976) using timed card-sorting and random X-O slide matching tasks preceded by escapable and inescapable noise conditions. Hammen and Krantz (1976) obtained similar results using a task perceived as measuring potential success as a therapist, as did Sacco and Hokanson (1978), who compared the performance expectations of three groups of subjects in the solution of anagrams. These results have generally been taken to indicate that on a variety of tasks, subclinical depressives do not expect to perform more poorly than nondepressives. However, this conclusion was not supported by Wollert and Buchwald (1979), who, using a large number of subjects, obtained

significant negative correlations between expectation of performance and depression scores.

It is interesting to note the discrepancy between the clear finding that clinical depressives hold lower expectancies of success than nondepressives and the less consistent evidence that subclinical depressives and nondepressives differ minimally, if at all, in this regard. The discrepancy in results involving the two populations may reflect the possibility that clinical and subclinical depression are dissimilar disorders. Such a hypothesis does not account, however, for the discrepancy within the subclinical depressive group.

It may be that methodological difficulties lie at the root of the reported inconsistencies, not only between the two populations but within the subclinical population itself. For example, the relationship between depression and expectation of success may be attenuated in nonclinical populations. If so, significance tests based upon the small sample sizes that have generally been selected for use in non-clinical studies may not have been powerful enough to reveal the relationship between depression and expectation of performance. More importantly, the subject selection criteria were of questionable validity. In many expectation studies, the median of Beck Depression Inventory (BDI, Beck, 1967) scores among college students, nine, has been accepted as the cutting score for subclinical depression and nondepression (Miller & Seligman, 1973, 1976; Miller et al., 1975; Klein & Seligman, 1976). The difficulty with using this median-split approach is that some subjects whose scores are near the cutting point are likely to be misclassified, this misclassification rate being dependent upon the reliability of the testing instrument.

Although the desirability of estimating the misclassification rate for cutting score application has long been emphasized (Taylor & Russell, 1939), no research studies of subclinical depression have reported such estimates. The significance of such a misclassification is that it increases the chances of a type-two error. This implies that the finding that expectancies do not differ between subclinical depressives and nondepressives may be due to a lack of differentiation between groups.

If it is indeed the case that these methodological difficulties account for the expectancy results obtained with the subclinical populations, it would seem clear that an experimental design that addresses these issues would help resolve the discrepancy between clinical and nonclinical findings. One purpose of the present study was to examine expectation of success in subclinical depressives, using an improved experimental design involving more stringent criteria for assigning subjects to experimental groups. In this study, 19 subclinically depressed and 22 nondepressed subjects, classified on the basis of two depression scales, were asked to rate their expectation of success on both a manual dexterity task and a task involving perceptual skill. It was hypothesized that, given this clear differentiation of experimental groups, nondepressives would exhibit a significantly higher initial expectation of success than would the subclinically depressed group.

Shifts in Success Expectancy

One promising extension of the research on success expectancy deals with shifts in success expectancy resulting from personal

experience with success and failure in task performance. This aspect of cognition is important in that it is assumed to reflect an individual's understanding about behavioral-outcome relationships (Wollert, 1979). Changes in this perception have been considered an important aspect of therapeutic intervention in depression, in that such changes are generally seen as a forerunner of behavioral change (Beck, 1967).

In general, research in this area has focused on subclinical populations. In the typical design, subjects classified as subclinically depressed on the basis of a single measure of depression are asked to perform a task on which the experimenter can manipulate the results so that the subject experiences either success or failure. A variety of tasks has been used, but in each study subjects are asked initially and following each trial to rate their expectation of success on the next trial. Numerous dependent variables have been used to evaluate shifts in success expectancy, including shifts on the first trial, the sum of the absolute values of "appropriate" changes in expectancy over all trials (i.e., increases after success and decreases following failure; cf., Miller & Seligman, 1973), and the final expectancy.

A mixed set of findings has resulted from this line of research. Miller and Seligman (1973) used all three of the above-mentioned dependent measures to analyze expectancy shifts following success and failure on both manual dexterity "skill" (Sky apparatus) and chance (X-0 slide presentation) tasks. They found that subclinically depressed individuals shifted less after success on the skill task than did non-depressives. There was no difference between the two groups in chance

task expectation or following failure on the skill task. In a partial replication of this study, Klein and Seligman (1976) found that depressives exhibited smaller expectancy shifts than nondepressives on the skill task following both successful and failing performances. Assessing expectancy shifts with a timed card-sorting task, Miller and Seligman (1976) found that depressives had significantly smaller expectancy shifts than nondepressives. Differences between groups were, however, apparant only for shifts following failure. Miller et al. (1975) used a line matching task preceded by either skill or chance inductions and found no significant differences in expectancy shifts following success or failure in either condition.

Despite the inconsistency of these findings, Seligman and his colleagues have concluded that their results support the notion that depressives are less affected by success and failure than are nondepressives--that they perceive response and outcome as independent. A careful scrutiny of these studies, however, suggests that this conclusion is by no means clearly justified. If this perception of response-outcome independence is indeed a hallmark of the cognitions of depressives, success expectancies in this population should increase less following success and decrease less following failure than the expectancies of nondepressed subjects. In only one study, that of Klein and Seligman (1976), were both of these findings obtained. Miller et al. (1975) found no differences between depressives and nondepressives that were significant at any generally accepted level. Miller and Seligman (1976) found only a significant decrease following failure, and in their 1973 study found only a significant increase following success.

Unfortunately, the downward shifts found in this latter study are erroneously misrepresented as evidence that "depressed individuals tend to perceive reinforcement as more response independent than nondepressives" (Miller & Seligman, 1973, p. 71), despite the fact that this conclusion is only warranted if the data indicated less responsiveness to both success and failure.

Some additional inconsistent data have been collected from clinical populations. Using the tasks employed by Miller and Seligman (1973), Abramson, Garber, Edwards, and Seligman (1978) found that unipolar depressive subjects reported significantly smaller expectancy change following a failure experience than did normal and schizophrenic comparison groups. Smolen (1978), however, found no such differentiation comparing depressed and/or schizophrenic subjects with normal subjects performing card-sorting and peg-sorting tasks.

The inconsistencies and subsequent confusion that have developed, particularly in research with subclinical depressives, have been compounded by a methodological shortcoming in the basic research design that has been used. By consistently providing each subject with an initial success experience before an exposure to personal failure (Seligman, personal communication, 1979), expectancy shift differences between depressed and nondepressed groups are artificially widened and a straightforward comparison of the two groups (as Seligman and others have done) is misleading. Since nondepressed subjects typically exhibit a greater upward shift following the initial success experience, it logically follows that their downward shift following failure will be greater than that exhibited by the depressed subjects whose previous upward shifts were so much smaller. In other words, decreases in

expectancies are not independent of initial increases. Given this methodological flaw and the inconsistent findings yielded by past research, many of the conclusions drawn by Seligman and his colleagues on the basis of these studies can be called into serious question.

A second purpose of this study was to correct this basis methodological shortcoming and gain further insight into the purported sub-clinical depressive perception of response-outcome independence. Subjects were asked to perform a series of trials on a skill task, giving a rating of their success expectancy initially and following each trial. By controlling outcomes so that half succeeded and half failed in their initial performance, it was possible to compare expectancy shifts for depressives and nondepressives under conditions where decreases following failure were independent of initial increases following success. Though it was expected that nondepressives would show a greater upward expectancy shift than depressives following a successful performance, no such difference was expected between the shifts of the two groups following a failure experience.

Explanations of Expectancy Shifts

There are several cognitive theories that have been offered as an explanation for expectancy shift differences. One of the earliest and most frequently proposed explanations has been termed the "Control Perception" hypothesis (Wollert, 1979). Building on the work of Rotter (1954), studies by Phares (1957), and Rotter, Liverant, and Crowne (1961), have indicated that a change in a subject's success expectancy is greater if he or she believes that the outcome of a response is related to his or her own ability (i.e., skill) rather than to some

external influence (such as chance or luck). One could conclude on the basis of this theory, then, that depressives shift their success expectancy less than nondepressives because they view the outcome of their activities as being chance controlled rather than as being a function of their own level of skill. Seligman's interpretation of his expectancy shift results was originally formulated with this "Control Perception" hypothesis as its base, a view consistent with his learned helplessness model of depression.

Weiner (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971) has suggested an alternative to the "Control Perception" hypothesis that is based on attribution theory. Delineating outcome attributions into internal-external and stable-unstable dimensions, he contends that an individual utilizes four elements of ascription (ability, effort, task difficulty, and luck) to both interpret and predict the outcome of an achievement related event. Rizley (1978) studied subclinically depressed and nondepressed college students to examine this issue. He compared the validity of Seligman's assertion that depressives underestimate causal responsibility for both positive and negative events to that of Beck (1967), whose theory predicts that depressives deny causal responsibility for positive events, but exaggerate their causal responsibility for negative events. He found, as did Kuiper (1978) in a similar study, that depressives rated internal factors as more important in causing their failure than did nondepressives--a finding clearly inconsistent with Seligman's predictions.

In an attempt to deal with this issue, Seligman and his colleagues have recently presented a reformulated learned helplessness model (Abramson, Seligman, & Teasdale, 1978) that seemingly embraces both

Weiner's theory and their earlier formulation. This reformulation asserts that an individual feels helpless as the result of learning that certain responses and outcomes are independent of one another. The "helpless" individual then makes a negative, internally-based attribution about the cause of that independence which affects his or her expectations about future response-outcome relationships. This helpless feeling and the attribution ascribed to it thereby determines, to some degree, the generality and intensity of the depressive symptoms. For example, an individual attempts to engage in a conversation with a stranger, and is met only with silence. Perceiving that he or she cannot elicit a response from the stranger, i.e., that the situation is out of their control, the depressed individual would likely conclude that he or she is unattractive or stupid rather than consider that the stranger is basically unfriendly or simply lacks the time to chat. This social situation and the depressive's response to it will affect any future overtures of this type and likely reinforce the negative self-evaluation that led to this attribution in the first place. A study by Seligman, Abramson, Semmel, and von Baeyer (1979) has demonstrated a correlation between this attributional style and depression, but whether this style results in depression or whether the reverse is the case has not yet been determined.

Another explanation, the "Expectancy Confidence" hypothesis, has been offered by Wollert (1979), who contends that "individuals not only possess beliefs about their probabilities of success . . . but also hold beliefs about the accuracy of these expectations" (p. 1890). This theory holds that changes in success expectancy are not primarily a function of perceived locus of control, but are instead a function of

how certain the individual is that his or her expectancy is correct. Unfortunately, the design of previous success expectancy research has confounded subjective expectation of success with expectancy confidence. Initial work by Wollert (1979) suggests that this latter factor is the major determinant in the expectancy shift findings of the key locus of control studies done by Phares (1957) and Rotter et al. (1961).

Though Wollert's theory has not yet been tested with depressives, one could conclude that depressives shift their success expectancy less than nondepressives because they are relatively more certain that their expectancies are accurate. This is not to say that depressives are more optimistic about their performance ability. Rather, they are relatively more certain that they will neither succeed nor improve on their performance.

The third purpose of this study was to explore Wollert's idea further, as it pertains to subclinical depressives, by having subjects indicate the range of possibilities they considered before arriving at their final, given success expectancy rating. In this way a clear picture could be obtained as to how confident they were that this given success expectancy was correct. There is, of course, a directional element inherent in this approach that cannot be overlooked. The range of "considered" probabilities may be equal for depressives and nondepressives, but may be unevenly distributed around their "given" ratings. To overcome this potentially misleading situation, the highest and lowest "considered" ratings must be examined for each subject. It was expected that depressives, being confident that they would not succeed, would report a smaller range of high success probabilities relative to their final rating than nondepressives. It was further

expected that, being uncertain as to how badly they might perform, depressives would report a broader range of low success probabilities than nondepressives.

Another methodological consideration related to the range of considered probabilities was also investigated. As proposed by Lewin, Dembo, Festinger, and Sears (Hunt, 1944), an individual sets performance standards or goals at many different levels and may shift these different levels of aspiration with experience in order to enhance feelings of success and rationalize feelings of failure. As an extension of this concept, one could conclude that depressives, like nondepressives, do consider a wide range of these alternatives when evaluating their chances of success on a task, but are perhaps less likely than nondepressives to share all of these alternatives with an experimenter. Given the poor self-image traditionally ascribed to depressives, the usual finding of less expectancy shift after success for this group may be due not to the fact that depressives lack these hopes, but rather to the fact that they are unwilling to confide their secret hopes of continued good performance. This investigation sought to ascertain whether these hopes do exist and can be elicited from depressives, by offering different instructional sets. It was hypothesized that, given the opportunity to fantasize performance on a "good day," depressives who succeeded on the task would exhibit higher success expectancy ratings than they would using the traditional instructions.

Summary

In review, this thesis is an attempt to achieve a more complete understanding of two important cognitive facets of depression:

expectations of success, and shifts in these expectations. By adhering to more stringent subject assignment criteria and improving on methodological shortcomings that have confused earlier efforts, it was hoped that a clearer understanding of the theoretical issues that are involved could be achieved. Briefly, 19 subclinically depressed and 22 non-depressed subjects, classified on the basis of two depression scales, were asked to rate their expectation of success on both a manual dexterity task and a task involving perceptual skill. Approximately half of these subjects were made to succeed and half were made to fail in their performance on the first trial of the first task and half were made to succeed and half were made to fail on both trials of the second task. Expectancy confidence ratings were obtained for the expectancy ratings on the perceptual task, as were additional measures relating to the role that other task-related perceptions might play in expectancy shifts and mood variation.

Hypotheses

It was hypothesized that:

1. Nondepressives would exhibit a significantly higher initial expectation of success than would the subclinically depressed group on both tasks.
2. Nondepressives would show a greater upward expectancy shift than depressives on both tasks following a successful performance, while no such difference between the shifts of the two groups would appear following a failure experience on either task.
3. Depressives would exhibit a smaller range of high success probabilities and a broader range of low success probabilities relative

to their final ratings than nondepressives.

4. Given a "good day" instructional set, depressives in the success condition on the perceptual task would exhibit higher success expectancy than they would using the traditional instructions.

CHAPTER II

METHOD

Subjects

A total of 11 male and 30 female undergraduate students at Portland State University were used as subjects in this study. They were volunteers in a subject pool that was formed as the result of recruitment in psychology classes and received extra course credit for their participation. All volunteers were given information regarding their participation and were asked to sign an informed consent form (see Appendix A) as a necessary condition of their inclusion as subjects. The 41 subjects were chosen on the basis of consistently high or low scores over a two week period on two indices of depression, the Beck Depression Inventory (BDI, Beck, 1967), and the D-Scale of the Minnesota Multiphasic Personality Inventory (MMPI, Hathaway & McKinley, 1967). While both of these measures have reasonably high convergent validity in clinical populations, their validity in subclinical populations has not yet been established. Data from an additional 22 subjects were eliminated because the two depression scores yielded inconsistent depressive classifications.

Materials

Sky Task. Subjects performed on two tasks. The first task involved the manipulation of a modified Sky apparatus used in earlier research on expectancy shifts (cf. Miller & Seligman, 1973). The

modified apparatus consists of a 4-inch (10 cm) square platform within a number-scaled, vertical plywood frame. The subject, seated approximately three feet (.9 m) away, was asked to slowly raise this platform as high as he or she could by gently pulling on a 4-foot (1.2 m) pulleyed string attached to the top of the platform and guided through a pulley at the top of the frame. A 1/2-inch (13 mm) steel ball rested on the platform and the object of the task was to raise the platform 11 inches (28 cm) to a level marked by an arrow without the ball rolling over one of the edges. Unknown to the subject, the ball's attachment to the platform was controlled by the experimenter by means of an electromagnet and concealed solenoid switch. Thus, though the successful completion of the task appeared to be a function of personal skill and effort, success or failure in performance actually rested in the hands of the experimenter.

Light Task. The second task on which the subjects performed is also one which has been used in previous research on expectancy shifts (Sacco & Hokanson, 1978). It consists of a panel of 16 colored lights arranged in eight rows and two columns located approximately 2 feet (.6 m) in front of the subject. On each trial a varying number of the lights were flashed on for .4 sec., and it was the subject's task to indicate exactly how many lights were lit. The experimenter then gave correct/incorrect feedback to the subject. The colored lights flashed on so briefly that bogus outcome feedback could plausibly be given by the experimenter without arousing the subject's suspicions, thus providing experimental control over what appeared to be a perceptual task.

Assessment of Expectancies. To report success expectancies, subjects completed a 21-point scale. This scale was used in place of

the zero to ten scale commonly used (Miller & Seligman, 1973; Miller et al., 1975; Klein & Seligman, 1976) because a major purpose of the experiment was to assess downward shifts after failure, and it was believed that a 10-point scale might artificially constrain reports of such shifts as some subjects might use the lowest numbers even before experiencing failure. The scale was introduced with the following instruction, consistent with those typically used by Seligman and his associates (Miller & Seligman, 1973):

I'd like you to estimate how certain you are that you could succeed if you were to perform this task. You are to estimate your degree of certainty on this scale going from zero to 20. For example, if you feel fairly sure that you could raise the platform and ball (or, get the right number of lights), you could rate yourself on the upper end of the scale. If you feel sure you would not be successful, you could rate yourself on the lower end of the scale. You can use any number on the scale to indicate how certain you are that you could succeed, as long as it closely corresponds to how certain you really are. Just circle the appropriate number.

Assessment of Expectancy Confidence. To report expectancy confidence, subjects responded to the following request using a separate but identical 21-point scale: "Now I'd like you to circle any numbers you may have considered before you decided to circle the one that you did."

Other Assessment Measures. To clarify subjective feelings about the experimental situation and to obtain additional information about the role that other task-related perceptions might play in expectancy shifts and mood variation, subjects answered each of the following questions (see Appendix D) using separate 21-point scales: (a) To assess skill perception, "To what extent do you perceive skill to be a factor in your performance on this task?" (b) To assess the subjective

importance of the task to the subject, "How important is it to you to do well in experiments like this?" (c) To measure level of aspiration, "What level of success would you need to achieve to be completely satisfied with your performance?" To assess the importance of instructional set, the following questions were asked (see Appendix E): (a) "Right now I'd like you to imagine one of those days when you've 'got-ten up on the wrong side of the bed.' You can't quite seem to 'get your act together' and your life is going badly--everything is disappointing. On a day like that, how certain are you that you could succeed on this task? (b) "Now I'd like you to imagine a great day. The sun is out and you have 'the Midas Touch.' Everything seems to fit together and you feel so great that you feel like singing. On a day like that, how certain are you that you could succeed on this task?"

Procedure

Subject Assignment. Subjects signed up for participation on a publicly displayed sheet implying two separate experiments (a "mood scale validity" study, and one dealing with "manual dexterity") that were purportedly being "piggy-backed" to fulfill the one hour extra credit requirement. Meeting as a group, the subjects were administered the D Scale of the MMPI (Appendix B) by a confederate of the experimenter purporting to conduct her own research. Those subjects with t-scores less than or equal to 50 and greater than or equal to 65 were contacted within one week by the experimenter and individually scheduled to complete the BDI (Appendix C) to complete the confederate's research and to take part in the "second study." These procedures were adopted to reduce the possibility that the subjects might surmise the

purpose of the study and consequently bias their responses and performance.

Subjects with t-scores on the D Scale greater than 65 and BDI scores greater than 8 (Miller & Seligman, 1975) were assigned to the depressed group. Subjects with t-scores on the D Scale less than 50 and BDI scores less than 9 were assigned to the nondepressed group. Within affective groups, subjects were randomly assigned to success or failure conditions.

Sky Apparatus Phase. After completing the BDI, the subject was seated in the experimenter's small office. With the Sky apparatus in full view, the subject received the following verbal description of the task:

The instrument you see here can be used as a measurement of manual dexterity. The task involves pulling the long string running through the pulley in order to raise the platform as high as possible before this ball rolls off. Because the platform is slightly tilted, the higher the platform rises, the more difficult it becomes to keep the ball from rolling away. Performance on this task is considered successful if the platform and ball are raised above the level marked with the arrow on the vertical scale. Do you have any questions?

The subject was then asked to rate his or her expectation of success on the 21-point scale described above. This rating was obtained initially and also following each of eight trials on the Sky apparatus. Subjects in the "Success first" (S) condition experienced the order of outcomes used by Miller and Seligman (1973): S,F,F,S,S,F,F,S. Those subjects in the "Failure first" (F) condition experienced F,F,S,S,F,F,S,S. Following the eighth trial, measures of skill perception, subjective importance and level of aspiration were obtained.

Light Task Phase. Immediately following the Sky Task phase, each subject received the following verbal description of the Light

Perception task:

The next apparatus we'll be working with is right here. When I push this button, a varying number of these lights will flash on simultaneously. They're lit very briefly--it's less than a second. Your task is to tell me how many of the lights flashed on. Do you have any questions?

The subject was then asked to rate both expectancy of success and expectancy confidence initially and following each of two trials. Subjects in a "Success only" (SO) condition experienced two successful outcomes, while those in a "Failure only" (FO) condition experienced two failures. Assignment to these conditions was dependent on Sky Task condition assignment--subjects in the "S" condition on the Sky Task experienced the "SO" condition on the Light Task, and subjects in the "F" condition on the Sky Task were placed in the "FO" condition on the Light Task. Following the two trials, the same question used previously was asked to ascertain the subject's perception of the skill required for this task. They were also asked to imagine themselves in extremes of mood and from these points of view to indicate their expectancy of success on the Light Perception Task.

After subjects performed on the tasks and answered all questions, they were asked if they had any questions or comments about the tasks or the study as a whole. No subjects detected the nature of the deceptions used, or the hypotheses under investigation. Each subject was thoroughly debriefed and given a written statement offering additional information and clarification from the experimenter.

CHAPTER III

RESULTS

Depression Measures

Means and standard deviations of depression measures are presented in Table I. Two by two analyses of variance (level of depression by outcome) indicated that the attempt to clearly distinguish the depressive and nondepressive groups was successful, with depressives having significantly higher scores on both the BDI [$F(1,37) = 45.41, p < .001$] and D-Scale [$F(1,37) = 202.52, p < .001$]. Scores on these two measures were not significantly correlated for either the depressed [(n=19), $r = .26$] or nondepressed [(n=22), $r = -.04$] groups though a significant correlation of .49 was found between the BDI and D-Scale scores for all screened subjects [(n=39), $t = 3.53, p < .01$]. No other main effects or interactions were apparent (all $F < 2.1$).

TABLE I
MEANS FOR DEPRESSION MEASURES

	D success n=10	D failure n=9	ND success n=11	ND failure n=11
<u>BDI</u> Scores	M=17.5 (9.85)	M=13.0 (4.53)	M=3.27 (1.68)	M=3.81 (2.86)
<u>D-Scale</u> Scores	M=76.0 (7.06)	M=71.3 (9.49)	M=44.0 (4.73)	M=45.27 (4.31)

Note. Numbers in parentheses indicate standard deviation.

Sky Task

Means and standard deviations of Sky Task expectancy and expectancy shift measures are presented in Table II. A 2 x 2 analysis of variance indicated that there was no difference between depressives and nondepressives in their initial expectation of success on the Sky Task, and no interaction effect. There was a significant [(n=19), $p < .02$] correlation of $-.71$ between the depressive group's BDI scores and initial expectation of success, though no significant correlation was found between the same group's D-Scale scores and this measure [(n=19), $r = -.01$, $p < .20$]. There was no significant correlation between the initial expectancies of the nondepressed group and either their BDI [(n=22), $r = -.04$, $p < .10$] or D-Scale scores [(n=22), $r = .21$, $p < .20$], though these two correlations were significantly different [n=41, $t = 2.49$].

Five measures of expectancy shift were analyzed: (a) the change from initial expectation to that following Trial 1 ($T_1 - T_i$), (b) the change from initial expectation to that following Trial 2 ($T_2 - T_i$), (c) the change over all eight Sky Task trials from initial expectation to that following Trial 8 ($T_8 - T_i$), (d) the sum of the absolute values of all shifts over all eight trials ($|T_i - T_1| + |T_1 - T_2| + \dots + |T_7 - T_8|$), and, (e) the sum of the absolute values of "appropriate" shifts (as described earlier) over all eight trials. Since Seligman utilized this latter dependent measure (Miller & Seligman, 1973), in this study it was used to provide a comparison with the results that he obtained.

Contrary to expectation, analyses of variance indicated that there was no main effect for depression and no depression by outcome interaction for any of the expectancy shift variables on the Sky Task.

TABLE II

MEANS FOR EXPECTANCY AND EXPECTANCY SHIFT MEASURES ON SKY TASK

	D success n=10	D failure n=9	ND success n=11	ND failure n=11
Initial Expectancy	M=10.3 (5.91)	M=11.9 (4.78)	M=11.6 (3.64)	M=11.6 (4.06)
Expectancy Shift through Trial 1	M=7.70 (5.33)	M=-.44 (3.61)	M=6.18 (4.09)	M=.36 (2.66)
Expectancy Shift through Trial 2	M=3.30 (3.27)	M=-.44 (6.09)	M=4.55 (2.77)	M=-.45 (3.93)
Expectancy Shift through Trial 8	M=4.90 (3.45)	M=5.89 (4.91)	M=6.64 (3.47)	M=6.27 (4.10)
Expectancy Following Trial 8	M=15.40 (5.27)	M=17.78 (3.38)	M=18.18 (1.99)	M=17.91 (3.48)
Expectancy Shift through Trial 8*	M=20.80 (10.78)	M=12.22 (9.12)	M=12.27 (10.70)	M=14.64 (12.75)

Note. Numbers in parentheses indicate standard deviation.

*Per Miller and Seligman, 1973.

Subjects' success experience was the only significant relevant factor. As one would intuitively expect, those subjects experiencing success had higher expectancy ratings than those in the failure condition following both Trial 1 [$F(1,37) = 30.91$, $p < .001$] and through Trial 2 [$F(1,37) = 11.58$, $p < .01$]. In evaluating changes over all eight trials, no significant differences were found using either the summed shift measure or the sum of "appropriate" shifts method employed by Seligman (Miller & Seligman, 1973). There was, however, a significant negative partial correlation (controlled for initial expectancy) between expectancy shifts following the depressives' first failure experience and

BDI [(n=19), $r = -.75$, $p < .001$] scores, though no significant partial correlation was found using D-Scale scores [(n=19), $r = .09$, $p < .20$]. These two partial correlations were significantly different ($t = 4.71$, $p < .001$). Analogous correlations were computed for the nondepressed subjects, but none were significant (all $p < .05$).

Light Task

Means and standard deviations related to Light Task measures are presented in Table III. An analysis of variance indicated that there was a main effect for depression in initial success expectancy on the Light Task, with depressives having significantly lower initial expectancies [$F(1,37) = 4.21$, $p < .05$]. Having had initial success or failure experience on the Sky Task apparently had no significant effect on initial success expectancy for the Light Task [$F(1,37) = .17$, $p < .25$]. There was no interaction effect.

An analysis of covariance with initial success expectancy on the Light Task as the covariate was used to investigate expectancy shifts. There was no main effect for depression and no interaction effect for any of the expectancy shift variables on the Light Task. Based on this analysis, success experience was the only significant relevant factor in expectancy change. Again, those subjects experiencing success had higher expectancy ratings than those in the failure condition following both Trial 1 [$F(1,36) = 55.77$, $p < .001$] and through Trial 2 [$F(1,36) = 89.26$, $p < .001$].

Expectancy confidence was evaluated by analyzing both the highest and lowest ratings given by each subject initially and after each trial. The third hypothesis was not confirmed: an analysis of covariance

TABLE III
MEANS FOR EXPECTANCY, EXPECTANCY SHIFT, AND
CONFIDENCE MEASURES ON LIGHT TASK

	D success n=10	D failure n=9	ND success n=11	ND failure n=11
Initial Expectancy	M=10.6 (5.21)	M=8.7 (3.67)	M=11.7 (3.35)	M=12.6 (3.11)
Initial Expectancy Confidence (low)	M=9.3* (4.55)	M=7.44* (3.97)	M=10.64* (4.11)	M=10.27* (3.44)
Initial Expectancy Confidence (high)	M=13.6* (4.84)	M=11.44* (5.15)	M=14.64* (3.78)	M=14.36* (3.56)
Expectancy Shift through Trial 1	M=1.9* (2.18)	M=-1.44* (.88)	M=1.73* (1.19)	M=-3.27* (2.41)
Expectancy Confidence After Trial 1 (low)	M=11.29* (4.08)	M=7.14* (3.88)	M=11.46* (3.83)	M=7.12* (4.09)
Expectancy Confidence After Trial 1 (high)	M=13.8 (4.52)	M=8.56 (5.08)	M=14.45 (3.45)	M=10.27 (3.58)
Expectancy Shift through Trial 2	M=4.3* (4.08)	M=-2.78* (1.86)	M=2.91* (1.30)	M=-5.36* (3.29)
Success Expectancy After Trial 2 (S only)	M=14.9 (4.15)	-	M=14.6 (3.49)	-
Expectancy Confidence After Trial 2 (low)	M=4.40 (4.08)	M=-1.79 (2.29)	M=3.78 (1.56)	M=-5.71 (5.20)
Expectancy Confidence After Trial 2 (high)	M=14.99* (4.67)	M=8.87* (4.91)	M=14.02* (5.19)	M=9.11* (3.45)

Note. Numbers in parentheses indicate standard deviation.

*Adjusted means from analysis of covariance.

(controlling for initial expectancy) yielded no main effect for depression in initial expectancy confidence. Analyses of variance and covariance indicated that success experience was the only significant

relevant factor involved in expectancy confidence following Trial 1 for both high [$F(1,37) = 13.86, p < .001$] and low ratings [$F(1,36) = 41.37, p < .001$], and following Trial 2 [$F(1,36) = 21.64, p < .001$, and $F(1,36) = 44.18, p < .001$, respectively].

Other Assessment Measures

Means and standard deviations related to Other Assessment Measures are presented in Table IV. Analyses of variance indicated that there was no difference between depressives and nondepressives in their perception of the amount of skill required for successful performance on the Sky Task, or in their perception of the relative importance of the experiment. There was, however, a significant depression by outcome interaction relevant to what level of achievement was needed to completely satisfy the subjects, with depressives in the failure-first (F) condition and nondepressives in the success-first (S) condition requiring higher levels of achievement [$F(1,37) = 6.11, p < .025$]. There was also a depression by outcome interaction relevant to the perception of the amount of skill required for the Light Task--depressives who failed and nondepressives who succeeded perceived the Light Task as requiring more skill [$F(1,37) = 4.28, p < .05$].

In an evaluation of subjects' projected expectancies on "good" and "bad" days, analyses of variance indicated that there was no main effect for depression--level of success was the only significant factor, with a successful experience leading to higher expectancies on both "good" [$F(1,37) = 25.61, p < .001$] and "bad" days [$F(1,37) = 22.89, p < .001$].

TABLE IV
MEANS FOR OTHER ASSESSMENT MEASURES

	D success n=10	D failure n=9	ND success n=11	ND failure n=11
Perception of Skill (Sky Task)	M=12.7 (5.62)	M=14.7 (3.16)	M=15.4 (4.08)	M=14.7 (5.02)
Perception of Skill (Light Task)	M=12.8 (7.35)	M=14.7 (5.79)	M=14.2 (4.67)	M=8.6 (5.22)
Importance of Experiment	M=13.6 (7.73)	M=11.7 (6.65)	M=15.2 (2.75)	M=12.4 (5.57)
Achievement Needed	M=14.4 (5.46)	M=18.1 (2.09)	M=16.6 (1.97)	M=13.9 (5.41)
Projected Expectancy ("Bad Day" Set)	M=8.3 (6.40)	M=4.0 (2.50)	M=13.2 (4.77)	M=4.1 (3.14)
Projected Expectancy ("Good Day" Set)	M=19.0 (1.94)	M=10.9 (3.89)	M=16.0 (3.58)	M=11.3 (5.69)
Expectancy Shift ("Bad Day" Set)	M=-2.3 (2.58)	-	M=1.45 (3.33)	-
Expectancy Shift ("Good Day" Set)	M=8.3 (4.57)	-	M=4.27 (2.83)	-
Age	M=25.10 (4.77)	M=21.33 (3.04)	M=23.91 (5.99)	M=27.73 (8.39)

Note. Numbers in parentheses indicate standard deviation.

A 2 x 2 repeated measures analysis of variance (level of depression by good day/bad day instructional set) yielded a main effect for the latter factor: those subjects given a "good day" instructional set reported greater changes in success expectancy than those given a "bad day" set [$F(1,18) = 33.80, p < .001$]. This analysis also indicated that this factor interacts with level of depression to influence changes

in success expectancy: a "good day" set caused depressives to report greater upward changes than nondepressives and a "bad day" set caused them to report greater downward changes [$F(1,18) = 11.99, p < .005$]. A 2×2 repeated measures analysis of variance (level of depressions by traditional/good day instructional set) was also done, yielding a main effect for both instructional set [$F(1,18) = 16.86, p < .001$] and level of depression [$F(1,18) = 6.30, p < .025$]. This analysis also yielded an interaction effect: depressives were more affected by the "good day" instructional set than were the nondepressives.

CHAPTER IV

DISCUSSION

The purpose of this study was to investigate two important cognitive facets of depression: expectation of success, and shifts in this expectation. The results of this investigation curiously do not support the findings of other major studies in this area. Generally, the depressed subjects in this study exhibited neither the consistently low initial expectation of success predicted by Beck (1967), nor the differentiated response to failure predicted by Seligman (1975). In addition, they do not exhibit the differences in expectancy confidence that would be predicted by the theory proposed by Wollert (1979). Possible explanations for these discrepant findings will be explored for each of these areas.

Initial Success Expectancy

Though depressed subjects held essentially the same initial success expectancy as nondepressed subjects on the Sky Task, they held significantly different initial expectancies on the Light Task.

The methodological problems cited earlier are probably not the cause of this discrepancy. The sample size used was not large, but since each task used the same subjects, and the subject selection criteria that were employed clearly differentiated the depressed and nondepressed subjects, problems resulting from subject misclassification were minimized.

It could be argued that the depressive cognition of low initial expectation is not manifested on a single trial, but instead appears after several trials on one or more tasks. However, since there was no significant difference between depressives and nondepressives after eight trials on the Sky Task, this explanation seems unlikely.

It is more likely that the mixed result obtained may be due to differences in the perception of the amount of skill required for each task, a view consistent with the Control Perception hypothesis formulated by Rotter and his colleagues (Rotter, 1954; Phares, 1957; Rotter et al., 1961). Depressives in the failure condition and nondepressives in the success condition clearly perceived the Light Task as requiring more skill. This may have resulted in the depressives' assumption that they could not successfully complete the task. This form of negative cognition can be viewed as a manifestation of the low self-esteem characteristic of depression as described by Beck (1967).

Shifts in Success Expectancy

The most intriguing aspect of this investigation was the finding that depressives and nondepressives reacted equally to success or failure on both tasks. This finding clearly does not support the learned helplessness model of depression, which predicted that depressives would exhibit smaller increases and decreases in success expectancy following success and failure, respectively. Since this study was modeled on Seligman's own basic research methodology, why were these results not obtained?

The most probable cause of this discrepancy in results is rooted in Seligman's common practice of consistently offering subjects a

success experience on the first trial. This artificially widens any difference between depressives and nondepressives so that a comparison of the two groups following the second (failure) trial is misleading. When this methodological flaw is corrected, no differences between the two groups appear.

As Seligman's learned helplessness theory was not supported by this investigation, neither was Beck's (1967) theory, since the results did not yield the predicted difference between depressives and nondepressives following an initial successful performance. Because it has been generally observed that clinical depressives underestimate their causal responsibility for success (Friedman, 1964; Beck, 1967; Loeb et al., 1971), the failure of this study to yield this finding is significant, and indicates the need for further investigation in this area.

One possible explanation is that there is a basic difference between clinical and subclinical depression--that they are dissimilar disorders rather than one disorder on a single continuum. Despite the fact that subjects in this study had average depression scores above the clinical cut-offs, they were classified as subclinically depressed because they were not seeking treatment. It is possible that subclinical depressives do not exhibit the self-deprecating response to success that is generally accepted as a hallmark of the more severe form of the disorder.

Expectancy Confidence

Since there was no significant difference between depressives and nondepressives in initial or subsequent expectancy confidence ratings,

no support was found for Wollert's (1979) Expectancy Confidence hypothesis. This may be due, however, to the fact that expectancy confidence, which may increase over several trials (Wollert, 1979), was not measured until late in the experiment. By the time it was assessed, the level may have been equalized between the depressed and nondepressed groups. Further research with an earlier assessment of this measure is indicated.

Other Assessment Measures

One of the most important aspects of this investigation was the finding that the reporting of success expectancy (and shifts in this expectation) can be significantly influenced by altering the instructional set given to the subject. This indicated that the most commonly reported finding, that nondepressives exhibit greater upward shifts in success expectancy than depressives following a success experience, is probably the result of the assessment method that has been consistently used. The results of the present study clearly indicate that depressives do entertain hopes of continued success, but for some undetermined reason are unwilling to share these hopes with an experimenter using the usual method of assessment. The fact that the reporting of these expectations can be significantly influenced by varying the instructional set raises questions about whether the conclusions drawn by previous researchers in this area can be generalized beyond the specific testing situations from which they were drawn.

Summary

Overall, the current results conflict with the predictions of the learned helplessness model of depression (Seligman, 1975). Clearly,

the use of an alternative instructional set and the use of more stringent subject assignment criteria reveals that depressives are not less affected by success and failure than are nondepressives.

The results of this investigation also offer little clear support to Beck's cognitive theory. Expected differences between depressives and nondepressives in initial expectation of success were exhibited on only one task, and appeared related to differences in skill perception. More research needs to be done, varying the instructional set used, to determine the most effective way of eliciting truly representative feelings from depressives. Only when these feelings are known will a definitive understanding of the cognitive processes involved in depression be possible, and a truly effective therapeutic treatment be within our grasp.

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APPENDIX A

INFORMED CONSENT FORM

I, _____ agree to serve as a subject in a research project investigating success expectancies conducted by Marilyn Barnowe-Meyer. I understand the study may involve answering questions and performing a motor task, and that if I have any questions or negative reactions I may discuss these with Ms. Barnowe-Meyer or Dr. Richard Wollert of the Psychology Department. It has been explained to me that the purpose of the experiment is to find out how different people expect to perform on a motor task. I understand that I will be given a thorough description of the experiment after my participation, and I am willing to wait until then before I find out the specific experimental hypothesis.

I may not receive any direct benefit from participating in this study (other than obtaining direct experience with one of the ways in which psychological research is conducted), but my participation may help to increase knowledge which may benefit others in the future.

Ms. Barnowe-Meyer has offered to answer any questions I may have about the study and what is expected of me in the study. I understand that I am free to withdraw from participation in this study at any time without jeopardizing my position at Portland State University or my grade in this class.

I have read and understand the foregoing information.

Date _____

Signature _____

APPENDIX B

MMPI D-SCALE

This handout consists of three pages. If you do not have a pencil or if you find that any pages of the handout are missing, please raise your hand and inform the experimenter.

There are ninety items on the following pages, and each item requires a response from you. Read each statement and decide whether it is true as applied to you or false as applied to you. Please reply frankly to the items contained in this section.

You are to mark your answers directly on these sheets. If a statement is true or mostly true as applied to you, blacken between the lines in the first column directly following the item, the one marked "T". If a statement is false, or not usually true as applied to you, blacken between the lines in the second column directly following the item, the one marked "F".

Remember to give your own opinion of yourself. Do not leave any blank spaces if you can avoid it. In marking your answers, make your marks heavy and black, and erase completely any answer you wish to change.

Please make an attempt to answer every item. Begin.

1. I have a good appetite.	[T]	[F]
2. The only interesting part of the newspaper is the funnies.	[T]	[F]
3. I am easily awakened by noise.	[T]	[F]
4. My daily life is full of things that keep me interested.	[T]	[F]
5. I have had very peculiar and strange experiences.	[T]	[F]
6. I am about as able to work as I ever was.	[T]	[F]
7. I am very seldom troubled by constipation.	[T]	[F]
8. I often get feelings like crawling, burning, tingling, or going to sleep in different parts of my body.	[T]	[F]
9. At times I feel like swearing.	[T]	[F]
10. I find it hard to keep my mind on a task or job.	[T]	[F]
11. I seldom worry about my health.	[T]	[F]
12. I gossip a little at times.	[T]	[F]

13.	When someone does me a wrong I feel I should pay him back if I can,
just for the principle of the thing.	[T]	[F]
14.	At times I feel like smashing things.	[T]	[F]
15.	I have had periods of days, weeks, or months when I couldn't take
care of things because I couldn't "get going."	[T]	[F]
16.	I seem to be about as capable and smart as most others around me.	[T]	[F]
17.	My sleep is fitful and disturbed.	[T]	[F]
18.	My judgement is better than it ever was.	[T]	[F]
19.	A windstorm terrifies me.	[T]	[F]
20.	I am in just as good physical health as most of my friends.	[T]	[F]
21.	I prefer to pass by school friends or people I know but have not
seen for a long time, unless they speak first.	[T]	[F]
22.	I am a good mixer.	[T]	[F]
23.	I often feel as if the world were passing me by.	[T]	[F]
24.	Everything is turning out just like the prophets of the Bible
said it would.	[T]	[F]
25.	I sometimes keep on a thing until others lose their patience with me.	[T]	[F]
26.	People often expect too much of me.	[T]	[F]
27.	I wish I could be as happy as others seem to be.	[T]	[F]
28.	I sometimes tease animals.	[T]	[F]
29.	I have never been in trouble because of my sex behavior.	[T]	[F]
30.	I am certainly lacking in self-confidence.	[T]	[F]
31.	I usually feel that life is worthwhile.	[T]	[F]
32.	It takes a lot of argument to convince most people of the truth.	[T]	[F]
33.	I go to church almost every week.	[T]	[F]
34.	When in a group of people I have trouble of thinking of the
right things to talk about.	[T]	[F]
35.	I believe in the second coming of Christ.	[T]	[F]
36.	I was a slow learner in school.	[T]	[F]
37.	I don't seem to care what happens to me.	[T]	[F]
38.	I am happy most of the time.	[T]	[F]

39.	I like poetry.	[T]	[F]
40.	I seem to be as capable and smart as most others around me.	[T]	[F]
41.	I have never vomited blood or coughed up blood.	[T]	[F]
42.	Most people make friends because friends are likely to be useful to them.	[T]	[F]
43.	I do not worry about catching diseases.	[T]	[F]
44.	Criticism or scolding hurts me terribly.	[T]	[F]
45.	I certainly feel useless at times.	[T]	[F]
46.	At times I feel like picking a fist fight with someone.	[T]	[F]
47.	Parents are much too easy on their children nowadays.	[T]	[F]
48.	I read at least 10 books a year.	[T]	[F]
49.	I have a wanderlust and am never happy unless I am roaming or
traveling about.	[T]	[F]
50.	Most nights I go to sleep without thoughts or ideas bothering me.	[T]	[F]
51.	During the past few years I have been well most of the time.	[T]	[F]
52.	I have never had a fit or convulsion.	[T]	[F]
53.	My parents have often disapproved of my friends.	[T]	[F]
54.	I am neither gaining or losing weight.	[T]	[F]
55.	I cry easily.	[T]	[F]
56.	I cannot understand what I read as well as I used to.	[T]	[F]
57.	I have never felt better in my life than I do now.	[T]	[F]
58.	My memory seems to be all right.	[T]	[F]
59.	Teachers often expect too much work from the students.	[T]	[F]
60.	I am afraid of losing my mind.	[T]	[F]
61.	I have had more than my share of things to worry about.	[T]	[F]
62.	I feel weak all over much of the time.	[T]	[F]
63.	Sometimes, when embarrassed, I break out in a sweat which annoys
me greatly.	[T]	[F]
64.	I do not have spells of hay fever or asthma.	[T]	[F]
65.	I am quite often not in on the gossip and talk of the group I belong to.	[T]	[F]
66.	I enjoy many different kinds of play and recreation.	[T]	[F]
67.	I like to flirt.	[T]	[F]

68.	I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing.	[T]	[F]
69.	In a group of people I would not be embarrassed to be called upon to start a discussion or give an opinion about something I know well.	[T]	[F]
70.	I brood a great deal.	[T]	[F]
71.	I dream frequently about things that are best kept to myself.	[T]	[F]
72.	I believe I am no more nervous than most others.	[T]	[F]
73.	I enjoy a race or game better when I bet on it.	[T]	[F]
74.	Sometimes without reason or even when things are going wrong I feel excitedly happy, "on top of the world."	[T]	[F]
75.	I have difficulty in starting to do things.	[T]	[F]
76.	I like to read about history.	[T]	[F]
77.	I sweat very easily, even on cool days.	[T]	[F]
78.	When I leave home I do not worry about whether the door is locked and the windows closed.	[T]	[F]
79.	In school I found it very hard to talk before the class.	[T]	[F]
80.	I do not blame a person for taking advantage of someone who lays himself open for it.	[T]	[F]
81.	At times I am full of energy.	[T]	[F]
82.	I dread the thought of an earthquake.	[T]	[F]
83.	I like science.	[T]	[F]
84.	Once in a while I laugh at a dirty joke.	[T]	[F]
85.	I am troubled by attacks of nausea and vomiting.	[T]	[F]
86.	I work under a great deal of tension.	[T]	[F]
87.	I am bothered by people outside, on streetcars, in stores, etc., watching me.	[T]	[F]
88.	I have periods in which I feel unusually cheerful without any special reason.	[T]	[F]
89.	I like to read about science.	[T]	[F]

APPENDIX C

BECK DEPRESSION INVENTORY

On this questionnaire there are groups of statements. Pick out the one statement in the group which best describes the way you feel today, that is, right now! Express your choice by placing a mark in the brackets to the left of that statement. If there are two or more statements that fit the way you feel, then place a mark by the statement with the highest number, or next to the one you feel closer to. Be sure to read all the statements in each group before making your choice.

A.

- ☐ 0 I do not feel sad.
- ☐ 1 I feel blue or sad.
- ☐ 2a I am blue or sad all the time and I can't snap out of it.
- ☐ 2b I am so sad or unhappy that it is quite painful.
- ☐ 3 I am so sad or unhappy that I can't stand it.

B.

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

C.

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

D.

- ☐ 0 I am not particularly dissatisfied
- ☐ 1a I feel bored most of the time.
- ☐ 1b I don't enjoy things the way I used to.

[] 2 I don't get satisfaction out of anything anymore.

[] 3 I am dissatisfied with everything.

E.

[] 0 I don't feel particularly guilty

[] 1 I feel bad or unworthy a good part of the time.

[] 2a I feel quite guilty.

[] 2b I feel bad or unworthy practically all the time now.

[] 3 I feel as though I am very bad or worthless.

F.

[] 0 I don't feel I am being punished.

[] 1 I have a feeling that something bad may happen to me.

[] 2 I feel I am being punished or will be punished.

[] 3a I feel I deserve to be punished.

[] 3b I want to be punished.

G.

[] 0 I don't feel disappointed in myself.

[] 1a I am disappointed in myself.

[] 1b I don't like myself.

[] 2 I am disgusted with myself.

[] 3 I hate myself.

H.

[] 0 I don't feel I am any worse than anybody else.

[] 1 I am critical of myself for my weaknesses or mistakes.

[] 2 I blame myself for my faults.

[] 3 I blame myself for everything bad that happens.

I.

[] 0 I don't have any thoughts of harming myself.

[] 1 I have thoughts of harming myself but I would not carry them out.

[] 2a I feel I would be better off dead.

[] 2b I feel my family would be better off if I were dead.

[] 3a I have definite plans about committing suicide.

[] 3b I would kill myself if I could.

J.

- [] 0 I don't cry anymore than usual.
- [] 1 I cry more now than I used to.
- [] 2 I cry all the time now. I can't stop it.
- [] 3 I used to be able to cry but now I can't cry at all even though I want to.

K.

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

L.

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

M.

- [] 0 I make decisions about as well as ever.
- [] 1 I try to put off making decisions.
- [] 2 I have great difficulty in making decisions.
- [] 3 I can't make any decisions at all anymore.

N.

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

O.

- [] 0 I can work about as well as before.
- [] 1a It takes extra effort to get started at doing something.
- [] 1b I don't work as well as I used to.
- [] 2 I have to push myself hard to do anything.
- [] 3 I can't do any work at all.

P.

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

Q.

- ☐ 0 I don't get any more tired than usual.
- ☐ 1 I get tired more easily than I used to.
- ☐ 2 I get tired from doing anything.
- ☐ 3 I get too tired to do anything.

R.

- ☐ 0 My appetite is no worse than usual.
- ☐ 1 My appetite is not as good as it used to be.
- ☐ 2 My appetite is much worse now.
- ☐ 3 I have no appetite at all anymore.

S.

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

T.

- ☐ 0 I am no more concerned about my health than usual.
- ☐ 1 I am concerned about aches and pains or upset stomach or constipation.
- ☐ 2 I am so concerned with how I feel or what I feel that it's hard to think of much else.
- ☐ 3 I am completely absorbed in what I feel.

U.

- ☐ 0 I have not noticed any recent change in my interest in sex.
- ☐ 1 I am less interested in sex than I used to be.
- ☐ 2 I am much less interested in sex now.
- ☐ 3 I have lost interest in sex completely.

APPENDIX D

OTHER ASSESSMENT MEASURES (SKY TASK)

1. "To what extent do you perceive skill to be a factor in your performance on this task?"
2. "How important is it to you to do well in experiments like this?"
3. "What level of success would you need to achieve to be completely satisfied with your performance?"

APPENDIX E

OTHER ASSESSMENT MEASURES (LIGHT TASK)

1. "To what extent do you perceive skill to be a factor in your performance on this task?"
2. "Right now, I'd like you to imagine one of those days when you've 'gotten up on the wrong side of the bed.' You can't quite seem to 'get your act together' and your life is going badly--everything is disappointing. (PAUSE) On a day like that, how certain are you that you could succeed on this task?"
3. "Now, I'd like you to imagine a great day. The sun is out and you have 'the Midas Touch.' Everything seems to fit together and you feel so great that you feel like singing. (PAUSE) On a day like that, how certain are you that you could succeed on this task?"