

THE RELATIONSHIP OF COPING AND CHOICE
TO VERBAL MEMORY AND BEHAVIORAL REACTIVITY

by

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Evidence suggests that individuals cope with stressful life events more effectively if they believe that they are in control of their environment. Rotter's Locus of Control is a measure of this belief about personal control. An individual with an internal locus of control would be more likely to believe that events are contingent on his or her behavior, and could thus be expected to feel more in control of his or her environment than an external locus of control individual. In addition to locus of control, it has been shown experimentally that allowing subjects to make a choice about outcomes also leads to enhanced perception of control in individuals. To test the hypothesis that perceived control will lead to better performance on a stressful memory task, and that individuals who believe they are in control will employ more problem-focused and fewer emotion-focused coping strategies, 60 undergraduate students from introductory psychology were given three lists of words to memorize and recall. Subjects were assigned to one of four groups: Internal/choice, Internal/No choice, External/Choice, External/No

Choice. Blood pressure and heart rate were taken for a behavioral reference. While subjects in the internal locus of control condition and the choice condition performed better than those in the external and no-choice condition, as predicted, results did not reach statistical significance. However, it was shown that internal locus of control subjects used significantly fewer avoidance coping responses than external locus of control subjects, and that there were significant differences in the number of coping responses recalled from memory and from immediately after the task.

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All people experience stressful events in their lives, but some individuals cope well with those events and some individuals do not. This observation has led researchers to focus on coping as a mediator variable between stress and illness (Mitchell, Cronkite, & Moos, 1983; Baum, Fleming & Singer, 1983).

Traditionally, coping was conceptualized as a stable personality trait which does not change significantly over time or situation. Examples of trait-like coping variables are hardiness (Kobasa, 1979), and sense of coherence (Antonovsky, 1979, 1987). According to Antonovsky, a person will choose a coping strategy that seems most appropriate to deal with the stressor being confronted.

Lazarus and Folkman (1984) regard coping as a multidimensional process that changes over time and across different aspects of a stressful encounter. Within this schema, coping is defined as a series of cognitive and behavioral attempts to manage circumstances that exceed one's personal resources. According to this view, two processes occur during a stressful event: cognitive appraisal, which includes primary and secondary appraisal, and coping (Folkman, 1984).

During primary appraisal an individual evaluates the significance of the situation or event, and decides whether it is irrelevant, positive, or challenging/threatening to his or her well-being. One of the most important factors in this appraisal is a person's generalized belief about control, or whether the individual believes he or she can control outcomes

of importance.

Rotter's (1966) concept of Locus of Control is a measure of this belief about personal control. A person with an internal locus of control would be more likely to believe that events are contingent on his or her behavior; a person with an external locus of control would be more likely to believe that events are precipitated by luck, chance, or fate rather than his or her behavior. Thus, in an ambiguous situation where situational cues are minimal or absent, a generalized belief about control may be translated into an appraisal of controllability for the internal locus of control person, while a person with an external locus of control may appraise it as uncontrollable (Folkman, 1984).

Research has suggested that people with an internal locus of control are:

- more likely to engage in an information search about health and disease than persons with external locus of control (Strickland, 1978);

- show more exertion and persistence in an achievement situation (Lefcourt, 1976);

- use more problem-focused than emotion-focused coping styles (Anderson, 1977);

- and were better able to identify the specific demands of a task and thus were able to select the appropriate coping strategy; those with an external locus of control reported more efforts to suppress their thinking about the issue and to inhibit action (Parkes, 1984).

Some additional empirical support exists for similar research findings in real life situations. For example, Solomon, Mikulincer, and Avitzur (1988) found that among Israeli combat soldiers, more severe PTSD was associated with external locus of control, emotion-focused coping styles, and lack of social support.

Secondary appraisal involves the individual's determination of whether anything can be done to reduce the chances of harm, and if so, what can be done. It is during secondary appraisal that a person may consider different coping strategies, such as altering the situation, accepting it, seeking more information, or holding back from acting impulsively (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986b). Also, in secondary appraisal the individual assesses coping resources, such as physical or mental stamina, and social supports. During secondary appraisal, the situational constraints are important. Primary and secondary appraisals converge to shape the meaning of every situation. The individual decides whether the stressor is significant to his or her well-being, and if so, whether it is primarily threatening (containing the possibility for harm or loss), or challenging (holding the possibility for mastery) (Folkman et al, 1985).

The second process which occurs during a stressful event is the actual choosing of the appropriate coping response. According to Folkman and Lazarus (1985) and Moos (1984), coping has two major functions: dealing with the problem causing the distress (problem-focused coping), and the

regulation of distressing emotions (emotion-focused coping). Problem-focused coping refers to an individual's attempt to eliminate or moderate stress by changing his or her behavior. Problem-focused forms of coping include planful problem solving and confrontive coping (Folkman et al, 1986a). Emotion-focused coping refers to behavioral or cognitive responses whose primary function is to manage the emotional consequences of stressors and to help maintain one's emotional equilibrium (Billings and Moos, 1981). Examples of emotion-focused coping include distancing, self-controlling, accepting responsibility, and positive reappraisal (Folkman et al, 1986a).

The relative proportions of each form of coping may vary according to how the situation is appraised. Folkman and Lazarus (1980, 1985) found striking differences in coping patterns between situations people appraised as being changeable and those appraised as not amenable to change. In changeable encounters, individuals used more problem-focused coping strategies which kept them focused on the situation: they confronted, problem-solved, accepted responsibility, and attended to the positive aspects of the encounter. In contrast, in situations that were appraised as non-changeable, individuals were more likely to distance themselves and to use escape-avoidance coping responses, forms of emotion-focused coping. Folkman, Lazarus, Pimley, and Novacek (1987) found that younger individuals tend to use more problem-focused styles of coping, and appraise situations as more amenable to change than do older

adults. Heppner, Reeder and Larson (1983) found that effective problem-solvers used more problem-focused coping and were less likely to blame themselves.

Additional empirical support also exists in this area. For example, Bachrach (1983) found that residents who thought they could do something about the threat of a nuclear waste dump site being located near their homes used more problem-focused coping than people who appraised it as being beyond their control. Folkman and Lazarus (1986b) found that problem-focused coping was used more during preparation for an exam than during the waiting period after the test and before grades were announced, when nothing could be done to change the outcome.

Most early researchers in stress and coping reported that the belief that one has control over a stressful situation would lead to stress-reduction (Thompson, 1981). Control can be defined as the belief that one has at one's disposal a response that can influence the aversiveness of a situation (Litt, 1988). According to this definition, control need not actually be provided to the individual, it must merely be perceived by the individual as being available to them. Perceived control, then, refers to the availability of a response, and appears to mediate stressfulness of a situation by lessening anxiety.

The idea of perceived control has been studied experimentally in many different ways. Glass and Singer (1972), for example, found that

subjects who were given the opportunity to control noise levels performed better on a subsequent problem-solving task than did subjects who had no control over the noise. Rodin and Langer (1977) found that elderly residents of a nursing home who had been given choices designed to increase their feelings of control over their environment showed improvement on health indices. Cohen (1980) reviewed the studies concerning the effects of stressors on personal control, and concluded that experimenter interventions which increase personal control and/or stressor predictability are effective in reducing poststressor effects. Brown and Siegel (1988) found that individuals who felt that the events in their lives were caused by uncontrollable events were more likely to be depressed than individuals who felt that events in their lives were controllable.

Chan, Karbowski, Monty, and Perlmutter (1986) showed that the perception of control develops from an opportunity to make choices. They concluded that when subjects are presented with an opportunity to choose, they utilize information about their decision processes, and this may increase the perception of control. Monty and Perlmutter (1987) suggest that choice appears to produce motivational effects which in turn are mediated by elevations in arousal and in the increased availability of cognitive resources.

These data imply that being able to make a choice of some kind in a stressful situation will contribute to the person's feeling in control of the

encounter. However, some research indicates that this is not always the case. For example, subjects who appear to be giving up control and not performing well in an experimental situation may be alleviating disappointment about the expected outcome (Rothbaum, Weisz, and Snyder, 1982). Averill et al (1977) showed that having control in an experimental situation is antagonistic to some individuals who prefer to avoid rather than confront situations.

Folkman (1984) suggests that this confusion results from several problems inherent in the measurement of coping. First, the researcher must know the significance or meaning of the situation or event for the person being tested. This meaning, according to Folkman, is determined by the cognitive appraisal process. Researchers also often confuse which part of the coping process they are measuring. Generalized beliefs about control and control appraisals are cognitive factors that influence the appraisal of threat or challenge in a particular encounter and should be viewed separately from control as a coping process, which refers to cognitive and/or behavioral efforts to exercise or seek control in that same encounter (Folkman, 1984).

Folkman and Lazarus's theory regarding stress and coping includes both person and situation factors. The idea that it is important to the person to feel that she has some control over the outcome of the stressful situation can be seen in two separate ways. Control may be exerted through her generalized beliefs, or Locus of Control. During primary

appraisal the person appraises whether the situation has relevance for her, if so, she appraises it as threatening or challenging. This appraisal is based on how much control she feels she has inherently within herself. Second, she appraises what the specific situational constraints are, and decides on a course of action. How much control she feels she has over the environment will determine, at least in part, how she decides to cope with the situation. Control, then, is important both as a generalized belief of the individual concerning the extent to which she feels she can control outcomes of importance, i.e., locus of control. Control is also important as a situational appraisal of the possibilities for control in a specific situation (Folkman, 1985). Both these processes occur during the appraisal of a stressful event.

This study was designed to assess the effects of a stressful situation on locus of control and choice. Basically, a sample of people was divided into groups based on whether they had internal or external locus of control, and were either given a choice about a group of words to memorize or were not given a choice (Monty and Perlmutter, 1987). The hypothesis was that if generalized beliefs are a more salient dimension in the coping appraisal process, the internal group would feel more in control of the situation, and hence, would perform better on the memorization task. If the situation is a more salient dimension, the group who had a choice of what words they would memorize would feel more in control of the situation, and would perform better. It was also hypothesized that

internals would use more problem-focused coping and less emotion-focused coping than externals, as would those in the choice group as opposed to the no-choice group. Further, it was hypothesized that the internal/choice group would perform better than the other groups, since they would have the experience of control both as generalized personal belief and in the form of a situational choice.

Folkman et al (1986) recommend verification of their stress and coping theory through the use of physiological measures. Adding physiological measures to a study of stress is in keeping with Baum, Grunberg & Singer's (1982) recommendation for multiple psychological, behavioral, and physiological measures in such research. Early physiological data supported the idea that perceived control over an aversive situation leads to a reduction in autonomic arousal (DeGood, 1975). More recent studies (Thompson, 1981) suggest that greater, rather than reduced, cardiovascular reactions are evoked when individuals are led to believe they are in control of a given situation. Obrist (1981) has argued that the magnitude and duration of cardiovascular responses are governed by the extent to which individuals are engaged in effortful coping. Therefore, it would be interesting to study whether there are differences in physiological arousal among the experimental groups.

Method

Subjects

A total of 93 Introductory Psychology students (44 females, 49 males) participated in this study for extra course credit. Of these students, 62 (27 females, 33 males) were selected for additional testing, according to their scores on Rotter's Locus of Control Scale, using a median-split procedure ($x = 10.14$, $S.D. = 4.5$, $Range = 1-20$).

Materials and Apparatus

The revised Ways of Coping Checklist (WCCL: Vitiliano, Russo, Carr, Maiuro, & Becker, 1985), was used to assess coping strategies. The Revised WCCL is a 40-item self-report scale which was designed to assess coping in a specific encounter. The measure is designed to tap dimensions of Folkman and Lazarus's theory of coping such as primary and secondary appraisal, and emotion versus problem-focused coping strategies. Locus of Control was measured by Rotter's scale (1966,1975).

Stimulus words for the memory task were 48 high-meaningful five-letter CVCVC words, generated by Locascio and Ley (1972). The words were assembled into 3 lists for the subjects to memorize. Each list consisted of 16 stimulus words with two possible response words for each stimulus word.

Physiological measures were systolic and diastolic blood pressure (SBP,DBP) and heart rate (HR). These measures were taken during baseline, problem-solving, and a recovery period, using portable battery-

operated blood pressure and pulse monitors.

Procedure

Students signed up for a Life Challenges study, in which they were asked to come to a group meeting in which they would be asked to fill out some questionnaires with regard to challenges in their lives. Students were requested not to sign up for this experiment if they were not willing to come back for another half hour of testing if they were called. At the mass testing, subjects were administered Rotter's Locus of Control Scale. Upon completion of the Rotter scale, Ss were asked to recall a stressful event which had occurred in the past two weeks and which had to do with academic life. Examples given were: you failed a big test, you had to tell your parents you were getting a D, you have a paper due and it isn't ready, etc. They were then instructed to fill out the Ways of Coping Scale with regard to how they coped with the stressful event. Students were dismissed after completing the two scales, and were reminded that they could be called for another half hour's worth of testing.

Scores on the Rotter scale were calculated. Overall mean score was 10.14, (S.D. = 4.5, Range = 1-20), subjects with scores of 9 or below were considered to fit the criteria for internal locus of control, externals were those with a score of 11 or greater. All subjects who met this criteria were contacted. Due to scheduling difficulties a total of 62 people were re-tested. Subjects were assigned to Internal/External groups using a stratified random assignment procedure, half the subjects were assigned

to a choice group, half to a no-choice group. Two data sets were later discarded because of physiological equipment difficulties. A 2x2 factorial design (choice vs. no choice) and (internal vs. external locus of control) resulted in 4 groups of 15 subjects.

On the day of the experimental session, each subject was met by the experimenter at the experimental room. The subject was seated in a comfortable chair and asked to relax. The subjects were told that we were interested in the effects of memorization on blood pressure, and we would be taking their blood pressure during the session as they learned some words. A blood pressure cuff was attached to the subject's left arm. The subjects were monitored on blood pressure and heart rate for a 3 minute adaptation period. These measures were taken after 3, 4, and 5 minutes in order to compute a baseline measure. Baseline values for these measures were the average of these readings during the adaptation period.

Subjects in the choice group were then told that their task was to memorize 3 lists of words. The words were taken from Locascio and Ley's (1972) list of high meaningful words, and were counterbalanced to control for order effects. Subjects in the choice group were presented with the 3 lists in booklet form, and were told that they had a choice in which words they would like to memorize. They were instructed to look the words over, and then to choose which response word they would like to memorize in conjunction with each stimulus word. They were instructed to underline the word they chose. Subjects in the no-choice group were yoked to the

choice participant who was tested before them. The subjects in the no-choice condition were told that we would like them to memorize a group of words in conjunction with each stimulus word, and that the word had been underlined for them. They were asked to look over the words, and to say each stimulus and response word to themselves, to control for practice effects. The subjects were then asked to memorize all the pairs of words on each of three lists. They were given one minute to learn each list.

In order to promote the stressfulness of the task, the subjects were told that most students his or her age could memorize and recall the words without any trouble, and that their blood pressure would be taken throughout the task.

Upon completion of the memorization procedures, the experimenter said each word aloud and waited 5 seconds for the subject to give the response word. After 5 seconds the experimenter went onto the next word.

At the end of the task, the subjects were asked to fill out the Ways of Coping Checklist (Vitiliano et al, 1985) with reference to the task which they have just completed. Blood pressure measures were taken during memorization of the words, twice during recall of the words, once while the subject was endorsing the Ways of Coping Checklist, and once after the task for another baseline measure. Thus, a total of 8 measures were taken, with the first three combined for baseline, for a total for 5 blood pressure readings for each subject. Subjects were then told the reason for the experiment, and were thanked for their participation.

Pilot Study

Prior to the actual experiment, 15 subjects were tested in a pilot study. These individuals were asked to volunteer for extra credit in their Psychology course. The first 8 subjects were given the experiment as described above, with two exceptions. One was that they were asked to write the words they recalled rather than repeating them to the experimenter. The other difference was that the experimenter was in a different room during the task. The subjects indicated that the task was not stressful, hence changes were made to make the task more stressful. The subjects indicated that having to say the words out loud, to the experimenter who was sitting in front of them would increase the stressfulness of the task. The remaining 7 subjects were tested in this manner, and rated the experimental task as moderately to very stressful.

Results

The major dependent measure was mean number of words recalled correctly from the memorization task. Table 1 presents the raw scores for each subject, by group, for each list.

Place Table 1

About Here

The results in Table 2 indicate that overall, the internal group (overall mean = 10.16 words) performed better on the memorization task across lists than the external group (overall mean = 8.33 words), and that the choice group (overall mean = 9.66 words) performed better than the no-choice group (overall mean = 8.53 words), as predicted.

Place Table 2 About Here

In order to statistically evaluate the effects of locus of control and choice on performance, a two-way analysis of variance (ANOVA) on the between subject effects of locus of control and choice/no-choice was performed on the data. The results, shown in Table 3 indicate that there

were no significant effects for the internal/external manipulation, or for the choice/no-choice manipulation. A wide range of scores (0 to 14; SD = 3.12) may have precluded finding significant effects.

Place Table 3 About Here

Examination of the raw scores indicate some subjects with scores of 0 or 1 correct responses. Further analyses were run on the data, setting a performance criterion of 2 correct responses or better, deleting those subjects who did not meet the performance criteria. These analysis included a mixed design using the number of correct responses as a within subject variable. However, these analyses were not appreciably different from the original results, in that they were also nonsignificant.

The subject's scores then were divided into two groups, using a mean split procedure on performance scores. Those subjects who scored above the mean (4.12 number of correct responses on list 1) were designated as high performers, those below the mean were designated low performers. One tailed t-tests indicate that there are significant differences among the high and low performers in terms of baseline blood pressure and in emotion and problem focused coping responses. As may be seen in Table 4, during baseline, those individuals who performed above the mean on the memorization task had lower systolic blood pressure (mean = 82.24) than those who performed below the mean (mean = 97.89).

Place Table 4 About Here

As indicated in Table 5, high performers also reported using significantly fewer emotion-focused coping, and more problem-focused coping than those subjects who performed less well.

Place Table 5 About Here

An analysis of variance (ANOVA) performed on the Ways of Coping Checklist scores indicate significant differences in the number of emotion-focused coping responses among internal and external locus of control groups, as predicted. The internal locus of control group reported using significantly fewer avoidance coping responses. Avoidance coping is a form of emotion-focused coping. As seen in Table 6, the results also indicate a significant interaction between the internal and choice groups with regard to the number of avoidance coping responses used. However, there were no significant differences between the number of problem-focused coping responses used between either the internal/external group, or the choice/no-choice group.

Place Table 6 About Here

A repeated measures analysis of variance (ANOVA) showed marginal differences among individuals in terms of blood pressure at baseline. Specifically, individuals in the choice group had marginally lower systolic blood pressure at baseline than the no-choice group $df(1,56) = 3.22, p > .07$.

An analysis of covariance (ANCOVA) was performed on the blood pressure data. A covariance procedure was done because even nonsignificant baseline differences between the subject groups may obscure or contribute to what might be reliable change score differences (Glass et al, 1983). The results indicate that there were significant blood pressure differences across time during the task, $DF (1,56) = 45.36, p > .0001$. These results indicate that there were individuals differences on blood pressure from the start of the task to the end of the task, indicating that subjects did experience the task as stressful since their blood pressure did rise during the task. However, there were not significant differences between groups on blood pressure during the task.

There were significant differences in the number of coping responses reported on the pre and post test WCCL. As seen in Table 7, subjects

reported using significantly more coping responses in the stressful event that they were asked to recall ($x = 10.40$), than they did in the task they completed in the lab setting ($x = 5.91$).

Place Table 6 About Here

Discussion

Although the group mean scores on the memorization/recall task were in the predicted direction, these differences failed to reach statistical significance. The nonsignificant outcomes appear to be attributable to a large range of scores on the task. It is possible that the memorization task was too difficult, thus no matter how much control an individual perceived she had in the experimental condition, the task was beyond her competence level. It is also possible that the experimental manipulation was not strong enough. Perhaps giving the subjects the choice between two equally attractive alternatives (Monty and Perlmutter, 1987) would have effected better differences between the groups.

Experimenter bias may also have been a factor in this study. The experimenter knew in advance which group each individual was assigned to, and may have inadvertently given cues to individuals in the choice or the internal locus of control groups.

The results do indicate that there are some differences in coping styles between individuals with internal and external locus of control. Internal locus of control subjects reported using fewer avoidance coping responses than external locus of control subjects. This was true both for the stressful event they were asked to recall, and for the memorization task in the laboratory. Previous research has indicated that internals tend to use more problem-focused coping (Anderson, 1977), and that they show more exertion and persistence in achievement situations (Lefcourt, 1977).

Thus, it appears that an internal locus of control individual is more likely to think that they have the competence to deal with a stressful situation, making avoidance of the situation unnecessary. This finding suggests that their ability to experience being in control of a situation allows them to confront problems more actively than an external locus of control individual would. The significant interaction between the internal group and the choice group in the use of avoidance coping responses might indicate that being given a choice also may lead to a sense of control, and allow the subjects to use more adaptive forms of coping, rather than avoidance.

There were also statistically significant differences between good and poor performers on the memorization task. Differences were shown for the number of problem and emotion-focused coping responses used, and in the level of physiological arousal. Subjects who performed well on the task used fewer emotion-focused coping responses and more problem-focused coping responses than did those subjects who performed more poorly. This finding suggests that rather than avoiding or distancing from the task, they engaged in more problem-focused coping strategies, perhaps enabling them to perform better. It is possible that these people appraised the situation as challenging, rather than stressful, and were thus able to cope more effectively. This proposition is in line with Folkman and Lazarus's contention that positive appraisal facilitates problem-focused coping.

Subjects who performed better also were less physiologically aroused at baseline than subjects who performed poorly. This finding suggests that there may have been differences in how subjects perceived the situation (i.e., threatening or challenging), with this perception perhaps influencing subsequent performance. It may also be that the perception of challenge can lead to a sense of control of the situation.

The results from this study support Susan Folkman's (1984) contention that in order to understand whether a person feels that they have the ability to control stress in their lives, one has to know the meaning of the event in question for the person involved. For those subjects who performed well on the task, there were differences in coping styles and blood pressure. Seemingly then, the outcome was important to these individuals. For the other subjects, the outcome was perhaps not as important. It is possible that they appraised the situation as not meaningful enough, and hence were not motivated to try to perform better. As Folkman (1984) would frame it, they had insufficient commitment to the situation.

Another interesting finding was the difference in number of coping responses reported pre to post test. In the pre test subjects were asked to recall coping strategies from a stressful event in their recent past. After the subjects performed the memorization and recall task they were asked to answer the WCCL based on that experience. There were much fewer coping responses reported for the task completed, perhaps because there

are some constraints about what a person can say about a stressful laboratory situation. For example, it is unlikely that they would report that they sought social support to deal with the situation. However, it appears clear that the differences in the number of coping responses reported post-test might have implications for coping research. Most of the coping research done previously has used the retrospective method of measuring coping. The results from this study indicate that there may be memory distortion when subjects are asked how they coped last week or last month.

It may also be that the differences in coping responses in this study are a result of the task not being stressful enough. However, there were clearly significant differences among all subjects from baseline to task in blood pressure measures, indicating that they were being stressed.

The question of the association between retrospective reports and laboratory measures has been discussed before with regard to the generality of testing situations and methods, as well as response specificity (e.g., self-report versus physiological measures). Experimental stressors tend to differ from everyday stressors, for example, both in the degree of complexity involved, and in the degree of the relevance of the stressor to the individual. It is difficult to extrapolate from a laboratory study that a person who copes well in a stressful experimental situation would necessarily do well in stressful situation with different meaning for her. Therefore, it appears to be important that some lab studies be designed to simulate stressful life situations as much as possible to increase their

ability to predict real life responses.

The many field studies done in the area of stress and coping has allowed researchers to build a good theoretical base for coping measurement. Researchers now have a good idea about which life events individuals find stressful, and therefore have been able to design and validate the measurement of coping. Thus, it would appear that researchers in this area need to measure coping in a variety of laboratory and everyday stressful situations, using multiple measures (Baum et al, 1983), which might include such variables as the meaning of the stressors and situations for the individual, and how confident they are of their performance and of the outcomes (Bandura, 1986). Only by measuring coping in a variety of laboratory and field studies will researchers begin to gather converging evidence about the nature of coping responses and their relation to various theories.

Table 1
 Mean number of correct responses per subject, per list,
 per group

<u>Group</u>	<u>L1</u>	<u>L2</u>	<u>L3</u>	<u>Group</u>	<u>L1</u>	<u>L2</u>	<u>L3</u>
<u>CHCE/INT</u>				<u>NO CHCE/INT</u>			
S1	3	1	2	S1	11	5	0
S2	4	3	1	S2	3	2	2
S3	4	1	2	S3	0	1	1
S4	9	2	3	S4	3	6	6
S5	1	5	2	S5	5	2	5
S6	4	7	4	S6	2	1	1
S7	5	4	1	S7	2	2	0
S8	7	1	3	S8	9	0	7
S9	2	5	7	S9	2	5	2
S10	3	3	2	S10	3	1	0
S11	7	3	5	S11	5	1	2
S12	1	0	2	S12	8	3	7
S13	4	2	3	S13	9	2	0
S14	6	5	3	S14	5	4	7
S15	5	5	5	S15	0	2	3
X =	4.33	3.13	3.00	X =	4.46	2.46	2.93
S.D. =	2.26	2.00	1.65	S.D. =	3.39	1.76	2.76

<u>Group</u>	<u>L1</u>	<u>L2</u>	<u>L3</u>	<u>Group</u>	<u>L1</u>	<u>L2</u>	<u>L3</u>
<u>CHCE/EXT</u>				<u>NO CHCE/EXT</u>			
S1	4	6	5	S1	8	3	0
S2	3	1	3	S2	4	0	1
S3	1	0	1	S3	1	4	2
S4	8	6	7	S4	0	0	2
S5	1	2	1	S5	14	5	1
S6	11	9	10	S6	3	0	0
S7	2	3	3	S7	5	5	5
S8	0	0	1	S8	2	5	3
S9	6	2	2	S9	3	4	1
S10	4	3	1	S10	5	3	1
S11	7	0	3	S11	1	0	0
S12	3	1	1	S12	4	0	0
S13	4	2	2	S13	4	2	2
S14	1	1	2	S14	1	0	2
S15	7	2	0	S15	0	1	1
X =	4.13	2.53	2.80	X =	3.66	2.13	1.4
S.D. =	3.11	2.60	2.68	S.D. =	3.60	2.10	1.35

Table 2
Mean number of Correct Responses per list, per group

<u>Group</u>	<u>n</u>	<u>List1</u>	<u>List2</u>	<u>List3</u>	<u>Overall</u>
Chce/Int	15	4.33	3.13	3.00	10.46
No Chce/Int	15	4.46	2.43	2.94	9.86
Chce/Int	15	4.13	2.53	2.80	9.46
No Chce/Ext	15	3.60	2.13	1.40	7.20

Table 3
Effects of Choice and Locus of Control on Performance

<u>Condition</u>	<u>df</u>	<u>ANOVA SS</u>	<u>F</u>	<u>p</u>
Choice	1	50.41	1.56	.217
Type	1	30.81	.95	.333
Choice/Type	1	10.41	.32	.57
Within	56	32.41		

Table 4
Mean Number of Responses for Hi/Lo Performance Group

Group	PF Coping	EF Coping	Soc Support	Base Systolic	Base Diastolic	Base Heartrate
Hi Perf n=32	2.63	.070	.72	125.60	82.42	76.95
Lo Perf n=28	1.89	1.18	.89	122.70	97.90	79.58

Hi Performers = Correct response greater than 4.12 on List 1. Internal Locus of Control = 17, External = 15; choice = 18, No Choice = 14.
 Lo Performers = Correct response less than 4.12. Internal Locus of control = 13, External = 15; Choice = 12, No choice = 12.

Table 5
Differences Among Hi and Lo Performers on Coping and Blood Pressure

	<u>Hi Perf. n=22</u>	<u>Lo Perf. n=38</u>	<u>p</u>
Emotion-focused coping	x = .69	x = 1.18	.04
Problem-focused coping	x = 2.63	x = 1.89	.07
Baseline Systolic B.P.	x = 82.24	x = 97.89	.02

Table 6
Differences in Avoidance Coping between Internal and External Locus of
Control Group

<u>Condition</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Internal/Ext.	1	18.15	12.12	.001
Choice	1	2.01	1.35	.25
IE/Chce	1	12.15	8.11	.006
Within	56	83.86		

Table 7
Mean number of coping responses pre to post test

<u>Coping Response</u>	<u>Pre-test mean</u>	<u>Post-test mean</u>
Problem-focused	3.11	2.16
Wishful thinking	2.26	.05
Blamed Self	2.16	1.70
Soc. Support	1.56	.75
Avoidance	1.25	.73

APPENDIX A: Literature Review

Recent research on the relationship between stress and illness has focused on coping mechanisms as a mediating variable (Mitchell, Cronkite & Moos, 1983); Baum, Fleming, & Singer, 1983). Lazarus (1981) suggests that the existence of stress may be less important to well-being than how an individual appraises and copes with the stress. Stress is defined by Lazarus and Folkman (1985) as a relationship between the person and the environment, that is appraised as relevant to a person's well-being, and in which his or her resources are being exceeded. In this definition, stress is not a property of the person or the environment, rather, it results from a bi-directional interaction between person and environment.

Coping has been conceptualized by some as a stable personality trait which does not change significantly over time or situation. Examples of trait-like coping variables are hardiness (Kobasa, 1979, 1981), and sense of coherence (Antonovsky, 1979, 1987). According to Antonovsky, a person with a strong sense of coherence will choose a coping strategy that seems most appropriate to deal with the stressor being confronted. The assumption in personality-trait conceptualizations of coping is that a person has basic, underlying personality traits which predispose her to cope in certain ways.

Coping has also been seen as a defensive process, (Vaillant and Drake, 1985), with a person's coping responses ranging from primitive to sophisticated, depending on how well the person is functioning.

The trait approach to coping has been criticized for oversimplifying the role of the situation, overlooking the possibility that multiple coping strategies may be used in the same situation, and that coping strategies used by individuals may vary across different contexts (Dolan and White, 1988).

Moos (1984) considers coping as a function of the type and severity of the stressor, and the personal characteristics of the individual involved. Moos emphasizes the importance of studying the context in which the stressor exists because coping is seen as a response to the psychological and environmental demands of specific encounters.

Perlin and Schooler (1978) defined coping as the things that people do to avoid being harmed by life stressors. They looked at the relative contributions of personality characteristics and coping responses to psychological health. Their results indicate that personality characteristics such as mastery and self-esteem were more helpful to the stressed person in those situations in which the person felt there was little opportunity for control, such as work. In contrast, effective coping response such as advice-seeking and negotiation, were most helpful in areas in which the person had some control, i.e., in relationships.

Lazarus and Folkman (1984) regard coping as a multidimensional process that changes over time and across different aspects of a stressful encounter. Within this schema, coping is defined as a series of cognitive and behavioral attempts to manage circumstances that exceed one's

personal resources. According to this view, two processes occur during a stressful event: cognitive appraisal, which includes primary and secondary appraisal, and coping (Folkman, 1984).

The way a researcher conceptualizes coping will affect how it is measured. Personality theorists, those who seen coping as a function of the person's underlying and stable traits, use mostly adjective checklists or sentence stems to assess generalized adaptive strategies, rather than specific situation-specific strategies of coping. Other measures of coping strategies include standardized instruments, interviewing protocols, or observational techniques that assess the use of cognitive, affective, and behavioral coping strategies in response to a specific stressor (Aldwin & Revenson, 1987). The most well-known of these measures is Folkman and Lazarus's Ways of Coping Scale (WCCS), (1984).

Tennen and Herzberger (1986) found that the WCCS had adequate test-retest reliability, internal consistency, construct and concurrent validity. However, they caution researcher to be aware of possible biases in its use of recall for the stressful event, and possible mood states biases in the recall. For example, if a person is depressed when they are recalling a stressful event, the researcher should consider that the depression probably will influence how the event is recalled.

The Ways of Coping Checklist (WCCL) is a revised version of Folkman and Lazarus's original scale. This scale was developed by Vitiliano, Russo, Carr, Maiuro, and Becker (1985) by factor analyzing the

original scale and the revised scale on a population of 83 psychiatric patients, 62 spouses of Alzheimer's patients, and 425 medical students. The revised scale was shown to be more reliable, and to share substantially less variance than the original scales across all populations. The revised scale was also shown to have construct validity and concurrent validity. However, it is still based on retrospective accounts of the stressful event.

APPENDIX B: Study Procedure and Forms

Instructions to Subjects

Choice Condition: "We are conducting a study about how well people remember words. We are also interested in how your body reacts to this task, so we would like to take your blood pressure and heart rate. We will be attaching this blood pressure cuff to your left arm." At this point, the blood pressure equipment will be attached.

"We will be asking you to memorize and recall three lists of words. Most students your age do very well on this task. Here are the three lists of words. Each list consists of 16 stimuli words and a choice of two response words for each stimuli word. What I want you to do is look at each stimuli word and the two response words. Then I want you to chose which response word you want to learn with the stimulus word. Indicate this by underlining the response word you have chosen for all three lists. Let me know when you have finished."

(No-Choice Condition: Subjects in the no-choice condition were told the following), "We are conducting an experiment about how people learn words. We are also interested in how your body reacts to this task, so we will be taking your blood pressure and pulse, also."

"We have three lists of words here. Each list consists of 16 stimulus words, followed by two response words. One response word has been underlined for each stimulus word. We would like you to memorize the stimulus word and the response word that has been underlined. Let me

know when you have finished. You will have one minute to memorize each list, and we will be asking you to recall all three lists. Please take some time now and read each word, along with the underlined response word. Say each word to yourself, and do this for the all three lists. Most students your age do very well on this task." The subjects will be asked to recall the lists in the order of the subject from the choice condition.

At the end of the task, the subjects will have the blood pressure apparatus removed. They will then be asked to fill out the Ways of Coping Checklist with respect to the experimnt.

INFORMED CONSENT

This study is interested in how college students deal with challenging life events. You will be asked to fill out two questionnaires pertaining to your life as a student. It will take approximately 20 minutes to fill out the questionnaires. You will receive one credit toward your point total in Introductory Psychology or other psychology course.

Some of you will be asked to participate in the second half of this study. It will entail another 20 minutes of your time. If you qualify, you will be contacted by phone and asked to participate. If you are not willing to return for the second half of the study, please do not sign up for this study.

If you are willing to participate, please read the following and sign below:

"I have read and understand the above directions. I am willing to fill out two questionnaires. I understand that I may cease participation in the task at any time without penalty".

Signed _____ Date _____

Print Name _____ ID Number _____

Information concerning this study may be obtained from Christine Rand, Dept. of Psychology, VPI & SU (Tel. 961-0536), Dr. J. J. Franchina, VPI & SU, (Tel 961-5664), or Dr. Stephen Zaccaro, VPI & SU, (Tel. 961-7916), or Mr. Chuck Waring, Chair of the Institutional Review Board, VPI & SU.

ROTTER SCALE

This is a questionnaire to find out the way in which certain events in our society affect different people. Each item consists of a pair of alternates lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously, there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate sheet which is loosely inserted in this booklet. Remove this answer sheet now. Print your name on the answer sheet and code in your social security number, then finish reading these directions. Do not open the booklet until you are told to do so.

Please answer these items carefully, but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and indicate your choice of the "a" or "b" beside the appropriate item number.

You may discover that you believe both statements or neither one. In such cases, be sure to select the one you most strongly believe to be the case as far as you're concerned. Also, try to respond to each item independently when making your choice; do not be influenced by your previous choices.

I more strongly believe that:

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run, people get the respect they deserve in this world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try, some people just don't like you.
b. People who can't get others to like them, don't understand how to get along with others.
8. a. Heredity plays a role in determining one's personality.
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well-prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.
b. This world is run by a few people in power, and there is not much the little guy can do about it.
13. a. When I make plans, I am almost certain that I can make them work.
b. It is not always wise to plan ahead because too many things turn out to be a matter of good or bad fortune anyway.
14. a. There are certain people who are just no good.
b. There is some good in everybody.
15. a. In my case, getting what I want has little or nothing to do with luck.
b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
b. Many times we might just as well decide what to do by flipping a coin.
17. a. As far as world affairs are concerned, most of us are victims of forces we can neither understand nor control.
b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There is really no such thing as "luck".
19. a. One should always be willing to admit his mistakes.
b. It is usually better to cover up one's mistakes.
20. a. It is hard to know whether a person really likes you.
b. How many friends you have depends on how nice a person you are.
21. a. In the long run, the bad things that happen to us are balanced by the good things.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort, we can wipe out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.
23. a. Sometimes I can't understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grade I get.
24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people, if they like you, they like you.
27. a. There is too much emphasis on athletics in high school.
b. Team sports is an excellent way to build character.
28. a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a. Most of the time I can't understand why politicians behave the way they do.
b. In the long run the people are responsible for bad government on a national as well as on a local level.

LAST 4 DIGITS OF SS # _____

What we would like you to do is to recall a stressful event which occurred in the past three months pertaining to academics and your life as a student. This stressful event might be something like taking a difficult test, studying for finals, explaining your grades to your partents, etc. After you have recalled the stressful event, please fill out the following questionnaire with regard to how you dealt with that event.

DIRECTIONS; INDICATE WHICH OF THESE STATEMENTS ARE DESCRIPTIVE OR CHARACTERISTIC OF HOW YOU DEALT WITH A STRESSFUL EVENT BY PLACING A CHECKMARK BESIDE THAT ITEM.

1. Bargained or compromised to get something positive from the situation.
2. Talked to someone to find out about the situation.
3. Blamed myself.
4. Hoped a miracle would happen.
5. Went on as if nothing had happened.
6. Concentrated on something good that could come out of the situation.
7. Accepted sympathy and understanding from someone.
8. Criticized or lectured myself.
9. Wished I was a stronger person-more optimistic and forceful.
10. Felt bad that I could not avoid the problem.
11. Tried not to burn my bridges behind me, but left things somewhat open.
12. Got professional help and did what they recommended.
13. Realized I brought the problem on myself.
14. Wished I could change what had happened.
15. Kept my feelings to myself.
16. Changed or grew as a person in a good way.
17. Talked to someone who could do something about the problem.
18. Imagined a better time or place than the one I was in.
19. Slept more than usual.
20. Made a plan of action and followed it.
21. Asked someone I respected for advice and followed it.

22. Had fantasies or wishes about how things might turn out.
23. Got mad at the people who caused the problem.
24. Accepted the next best thing I wanted.
25. Came out of the experience better than I went into it.
26. Talked to someone about how I was feeling.
27. Thought about fantastic or unreal things (like perfect revenge or finding a million dollars) that made me feel better.
28. Tried to forget the whole thing.
29. Tried not to act too hastily or follow my own hunch.
30. Stood my ground and fought for what I wanted.
31. Wished the situation would go away or somehow be finished.
32. Tried to make myself feel better by eating, drinking, smoking, taking medication.
33. Just took things one step at a time.
34. Avoided being with people in general.
35. I knew what had to be done, so I doubled my efforts and tried harder to make things work.
36. Kept others from knowing how bad things were.
37. Came up with a couple of different solutions to the problem.
38. Refused to believe what had happened.
39. Accepted my strong feelings, but didn't let them interfere with other things too much.
40. Changed something about myself so I could deal with the situation better.

INFORMED CONSENT FORM

This is a study on physiological responding to a verbal learning task. You will have a blood pressure cuff attached to your arm and you will be asked to relax for 5 minutes while a baseline blood pressure reading is taken. You will then be asked to study three lists of words. Each list consists of 16 stimulus and 32 response words. You will be asked to memorize one response word in conjunction with one stimulus word. You will be given one minute per list for the memorization. The experimenter will then say each stimulus word aloud, and you will be asked to recall the appropriate response word. Your blood pressure will be taken throughout the task. At the end of the experiment, you will be asked to fill out a questionnaire relating to the experiment.

The experiment will take approximately 20 minutes. Your answers and responses will remain anonymous and confidential. Your participation will earn you 1 point toward your credit point total in Introductory Psychology or other psychology course. If you are willing to participate, please read the following statement and sign below.

"I have read and understand the above directions. I am willing to learn a list of words and have my blood pressure monitored while doing so. I am also willing to fill out a questionnaire regarding the study at the end of the learning task. I understand that I may cease participation in the study at any time without penalty".

Signed _____ Date _____

Print Name _____ ID No. _____

Information concerning this study may be obtained from Christine Rand, Dept. of Psychology, VPI & SU, (Tel. 961-0536), Dr. J. J. Franchina, Dept. of Psychology, VPI & SU, (Tel. 961-5664), or Dr. S. Zaccaro, Chairman of the Human Subjects Committee, VPI & SU, (Tel. 961-7916), or Mr. Chuck Waring, Chair of the Institutional Review Board.

1. RESIN	JEWEL WAGON	9. YUKON	GAVEL FAVOR
2. LIMIT	GENUS RADAR	10. MAXIM	SALAD PUPIL
3. FAVOR	TOPIC DEVIL	11. COMIC	VIGIL LOCUS
4. POWER	SATIN RIVER	12. FACET	PECAN RUMOR
5. DOZEN	FOCUS RIGOR	13. VICAR	CADET MANOR
6. WATER	NYLON FIBER	14. KARAT	VIGIL FAVOR
7. ROBIN	SINUS NOMAD	15. HUMUS	DIGIT MORON
8. MEDAL	SEDAN VIRUS	16. RIVER	TENOR RUMOR

1. TABLE	PUPIL TEASE	9. FAVOR	WATER RIDER
2. PANEL	CABIN JUROR	10. WAGON	HONEY NOVEL
3. SEDAN	TOPAZ VENOM	11. CAPER	GENUS LOCUS
4. VIGOR	DOZEN TULIP	12. BASIS	MIMIC PECAN
5. HUMOR	TUNIC VINYL	13. FEVER	BATON KARAT
6. DECOY	SYRUP VIRUS	14. MERIT	TOTEM DEPOT
7. MORON	DECOR POWER	15. POKER	WOMEN JUROR
8. HOTEL	SINUS MERIT	16. LILAC	NOMAD MANOR

1. LAGER	FUROR BARON	9. DECOR	VALET CYNIC
2. VALET	LOTUS MAXIM	10. ROTOR	MERIT FORUM
3. FACET	COINS PAPER	11. BIGOT	VINYL VAPOR
4. TUNIC	CHAIR VIRUS	12. TENOR	SYRUP METAL
5. PERIL	RAVEN LIMIT	13. VOWEL	RUMOR SALAD
6. CADET	NYLON DOZEN	14. SINUS	NOMAD SABER
7. WIDOW	SEDAN BAKER	15. DIGIT	RAVEN EAGLE
8. HUMOR	DECOY STONE	16. BASIS	CAPER MERIT

REFERENCES

- Abbott, J., Sutherland, C., & Watt, D. (1997). Cooperative dyadic interactions, perceived control, and task difficulty in Type A and Type B individuals: a cardiovascular study. Psychophysiology, *24*, 1-12.
- Aldwin, C.M. & Revenson, T.A. (1987). Does coping help? A reexamination of the relation between coping and mental health. Journal of Personality and Social Psychology, *53*, 337-348.
- Anderson, C. R. (1977). Locus of control, coping behaviors, and performance in a stress setting: A longitudinal study. Journal of Applied Psychology, *62*, 446-451.
- Antonovsky, A. (1979). Health, Stress, and Coping. San Francisco: Jossey-Bass.
- Averill, J. R. (1973). Personal control over aversive stimuli and its relationship to stress. Psychological Bulletin, *80*, 286-303.
- Bandura, A. (1986). Social foundations of thought and action: A Social Cognitive Theory. New York: Prentice Hall.
- Baum, A., Singer, J.E. & Baum, C. S. (1981). Stress and the environment. Journal of Social Issues, *37*, 4-35.
- Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. Journal of Behavioral Medicine, *4*, 139-157.
- Brown, J.D., & Siegal, J. M. (1988). Attributions for negative life events and depression: the role of perceived control. Journal of Personality

and Social Psychology, 54, 316-322.

Chan, F., Karbowski, J., Monty, R.A., & Perlmutter, L.C. (1986).

Performance as a source of perceived control. Motivation and Emotion, 10, 59-70.

Collins, D.L., Baum, A., & Singer, J.E. (1983). Coping with chronic stress at Three Mile Island: Psychological and Biochemical Evidence.

Health Psychology, 2, 149-166.

Cohen, S. (1980). Aftereffects of stress on human performance and social behavior: A review of research and theory. Psychological Bulletin, 88, 82-108.

De Good, D. E. (1975). Cognitive control factors in vascular stress responses. Psychophysiology, 12, 399-401.

Dolan, C.A., & White, J. W. (1988). Issues of consistency in coping with daily stressors. Journal of Research in Personality, 22, 395-407.

Glass, D.G., Lake, C.R., Contrada, R.J., Kehoe, K., & Erlanger, L.R.

(1983). Stability of individual differences in physiological responses to stress. Health Psychology, 2, 317-341.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. Journal of Health and Social Behavior, 21, 219-239.

Folkman, S. (1982). An approach to the measurement of coping. Journal of Occupational Behaviour, 3, 95-107.

- Folkman, S. (1984). Personal control and stress and coping processes: a theoretical analysis. Journal of Personality and Social Psychology, 46, 839-852.
- Folkman, S., & Lazarus, R. S. (1985). If it changes, it must be a process: Study of emotion and coping during three stages of a college examination. Journal of Personality and Social Psychology, 48, 150-170.
- Folkman, S., Lazarus, R. S., Gruem, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. Journal of Personality and Social Psychology, 50, 571-579.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986b). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50, 992-1003.
- Folkman, S. & Lazarus, R. S. (1986). Stress processes and depressive symptomatology. Journal of Abnormal Psychology, 95, 107-113.
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. Psychology and aging, 2, 171-184.
- Folkman, S. & Lazarus, R. S. (1988). Coping as a mediator of motion. Journal of Personality and Social Psychology, 54, 466-475.

- Kobasa, S. (1979). Stressful life events, personality, and health: an inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.
- Kobasa, S., Maddi, S. R., & Kahn S. (1981). Hardiness and health: A prospective study. Journal of Personality and Social Psychology, 42, 168-177.
- Langer, E., & Rodin, J. (1973). The effects of choice and enhanced personal responsibility for the aged: a field experiment in an institutional setting. Journal of Personality and Social Psychology, 34, 191-198.
- Lefcourt, H. M. (1976). Locus of control: Current trends in theory and research. New York: Halstead.
- Litt, M. D. (1988). Self-efficacy and perceived control: Cognitive mediators of pain tolerance. Journal of Personality and Social Psychology, 54, 149-160.
- Locascio, D., & Ley, R. (1972). Scaled-rated meaningfulness of 319 CVCVC words and paralog previously assessed for associative reaction time. Journal of Verbal Learning and Verbal Behavior, 11, 243-250.
- Mitchel, R. E., Cronkite, R. C. & Moos, R. H. (1983). Stress, coping, and depression among married couples. Journal of Abnormal Psychology, 92, 438-448.

- Monty, R. A., & Perlmutter, L. C. (1987). Choice, control, and motivation in the young and aged. Advances in Motivation and Achievement: Enhancing Motivation, 5, 99-122.
- Parkes, K. R. (1984). Locus of control, cognitive appraisal, and coping in stressful episodes. Journal of Personality and Social Psychology, 46, 655-668.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. Journal of Health and Social Behavior, 19, 2-21.
- Rothbaum, F. Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. Journal of Personality and Social Psychology, 42, 5-37.
- Rotter, J. B. (1966). Generalized expectancies for internal vs. external locus of control of reinforcement. Psychological Monographs: General and Applied, 80, (1, Whole No. 609).
- Strickland, B. R. (1978). Internal-external expectancies and health-related behavior. Journal of Consulting and Clinical Psychology, 46, 1192-1211.
- Solomon, Z., Mikulincer, M., & Avitzur, E. (1988). Coping, locus of control, and combat-related posttraumatic stress disorder: A prospective study. Journal of Personality and Social Psychology, 55, 279-285.

- Tennen, H., & Herzberger, S. (1986). Ways of coping scale. In D. J. Keyser and R. C. Sweetland (Eds.), Test Critiques, Vol 3. (pp. 686-697). Kansas City, Ks.: Test Corp. of America.
- Thompson, S. C. (1981). Will it hurt less if I can control it? A complex answer to a simple question. Psychological Bulletin, 90, 89-101.
- Vitiliano, P. P., Russo, J., Carr, J. E., Maiuro, R. D., & Becker, J. (1985). The ways of coping checklist: Revision and psychometric properties. Multivariate Behavioral Research, 20, 3-26.

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