Depression and Wishful Thinking: Are Depressives' Desires Separated from Their Beliefs?

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DEPRESSION AND WISHFUL THINKING: ARE DEPRESSIVES’ DESIRES SEPARATED FROM THEIR BELIEFS?

A THESIS SUBMITTED TO

THE FACULTY OF THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

BY

MARC UMAR WENZEL

CHICAGO, ILLINOIS

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CHAPTER I
INTRODUCTION

Beck’s (1967; 1976) cognitive theory of depression states that depressed individuals have cognitive biases which lead them to view themselves and their experiences negatively. In contrast, healthy, nondepressed individuals are thought to avoid such biases and have a relatively accurate picture of the world. The emergence of "depressive realism" (Alloy & Abramson, 1979; Golin, Terrell, & Johnson, 1977; Mischel, 1979), however, provided evidence which contradicts Beck’s cognitive theory of depression.

Depressive Realism

In their well-known depressive realism studies, Alloy and Abramson (1979) demonstrated that depressed individuals tend to have a realistic perception of contingencies in a laboratory. Alloy and Abramson (1979) conducted several judgment of contingency studies in which depressed and nondepressed individuals were asked to rate their perceived degree of control over a light turning on and off. In the series of trials, subjects responded by either pushing or not pushing a button, and then noted whether the light came on. In several studies the actual degree of contingency was manipulated, as was the payoff for light onset. Overall, depressed subjects were more accurate in judging their control than were nondepressed subjects. Furthermore, nondepressed subjects tended to overestimate their control when they
won desirable outcomes that were in fact not contingent on their responses, and they underestimated their degree of control when they lost desirable outcomes that were dependent on their responses. In this research, depressed subjects were "sadder but wiser" in that their judgments of control were more accurate and unbiased than nondepressives' judgments. This research also demonstrated that while depressed individuals tended not to have cognitive biases regarding control over laboratory contingencies, normal or nondepressed individuals did. Nondepressed individuals gave higher judgment of control ratings when having control was desirable and lower control ratings when having control was undesirable.

Depressive realism has been demonstrated with other types of tasks. A number of prediction studies have shown that depressed subjects give more realistic and accurate predictions than nondepressed subjects. For example, Golin, Terrell, and Johnson (1977) showed that depressed subjects gave accurate confidence ratings for rolling certain dice outcomes. In contrast, nondepressives tended to be optimistic and made significantly higher ratings of confidence than depressives. Interestingly, these findings reversed when the experimenter rolled the dice. That is, nondepressed subjects were more accurate when predicting the experimenter's success whereas depressed subjects demonstrated an optimistic bias when predicting the experimenter's success. Thus, Golin et al.'s (1977) findings suggest that depressives are realistic when making predictions for themselves but demonstrate an optimistic bias in their predictions for others. This optimistic bias (seeing desirable events as more likely than objectively true) is one type of wishful thinking. Interestingly, Golin et al.'s
(1977) findings suggest that depressives engage in wishful thinking for other people but when it comes to themselves, they are realistic. On the other hand, nondepressives appeared to be "wishful thinkers" for themselves but not for others.

Coping Research

Research has also been conducted to determine whether depressives use different coping styles than nondepressives in response to negative life events. One of the scales that measures different coping styles is the revised Ways of Coping Checklist (WCCL; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985). Research using this scale has yielded significant correlations between depression and the wishful thinking coping style. That is, as level of depression increased, subjects were more likely to endorse more wishful thinking items relative to the remaining subscales. In the coping literature, the wishful thinking coping style has been defined as a tendency to endorse items that have a "wishful" component (e.g., "Hoped a miracle would happen").

Vitaliano, Maiuro, Russo, and Becker (1987) used a revision of the WCCL (Vitaliano et al., 1985) to examine the coping styles of individuals suffering from various forms of psychopathology (e.g., panic disorders, phobic disorders, etc.). Interestingly, those who indicated depression (in addition to the primary disorder) were more likely to engage in a wishful thinking coping style. Furthermore, Vitaliano et al. (1985) cited 12 stress and coping studies with more than 2000 subjects in which a positive relationship between wishful thinking and psychological distress was consistently demonstrated. That is, greater use of wishful thinking as a coping
style was related to higher levels of symptomology and, more specifically, depression. Due to the correlational nature of this research, there was no discussion about the causal factors involved.

Vitaliano et al. (1985) stated that their wishful thinking (coping) findings reinforce the notions of depression proposed by Coyne, Aldwin, and Lazarus (1981). Specifically, Coyne et al. (1981) also found that depression was positively correlated with wishful thinking. According to Coyne et al. (1981), by checking wishful thinking items on the WCCL, such as "Wished I was a stronger person - more optimistic and forceful," depressives focus on negative aspects of specific stressful episodes. That is, wishful statements imply that one's current state or outcomes are in some way inadequate. Their study suggests that this negative self-preoccupation and accentuation of the negative, which are correlated with wishful thinking, may lead to reduced effectiveness in coping with everyday stressors (Coyne et al., 1981).

**Differences between Depressive Realism and Coping Literatures**

It is important to make a distinction between the definition of wishful thinking in the coping literature and the definition from the experimental literature (such as Alloy and Abramson's (1979) depressive realism studies). Experimental research has defined wishful thinking as the tendency to rate the likelihood of positive, desirable events as higher than the actual base rate of occurrence, and the tendency to rate the likelihood of negative, undesirable events as lower than the actual base rate (Cronbach & Davis, 1944; Marks, 1951). In contrast to this task-oriented measure of wishful thinking, the coping literature measures wishful thinking with a self-report method in
which subjects are asked whether they agree or disagree with wishful statements.

For the purposes of this study, the findings of the depressive realism work were seen as similar to the earlier experimental wishful thinking research. That is, with respect to wishful thinking, it was assumed that high judgments of control for positive events are similar in meaning to giving high likelihood ratings for positive events. Given this view, nondepressives exhibited wishful thinking in the original depressive realism work since they rated their judgments of control as higher than was objectively true. Depressives, on the other hand, were more accurate in their judgments of control (although still slightly optimistic).

Vitaliano et al.'s (1987) findings seem to contradict the notions of depressive realism proposed by Alloy and Abramson (1979). On the one hand, Vitaliano et al. (1987) demonstrated that depressives used the wishful thinking coping style. On the other hand, depressives tended to be more realistic than nondepressives when making judgments of control (Alloy & Abramson, 1979) and when predicting their probability of rolling winning numbers with dice (Golin et al., 1977).

The Separation Hypothesis

In an attempt to explain this contradiction between depressive realism and depressives' use of wishful thinking, a separation hypothesis was proposed. Specifically, the hypothesis was that depressives "separate" their desires from their beliefs. The notion of "desire" refers to the desirability of an event, whereas "belief" refers to the actual likelihood of an event occurring. It was hypothesized that in making judgments or predictions, depressives may rely on their beliefs and they may
not allow their desires (e.g., wanting to have control, wanting to roll winning dice combinations) to influence their likelihood ratings. Thus, the current study examined depressed and nondepressed subjects' ratings of desirability and likelihood for different positive and negative events.

Rationale for the Separation Hypothesis

This hypothesis results from noting a difference in the methodologies between the depressive realism work and Vitaliano et al.'s (1985, 1987) coping research. Alloy and Abramson (1979) used positive and negative outcome manipulations to observe subsequent effects on judgments of control. In the experimental wishful thinking literature, the outcome manipulations, in effect, manipulated desirability (i.e., if an outcome is "winning," it is more desirable). Nondepressed subjects' beliefs (i.e., degree of control ratings) were influenced by the desirability (winning or losing) of the outcome. That is, they judged themselves as having more control when the outcome was positive (winning something desirable) and less control when the outcome was negative (losing something desirable) despite the objective contingencies. This represents the experimental definition of wishful thinking.

The separation hypothesis suggests that depressed subjects do not integrate their desires with their beliefs in making judgments of control. Rather, their desires are "separated" from their beliefs with the result that depressives rated their true beliefs with little influence of their desires. As a result, depressives gave more accurate estimates of control in Alloy and Abramson's study (1979).

The separation hypothesis may also explain why depressive symptomology
correlated with wishful thinking in the coping literature. Vitaliano et al.'s (1985, 1987) studies used the revised WCCL (1985) to measure wishful thinking. This was different from Alloy and Abramson’s research (1979) because the WCCL presents items that have a desire component incorporated into them (e.g., "I wish that I could change what had happened"). The presentation of a desire statement, in essence, encouraged depressives to engage (not separate) their desires in making the ratings on the WCCL. As a result, one methodology found no wishful thinking, whereas the other found wishful thinking. Nondepressives, who presumably have a more favorable life view than depressives, may have had less of a need to cope with the stressful situation by "wishing" for something else to have happened.

Alternative Explanations for the Contradiction between the Experimental and the Coping Literature

There may be other hypotheses besides the separation hypothesis that could explain the contradiction in findings between the experimental and the coping literature regarding wishful thinking. For example, the contradiction may be explained by the learned helplessness hypothesis (Abramson, Seligman, & Teasdale, 1978; Alloy & Seligman, 1979; Seligman, 1975). Specifically, the associative deficit hypothesis of learned helplessness suggests that depressives are more likely to fail to perceive the relation between their responses and the outcomes when they actually do have control. This would suggest that in the experimental literature on wishful thinking, depressives appeared to be realistic because they may have failed to perceive the association between their responses and the outcomes. However, Alloy and
Abramson (1979) demonstrated that depressed subjects did not exhibit the associative deficit, because depressives were more accurate than nondepressives in perceiving their response-outcome contingencies even when, in fact, they did have control. Additionally, it seems that any effect of an associative deficit would have been minimized because the depressed subjects that were used in the study were depressed college students and not clinically depressed individuals.

Another possible explanation for the contradiction pertains to the types of questions used by Alloy and Abramson (1979) and Golin et al. (1977). These questions required subjects to make judgments of control and probability ratings, respectively. In Alloy and Abramson's (1979) study, the subjects were told that if they learned the contingency, they would have a chance to win some money later. Golin et al. (1977) had subjects rate their confidence of receiving a winning die roll. It may be that in both of these cases, depressed-nondepressed differences were found for likelihood ratings because depressed subjects had less of a desire to win. Because their desire to win may have been less, depressives may have had less motivation to be biased and were more accurate in their judgments. This hypothesis was tested in this study by having subjects make desirability ratings for positive and negative events. Lower desirability ratings by depressed subjects would suggest that this hypothesis is an alternative to the separation hypothesis.

The Present Study

This study attempted to extend the coping literature by replicating the previous methodology, but also by looking at desire and likelihood ratings of various events
(within the same sample of subjects) to determine whether group differences exist. Subjects were classified as depressed or nondepressed according to Beck Depression Inventory scores (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The procedures used in the coping literature were replicated by having subjects complete the revised WCCL (Vitaliano et al., 1985) and the Children’s Coping Strategies Scale (CCSS; Jose, 1992). The experimental procedure was replicated by having subjects make desirability and likelihood ratings for various events. Additionally, subjects were given the Life Optimism Test (Scheier & Carver, 1985) to test the degree to which wishful thinking correlates with optimism. Because optimism is seen as an aspect of coping, this measure should assist in understanding wishful thinking in terms of coping.

To test the separation hypothesis, the events were presented to subjects on a computer terminal where they entered their desirability and likelihood ratings. Desirability and likelihood ratings were conceptualized as the key factors in examining the separation hypothesis because it was predicted that depressives and nondepressives would have different relationships between their desirability and their likelihood ratings. Specifically, depressives were expected to engage in more separation than nondepressives, as indicated by the lack of a relationship between desire and likelihood ratings. Both positive and negative items were included in order to replicate Alloy and Abramson’s (1979) and Golin et al.’s (1977) studies, both of which included positive and negative outcomes. Dice roll situations and life events were presented to subjects because dice roll scenarios have an objective probability
(e.g., the probability of rolling a 3, 6, 7 or 8 with two dice is 50%), whereas life events were potentially more personally relevant than the dice items (e.g., "What is the likelihood that you will get a job with a starting salary of $27,000 or greater?"). Dice roll scenarios also provided a probability judgment task similar to other depressive realism work (e.g., Golin et al., 1977).

During a baseline condition, subjects made their ratings for half of the dice and half of the life events. Following this baseline period, subjects made ratings in one of three reward conditions (between-subjects): wishful thinking, negativistic thinking, and random rewards.

The depression literature has used the term "negativistic" to refer to cognitive patterns that have often been associated with depression (Riskind & Roles, 1984). In this literature, these patterns have been found in responses to tests of irrational negative beliefs, attributions, and expectations for positive and negative outcomes (Lewinsohn, Steinmetz, Larson, & Franklin, 1981; Riskind & Roles, 1984). In this study, the term "negativistic" was used in reference to a particular cognitive style regarding expectations of positive and negative outcomes. Specifically, negativistic thinking was defined as the opposite of wishful thinking and it was said to occur whenever subjects rated a highly desirable event as very unlikely or a highly undesirable event as very likely. Because depressives were predicted to "separate" their desires from their beliefs, it was expected that depressives' rating style percentages would not differ significantly from chance (based on the various combinations of desire and likelihood ratings, chance percentages are 27% wishful
ratings, 27% negativistic ratings, and 46% unclassified ratings), whereas nondepressives were expected to generate higher wishful rating percentages and lower negativistic rating percentages than would be expected by chance alone.

**Baseline**

It was predicted that depressed and nondepressed subjects would differ in the degree of wishful and negativistic thinking that they exhibit during baseline. Ruehlman, West, and Pasahow's (1985) review of the evaluative tendencies of depressives indicated that nondepressives were more likely to exhibit "positivistic evaluative responses" while depressives tended to exhibit unbiased responses which were neither "positivistic" or "negativistic." To the extent that positivistic evaluations reflect wishful thinking and negativistic evaluations reflect negativistic thinking, Ruehlman et al.'s (1985) review supports the separation hypothesis.

**The Three Reward Contingencies**

The reward manipulation consisted of a "points counter" on the computer which increased randomly or whenever subjects made the appropriate rating (i.e., either wishful or negativistic). This reward manipulation was included to see whether depressed and nondepressed subjects could determine the rating style (i.e., wishful, negativistic, or random) that was being rewarded. That is, it was not only important to determine whether different rating styles existed between groups (baseline), but also whether those rating styles could be influenced by a manipulation (reward).

The attempted manipulation of subjects' rating styles was also important because, as Rosenfarb, Burker, Morris, and Cush (1993) indicated, there were no
previous studies that compared the ability of depressed and nondepressed individuals to adapt their behavior to new learning contingencies. To examine depressed and nondepressed subjects’ ability to learn new contingencies, Rosenfarb et al. (1993) assigned subjects to two groups. Both groups were instructed that their goal was to gain points by moving a circle on a grid. They were also told that moving the circle involved pushing buttons and observing the lights. The contingency-shaped subjects were not given further instructions and their behavior was assumed to have been shaped by the contingencies. The rule-governed subjects were given the actual rules for the first condition of the trials. During the second condition, the contingencies changed. To test acquisition and adaptation to the new contingency, a sensitivity score was calculated for the subjects.

Rosenfarb et al. (1993) concluded that depressives were more sensitive to contingency changes than nondepressives. They also suggested that their findings supported the nondepressives’ optimistic self-enhancing bias because the rule-governed nondepressives were seen as having self-presentational motives (i.e., they continued using the experimenter’s inaccurate rules). At first, it seems that Rosenfarb et al.’s (1993) study supports depressive realism. That is, the depressed subjects were judged to have made accurate responses to the contingencies while the rule-governed nondepressives did not. However, in their study there were no depressed-nondepressed contingency learning differences for the contingency-shaped subjects. Depressed subjects (divided into those who had and those who had not been told the rules) did not differ from nondepressed subjects who had not been told the rules.
Furthermore, the most important finding that is relevant to the current study was that during the initial learning period, there were no depressed-nondepressed differences in learning the contingencies. The only group differences occurred after subjects had learned the contingencies and the contingencies were changed. Rosenfarb et al.'s (1993) findings suggest that in the present study there should be no differences between depressives' and nondepressives' ability to learn wishful and negativistic thinking contingencies.

Similar to Rosenfarb et al. (1993), Neunaber (1987) investigated both behaviors and judgments of depressed and nondepressed subjects and found that there were no depressed-nondepressed differences in responding to different response-outcome contingencies. In combining the findings of both of these studies with the proposed separation hypothesis, it was hypothesized that, in the present study, both depressed and nondepressed subjects would not differ in their response to wishful and negativistic reward contingencies. That is, it was predicted that both groups would alter their response style such that they would make more wishful thinking responses when rewarded for wishful thinking and more negativistic thinking responses when rewarded for negativistic thinking (with no between-groups differences expected). Thus, while depressives may naturally separate their desires from their beliefs, when placed into a reward contingency situation they may be able to engage in any type of rating style depending on the reward contingency. To test the hypothesis that depressed and nondepressed subjects would both be able to learn wishful and negativistic contingencies, subjects were placed into one of three reward contingencies.
Reward Contingency 1. In this condition, subjects were rewarded for engaging in wishful thinking. Using the experimental definition of wishful thinking, wishful thinking was said to occur when subjects gave similar desire and likelihood ratings for a positive (or negative) event. For example, wishful thinking was demonstrated when subjects rated an event as highly desirable and highly likely, moderately desirable and moderately likely, or highly undesirable and highly unlikely. It was expected that both depressives and nondepressives would respond to this contingency condition by increasing their wishful thinking responses during the reward portion.

Reward Contingency 2. The second contingency condition gave rewards for ratings reflecting negativistic thinking. Such ratings occurred when subjects’ desires had a negative relation to their likelihood ratings, for example, when a subject rated an event as highly desirable and highly unlikely or, conversely, highly undesirable and highly likely. As with the reward for wishful thinking, subjects were also given rewards when both their desirability and their likelihood rating fell in the middle of both scales. As suggested by Rosenfarb et al.’s (1993) and Neunaber’s (1987) work, it was expected that there would be no depressed-nondepressed differences in subjects’ abilities to adopt a negativistic thinking style.

Reward Contingency 3. The third contingency condition gave random rewards while subjects made the desire and likelihood ratings. Thus, sometimes a wishful response was rewarded, sometimes a negativistic response was rewarded, and
### Table 1

**Scoring Rules for Reward Contingency Condition**

<table>
<thead>
<tr>
<th>Wishful Thinking (Reward Contingency 1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject gives:</td>
<td></td>
</tr>
<tr>
<td>Desire Rating &lt; 3 and Likelihood Rating &lt; 4,</td>
<td></td>
</tr>
<tr>
<td>Desire Rating &gt; 3 and Likelihood Rating &gt; 6, or</td>
<td></td>
</tr>
<tr>
<td>Desire Rating = 3 and Likelihood Rating &lt; 7 and &gt; 3.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negativistic Thinking (Reward Contingency 2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject gives:</td>
<td></td>
</tr>
<tr>
<td>Desire Rating &lt; 3 and Likelihood Rating &gt; 6,</td>
<td></td>
</tr>
<tr>
<td>Desire Rating &gt; 3 and Likelihood Rating &lt; 4, or</td>
<td></td>
</tr>
<tr>
<td>Desire Rating = 3 and Likelihood Rating &lt; 7 and &gt; 3.</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Desire Ratings were made on a 5 point scale: 1 "Very Undesirable", 3 "Neutral", and 5 "Very Desirable." Likelihood Ratings were made on a 9-point scale: 1 "Not at All Likely", 5 "50/50 Chance", and 9 "Extremely Likely."
sometimes a response that did not fit into either of these categories was rewarded. A more appropriate label for this reward condition would be "reward noncontingency" because of the random relationship between subjects' responses and the points counter. Rosenfarb et al.'s (1993) and Neunaber's (1987) findings would suggest that both depressives and nondepressives would be able to recognize the lack of a contingency and would therefore not alter their behavior (desire and likelihood ratings) in any particular direction (i.e., no within-group differences). According to Ruehlman et al.'s (1985) findings, it was expected that between-group differences would be found because depressives were expected to make more negativistic ratings and fewer wishful ratings than nondepressives. To the extent that these between-group differences were due to depressives making ratings similar to chance and nondepressives differing from chance, the separation hypothesis would receive secondary support from these findings.

Dependent Variables

The BDI scores, wishful thinking coping scores, and the subjects' desire and likelihood ratings were four important dependent variables in this study. That is, in order to relate the findings from this study to the existing literature, correlations between BDI scores and wishful thinking coping scores should replicate Vitaliano et al.'s (1985) findings. Desire and likelihood ratings were used to determine if previous findings for wishful thinking based on experimental definitions would be replicated. Additionally, the separation hypothesis suggests that wishful thinking coping items contain a desire component. Therefore, it was expected that a
significant correlation between wishful thinking coping scores and desire ratings would be found.

Two additional dependent variables in this study reflect the subjects' degrees of wishful and negativistic thinking, respectively. Specifically, subjects received a score that reflected the percentage of wishful ratings as well as a score that reflected the percentage of negativistic ratings which they made. Finally, upon completing the desire and likelihood ratings, subjects rated their perceived control over accumulating points. This judgment of control was intended to be similar to Alloy and Abramson's (1979) measure in which subjects rated their perceived degree of control over getting a light to turn on.

Hypotheses

The following predictions are offered for the desire-likelihood reward contingencies (I-IV), coping style (V-VII), and judgments of control (VIII):

I) Based on the experimental criteria for wishful and negativistic thinking, by chance alone, 27% of subjects' responses should be wishful thinking responses, 27% should be negativistic responses, and 46% should be "unclassified" responses that do not fit into either of the first two categories (e.g., a desire rating of "3" with any likelihood rating falls into this category). The separation hypothesis predicted that depressives' responses would be similar to chance responding in the baseline condition because their desire ratings were predicted to be "separated" from their likelihood ratings. Nondepressives were predicted to differ from chance primarily
because they were expected to make higher wishful ratings and fewer negativistic ratings than would be expected by chance alone. This hypothesis would also support the findings by Ruehlman et al. (1985) that while nondepressives are more likely to make positive evaluations (i.e., wishful thinking), depressives are expected to engage in unbiased responding which would be neither wishful nor negativistic.

II) Depressives and nondepressives should have a similar percentage of wishful thinking ratings in the wishful thinking reward condition because it was predicted that both groups would respond similarly to the wishful thinking reward contingency (Rosenfarb et al., 1993; Neunaber, 1987). It should be noted that this would represent a greater change for depressives, but not for nondepressives (who are already predicted to be making more wishful ratings than would be expected by chance).

III) Similarly, depressives and nondepressives were predicted to have a similar percentage of negativistic ratings in the negativistic reward condition (Rosenfarb et al., 1993; Neunaber, 1987). This should represent a greater change for nondepressives who are expected to increase their negativistic ratings.

IV) It was predicted that the random reward condition would have no effect on either desire or likelihood ratings for depressives or nondepressives. That is, because subjects in this condition would receive points regardless of whether their rating was wishful, negativistic, or "unclassified," they should
not change to a particular rating "style" because they are in a noncontingent reward condition (i.e., no within-group differences are expected). However, according to the separation hypothesis and to Ruehlman et al.'s (1985) findings, it was expected that between-group differences would be found because nondepressives were expected to make fewer negativistic ratings and more wishful ratings than depressives. Thus, between-group differences that are predicted to occur during baseline should persist during this condition.

V) It was predicted that depression, as measured by the Beck Depression Inventory (BDI), would be positively correlated with the Wishful Thinking, the Avoidance, and the Blamed Self subscales of the WCCL scale. Depression was also predicted to be negatively correlated with the Problem-Focused and the Seeking Social Support WCCL subscales. These results would replicate Vitaliano et al.'s (1985) findings.

VI) Similar to the WCCL subscales, it was predicted that BDI scores would correlate with the Aggression and the avoidant-like subscale of Substance Use on the CCSS (Jose, 1992). It was also predicted that there would be a negative correlation between the BDI scores and the constructive coping strategies seen in the Social Support, Rejuvenation, and the Problem Solving subscales. These predictions are based upon Vitaliano et al.'s (1985) findings in which depressives engaged in destructive or avoidant coping strategies.
VII) It was also predicted that there would be a significant negative correlation between BDI scores and Life Optimism Test (LOT) scores. This prediction would replicate findings from the validation of the LOT (Scheier & Carver, 1985). This measure was included as an addition to the coping measures. That is, optimism can be seen as an aspect of coping and therefore this measure may assist in explaining coping findings. Therefore, it was predicted that the LOT scores would correlate with the wishful thinking subscale of the WCCL. It was also expected that the LOT would correlate positively with wishful thinking percentages and negatively with negativistic thinking percentages. That is, as optimism increases, it would be expected that wishful thinking would be more likely and negativistic thinking would be less likely.

VIII) Nondepressives were expected to make higher judgment of control ratings than depressives in the wishful reward condition because it was predicted that they would be more likely to demonstrate wishful thinking naturally, which would result in greater rewards in this condition (and consequently, a greater sense of control). Conversely, it was predicted that depressives would make higher judgment of control ratings than nondepressives in the negativistic thinking condition because the separation hypothesis suggests that depressives would be more likely to make negativistic ratings (27%) relative to nondepressives (significantly less than 27%) which would result in greater rewards in this condition. Finally, based on Alloy and
Abramson's (1979) findings, it was predicted that depressives would be more realistic than nondepressives and would make lower judgment of control ratings in the random reward condition (no actual control over points counter).
CHAPTER II

METHOD

Subjects

Depressed (N=47, 11 males, 36 females) and nondepressed (N=98, 38 males, 60 females) Loyola University General Psychology students were identified using the Beck Depression Inventory (BDI; Beck et al., 1961; see Appendix A). The BDI has demonstrated reliability and content, construct, and concurrent validity (Beck, Steer, & Garbin, 1988). Subjects with a BDI score of 10 or above were classified as at least mildly depressed (M = 17.00, SD = 6.27) and those with a score below 10 were classified as nondepressed (M = 4.32, SD = 2.87). Subjects received credit for their General Psychology experiment participation requirement.

Design

To test the separation hypothesis using the experimental definition of wishful thinking, this study used a 2 (Group: depressed, nondepressed) x 3 (Reward Contingency condition: contingent on wishful thinking; contingent on not wishful thinking; random) x 2 (Time: baseline, reward) x 2 (Item Valence: positive, negative) x 2 (Item type: life events, dice game) x 2 (Rating Type: desirability, likelihood) factorial design. Group and Contingency were between-subjects variables and Time, Valence, Item Type, and Rating Type were within-subjects variables. The primary
dependent variables were the desire and likelihood ratings. Additional analyses were performed by transforming the desirability and likelihood ratings into wishful thinking and negativistic thinking percentage scores in order to assess the relationship between desire and likelihood for each item. These two scores were assigned to each subject based on the rules depicted in Table 2. Additionally, correlations between the BDI scores and coping scales and correlations between the BDI scores and desire ratings were performed. Finally, judgment of control ratings were also used in a separate analysis of variance in order to determine if any group differences existed as a function of the Contingency condition for subjects' judgments of control for obtaining points when making desire and likelihood ratings.

Materials

In addition to the BDI, subjects completed the following measures:

**Life Optimism Test (LOT).** The LOT (Appendix B) is a 12 item paper-and-pencil test which measures optimism in terms of outcome expectancies (Scheier & Carver, 1985). The LOT has been shown to have acceptable internal consistency (Cronbach’s alpha = .76) and acceptable test-retest reliability (r = .79). In comparison to internal locus of control (r = .34), self-esteem (r = .48), hopelessness (r = -.47), and depression (r = -.49), the LOT demonstrated a relationship in the expected direction which adds support for convergent validity. Additionally, because these relationships were not overly strong, the LOT appears to have appropriate discriminant validity (Scheier & Carver, 1985).
Table 2

Re-scoring Rules for Wishful and Negativistic Percentage Scores

<table>
<thead>
<tr>
<th>Wishful Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire Rating &lt; 3 and Likelihood Rating &lt; 4</td>
</tr>
<tr>
<td>Desire Rating &gt; 3 and Likelihood Rating &gt; 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negativistic Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire Rating &lt; 3 and Likelihood Rating &gt; 6</td>
</tr>
<tr>
<td>Desire Rating &gt; 3 and Likelihood Rating &lt; 4</td>
</tr>
</tbody>
</table>

Note. Desire Ratings were made on a 5 point scale: 1 "Very Undesirable", 3 "Neutral", and 5 "Very Desirable." Likelihood Ratings were made on a 9-point scale: 1 "Not at All Likely", 5 "50/50 Chance", and 9 "Extremely Likely."
The Ways of Coping Checklist (WCCL). The instructions on the WCCL (Appendix C) request subjects to write down a recent stressful situation. Subjects are then instructed to give yes or no responses to whether they used a particular coping style to deal with the stressor they had written down. Subscale scores are obtained which can be used to determine subjects' most frequently used coping style. The subscales have been shown to have adequate internal consistency reliabilities (all $r_s > .73$). Additionally, the scales demonstrated respectable construct and criterion-related validity (Vitaliano et al., 1985).

Children's Coping Strategies Scale (CCSS). The CCSS (Appendix D) is a paper-and-pencil coping measure on which subjects rate various coping strategies that they employ on a 5-point Likert-type scale with descriptors ranging from "never" to "sometimes" to "always." Subjects were asked to make these ratings in terms of how they generally react to life events. This scale consists of five factors whose items yielded acceptable Cronbach alpha levels (all alphas > .601). This measure was included as an additional coping measure.

Computer Program. Following the completion of these measures, subjects were seated at a computer terminal at which they made likelihood and desirability ratings for a total of 40 pairs of life events and 24 pairs of die rolling situations. The majority of the life events were selected from literature on the effects of positive and negative life events (Weinstein, 1980) and the remainder were generated by the author. Half of the life events in the current study were pleasant (positive) and half were unpleasant (negative). The dice items were chosen such that there was an
objective probability of 50 percent for the likelihood of each dice roll. In addition, half of the dice events were negative (i.e., involved losing money) and half were positive (i.e., involved winning money). Dice and life events were randomly interspersed. For examples of the events, see Table 3 (for a complete listing of the items, see Appendix E).

Subjects made the ratings for pairs of items (desirability and likelihood) consecutively, with rating order balanced. The likelihood scale was a 9-point scale with "1" representing "not at all likely," "5" representing "50-50 chance," and "9" representing "extremely likely." The desirability scale was a 5-point scale with "1" meaning "very undesirable," "3" meaning "neutral," and "5" meaning "very desirable" (see Table 3).

It may be argued that concurrent presentation of likelihood and desire items could result in a demand characteristic that would encourage wishful thinking because subjects would be rating an item on both desirability and likelihood at the same time. This would make similar ratings more likely simply because subjects would be able to remember their previous rating. Such a demand characteristic would not only make wishful thinking ratings more likely, but would also dilute any hypothesized differences between depressives and nondepressives. In order to minimize such an effect, subjects were given a brief explanation about the differences between desire and likelihood ratings. Furthermore, the items were on different scales so as to avoid similar ratings because of identical scales.

During the reward portion of the experiment, the computer program displayed
Table 3

Examples of Positive and Negative Life and Dice Items

<table>
<thead>
<tr>
<th>Positive Life Item</th>
<th>Negative Life Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>How desirable is it when you receive an unexpected check in the mail?</td>
<td>How desirable is it to be stopped for a speeding ticket?</td>
</tr>
<tr>
<td>What is the likelihood of you receiving an unexpected check in the mail?</td>
<td>What is the likelihood that you will be stopped for a speeding ticket?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Dice Item</th>
<th>Negative Dice Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you roll a 6, 7, 9, or 10 with two dice, you win $5.</td>
<td>If you roll a 5, 6, 7, or 10 with two dice, you lose $5.</td>
</tr>
<tr>
<td>What is the desirability of rolling a 6, 7, 9, or 10?</td>
<td>What is the desirability of rolling a 5, 6, 7, or 10?</td>
</tr>
<tr>
<td>What is the likelihood of rolling a 6, 7, 9, or 10?</td>
<td>What is the likelihood of rolling a 5, 6, 7, or 10?</td>
</tr>
</tbody>
</table>
a points counter in the bottom center of the screen that would increase according to
the contingency criteria (see Table 1). Whenever subjects made a "correct" response
(i.e., matched the reward contingency), the screen would flash a message that they
made a correct response and their score would increase 50 points.

**Judgment of Control Questionnaire (JCO).** The final measure required
subjects to judge their degree of control for nine items that assessed different
relationships between desire and likelihood ratings (see Appendix F). For example,
one item asked, "To what extent did the score increase when you rated the likelihood
of a desirable event as high?" This measure was designed to determine if subjects
were able to make accurate judgments about the scoring rules that the computer
program was using.

**Procedure**

After completing a written informed consent, subjects completed paper and
pencil versions of the BDI, the WCCL, and the LOT. Following random assignment
to one of the three contingencies, subjects were seated at the computer terminal.
After receiving the initial instructions for the computer program, subjects made desire
and likelihood ratings for half of the total pairs of items (i.e., half of the dice roll
items and half of the life events items). These items were randomly selected for each
subject. Subjects were then given the following verbal instructions: "From now on
there will be a points counter at the bottom center of the screen. You will notice that
the computer will give you points from time to time. Your goal is to get as many
points as possible while still being as accurate in your ratings as possible. So try to
see if you can see the relationship between the points you’re getting and the answers you’re giving. At the end of the experiment one subject will receive 30 dollars."
The money was used as an incentive to maintain subjects’ motivation in the task. The winner was chosen randomly due to the fact that depending on the contingency condition subjects were assigned to, their ability to receive points was affected. After completing the computer program, subjects completed the JCQ to determine their perceived control over receiving points. Subjects were then fully debriefed and dismissed.
CHAPTER III

RESULTS

There were two main categories of dependent variables in this study. First, in terms of the experimental definition of wishful thinking, desire and likelihood ratings were used. All analyses of these ratings involved standardized scores because the desire and likelihood ratings were made on different scales. For two additional analyses, these ratings were transformed into wishful thinking and negativistic thinking scores that reflected the association between desire and likelihood ratings (described below). Repeated measures analysis of variance (ANOVA) was used to analyze these data. The second category of dependent variables consisted of the coping measures (WCCL, CCSS), the Judgment of Control Questionnaire (JCQ), and the Life Optimism Test (LOT). These scores were analyzed with correlational methods to determine the relationships between depression and these scales.

Desire and Likelihood Ratings

Analysis of variance (ANOVA) using standardized desire and likelihood ratings as the dependent variables (repeated measures) revealed no depressed - nondepressed group differences for the Time (baseline, reward) and Contingency (contingent on wishful thinking, contingent on negativistic thinking, and random feedback) factors. That is, the effects of these manipulations did not interact with the
Group factor (depressed, nondepressed). In order to focus this discussion first on depressed - nondepressed differences (i.e., to determine processes that may differ as a function of depression), effects involving the Contingency and Time variables will be discussed at the end of this section.

The 4-way interaction of Group (depressed, nondepressed) x Item Type (life, dice) x Rating Type (desire, likelihood) x Valence (positive, negative) was significant, $F(1, 139) = 10.19, p < .01$ (Figure 1). Recall that while Group was a between-subjects variable, Item Type, Rating Type, and Valence were within-subjects variables. In order to correct for the possibility of Type I errors due to the large number of analyses for simple effects, only simple effects with a probability of less than .01 were considered statistically significant.

Looking first at dice items, there were no significant effects for Group, Item Valence, and Rating Type. Thus, there were no differences between depressed and nondepressed subject’s ratings, nor were there differences in ratings between negative (losing) and positive (winning) items, or between desire and likelihood ratings. However, when life items were examined, the Group x Rating Type x Valence interaction was statistically significant, $F(1, 139) = 16.43, p < .001$. Additional analyses indicated that for life items, the Group x Valence interaction for likelihood ratings was statistically significant, $F(1, 139) = 22.70, p < .001$. Depressives rated positive life items as less likely than nondepressives ($F(1, 139) = 24.57, p < .001$) and negative life items as more likely than nondepressives ($F(1, 139) = 9.04, p < .01$). No Group differences were observed for desirability ratings of life items.
Fig. 1. Group x Item Type x Rating Type x Valence Interaction.
Therefore, it appears that the major difference in rating styles between depressives and nondepressives stems from the likelihood ratings for life items and not from desirability ratings for either life or dice items.

In summary, nondepressed subjects seemed to be "wishful thinkers" for life items relative to depressed subjects as they rated positive life events to be more likely and negative events to be less likely to occur. Conversely, the analyses suggest that depressives seemed to be "negativistic thinkers" relative to nondepressives, rating positive life events as less likely and negative events as more likely. The reason that only "relative" claims regarding wishful thinking can be made is that it is difficult to determine the objective probability of the life events for the subjects. This problem was part of the rationale for including dice events, which were designed to have an objective probability (p = .50). However, depressed and nondepressed subjects did not differ in their likelihood ratings for dice events, and the mean likelihood rating across subjects was 5.11 (on a 1-9 scale with 5 representing a 50% chance), indicating that all subjects were fairly accurate for dice event likelihood ratings.

Wishful Thinking Scores

An examination of mean likelihood and desire ratings (as above) provides only incomplete information about subjects' wishful thinking "style." A more appropriate analysis examines the relationship between subjects' desire and likelihood ratings for each item. For example, on any given positive item, wishful thinking would be demonstrated by a subject rating desirability and likelihood as high. Negativistic thinking for a positive item would be indicated by a high desirability rating and a low
likelihood rating.

In order to derive a measure of the wishful and negativistic "rating styles" for all subjects, scores were calculated for each subject which represented the percentage of desire-likelihood pairs answered in a wishful "style" and the percentage of desire-likelihood pairs answered in a negativistic "style." These two percentages were calculated using a similar rules table for classifying desire and likelihood pairs as for the Contingency condition (see Tables 1 and 2). The only difference between this scoring and the method used for the reward contingency was that in assigning wishful and negativistic scores for this data analysis (i.e., the re-scoring of desire and likelihood ratings), the middle portions of the scales were not counted towards either type of rating style. That is, when the desire rating was 3 ("neutral") and the likelihood ratings was 4, 5, or 6, (near "50-50" chance), subjects' ratings were not scored as either wishful or negativistic thinking.

Thus, wishful scores represent the percentage of items that a subject rated as being both highly desirable (rating of 4 or 5) and highly likely (rating of 7, 8, or 9) or both highly undesirable (rating of 1 or 2) and highly unlikely (rating of 1, 2, or 3). On the other hand, negativistic scores indicated the percentage of items that a subject rated as both highly desirable (rating of 4 or 5) and highly unlikely (rating of 1, 2, or 3) or that were rated as being highly undesirable (rating of 1 or 2) and highly likely (rating of 7, 8, or 9). It should be noted that these two types of rating styles did not account for all of the ratings that subjects made because these scores only included items where subjects made extreme ratings for both desirability and likelihood. In
cases where the ratings for either desirability or likelihood fell in the middle range, no wishful or negativistic thinking scores were given in this re-scoring.

A Group x Item Type x Time x Contingency x Valence ANOVA with wishful thinking scores as the dependent variable revealed a statistically significant Item Type (Life, Dice) x Group interaction, $F(2, 139) = 11.59, p < .01$ (see Figure 2). Simple comparisons indicated that there were significant Group differences for life events ($F(1, 139) = 11.55, p < .01$), such that nondepressives had higher wishful thinking scores for life events than depressives (49.1% and 40.8%, respectively). Group differences in wishful thinking were not observed for dice items. Additionally, there was a significant main effect of Item Type, $F(1, 139) = 161.59, p < .001$, which indicated that both depressives and nondepressives had higher wishful thinking scores for life items ($M = 46.3\%$) than for dice items ($M = 19.5\%$).

A second interaction was observed between Time and Contingency, $F(2, 139) = 10.15, p < .001$. As with the previous analyses of desire and likelihood ratings, the interaction of Time and Contingency will be discussed at the end of this section following presentation of all depressed-nondepressed differences.

The absence of a Group x Time or a Group x Time x Contingency interaction indicates that depressed and nondepressed subjects’ wishful thinking styles did not differ from baseline to reward, nor were they differentially affected by the Contingency manipulation.

Negativistic Thinking Scores

A similar ANOVA with negativistic thinking scores as the dependent variable
Fig. 2. Group x Item Type with Percentage of Wishful Thinking Responses as the Dependent Variable.
yielded slightly different results. There was a significant Time x Contingency interaction, $F(2, 139) = 3.65, p < .05$ (described below), and a significant main effect of Group, $F(1, 139) = 8.93, p < .01$. Regarding the Group main effect, depressives made significantly more negativistic ratings ($M = 18.4\%$) than nondepressives ($M = 13.1\%$) across all conditions. Thus, depressives were more likely to perceive highly desirable life and dice items as very unlikely and highly undesirable life and dice items as very likely relative to nondepressives (at baseline and across the three reward contingency conditions).

**Rating Style Percentages**

Recall that chance responding would be indicated by $27\%$ wishful thinking, $27\%$ negativistic thinking, and $46\%$ "unclassified" responding. Based on the separation hypothesis, it was predicted that during the baseline condition, depressives' responses would not differ from chance responding. As predicted, depressives' ratings did not differ from chance responding ($X^2(2) = 3.76, p > .05$). Also as predicted, nondepressives' ratings during baseline differed from chance responding ($X^2(2) = 11.77, p < .05$) such that they made more wishful ratings ($36.7\%$) and less negativistic ratings ($12.5\%$) than would be expected by chance alone ($27\%$ for each; see Table 4).

**Ways of Coping Checklist (WCCL)**

Correlations between BDI and the WCCL subscales replicated Vitaliano et al.'s (1985) findings regarding the correlation between depression and wishful thinking; as depression increased, the tendency to use wishful thinking as a coping
Table 4

Percentages of Thinking Styles in Comparison to Chance Responding During Baseline.

<table>
<thead>
<tr>
<th>Thinking</th>
<th>Depressives</th>
<th>Nondepressives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wishful Thinking</td>
<td>Actual: 31.4%</td>
<td>Actual: 36.7%</td>
</tr>
<tr>
<td></td>
<td>Chance: 27%</td>
<td>Chance: 27%</td>
</tr>
<tr>
<td>Negativistic Thinking</td>
<td>Actual: 18.5%</td>
<td>Actual: 12.5%</td>
</tr>
<tr>
<td></td>
<td>Chance: 27%</td>
<td>Chance: 27%</td>
</tr>
<tr>
<td>Unclassified</td>
<td>Actual: 50.1%</td>
<td>Actual: 50.8%</td>
</tr>
<tr>
<td></td>
<td>Chance: 46%</td>
<td>Chance: 46%</td>
</tr>
</tbody>
</table>
response also increased. As predicted, BDI scores were positively correlated with wishful thinking ($r = .271, p < .01$), avoidance ($r = .460, p < .001$), and blaming-self strategies ($r = .315, p < .001$), as measured by the WCCL. BDI scores were negatively correlated with problem-focused coping ($r = -.386, p < .001$) and showed a trend to be negatively correlated with the social-support seeking subscale ($r = -.175, p < .06$).

**Children’s Coping Strategies Scale (CCSS)**

Four out of five of the predictions for the subscales on the CCSS were supported. BDI scores were positively correlated with aggression ($r = .384, p < .001$) and substance use ($r = .265, p < .01$), but were negatively correlated with rejuvenation ($r = -.284, p < .01$) and social support ($r = -.191, p < .01$). The only prediction that was not supported was the predicted negative correlation between problem solving and the BDI ($r = -.093, p > .05$).

**Life Optimism Test (LOT) Ratings**

As predicted, there was a significant negative correlation between the BDI and LOT scores, $r = -.677, p < .001$. This served to replicate Scheier and Carver’s (1985) validation study of the LOT. Additionally, to the extent that optimism is an aspect of coping, this finding may help clarify some of the previous findings for likelihood ratings. Depressed and nondepressed subjects differed only in their likelihood ratings. The correlation between the BDI and the LOT suggests that the lower likelihood ratings depressives made for life events may be due to a more "pessimistic" outlook than nondepressives. However, LOT scores did not correlate
with likelihood ratings \((r = .005, \text{n.s.})\).

As predicted, LOT scores correlated significantly in a positive direction with wishful thinking scores \((r = .211, p < .05)\) as well as negatively with negativistic thinking scores \((r = -.261, p < .01)\). This suggests that the experimental definitions of wishful thinking and negativistic thinking employed in this study are related to optimism (measured in terms of coping items). Interestingly, LOT scores were not correlated with any of the CCSS subscales and only with the wishful thinking coping subscale on the WCCL, \(r = .192, p < .05\). Given the relatively low correlations between the LOT and likelihood ratings, wishful thinking, negativistic thinking, and wishful thinking coping subscale of the WCCL, it appears that these variables are conceptually similar to optimism but that they also differ from it.

**Judgment of Control Questionnaire (JCQ) Ratings**

Contrary to expectations, a MANOVA with all of the judgment of control items yielded no Group x Contingency effects on the judgment of control ratings, \(F(2, 136) = 0.72, \text{n.s.} \). However, there was a significant effect of the Contingency manipulation \(F(2, 136) = 16.33, p < .001\), such that those who were in the wishful thinking Contingency condition gave higher judgment of control ratings across all items \((M = 52.46)\) than those who were in the negativistic thinking Contingency condition \((M = 39.33), F(1, 87) = 11.61, p < .01, \) and subjects in the random Contingency condition \((M = 30.44), F(1,93) = 33.20, p < .001\). Subjects in the random Contingency condition tended to judge their control as lower than subjects in the negativistic Contingency condition, \(F(1, 92) = 4.74, p < .05\). Additionally,
given that the Contingency manipulation should have resulted in differential judgments of control for specific items, ANOVAs were performed using individual items as the dependent variable. All analyses using the judgment of control items individually yielded no significant differences for Group or contingency manipulation conditions.

**Replication of the Contradiction in the Wishful Thinking Literature**

The contradiction between the coping literature (i.e., as depression increases, wishful thinking increases) and the experimental literature (i.e., wishful thinking observed in nondepressives) was found in this study. Specifically, as mentioned above, BDI scores correlated with the wishful thinking subscale of the WCCL, which replicated the coping literature findings. The experimental literature was replicated with the finding that depressives were less likely to give high likelihood ratings for desirable events and low likelihood ratings for undesirable events (i.e., wishful thinking) than nondepressives. It would be expected that the measure of wishful thinking used in this study (i.e., the relationship between desire and likelihood ratings) would not correlate with the coping measure of wishful thinking because of the contradiction already noted. This is exactly what occurred ($r = .00$, n.s.). That is, this study suggests that there is no relationship between wishful thinking measured by coping scales and the wishful thinking measured experimentally (i.e., desire and likelihood ratings).

Recall that wishful thinking coping items were conceptualized as having a desire component. It was hypothesized that wishful thinking in the coping literature would be more related to desire ratings than to likelihood ratings. To test the
hypothesis that the wishful coping items would be more related to desirability than to likelihood ratings, correlations between the wishful thinking score from the WCCL and both desire and likelihood ratings were calculated. However, results indicated no statistically significant correlations between the coping wishful thinking score and the desire or likelihood ratings ($r = -.041$ and $r = .006$, respectively). Essentially, the experimental wishful thinking measure does not correlate in any way with the wishful thinking coping measure.

**Correlation of BDI scores with Wishful and Negativistic Scores**

The correlation between the wishful thinking scores and BDI scores was not significant ($r = -.107, p > .05$). Interestingly, the negativistic thinking scores were significantly correlated with BDI scores in a positive direction, with greater depression associated with more negativistic thinking ($r = .219, p < .01$).

**Time and Contingency Findings**

As stated earlier, the interactions for the desire and likelihood ratings that have been described were collapsed across the Time and Contingency factors because these factors did not interact with the Group variable. The Time variable refers to the within-subject manipulation of baseline and reward conditions, and the Contingency variable refers to the between-subjects reward manipulation (reward for wishful thinking, reward for negativistic thinking, random reward). There was a significant 4-way interaction involving the variables of Time, Contingency, Valence, and Rating Type, $F(2, 139) = 5.66, p < .01$ (see Figure 3). Additional analyses indicated that when examining the baseline period, there were no significant effects for
Fig. 3. Time x Contingency x Valence x Rating Type with Ratings as the Dependent Variable.
Contingency, Valence, and Rating Type \( (p > .01) \). Thus, subjects' desire and likelihood ratings did not differ at baseline as a function of Item Valence and Contingency condition (because the Contingency condition had not been implemented at baseline, no effect of Contingency would be expected). When looking at the reward period, however, a statistically significant interaction was found between Valence, Contingency condition, and Rating Type \( (F(2, 139) = 4.97, p < .01) \), suggesting that the Contingency manipulation produced an effect on desire and likelihood ratings.

In order to interpret the effects of the Contingency manipulation, subjects' desire and likelihood ratings were compared in a between-subjects analysis across the three levels of Contingency (reward for wishful thinking, reward for negativistic thinking, and random reward). Additionally, subjects' desire and likelihood ratings were analyzed using a within-subjects design to compare ratings made during baseline vs. after the reward condition began.

Regarding the within-subjects analyses, no significant baseline-reward differences were found except for trends (recall the more stringent probability criteria of .01 because of the large number of tests) toward differences for negative event likelihood ratings in the wishful thinking condition \( (F(1, 44) = 4.85, p < .05) \) and in the negativistic thinking condition \( (F(1, 45) = 4.59, p < .05) \). Specifically, subjects in the wishful thinking reward condition tended to rate negative items as less likely relative to their baseline ratings, and subjects who were rewarded for negativistic thinking tended to rate negative items as more likely relative to their baseline ratings.
This pattern of change in likelihood ratings is consistent with gaining more points in the wishful and negativistic conditions, respectively. As predicted by Rosenfarb et al.'s (1993) and Neunaber's (1987) findings, it is important to stress that this pattern was observed for both depressives and nondepressives. There were no baseline-reward differences for desire ratings ($p > .05$).

Looking next at the ratings made following the implementation of rewards (reward level of the Time variable), results provided more support for an effect of the between-subject reward condition. Specifically, further analyses indicated that for likelihood ratings for positive items, there was a trend for a difference between reward for wishful thinking and reward for negativistic thinking, such that those in the wishful thinking condition gave higher likelihood ratings than those in the negativistic thinking condition ($F(1, 91) = 4.46, p < .05$). For negative items, there was a significant difference such that the subjects in the wishful thinking reward condition gave lower likelihood ratings than the subjects in the negativistic thinking reward condition ($F(1, 91) = 8.06, p < .01$).

In summary, the findings provide partial support for an effect of the Contingency manipulations. Specifically, subjects in the wishful thinking reward condition gave lower likelihood ratings for negative events and tended to rate positive events as more likely than subjects in the negativistic thinking condition. Thus, in both the wishful and negativistic reward conditions, subjects seemed to adjust likelihood ratings (rather than desire ratings) to be appropriately wishful or negativistic given the contingency condition. As predicted, when rewards were
random, subjects did not significantly change their desire or likelihood ratings.

As mentioned above, when wishful thinking scores were calculated to reflect the match between desire and likelihood ratings, an interaction was found between Time and Contingency, $F(2, 139) = 10.15, p < .001$ (see Figure 4). A simple effects analysis indicated that there was no significant effect of Contingency on the wishful thinking baseline scores ($p > .05$), which indicates that random assignment created equal groups (in terms of wishful thinking) prior to beginning the reward manipulation. However, there was a significant difference between baseline and reward for the wishful thinking reward condition, such that wishful thinking scores increased from baseline to reward ($F(1, 44) = 15.20, p < .001$). Also, there was a significant difference between the wishful and negativistic conditions for the wishful thinking scores following the reward manipulation, such that subjects in the wishful thinking condition had higher wishful thinking scores than subjects in the negativistic thinking condition ($F(1, 89) = 16.99, p < .001$). Similarly, subjects in the wishful reward condition had higher wishful thinking scores than subjects in the random reward condition ($F(1, 94) = 8.78, p < .01$). These findings suggest that the reward manipulation affected wishful thinking responses such that those who were rewarded for it increased wishful thinking relative to subjects who were not rewarded for wishful thinking.

A similar, although not as strong, effect occurred with the negativistic thinking scores (see Figure 5). Specifically, there was also a statistically significant Time x Contingency interaction ($F(2, 139) = 3.65, p < .05$). However, in terms of the
Fig. 4. Time x Contingency Interaction with Percentage of Wishful Thinking Responses as the Dependent Variable.
Fig. 5. Time x Contingency Interaction with Percentage of Negativistic Thinking Responses as the Dependent Variable.
more stringent probability criteria adopted ($p < .01$), there were only several trends in the simple effects analyses. Results were similar to those observed for wishful thinking scores, but in the opposite direction. Subjects who were rewarded for negativistic thinking tended to have higher negativistic thinking scores than those in the wishful thinking reward condition, $F(1, 139) = 6.79$, $p < .05$. However, subjects in the negativistic reward condition did not differ significantly from subjects in the random reward condition, $F(1, 95) = 3.02$, $p < .10$. There was also only a trend toward a difference between the baseline and reward conditions of the negativistic condition, $F(1, 45) = 5.09$, $p < .05$. Taking the wishful and negativistic findings together, the findings suggest that the wishful thinking reward manipulation altered subjects' wishful rating styles whereas the negativistic thinking reward manipulations had only a minor effect on subjects' negativistic rating style.
A Brief Review

Findings in the coping literature have indicated that depression is positively correlated with a wishful thinking coping style (Vitaliano et al., 1985). The coping literature assesses wishful thinking in terms of the number of strategies a person uses that have a "wishful" or desire component (e.g., "I wished that a miracle would happen."). As a subject endorses a greater percentage of the wishful thinking items, they are said to be more likely to employ wishful thinking as one of their primary coping mechanisms.

Experimental research has defined wishful thinking differently than the coping literature. That is, wishful thinking has been defined as the tendency to rate the likelihood of positive, desirable events as higher than the actual base rate of occurrence, and the tendency to rate the likelihood of negative, undesirable events as lower than the actual base rate (Cronbach & Davis, 1944; Marks, 1951).

Alloy and Abramson (1979) have demonstrated that depressives are more realistic than nondepressives in making judgments of control for positive and negative outcomes. For the purposes of the present study, the findings of the depressive realism work were seen as similar to the earlier experimental wishful thinking
research. That is, with respect to wishful thinking, it was assumed that high judgments of control for positive events are similar in meaning to high likelihood ratings for positive events. Given this view, nondepressives exhibited wishful thinking in the original depressive realism work since they rated their judgments of control for obtaining positive outcomes as higher than was objectively true. Depressives, on the other hand, were more accurate in their judgments of control (although still slightly optimistic). The present study attempted to clarify the apparent contradiction between depressives engaging in wishful thinking (based on the coping literature) versus depressives being more realistic (based on the depressive realism literature).

It was hypothesized that the difference in findings was the result of different methodologies. The coping studies differed from the depressive realism experiments because in the coping research, subjects were presented with items that incorporated a desire statement (e.g., "I wished that a miracle would happen."). The depressive realism methodology requested degree of control ratings and controlled desire by manipulating valence of outcomes. It was hypothesized that the difference in findings between the coping and depressive realism literature could be explained by depressives separating their desire from their likelihood ratings in the depressive realism studies. In terms of the depressive realism task (Alloy & Abramson, 1979), the separation hypothesis would suggest that depressives made accurate judgment of control ratings because they were not affected by their desires. However, the coping literature used items in which desire statements were very salient. As a result,
separation of desire and belief was not possible, perhaps leading depressives to endorse more wishful thinking items.

Findings

Overall, this study yielded mixed support for the separation hypothesis. The strongest support for this hypothesis came from the finding that depressives' rating styles (wishful, negativistic, and unclassified) of desire-likelihood pairs did not differ significantly from chance whereas nondepressives' rating styles differed significantly. Recall that chance responding was assumed to indicate a cognitive separation of desire and likelihood ratings.

One of the key aspects of the separation hypothesis that was not supported by this study was the expectation that the wishful thinking coping items would correlate with desire ratings. That is, it was suggested that the coping scales utilized statements that were essentially desire statements whereas the experimental method presumably separated desire from likelihood components. This hypothesis was tested in this study by observing the correlation between subjects' desire ratings for the dice and life items with their wishful thinking coping score. In essence, this analysis assumed that subjects' general desirability ratings of items would be related to their desire for the various wishful thinking coping items. Contrary to the prediction from the separation hypothesis, this study found no relationship between desire ratings and wishful thinking coping scores.

An alternative way to understand wishful thinking is to compare depressives' responses relative to nondepressives' responses. As predicted, depressives engaged in
significantly more negativistic thinking relative to nondepressives and nondepressives engaged in significantly more wishful thinking relative to depressives. When these group comparisons are made it appears that depressives may be characterized as negativistic thinkers, which would support current cognitive theories of depression (e.g., Beck, 1976). However, given that depressives were "evenhanded" across rating styles - neither wishful nor negativistic - and it was nondepressives who demonstrated high wishful thinking and low negativistic ratings styles, depression may be best characterized as the absence of wishful thinking tendencies rather than the presence of negativistic thinking. This is consistent with other research which suggests depressives fail to use self-serving biases that are typical of nondepressed individuals (Alloy & Abramson, 1988).

In general, the predictions regarding the correlations between BDI scores and the WCCL subscales were supported. BDI scores were found to be positively correlated with Wishful Thinking, the Avoidance and the Blamed Self subscales of the WCCL. Additionally, the predicted negative correlation between BDI scores and Problem-Focused coping was supported. There was only a trend for the predicted negative correlation between BDI scores and the Social Support subscale.

Similarly, most of the predicted correlations between the BDI scores and the CCSS subscales were also supported. The hypothesized positive correlations between BDI scores and Aggression and the Substance-Use subscale on the CCSS were supported, as were the predicted negative correlations between the Rejuvenation and the Social Support subscales. However, the predicted negative correlation between
BDI and Problem-Solving was not supported.

Taken together, the findings for the correlations between the coping subscales and the BDI scores suggest depressives are more likely to engage in behavior that tends to be passive in terms of addressing the problem (e.g., wishful thinking, avoidance, blamed self on the WCCL, aggression and substance use on the CCSS) while nondepressives are more likely to engage in active coping styles that attempt to change the situation (e.g., problem solving on the WCCL, social support and rejuvenation on the CCSS). These findings were not only important for replicating the findings in the literature, but they also support Neunaber’s (1987) findings which suggested that depressives’ passive coping strategies may reflect a motivational deficit as opposed to a cognitive difference in comparison to nondepressives. Therefore, rather than initiating an active behavioral response, depressives are more likely than nondepressives to engage in a more passive, nonactive response.

In addition to replicating Scheier and Carver’s (1985) findings, the LOT provided some insight into the wishful thinking coping measure. That is, the positive correlation between the LOT and the wishful coping measure suggests that these two constructs share common features. This suggests that engaging in wishful thinking as a way of coping with a situation involves some degree of optimism. To the extent that optimism is an aspect of coping, this finding may clarify some of the previous findings for depressed-nondepressed differences for likelihood ratings. The negative correlation between the BDI and the LOT suggests that the higher likelihood ratings nondepressives made for life events may be due to a more "optimistic" outlook than
No group differences were found in terms of the judgment of control ratings. This may have been due to the complicated nature of the judgment of control ratings (see Appendix H). For example, one of the items read: "To what extent did the score increase when you rated the likelihood of a desirable event as high?" After completing all of the computer desire and likelihood ratings and after reading a number of these types of items with various combinations of high, low, desirable and undesirable, the task may have become too difficult for subjects to understand clearly the relationships involved.

Integration of the Findings

Given the mixed support for the hypotheses, the following will be an attempt to integrate the various findings and hypotheses into a coherent description of the study results. First, Vitaliano et al.'s (1987) findings regarding the positive correlation between depression and wishful thinking as a coping style were replicated. Second, to the extent that the current experimental definition of wishful thinking (based on desire and likelihood ratings) replicates the methodology of Alloy and Abramson's (1979) depressive realism work, the depressive realism findings were replicated in that depressives engaged in less wishful thinking (measured with desire and likelihood ratings) than nondepressives for life items. However, both depressives and nondepressives made realistic ratings for the dice items (see below for more discussion of depressive realism). Third, and perhaps most importantly, this study clearly indicated that no relationship exists between the experimental and the coping
definition of wishful thinking. Different methods for measuring "wishful thinking" resulted in markedly different interpretations of the relationship between depression and wishful thinking.

An important issue in wishful thinking research concerns realism, that is, are depressed or nondepressed subjects realistic when considering the likelihood of positive and negative events? Is it realistic to engage in wishful thinking coping strategies? In fact, Alloy and Abramson (1979) found that in some cases depressives were optimistic (not realistic), but because nondepressives were even more optimistic, depressives were said to be realistic. The issue seems to be whether one chooses to use an objective probability against which to compare depressives' ratings or whether to use a relative comparison with nondepressives. Because the only items in this study that had an objective probability were the dice items (for which there were no depressed-nondepressed differences), this study suggests that with dice items, both depressives and nondepressives were realistic. This finding neither confirms nor offers contradictory evidence for the depressive realism hypothesis because no depressed-nondepressed differences were found for the objective dice items.

The depressed-nondepressed differences for life events may be due to life events being more salient to the subjects, and thereby involved the subjects in the task more than did the dice items. Salience has been found to influence wishful thinking (Weinstein, 1980). It may also be that wishful and negativistic biases are manifested only in scenarios that involve ambiguous, nonobjective probabilities, such as life events. Previous research has demonstrated that cognitive biases do not occur in
situations in which there are unambiguous response expectations (e.g., Dykman, Abramson, Alloy, & Hartlage, 1989). Thus, wishful thinking biases may only occur for ambiguous life events.

While the lack of a depressed-nondepressed difference in wishful thinking for dice roll items may not contribute toward addressing the separation hypothesis, it contributes to a greater understanding of the depressive realism debate. Ackermann and DeRubeis (1991) claim that Golin et al.'s (1977) findings were not applicable to the depressive realism hypothesis because Golin et al. had subjects make confidence ratings instead of likelihood ratings for dice rolls. Golin et al. (1977) observed depressive realism for their confidence in rolling winning dice rolls; that is, depressives were less confident than nondepressives. However, Ackermann and DeRubeis (1991) suggest that Golin et al. observed depressive realism because of their use of confidence ratings. When likelihood ratings are used, as in the current study, depressive realism, in which depressives demonstrate less optimistic bias relative to nondepressives, did not occur for the dice roll items.

Because it seems possible that having subjects make likelihood ratings instead of confidence ratings may have yielded different results, one of the assumptions of this study becomes questionable. That is, this study assumed that high judgment of control ratings for positive events and high likelihood ratings for positive events both represent wishful thinking. Ackermann and DeRubeis (1991) would likely suggest that this assumption was relatively weak, as they note that depressive realism findings may occur for confidence but not for likelihood ratings. Similarly, likelihood ratings
may not be comparable to judgment of control ratings. This again suggests that different methods for measuring wishful thinking (in this case, choosing to use confidence, likelihood, or judgment of control ratings) appear to result in different findings.

In addition to the wishful thinking depressed-nondepressed differences, it was found that wishful thinking could be manipulated experimentally. That is, subjects who were rewarded for engaging in wishful thinking exhibited more wishful thinking than subjects who were rewarded for engaging in negativistic thinking. To the extent that the judgment of control questions measured awareness of wishful thinking contingencies, it appears that subjects were not aware of the contingencies necessary to receive points. To extend this line of reasoning further, these findings could be used to support a view that one technique to treat depression would be to set up contingencies so that depressives are rewarded for engaging in wishful thinking. The findings of this study suggest two areas for future research. First, it seems that there has been a lack of studies examining depressives’ awareness of and ability to respond to different contingencies. More research is required to assess differences between depressed and nondepressed subjects’ behavioral response to environmental contingencies. Past research has focused on subjects’ awareness of contingencies, but more research is needed to examine whether depressed and nondepressed subjects differ in their ability to learn contingencies, particularly following changes in contingencies. Second, it is not clear from this study whether altering depressives’ responses affects their mood state. Future studies in this area should examine
whether manipulating depressives' response styles to be more wishful leads to more positive moods.

As discussed, one of the key aspects of the separation hypothesis suggested that the wishful thinking coping items would correlate with desire ratings. Results of the current study did not support this hypothesis. However, to test this hypothesis directly, subjects in a future study should be given the WCCL and then, as part of another task, should rate the desirability and the likelihood of each of the wishful thinking coping outcomes (e.g., How desirable would it be for a miracle to happen which would eliminate the stressful experience?). The separation hypothesis suggests that the desirability ratings for the coping strategies would be correlated with the wishful thinking scores whereas the likelihood ratings would be significantly less correlated (if at all) with the wishful thinking coping scale.

Finally, depressed mood in this sample of depressed college students did not affect ratings of desirability for positive and negative events. To the extent that these desirability ratings reflect preferences for positive and negative events, depressives and nondepressives appear to be similar in their preferences. However, the two groups did differ in their likelihood ratings -- particularly for personally-relevant life events. If the likelihood ratings reflect differing cognitive processes between depressed and nondepressed subjects, these findings suggest that wishful thinking (or alternatively, negativistic thinking), is a function of subjects' beliefs in the likelihood of positive and negative events, rather than their desires for these events to occur.
APPENDIX A

BECK DEPRESSION INVENTORY
BECK INVENTORY

Name ____________________________ Date ____________

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1 0 I do not feel sad. 1 I feel sad. 2 I am sad all the time and I can’t snap out of it. 3 I am so sad or unhappy that I can’t stand it.

2 0 I am not particularly discouraged about the future. 1 I feel discouraged about the future. 2 I feel I have nothing to look forward to. 3 I feel that the future is hopeless and that things cannot improve.

3 0 I do not feel like a failure. 1 I feel I am a complete failure. 2 I blame myself all the time for my faults. 3 I am dissatisfied with myself. 4 I feel quite guilty most of the time.

4 0 I get as much satisfaction out of things as I used to. 1 I don’t enjoy things the way I used to. 2 I don’t get real satisfaction out of anything anymore. 3 I am dissatisfied or bored with everything.

5 0 I don’t feel particularly guilty. 1 I feel guilty a good part of the time. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.

6 0 I don’t feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.

7 0 I don’t feel disappointed in myself. 1 I am disappointed in myself. 2 I am disgusted with myself. 3 I hate myself.

8 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 all the time for my faults. 3 I blame myself for everything bad that happens.

9 0 I don’t have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.

10 0 I don’t cry any more than usual. 1 I cry more now than I used to. 2 I cry all the time now. 3 I used to be able to cry, but now I can’t cry even though I want to.

11 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 now. 3 I don’t get irritated at all by the things that used to irritate me.

12 0 I have not lost interest in other people. 1 I am less interested in other people than I used to be. 2 I have lost most of my interest in other people. 3 I have lost all of my interest in other people.

13 0 I make decisions about as well as I ever could. 1 I put off making decisions more than I used to. 2 I have greater difficulty in making decisions than before. 3 I can’t make decisions at all anymore.

14 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 that make me look unattractive. 3 I believe that I look ugly.

15 0 I can work about as well as before. 1 It takes an extra effort to get started at doing something. 2 I have to push myself very hard to do anything. 3 I can’t do any work at all.

16 0 I can sleep as well as usual. 1 I don’t sleep as well as 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 several hours earlier than I used to and cannot get back to sleep.

17 0 I don’t get more tired than usual. 1 I get tired more easily than I used to. 2 I get tired from doing almost anything. 3 I am too tired to do anything.

18 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.

19 0 I haven’t lost much weight, if any, lately. 1 I have lost more than 10 pounds. 2 I have lost more than 10 pounds, by eating less. Yes_____ No____. 3 I have lost more than 15 pounds.

20 0 I am no more worried about my health than usual. 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation. 2 I am very worried about physical problems and it’s hard to think of much else. 3 I am so worried about my physical problems that I cannot think about anything else.

21 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.

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APPENDIX B

LIFE OPTIMISM TEST
LOT

Please indicate the degree to which you agree with each of the items given below using the following scale:

0 = strongly disagree
1 = disagree
2 = neutral
3 = agree
4 = strongly agree

Please be as accurate and honest as you can, and try not to let your answer to any one question influence answers to other questions. There are no correct or incorrect answers.

1. _____ In uncertain times, I usually expect the best.
2. _____ It's easy for me to relax.
3. _____ If something can go wrong for me, it will.
4. _____ I always look on the bright side of things.
5. _____ I'm always optimistic about my future.
6. _____ I enjoy my friends a lot.
7. _____ It's important for me to keep busy.
8. _____ I hardly ever expect things to go my way.
9. _____ Things never work out the way I want them to.
10. _____ I don't get upset too easily.
11. _____ I'm a believer in the idea that "every cloud has a silver lining".
12. _____ I rarely count on good things happening to me.
APPENDIX C

WAYS OF COPING CHECKLIST
WCCL

Instructions: Please recall the most recent stressful event or situation that you have faced. By 'stressful' we mean a situation which was difficult or troubling to you, either because it made you feel bad or because it took effort to deal with it. It might have been something to do with your family, with your job, or with your friends. Please answer the following questions with a 'yes' or a 'no' in regards to this event.

(To be presented in random order)

1. Bargained or compromised to get something positive from the situation.

2. Concentrated on something good that could come out of the whole thing.

3. Tried not to burn my bridges behind me, but left things open somewhat.

4. Changed or grew as a person in a good way.

5. Made a plan of action and followed it.

6. Accepted the next best thing to what I wanted.

7. Came out of the experience better than when I went in.

8. Tried not to act too hastily or follow my own hunch.

9. Changed something so things would turn out all right.

10. Just took things one step at a time.

11. I know what had to be done, so I doubled my efforts and tried harder to make things work.

12. Came up with a couple of different solutions to the problem.
13. Accepted my strong feelings, but didn’t let them interfere with other things too much.
14. Changed something about myself so I could deal with the situation better.
15. Stood my ground and fought for what I wanted.
16. Talked to someone to find out about the situation.
17. Accepted sympathy and understanding from someone.
18. Got professional help and did what they recommended.
19. Talked to someone who could do something about the problem.
20. Asked someone I respected for advice and followed it.
21. Talked to someone about how I was feeling.
22. Blamed yourself.
23. Criticized or lectured yourself.
24. Realized you brought the problem on yourself.
25. Hoped a miracle would happen.
26. Wished I was a stronger person - more optimistic and forceful.
27. Wished that I could change what had happened.
28. Wished I could change the war that I felt.
29. Daydreamed or imagined a better time or place than the one I was in.
30. Had fantasies or wishes about how things might turn out.
31. Thought about fantastic or unreal things (like perfect revenge or finding a million dollars) that made me feel better.
32. Wished the situation would go away or somehow be finished.
33. Went on as if nothing had happened.
34. Felt bad that I couldn’t avoid the problem.
35. Kept my feelings to myself.
36. Slept more than usual.
37. Got mad at the people or things that caused the problem.
38. Tried to forget the whole thing.
39. Tried to make myself feel better by eating, drinking, smoking, or taking medication.
40. Avoided being with people in general.
41. Kept others from knowing how bad things were.
42. Refused to believe that it had happened.
APPENDIX D

CHILDREN’S COPING STRATEGIES SCALE
I am interested in how you usually respond to stressful episodes. Could you please tell below how you usually respond to upsetting situations? Please think about how you reacted to the major life events and the everyday life events that you listed above. Remember: there are no right or wrong answers, please tell me honestly what you really do.

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1. I cry.  
2. I do something that I enjoy.  
3. I get into fights or argue with people.  
4. I smoke cigarettes.  
5. I talk to others about how I'm feeling.  
6. I try to change something about the situation to make it better.  
7. I avoid the problem.  
8. I change myself to make things better.  
9. I release my feelings.  
10. I exercise or play a sport.  
11. I take out my frustration on someone or something else.  
12. I think about hurting myself.  
13. I succeed at telling others how I feel.  
14. I try to convince somebody to act differently.  
15. I keep my feelings and thoughts to myself.  
16. I change my actions to be a better person.  
17. I just let my feelings out.
18. I go somewhere in order to relax.

19. I throw things or break things.

20. I take drugs or drink alcohol.

21. I find a close friend or family member to talk to about my problem.

22. I act to correct the problem in somebody or something else.

23. I act as though nothing has happened.

24. I change something about myself to solve the problem.

25. I yell and scream.

26. I take a nap or go to sleep.

27. I hurt somebody who didn’t have anything to do with the problem.

28. I do something dangerous or risky.

29. I show people I’m close to how I’m feeling.

30. I solve the problem by getting someone else to change.

31. I go off by myself.

32. I try to act differently myself in order to solve the problem.

α subscale name items
.819 1. social support: 5, 9, 13, (-15), 17, 21, 29
.782 2. aggression: 3, 11, 12, 19, 25, 27, 28, 31
.753 3. problem-solving: 6, 8, 14, 16, 22, 24, 30, 32
.601 4. rejuvenation: 2, 10
.691 5. substance use: 4, 20

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APPENDIX E

COMPUTER ITEMS
Items administered by computer program

How desirable is it for you to complete college in 4 years?
What is the likelihood that you will complete college in 4 years?

How desirable is it for you to have a successful marriage?
What is the likelihood that you will have a successful marriage?

How desirable is it for you to receive an unexpected check in the mail in the next month?
What is the likelihood that you will receive an unexpected check in the mail in the next month?

How desirable is it for you to be positive and optimistic in the next week?
What is the likelihood that you will be positive and optimistic in the next week?

How desirable is it for you to feel thoroughly rested after a night of sleep?
What is the likelihood that you will feel thoroughly rested after a night of sleep?

How desirable is it for you that your first job after college be your first choice?
How likely is it that your first job after college will be your first choice?
How desirable is it for you to have a healthy young adulthood? What is the likelihood that you will have a healthy young adulthood?

How desirable is it for you to have leisure time after graduating from college? What is the likelihood that you will have leisure time after you graduate from college?

How desirable is it for you to have the respect and approval of your peers? What is the likelihood that you will have the respect and approval of your peers?

How desirable is it for you to receive an "A" in the psychology course you are currently taking? What is the likelihood that you will receive an "A" in the psychology course you are currently taking?

How desirable is it for you to have a good relationship with your parents or guardians? What is the likelihood that you will have a good relationship with your parents or guardians?

How desirable is it for you to be able to purchase a new car soon? What is the likelihood you will be able to purchase a new car soon?
How desirable is it for you to have friends give you a surprise birthday party for your next birthday?
What is the likelihood that friends will give you a surprise birthday party for your next birthday?

How desirable is it for you to travel to Europe in the next four years?
What is the likelihood that you will travel to Europe in the next four years?

How desirable is it for you to have someone give you a compliment today?
What is the likelihood that someone will give you a compliment today?

How desirable is it for you to have your parents stay healthy as they age?
What is the likelihood that your parents will stay healthy as they age?

How desirable is it for you to receive a letter from a friend you haven’t been in touch with for over a year?
What is the likelihood that you will receive a letter from a friend that you haven’t been in touch with for over a year?
How desirable is it for you to graduate in the top third of your college class?
What is the likelihood that you will graduate in the top third of your college class?

How desirable is it for you to get a job with a starting salary of $27,000 or greater?
What is the likelihood that you will get a job with a starting salary of $27,000 or greater?

How desirable is it for you to have a good laugh today?
What is the likelihood that you will have a good laugh today?

How desirable is it for you to be stopped for a speeding ticket in the next year?
What is the likelihood that you will be stopped for a speeding ticket in the next year?

How desirable is it for you to have problems falling asleep at night?
What is the likelihood that you will have problems falling asleep at night?

How desirable is it for you to be stung by a bee next summer?
What is the likelihood that you will be stung by a bee next summer?
How desirable is it for you to be forced to switch apartments in the middle of the semester?
What is the likelihood that you will be forced to switch apartments in the middle of the semester?

How desirable is it for you to have problems with your first boss after graduating from college?
What is the likelihood that you will have problems with your first boss after graduating from college?

How desirable is it for you if a friend gets sick in the next month?
What is the likelihood that a close friend will get sick in the next month?

How desirable is it for you to break a bone in the next year?
What is the likelihood that you will break a bone in the next year?

How desirable is it for you to have less spending money in the next month?
What is the likelihood that you will have less spending money in the next month?

How desirable is it for you to be divorced in your lifetime?
What is the likelihood that you will be divorced in your lifetime?
How desirable is it for you to have an argument with friend in the next month?
What is the likelihood that you will have an argument with a friend in the next month?

How desirable is it for you that the Cash Station runs out of money when you are in a hurry?
What is the likelihood that the Cash Station will be out of money when you are in a hurry?

How desirable is it for you to be depressed for a week?
What is the likelihood that you will be depressed for a week in the next year?

How desirable is it for you to bounce a check?
What is the likelihood that you will bounce a check in the next year?

How desirable is it for you to ruin your favorite pair of pants in the laundry?
What is the likelihood that you will ruin your favorite pair of pants in the laundry in the next year?

How desirable is it for you to have to drop out of college?
What is the likelihood that you will have to drop out of college?
How desirable is it for you to not find a job in the year after starting your job search?
What is the likelihood that you will not find a job for a year after starting your job search?

How desirable is it for you to receive an obscene phone call?
What is the likelihood that you will receive an obscene phone call in the next month?

How desirable is it for you to realize that the car you bought is a lemon?
What is the likelihood that you will realize that the car you bought is a lemon?

How desirable is it for you to look back someday at college and feel that you should have gotten a different major?
What is the likelihood that you will look back at college and feel that you should have had a different major?

How desirable is it for you to be sued?
What is the likelihood that you will be sued in your lifetime?

What is the desirability of you rolling a 6, 7, 9, or 10 if you win $1 for rolling one of these numbers?
What is the likelihood of rolling a 6, 7, 9 or 10 if you win $1 for rolling one of these numbers?
What is the desirability of you rolling a 4, 5, 6, or 7 if you win $1 for rolling one of these numbers?
What is the likelihood of you rolling a 4, 5, 6, or 7 if you win $1 for rolling one of these numbers?

What is the desirability of you rolling a 3, 6, 7, or 8 if you win $5 for rolling one of these numbers?
What is the likelihood of you rolling a 3, 6, 7, or 8 if you win $5 for rolling one of these numbers?

What is the desirability of you rolling a 5, 6, 7, or 10 if you win $5 for rolling one of these numbers?
What is the likelihood of you rolling a 5, 6, 7, or 10 if you win $5 for rolling one of these numbers?

What is the desirability of you rolling a 7, 8, 9, or 10 if you lose $1 for rolling one of these numbers?
What is the likelihood of you rolling a 7, 8, 9, or 10 if you lose $1 for rolling one of these numbers?

What is the desirability of you rolling a 4, 7, 8, or 9 if you lose $1 for rolling one of these numbers?
What is the likelihood of you rolling a 4, 7, 8, or 9 if you lose $1 for rolling one of these numbers?
What is the desirability of you rolling a 6, 7, 8, or 11 if you lose $5 for rolling one of these numbers?
What is the likelihood of you rolling a 6, 7, 8, or 11 if you lose $5 for rolling one of these numbers?

What is the desirability of you rolling a 5, 7, 8, or 10 if you lose $5 for rolling one of these numbers?
What is the likelihood of you rolling a 5, 7, 8, or 10 if you lose $5 for rolling one of these numbers?

What is the desirability of you rolling a 2, 4, 6, 8 or 9 if you win $1 for rolling one of these numbers?
What is the likelihood of you rolling a 2, 4, 6, 8 or 9 if you win $1 for rolling one of these numbers?

What is the desirability of you rolling a 3, 5, 7, 8, or 12 if you win $1 for rolling one of these numbers?
What is the likelihood of you rolling a 3, 5, 7, 8, or 12 if you win $1 for rolling one of these numbers?

What is the desirability of you rolling a 2, 5, 6, 8, or 10 if you win $5 for rolling one of these numbers?
What is the likelihood of you rolling a 2, 5, 6, 8, or 10 if you win $5 for rolling one of these numbers?
What is the desirability of you rolling a 5, 6, 7, 11, or 12 if you win $5 for rolling one of these numbers?

What is the likelihood of you rolling a 5, 6, 7, 11, or 12 if you win $5 for rolling one of these numbers?

What is the desirability of you rolling a 2, 3, 7, 8, or 9 if you lose $1 for rolling one of these numbers?

What is the likelihood of you rolling a 2, 3, 7, 8, or 9 if you lose $1 for rolling one of these numbers?

What is the desirability of you rolling a 5, 6, 8, 10, or 12 if you lose $1 for rolling one of these numbers?

What is the likelihood of you rolling a 5, 6, 8, 10, or 12 if you lose $1 for rolling one of these numbers?

What is the desirability of you rolling a 2, 6, 7, 9, or 11 if you lose $5 for rolling one of these numbers?

What is the likelihood of you rolling a 2, 6, 7, 9, or 11 if you lose $5 for rolling one of these numbers?

What is the desirability of you rolling a 2, 3, 5, 7, or 8 if you lose $5 for rolling one of these numbers?

What is the likelihood of you rolling a 2, 3, 5, 7 or 8 if you lose $5 for rolling one of these numbers?
What is the desirability of you rolling a 2,3,7,9,10, or 11 if you win $1 for rolling one of these numbers?
What is the likelihood of you rolling a 2,3,7,9,10, or 11 if you win $1 for rolling one of these numbers?

What is the desirability of you rolling a 4,5,8,10,11, or 12 if you win $1 for rolling one of these numbers?
What is the likelihood of you rolling a 4,5,8,10,11, or 12 if you win $1 for rolling one of these numbers?

What is the desirability of you rolling a 2,5,6,9,10, or 12 if you win $5 for rolling one of these numbers?
What is the likelihood of you rolling a 2,5,6,9,10, or 12 if you win $5 for rolling one of these numbers?

What is the desirability of you rolling a 3,4,5,9,10, or 11 if you win $5 for rolling one of these numbers?
What is the likelihood of you rolling a 3,4,5,9,10, or 11 if you win $5 for rolling one of these numbers?

What is the desirability of you rolling a 2,4,6,8,10, or 12 if you lose $1 for rolling one of these numbers?
What is the likelihood of you rolling a 2,4,6,8,10, or 12 if you lose $1 for rolling one of these numbers?
What is the desirability of you rolling a 3, 4, 7, 9, 11, or 12 if you lose $1 for rolling one of these numbers?

What is the likelihood of you rolling a 3, 4, 7, 9, 11, or 12 if you lose $1 for rolling one of these numbers?

What is the desirability of you rolling a 2, 3, 5, 8, 9, or 11 if you lose $5 for rolling one of these numbers?

What is the likelihood of you rolling a 2, 3, 5, 8, 9, or 11 if you lose $5 for rolling one of these numbers?

What is the desirability of you rolling a 4, 8, 9, 10, 11, or 12 if you lose $5 for rolling one of these numbers?

What is the likelihood of you rolling a 4, 8, 9, 10, 11, or 12 if you lose $5 for rolling one of these numbers?
APPENDIX F

JUDGMENT OF CONTROL QUESTIONNAIRE
When answering the following questions, think back to the statements you answered on the computer.

1. How much control did you have over getting the points to add up?
   0----10----20----30----40----50----60----70----80----90----100

   NO COMPLETE CONTROL

2. To what extent did the score increase when your DESIRABILITY ratings were HIGH?
   0----10----20----30----40----50----60----70----80----90----100

   NEVER ALWAYS

3. To what extent did the score increase when your DESIRABILITY ratings were LOW?
   0----10----20----30----40----50----60----70----80----90----100

   NEVER ALWAYS

4. To what extent did the score increase when you rated the LIKELIHOOD of an event HIGH?
   0----10----20----30----40----50----60----70----80----90----100

   NEVER ALWAYS
5. To what extent did the score increase when you rated the LIKELIHOOD of an event LOW?

0----10----20----30----40----50----60----70----80----90----100

NEVER ALWAYS

6. To what extent did the score increase when you rated the LIKELIHOOD of a DESIRABLE event as HIGH?

0----10----20----30----40----50----60----70----80----90----100

NEVER ALWAYS

7. To what extent did the score increase when you rated the LIKELIHOOD of a DESIRABLE event as LOW?

0----10----20----30----40----50----60----70----80----90----100

NEVER ALWAYS

8. To what extent did the score increase when you rated the LIKELIHOOD of an UNDESIRABLE event as HIGH?

0----10----20----30----40----50----60----70----80----90----100

NEVER ALWAYS

9. To what extent did the score increase when you rated the LIKELIHOOD of an UNDESIRABLE event as LOW?

0----10----20----30----40----50----60----70----80----90----100

NEVER ALWAYS
REFERENCES


VITA

The author, Marc Umar Wenzel, was born on November 18, 1968 in Ottawa, Canada. Mr. Wenzel attended Miami University in Oxford, Ohio, receiving a Bachelor of Arts degree with University Honors with majors in Psychology and German in May, 1990.

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval be the Committee with reference to content and form.

The thesis is, therefore, accepted in partial fulfillment of the requirements for the degree of Masters of Arts.

12-6-93
Date

Jeanne S. Albright
Director’s Signature