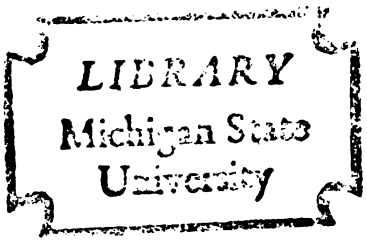

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LIFE STRESS AND ANXIETY: LOCUS OF CONTROL
AND COPING AND DEFENDING ORIENTATIONS
AS MODERATOR VARIABLES

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John Robert Pepple

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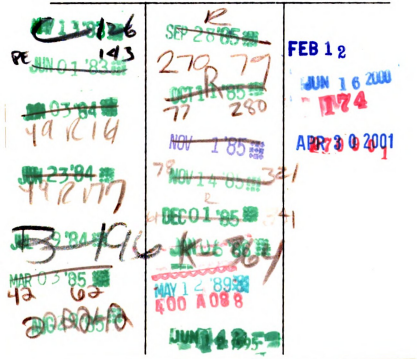

LIFE STRESS AND ANXIETY: LOCUS OF CONTROL AND COPING AND DEFENDING ORIENTATIONS AS MODERATOR VARIABLES

By

John Robert Pepple

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ABSTRACT

LIFE STRESS AND ANXIETY: LOCUS OF CONTROL
AND COPING AND DEFENDING ORIENTATIONS
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By

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This study investigated the role of personality variables in the moderation of life stress-anxiety relationships. The two hundred and thirty-six male and female undergraduate volunteers served as subjects. The following conclusions regarding the original hypotheses were supported by the findings. First, the negative change measure of stress was found to correlate positively with anxiety measures, indicating its usefulness as a life stress measure. Secondly, an internal locus of control orientation was not more effective than an external orientation in diminishing the impact of negative life change. Thirdly, diminution of negative effects associated with life stress was found for high coping groups on certain coping measures. However, these results were limited to females. Finally, differentiation of groups on high versus low levels of stress did not, in general, affect the degree of association between ego process measures and anxiety. Implications of these findings were discussed, and relevant post hoc analyses undertaken.

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TABLE OF CONTENTS

		Page
LIST OF TABLES.		v
CHAPTERS		
I.	INTRODUCTION AND REIVEW OF THE LITERATURE . . .	1
	The Problem	1
	Importance of the Study	4
	Review of Related Literature.	5
	The Conception of Stress	6
	Selye's Conception of Stress.	6
	Challenges to the Concept of Stress as Change Per se	12
	Mason's Proposed Revision of Stress Theory . .	14
	Lazarus' Cognitive Mediational Model of Stress.	19
	Clarification of Stress Concepts: Stress, Threat, and Anxiety.	24
	The Development of a Psychology of Stress . . .	25
	Lazarus' Concept of Self-regulation of Emotion.	29
	Haan's Ego Processing Model	31
	Statement of Hypotheses	44
II.	METHODS.	49
	Design of Study	49
	Subjects	51
	Instruments	51
	Measurement of Stress	51
	Measurement of Anxiety.	55
	Measure of the Locus of Control Variable. . .	58
	Measurement of Patterns of Ego Process Functioning	61
	Procedure	65
	Scoring.	66
	Data Analysis.	67
III.	RESULTS.	69
	Hypothesis I	69
	Hypothesis II.	70

CHAPTER Page

Hypothesis III 72
Hypothesis IV. 77
Post Hoc Analyses 84
Analysis Related to Hypothesis I 84
Analyses Related to Hypothesis II 85
Analyses Related to Hypothesis III. 87
Analyses Related to Hypothesis IV 98

IV DISCUSSION. 106

Summary and Conclusions 119

APPENDICES

Appendix A Tables 122
Appendix B Consent Form 124
Appendix C Background Information Sheet. 125
Appendix D Internal-External Scale (Social Reaction Inventory) 126
Appendix E CPI Item Composition of Coping and Defending Scales 130
Appendix F Revised Form of the Life Experiences Survey. . 132
Appendix G State-Trait Anxiety Inventory (Self Evaluation Questionnaire) 138

REFERENCES 142

LIST OF TABLES

TABLE		Page
1	Haan's Taxonomy of Ego Processes.	36
2	Test-Retest Coefficients of Coping and Defending Scales	63
3	Validity Coefficients of the Ego Scales	64
4	Correlations between Negative Life Change and Anxiety	69
5	Correlations between Negative Life Change and Anxiety for Subjects Differing in Locus of Control Orientation.	71
6	Correlations between Negative Life Change and Anxiety for Subjects Differing in Coping Orientations.	73
7	Correlations between Negative Life Change and Anxiety for Subjects Differing in Defending Orientations	76
8	Differences in the Correlations of Locus of Control and Anxiety for High and Low Stress Groups . . .	78
9	Differences in the Correlations of Coping Orientations and Anxiety between High and Low Stress Groups	80
10	Differences in the Correlations of Defending Orientations and Anxiety between High and Low Stress Groups	82
11	Correlations between Life Change Scores and Anxiety	85
12	Correlations between Positive Life Change and Anxiety for Subjects Differing in Locus of Control Orientation.	86
13	Differences in the Negative Life Change Score Means for Internals versus Externals	88

TABLE		Page
14	Means and Standard Deviations on the Summary Coping and Defending Measures.	90
15	Correlations of Negative Life Change and Anxiety for Subjects Differing on Coping Measures.	93
16	Correlations of Negative Life Change and Anxiety for Subjects Differing on Defense Measures	95
17	Differences in the Negative Life Change Score Means for High and Low Copers and Defenders.	97
18	Correlations of Locus of Control with Anxiety for High, Medium, and Low Stress Groups	100
19	Correlations of Coping Orientations with Anxiety for High, Medium, and Low Stress Groups	101
20	Correlations of Defending Orientations with Anxiety for High, Medium, and Low Stress Groups	105
A	Correlations between Negative Life Change and Anxiety with Social Desirability Partialled Out	122
B	Correlations of Negative Life Change and Anxiety for Male and Female Groups Differing in Locus of Control.	122
C	Correlations of Negative Life Change and Anxiety for Groups at Opposite Extremes on Locus of Control . .	124

CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

The Problem

In recent years, there have been numerous studies which have examined the relationship between life stress and susceptibility to both physical and psychological problems. The results of these studies have, in general, shown a moderate, but consistent relationship between stress and physical and/or psychological disturbances. On the basis of this kind of empirical evidence, some researchers have suggested that stressful life events are the precipitants of somatic and psychological disturbances.

Critics of this point of view have noted that a careful analysis of the data in this area does not support a direct one-to-one relationship between stress and the incidence of physical and/or psychological disturbance. Specifically, it has been noted that the relationship between stress and the disturbance variables has only been manifested in the form of correlations in the .10 to .35 range, which means that stress only accounts for a small proportion of variance in the incidence of these disturbances. In regard to the research of stress and physical illness, Kobasa (1979) notes that the reason for this weak relationship may be elucidated by looking at the distribution of data in those studies instead of being preoccupied with group means. As she points out, several studies

(Wershow and Rinehart, 1974) have demonstrated the extreme variability in the stress and illness scores within groups. This point led Kobasa to hypothesize, and subsequently investigate, the proposition that certain personality variables moderate the relationship between stress and illness. Similarly, in the investigation of the relationship between stress and problems of a psychological nature (e.g. depression, anxiety), Sarason, Johnson and Siegel (1978) postulated personality differences as a moderator variable in this relationship.

In these two related areas of research, empirical evidence has been provided for this hypothesis that personality variables moderate the impact of stress. One important illustration of this, as supported by research, has been that the personality variable of locus of control appears to moderate both the stress-illness and stress-psychological disturbance relationships. Specifically, Kobasa (1979) found that, amongst a sample of highly stressed subjects a high stress/low illness group could be differentiated from a high stress/high illness group on the basis of the locus of control variable, with the former group distinguished by their internal as opposed to external locus of control. Similarly, Johnson and Sarason (1978) reported findings showing a comparable impact of the locus of control variable upon the relationship between stress and measures of depression and anxiety.

This corroborating evidence of locus of control as a moderator variable in the stress-illness and stress-psychological disturbance relationships provides a convincing example of the utility of

personality-oriented research in the investigation of the effects of life stress. Furthermore, Kobasa (1979), who adopted a personality-oriented design in her study of stress, provided evidence that the "hardy" personality type characterized by a strong commitment to self, a vigorous, action-oriented attitude towards one's environment, a personal sense of purposiveness, in addition to an internal locus of control, is better equipped to diminish or nullify the potentially harmful effects of life stress. Also, research has been done which suggests that the sensation-seeking status of an individual (Smith, Johnson, and Sarason, 1978) and the degree of one's psychosocial assets (Nuckolls, Cassel, and Kaplan, 1972) may both moderate the effects of life stress.

In light of the above studies, the promise of personality-oriented research in the study of the effects of life stress appears to be well substantiated. Thus, in this study, a further investigation of the moderating impact of personality upon the effects of life stress will be undertaken. Specifically, based on previous research regarding locus of control as a personality variable moderating the effects of stress, the impact of one's self-perception of his/her degree of mastery and control over environmental events upon one's response to stress will be investigated. In addition, different modes of psychological processing of stressful stimuli will be investigated to determine their effect upon stress responsivity. To explore this issue, the ego processing model of Norma Haan (1977) will be utilized to assess the coping and defense processes used by an individual in his/her adaptation to stressful life events.

Essentially, this model will permit the investigation of how the manner in which one processes his/her experience when confronted with stressful situations affects the individual's response to such stress.

Importance of the Study

The importance of this study can be seen in both its potential social and scientific value. The social value of this study is readily apparent in light of the increasingly stressful lifestyle characteristic of our modern and largely urbanized culture. A decade ago Toffler (1970) described the confusion and anomie experienced on an individual basis across all segments of our society in trying to cope with changes coming at such a rapid pace that they seem to outstrip our ability to accommodate to them. A decade later many of the conditions described by Toffler, in particular an inability to consistently shape our powerful technological instruments of change to human needs, continue to tax our abilities to cope. In addition, as we enter the 80s, there are numerous economic and social conditions indicating that the stresses of present-day life have actually increased. This is manifested most strongly in the widespread concern about economic instability in this country and the threat that this poses to the preservation of the "American dream" of material affluence. Demographic data also points to the increasing instability of American family life reflected in the continuing breakdown of extended family systems and even the breakdown of the nuclear family as revealed in steadily increasing

divorce rates. It would also appear that the feminist movement, while providing women with new opportunities, has at the same time confronted them with new stresses. In the context of these sources for instability in our present society, the investigation of the most adaptive modes of psychological functioning in response to stress appears to serve an important social function.

From a strictly scientific point of view, this study is also significant for two reasons. First of all, in this study an attempt will be made to provide further corroboration of the hypothesis that an internal locus of control orientation moderates the effects of stress. Secondly, as personality-oriented research in the study of stress is still in its infancy, there is a need to identify other relevant personality variables which moderate the impact of stress. By utilizing the Haan model of ego processing in this research, the attempt will be made to establish the relevance of this process formulation of personality functioning to the study of stress.

Review of Related Literature

In this section the literature pertinent to this investigation will be reviewed. Since the focus of this study is on personality variables which moderate the impact of stress, initially the stress theories and research of several important theorists in the field will be reviewed to arrive at a conception of stress that is consistent with the facts. Next the literature that has contributed to the development of a psychology of stress will be reviewed. Specifically, the theoretical arguments and empirical studies

pertaining to locus of control as a personality variable which moderates stress will be considered. Then the theory and research concerned with the relationship between coping and defending orientations and stress will be reviewed.

The Conception of Stress

In order to arrive at a coherent conceptualization of stress that is consistent with the facts, one must first of all recognize the range of issues to which the term "stress" refers. Essentially, "stress", as it is used in the literature, is a generic term encompassing three different issues: 1) the stimuli which produce stressful reactions; 2) the stressful reactions themselves; and 3) the intervening or mediating processes of these reactions. An adequate conceptualization of stress must address these three different components of the problem.

Seyle's Conception of Stress

The work of Hans Selye (1936; 1950; 1956; 1974) has been extremely influential in providing a theoretical orientation addressing these different aspects involved in the conceptualization of stress. The original concept of stress put forth by Selye (1936) derived from his laboratory measurements of certain stereotypical physiological reactions to a wide variety of nocuous physical agents such as head trauma, hemorrhage, burns, cold, heat, muscular exercise, infections, fasting, and various drugs. As a physician working within the context of the medical model, Selye's early conceptualization of stress defined stressful stimuli as physical in

nature. Furthermore, according to this initial conceptualization, the stress reaction was defined as the state characterized by the syndrome of biological reactions brought about by exposure to these various physical or physiological stressors. This notion rested upon his empirical evidence demonstrating increased endocrinological activity, particularly pituitary-adrenal cortical activity, in response to the various stressors that he studied. Finally, consistent with his physiological orientation as a medical researcher, Selye hypothesized some unknown humoral or physiological factor as the "first mediator" of the stress response.

Selye labelled this common set of biological reactions to these various stressors as the "general adaptation syndrome" (G-A-S). According to Selye's theory, this syndrome is the human organism's non-specific defensive physiological reaction brought into action by any noxious physical stimulus. Selye also hypothesized that this syndrome is characterized by a pattern which involves three stages: an initial alarm reaction, an ensuing stage of resistance, and a final stage of exhaustion. While interesting theoretically, neither Selye nor later researchers have devoted much attention to the investigation of the stages of stress reaction which he proposed. However, Selye's extremely controversial concept of the "non-specificity" of the pituitary-adrenal cortical and certain other bodily responses to the physical stressors he had studied constitutes the basis of a prominent conception of stress in this field of research.

The essence of this concept was elaborated by Selye in his first major work which reported his findings supporting his stress theory. Here Selye (1950) states:

> The general-adaptation-syndrome (G-A-S) is the sum of all non-specific systemic reactions of the body which ensue upon long-continued exposure to systemic stress. One of the fundamental observations in connection with the G-A-S was the finding that many of the morphologic, functional and chemical changes elicited by various stressor agents are essentially the same irrespective of the specific nature of the eliciting stimulus (p. 12).

Because of the controversial character of this hypothesis, especially in the field of medicine accustomed to a disease model which emphasizes specific factors as causes for different illnesses, numerous other researchers attempted to replicate Selye's findings regarding his "non-specificity" hypothesis. Using the various noxious physical stimuli as stressors as Selye had done in his original research, the findings of these studies consistently provided support for this aspect of this theory. Due to this corroborating evidence, Selye's stress theory gained widespread acceptance within the medical field. Indeed, Selye's ideas exerted a major influence upon stress research not only within medicine, but within the psychiatric and psychological disciplines as well.

Selye's impact in this latter regard became most pronounced when he elaborated on his theory by suggesting that psychological as well as physical stressors can elicit the G-A-S. Selye's inclusion of psychological stimuli as stressors was suggested from his work with laboratory animals in which he found that the experimenter's handling of the animal, even prior to the presentation of a

noxious physical stimulus, was sufficient to elicit the G-A-S. This suggested to Selye that "emotional stimuli" could trigger the pattern of increased endocrinological activity characteristic of the G-A-S. A steady stream of research over the last twenty years has provided consistent support for Selye's extension of the concept of stress to include psychological stimuli.

In essence, Selye's broadening of the potential stressors to include psychological stimuli led to a gradual expansion of his "non-specificity" hypothesis. Specifically, by the time of his Fifth Annual Report on Stress (1956), he no longer defined stress as the non-specific response to noxious physical stimuli, but as "the sum of all nonspecific changes caused by function or damage." The final distillation of this evolution in thought is reflected in a more recent work in which Selye (1974) defines stress as "the nonspecific response of the body to any demand made upon it" (p. 14).

The major impact of Selye's expanded "non-specificity" hypothesis can be seen in its influence upon the conceptualization of stressful stimuli within this field of research as simply change that an individual endures in his environment which requires the individual's adjustment. This idea is clearly articulated by Selye (1974) in his later work in which he argues that the definitive aspect of stressful stimuli is independent of the specific demands placed upon the organism by these stimuli. Rather he maintains that stressful stimuli are characterized by the one thing they have in common: that they all impose upon the organism the demand for readjustment. According to Selye (1974), "The demand is

nonspecific; it requires adaptation to a problem, irrespective of what the problem may be" (p. 15). Indeed, Selye (1974) posits that "From the point of its stress-producing or stressor activity, it is immaterial whether the agent or situation we face is pleasant or unpleasant; all that counts is the intensity of the demand for readjustment or adaptation" (p. 15).

The practical ramification of adherence to this point of view has been the employment of an instrument for measuring stress that includes both desirable and undesirable stimuli. This is demonstrated by the Holmes and Rahe (1967) Social Readjustment Rating Scale (SRRS), or the Schedule of Recent Experience (SRE), as it is also known, which has, since its inception, been the predominant measure of stressful life events in human stress research. This measure, under the influence of Selye's "non-specificity" hypothesis, includes both positive and negative events in its definition of stress. For example, both a promotion in work as well as being fired are included as stressful life events due to the conceptualization of stress as change per se. Consistent with Selye's stress theory, Holmes and Rahe (1967), in explaining the development of this scale, state:

> There was identified...one theme common to all these life events. The occurrence of each event usually evoked or was associated with some adaptive or coping behavior on the part of the involved individual. Thus, each item has been constructed to contain life events whose advent is either indicative of or requires a significant change in the ongoing life pattern of the individual. The emphasis is on change from the existing steady state and not on psychological meaning, emotion, or social desirability (p. 217).

In operationalizing this concept of stress as an objective measure of stressful life events, Holmes and Rahe (1967) developed weights of the amount of stress associated with the 43 life events on the SRRS by asking a large sample of subjects to rate the amount of social readjustment required by each event "regardless of the desirability of the event" in reference to a standard weight of 500 given the event of "Marriage." The means of these ratings, divided by 10, ranged from 11 to 100, and are the scoring weights, referred to as life change units, used in the SRRS. For the diverse sample upon which this instrument was standardized, correlations of these ratings across breakdowns of the data on various demographic variables (e.g. marital status, sex, age, social class, religion) were all above .90 with the exception of the white-black comparisons whose ratings correlated .82.

Since the time of the development of the SRRS, the conceptualization of stress as change per se postulated by Selye has received support in more psychologically oriented stress research. Specifically, numerous studies have been conducted demonstrating the relationship between this change per se concept of stress operationalized in the SRRS and the incidence of physical and psychological disturbances. For example, Theorell and Rahe (1970) demonstrated a relationship between the social readjustment scores and episodes of cardiac heart disease. Similarly, Rahe (1968) has used these scores in a prospective study to predict the incidence of future physical illness. Also, in the realm of psychological disturbances, Thomson and Hendrie (1972) reported that the

pre-admission SRRS scores of a group of psychiatric inpatients diagnosed with depression were significantly greater than the scores of a control group of medical patients and hospital staff.

Challenges to the Concept of Stress as Changes Per Se

Challenges to the concept of stress as change per se have been lodged in form of critiques of the SRRS-based studies of life stress and of Selye's "non-specificity" hypothesis. In regard to this first area which has inspired critical response, Mechanic (1975) noted that

> Although findings using the scale (SRRS) often are interpreted as showing that life changes and readjustments, regardless of whether they are favorable or unfavorable, contribute to the occurrence of illness, the fact is that the scale cannot possibly demonstrate this contention since it is an assumption implicit in how the scale has been constructed (p. 44).

Mechanic (1975) also points out that there is a preponderance of undesirable life events in the SRRS.

On the basis of such criticism, three recent studies (Vinokur and Selzer, 1975; Mueller, Edwards and Yarvis, 1977; Sarason, Johnson and Siegel, 1978) have compared the adequacy of four different types of life stress measures based on the SRRS: 1) a measure comprised of only undesirable stimuli; 2) a measure consisting of only desirable stimuli; 3) a balance of undesirability measure in which the desirable stimuli are subtracted from the undesirable stimuli; and 4) a total change measure comprised of both desirable and undesirable stimuli. In using these measures for the investigation of the relationship of life stress and

psychological impairment, Vinokur and Selzer (1975) reported that the highest correlations between stress and a variety of stress-related dependent measures were consistently found with the undesirable life events measure. The authors note that these results were consistent regardless of whether the measurement of stress consisted simply of the number of life events, the Holmes and Rahe life change units, or self-ratings reflecting the subjective impact of the events on the individual. Furthermore, Vinokur and Selzer (1975) noted that when the effects of undesirable stimuli were partialled out of the total change score, the correlations between stress and the dependent variables dropped to near zero. However, when the effects of desirable stimuli were partialled out, the correlations remained the same or increased slightly. Mueller, Edwards, and Yarvis (1977) provided confirmatory evidence on all these points in a study of a similar design to Vinokur and Selzer (1975). Finally, Sarason, Johnson and Siegel (1978) developed a self-report measure of life stress called the Life Experience Survey (LES) which drew the majority of its items from the SRRS. This measure of stress is based on the subjective evaluation of the negative and positive impact of life events on a 7 point scale ranging from -3 (extremely negative impact) to +3 (extremely positive impact). Their findings with this instrument, based on their study of 100 male and female college students, were that the summed score of negatively evaluated events (the negative change score) showed significant positive correlations with the stress related dependent measures of trait and state anxiety of .29 (significant

at the .01 level) and .46 (significant at the .001 level) respectively. As in the aforementioned studies, these correlations exceeded those obtained with the positive change score, the balanced score, and the total change score. Also, the positive change scores only manifested the marginal positive correlations of .04 and .03 with the measures of anxiety, neither of which approached a level of statistical significance. The conclusion of all of these studies was that the results support the conceptualization of stressful life events in terms of their undesirability.

Mason's Proposed Revision of Stress Theory

In addition to this evidence which clearly contradicts the conceptualization of stress as change per se, Mason (1971) has also presented a critique of Selye's "non-specificity" hypothesis which supports the undesirability conceptualization of stress. Mason's critique, however, is not simply limited to the issue of the nature of stressful stimuli, but also calls into question Selye's theory regarding the intervening or mediating processes of stress reactions and the nature of stress reactions. This all-encompassing critique of the premises of Selye's stress theory is based on important findings which challenge Selye's fundamental notion of "non-specificity".

An important departure of Mason's work from previous physiological research in the stress field was his employment of a methodological approach which, although quite simple, had surprisingly not been utilized in the study of stress. On the basis of research demonstrating that psychological stressor agents can act

as precipitators of the G-A-S, Mason reasoned that it was necessary to re-examine the results of Selye's original research which dealt with physical stressor agents. Thus, he designed his research to control for possible associated psychological reactions to the physical stressor agents. In his effort to apply this approach, Mason (1971) reports that "in our initial attempts to study endocrine responses to such stimuli as exercise, fasting, heat, and cold, we were struck by the fact that it is extremely difficult in the laboratory to isolate these stimuli from their natural psychological concomitants" (p. 325-326). Despite these difficulties, Mason's team of researchers devised methods which were relatively successful in separating out physical and psychological stimuli.

As an example of the methodological approach utilized to achieve this goal, Mason describes the evolution of his team's laboratory procedures in studying the effect of fasting on monkeys. In their initial study of this supposed physical stressor, Mason notes that they just simply discontinued feeding two of the eight monkeys housed in the same room for a period of three days. During this time, the two food deprived monkeys were both regularly exposed to the odors of food and witnessed their neighbors being provided with their normal allotments. Under these conditions, the two fasting monkeys were reported to have "often vocalized in apparent protest." In addition to these possible bases for psychological reaction, Mason cited the possible psychological effects for the fasting monkeys associated with the discomfort of an empty gastrointestinal tract. Considering these possible attendant psychological

reactions under these laboratory conditions, Mason was reluctant to attribute the marked increase in urinary 17-hydroxycorticosteroid (17-OCHS) observed in the fasting monkeys to the physical stimulus alone.

In the attempt to diminish the possible impact of psychological variables, two refinements upon their methods were instituted. First of all, the fasting monkeys were provided private living space separate from the other monkeys not subjected to this condition. Secondly, during the fasting period, fruit-flavored, but non-nutritive pellets which were similar in taste and appearance to their normal diet were given to the fasting monkeys to provide them with some bulk for their gastrointestinal tract. Under these conditions, Mason reports that they found no significant changes in the 17-OCHS levels of the fasting monkeys.

By applying methods reflecting sensitivity to the problem of confounding the study of supposed physical stimuli with their psychological concomitants, Mason found that certain physical stressors, in particular, fasting, exercise, and heat, did not elicit increases in 17-OCHS levels indicative of the "non-specific" pituitary adrenal cortical response as hypothesized by Selye. While Mason noted the tentativeness of these results and the need to study these phenomena further in humans, he argued that the "findings...on fasting, heat and perhaps exercise are sufficient to cast serious doubt at present upon the concept of physiological non-specificity, which is the very foundation upon which much of

stress theory rests" (Mason, 1971, p. 328-329). Indeed, in light of this evidence, Mason proposes a major revision in stress theory.

Mason's major departure from Selye's theory is his contention that stress should not be considered primarily as a physiological concept but as a behavioral concept. Mason bases this point of view on his research evidence demonstrating the plausibility of the position that the "primary mediator" of a stress response is the psychological apparatus of the individual involved in emotional or arousal reactions to threatening or unpleasant stimuli.

In support of this point of view, Mason focuses attention on a basic shortcoming of Selye's conceptualization of stress, the problem of identifying the "first mediator" of stress responses. In regard to this issue, Mason cites Selye's own acknowledgement that research has only succeeded in eliminating certain suspected mediators.

Mason suggests that the reason for this failure may be attributable to the narrow focus of the research. Specifically, he argues that this search for the "afferent limb" of the stress response has been characterized by an attempt to isolate some unknown humoral or physiological "first mediator" that is assumed to act as the trigger for the pituitary adrenal cortical response to diverse stressors. According to Mason, this research orientation neglects to consider the psychological apparatus as the possible mode of signal transmission involved in endocrine regulation. Considering the research failures to isolate the physiological mediators and the evidence from his own work of the sensitivity of

endocrine systems to psychological influences, Mason argues that the psychological mediation of endocrine responses should be seriously entertained.

In defending this view, Mason points out that this conceptualization of the stress response can be reconciled with the concept of homeostasis whereas Selye's concept of stress based on the "non-specificity" hypothesis cannot. In regards to this issue, Mason notes that Selye's theory confronts one with the question of how the same hormonal response can have adaptive utility for diverse stimuli. As an example, Mason notes the difficulty in determining the utility of the same hormonal response to hot and cold which place diametrically opposed metabolic needs on the organism, i.e., a hot stimulus induces the bodily need for the decrease of heat production and an increase of heat loss while the cold stimulus induces the opposite bodily need for increased heat production and decreased heat loss. The solution to this problem which Mason (1971) offers is that "Perhaps the only bodily response which might conceivably be equally appropriate, in a homeostatic sense, under conditions of both heat and cold would be a behavioral response of emotional arousal or hyperalterting preparatory to flight, struggle, or other strenuous exertion which might serve to eliminate the source of heat or cold or to remove the subject from its pressure" (p. 330). He goes on to speculate that "If the organism perceives the 'physical stress' situation as threatening enough, then perhaps psychoendocrine responses do occur rather universally

and are superimposed upon the endocrine and other bodily responses to the pure physical stimulus" (p. 330-331).

In suggesting this notion of stress as a primarily behavioral, as opposed to a physiological concept, Mason is quick to clarify that he by no means wants to imply that there is some inherent biological difference between physiological and psychological functions. His point is simply "that the 'afferent limb' and the integrative processes underlying the 'non-specific' bodily responses to stressors probably involve a higher level of central nervous function than was previously realized" (Mason, 1971, p. 331).

Lazarus' Cognitive Mediational Model of Stress

Mason's suggestions of the involvement of higher central nervous function in the mediation of the stress response receives support from the work of Lazarus (1977). Like Mason, Lazarus is very much impressed with the notion that the essential mediator of the G-A-S is psychological. In support of this view, Lazarus calls attention to the work of several stress researchers. First of all, he cites a study by Symington et al. (1955) which showed that amongst patients who were dying, either from an injury sustained or fatal illness, only those patients who were conscious during this period demonstrated adrenal cortical changes characteristic of the G-A-S. Secondly, he points to a study by Gray et al. (1956) which showed that the physiological stressor of general anesthesia does not by itself precipitate significant adrenal cortical reaction. Consistent with Mason's theoretical stance, Lazarus (1977) argues

that "these studies raise the question of whether it is the psychological significance of injury rather than its physiologically noxious effects that produce the adrenal cortical changes associated with stress" (p. 146).

In light of such findings, Lazarus and his colleagues undertook the experimental investigation of the involvement of cognitive processes in the mediation of the stress response. In an early study in this area, Speisman, Lazarus, Mordkoff, and Davison (1964) postulate that "the same stimulus may be either a stressor or not, depending upon the nature of the cognitive appraisal the person makes regarding the significance for him" (p. 367). To investigate this hypothesis, the authors presented three experimental groups with the stress-inducing film called "Subincision" which depicted the African tribal ritual of subincision of the penises of adolescent boys. During the presentation of the film, the stress reactions of subjects were monitored by the physiological indicators of heart rate and skin conductance. In all three experimental groups, the subjects heard an introductory statement supporting a particular interpretation of the film, and then viewed the film with a sound track supporting that interpretation. For the first group, the control group, the introduction and film commentary simply described the primitive surgical operations of the subincision ritual, thereby accentuating the threat-producing features of the film. In the other two experimental groups, the subjects were also informed of the major threatening contents of the film. However, for these groups the introduction and film commentary were designed to alter

the subjects' cognitive appraisal of the film events toward a less threatening interpretation of the stressful film content. Specifically, the second group was presented with an introduction and film commentary designed to encourage the adoption of the ego defense of intellectualization by their emphasis on a scientific, analytic, and emotionally detached interpretation of the film. Similarly, the third group was presented with an introduction and film commentary designed to encourage the adoption of the ego defenses of denial and reaction formation by their minimization of the harmful aspects of this event. Consistent with their predictions, the results of the study indicated that the physiological indices of subjects' stress reactions to the film were significantly reduced for the latter two experimental groups.

In a follow-up to this study, Lazarus, Opton, Nomikos, and Rankin (1965) employed a similar experimental design. However, this study differed from the Speisman et al. study in two important respects. First of all, a different stress-inducing film was utilized which depicted two woodworking shop accidents. Secondly, the three experimental conditions were defined simply by the nature of their introductory orienting passages. That is, across all groups, a silent version of the film was presented without a commentary to reinforce the interpretation of the film supported by the introduction. The significant finding of this study was that the "intellectualization" orienting statement was on certain measures significantly more effective than the "denial and reaction formation" orienting statement in reducing physiological stress reactions.

Furthermore, on all physiological indices of stress taken throughout the film, the pattern of the results consistently showed the "control" orientation group with the highest stress response, the "denial and reaction formation" group with the intermediate response, and the "intellectualization" group with the least response.

On the basis of such corroboratory research evidence, Lazarus develops his theory about the involvement of cognitive processes in the mediation of stress. Consistent with Mason's suggestion that the G-A-S is a "behavioral response of emotional arousal," Lazarus sets forth his point of view in the more general terms describing the cognitive mediation of emotional reactions.

In a recent monograph, Lazarus (1977) sets forth this theory of stress. The key aspect of the theory is its emphasis on the importance of cognitive appraisal in determining emotional reactions to stimuli. In explaining this point of view, Lazarus argues that both the quality and intensity of emotional reactions necessarily reflect the nature of one's transaction with his environment. Initially, the most important part of this transaction is the individual's cognitive evaluation of the environmental stimulus configuration as either harmful, threatening, challenging, or facilitating of one's well-being. Subsequently, Lazarus (1977) maintains that cognitive processes "also underlie coping activities which...continually shape the emotional reaction by altering the ongoing relationship between the person and environment in various ways" (p. 145).

In applying this cognitive mediational model of emotion to the understanding of stress reactions, reactions which he labels as "stress emotions," Lazarus simply emphasizes the initial role of the cognitive evaluation of the nature of the threat posed to the organism. According to Lazarus, this evaluation will directly affect the quality and intensity of the stressful reaction. In addition, he maintains that this reaction will be continually altered and shaped according to the cognitively mediated coping processes utilized in one's ongoing evaluation of the relationship between the person and the stressful environment.

This model of stress put forth by Lazarus differs from Selye's conceptualization in three important ways. First of all, Lazarus' model assumes that the stressful stimulus consists of a threat to the welfare of the organism. This view stands in opposition to the Selye derived view of stress as change per se regardless of whether the change comes in the form of desirable or undesirable stimuli. Rather than aligning himself with this view based on the "non-specificity" hypothesis, Lazarus' notion of stress coincides with the aforementioned empirical evidence (Vinokur and Selzer, 1975; Mueller, Edwards, and Yarvis, 1977; Sarason, Johnson, and Siegel, 1978) supporting the conceptualization of stress in terms of stimuli of an undesirable nature. Secondly, Lazarus' model of stress places emphasis on the psychological processes involved in the stress response as contrasted to the physiological processes emphasized by Selye. This theoretical stance has its empirical basis in Mason's work implicating the involvement of higher central

nervous function in the psychological mediation of the stress response. Finally, an extremely important implication of this view, as spelled out by Lazarus, is that the focus is placed on cognitive processes as specific factors affecting both the initiation of the stress reaction and the regulation of the quality and intensity of such reaction once the stressful stimulus has been recognized. This theoretical stance regarding the importance of specific cognitive factors as both an initiating factor and a moderating influence on the stress reaction clearly moves away from Selye's definition of stress as a physiological reaction that is non-specific to the stimulus.

Clarification of Stress Concepts: Stress, Threat, and Anxiety

In this study, the work of Mason and Lazarus shall provide the theoretical basis for the conceptualization of stress. In two important ways, this conceptualization of stress parallels the concepts of stress advocated by Selye. That is, according to this conceptualization, stressful stimuli are recognized as being either physical or psychological in nature, and such stimuli are seen as potentially eliciting the common physiological reactions as described by Selye. However, this conceptualization of stress differs in three significant ways from Selye's stress concepts. First of all, according to this conceptualization, stressful stimuli are conceived in terms of their undesirability, that is, as stimuli that pose a potential threat or danger to the organism. Secondly, this conceptualization differs from Selye's physiological oriented concept of

stress by espousing the importance of psychological processes in assessing stimuli as threatening or dangerous to the individual. Finally, the common physiological reactions associated with such stimuli are conceived of as responses of emotional arousal.

In utilizing this theoretical conceptualization of stress, Spielberger (1972) has noted the utility of differentiating the three different components (stimulus, intervening psychological processes, and emotional reaction) inherent in this conceptualization for the sake of clarity in terminology. The terminology proposed by Spielberger for these three different components are stress, threat, and anxiety. According to this scheme, stress refers to "external stimulus conditions or situations that are characterized by some degree of objective danger" (Spielberger, 1972, p. 30). Threat is used to refer to the individual's subjective appraisal of a particular situation as physically or psychologically dangerous. As noted by Spielberger, this subjective appraisal of threat or danger is determined, in part, by the individual's personality dispositions and past experience. Finally, anxiety is used to refer to the emotional reactions aroused in an individual by appraised threat, regardless of the presence of objective danger. In this study, these terms will be employed in this way to describe these three dimensions of this conceptualization of stress.

The Development of a Psychology of Stress

In regard to the problem of developing a psychology of stress, the work of Lazarus is quite important in providing a theoretical

reorientation to specific factors mediating the stress response. That is, according to Lazarus, the matter of critical concern in understanding the human response to stress is understanding the manner in which an individual applies his cognitive processes in his "adaptive commerce" with his environment. The issue that Lazarus raises here is that there are different modes of cognitive functioning, and that these differences will affect one's evaluation of the stressful stimulus and the manner in which one copes with life stress. Thus, from the point of view of Lazarus, in order to fully understand the complexity involved in a stress reaction or a stress emotion, it is necessary to understand the reason for these different modes of cognition, these differences in the way in which individuals relate to their environment.

In order to understand the basis for these differences in cognition, Lazarus argues that the individual must be viewed in terms of his personal history and personality. In support of this view, Lazarus (1977) states that "this (cognitive) appraisal, from which the various emotions flow, is determined by the interplay of personality and the environmental stimulus configuration" (p. 145).

To clarify this point, Lazarus makes use of a hypothetical example in which two individuals are confronted with a set of demands which appear to exceed their capacity for mastery. Due to their different histories and personalities, the two individuals construe the situation differently. The first individual (Person A) feels that his inability to master the situation represents a confirmation of his inadequacy. The second individual (Person B)

also experiences the pressure for mastery but interprets the situation as one in which people are trying to take advantage of him. In such a hypothetical situation, Lazarus (1977) maintains:

> Both experience similar degrees of anticipatory stress and are mobilized to cope with the problem. Prior to the confrontation with the dangerous situation, both experience anxiety, an anticipatory emotion produced by appraised threat. In Person A, the anxiety is mixed with depression, while in Person B, the anxiety is mixed with external blaming and anger. Following the confrontation in which both perform badly, Person A will experience mainly loss and depression, while Person B mainly anger and resentment. Thus, a similar set of overwhelming demands has been construed or appraised differently by these two individuals (p. 147).

In elaborating this example, Lazarus also suggests that if both persons perform well, Person A will most likely experience a euphoria due to a confirmation of his sense of competence whereas Person B will be more subdued, attributing his success to external factors (e.g. luck). The point clearly illustrated by this example is that an individual's evaluation of a threat and his subsequent experience of the emotion aroused by such a threat varies according to the personality of the individual.

Clinical evidence in support of this argument put forth by Lazarus regarding the impact of personality upon one's cognitive processes can be found in the work by Shapiro (1965). Shapiro, working within a psychoanalytic framework, provides a compelling argument for the different "cognitive styles" characteristics of certain pathological groups, specifically the hysteric, the obsessive compulsive, the paranoid individual, and the impulsive personality. The premise defended in this account by Shapiro on the

basis on his rich background of clinical experience is that these different "cognitive styles" represent pervasive and consistent modes of perceiving, thinking, and feeling utilized to relieve the persistent threat and anxiety experienced by these different pathological groups. While such evidence does not constitute "hard" empirical data for Lazarus' theorizing, it clearly does support his notion that the mode of cognitive functioning utilized by an individual in response to stressful stimuli is intimately related to personality.

In addition to this clinical evidence, Lazarus' experimental research lends support to this view. In the previously cited study of Speisman, Lazarus, Mordkoff, and Davison (1964), the amount of stress response reduction for two separate groups of subjects under the two experimentally manipulated conditions of "denial and reaction formation" and "intellectualization" were compared. For a group of executives high in denial disposition, the most reduction of stress response was found under the "denial and reaction formation" sound track condition. However, for a group of students low in denial disposition, little stress reduction occurred under the "denial and reaction formation" condition, but marked reduction of stress took place under the "intellectualization" condition. Lazarus and Alfert (1964) replicated these findings in a comparison study of high and low deniers. These studies provide empirical corroboration of Lazarus' notion of the involvement of personality in determining modes of cognitive functioning in response to stressful stimuli.

Lazarus' Concept of Self-regulation of Emotion

The ramifications of this position in regards to the development of a psychology of stress is spelled out by Lazarus in his concept of "self-regulation" of emotion. This notion is based on the idea that each individual actively participates in the regulation of one's emotional reactions. As Lazarus (1977) states:

> People select the environments to which they must respond; they shape their commerce with it, plan, choose, avoid, tolerate, postpone, escape, demolish, manipulate their attention, and also deceive themselves about what is happening, as much as possible casting the relationship in ways that fit their needs and premises about themselves in the world (p. 149).

The crux of this idea is that the individual is not simply reactive to his environment, but actively participates in his transactions with his environment. In positing this view, Lazarus (1977) takes issue with the view propounded in behavior modification circles that "the key agency of control seems to be the external contingencies rather than the person" (p. 156). While acknowledging the importance of environmental contingencies, Lazarus (1977) calls attention to the point "that an executive agency within the person determines which of many competing trends and impulses are to be encouraged or discouraged" (p. 157). In expounding on this point, Lazarus (1977) states:

> I have deliberately used the expression "self-regulation' to convey the theme that it is the person, appraising the personal and social requirements of an emotional situation, who manages his emotional reactions willfully, as it were, rather than merely passively and automatically responding to internal and environmental pressures (p. 156).

According to Lazarus (1977), this point of view focuses in on the fact that "Oftentimes it is not the environment that is manipulated, but what the person attends to in that environment, or how he interprets that environment" (p. 157). It is precisely these internal processes of selective attention and individualistic appraisal that Lazarus refers to as the "intrapsychic or cognitive control mechanisms." In justification of this emphasis, Lazarus (1977) notes that "To speak of manipulating environmental contingencies seems contradictory to me because it makes the environment the locus of self-control rather than the person and this emphasis distorts the meaning inherent in the term self-control" (p. 157).

This concept of "self-regulation" of emotion espoused by Lazarus has important implications for the development of an adequate psychology of stress. Specifically, the position suggested by this concept is that one's capacity to handle stress may be reflected in the degree of one's internal locus of control. As previously noted, this position has received empirical support from the stress research of Kobasa (1979) and Johnson and Sarason (1978). In related research, Coleman et al. (1966) in a study of black adolescents demonstrated that their level of achievement was most strongly associated with their sense that they could by their personal efforts determine their own fate rather than with familial or geographical socioeconomic indices. Handel (1975) replicated this finding in his study of economically advantaged and disadvantaged adolescents in Israel. Based upon Lazarus' theoretical formulation of "self regulation" of emotion and the empirical evidence

supporting this view, one objective of this study will be the further investigation of the role of locus of control orientation in mediating the emotional reactions evoked by stress.

Haan's Ego Processing Model

Another important position suggested by the work of Lazarus is the need for stress researchers to attend to the process of cognitive appraisal and the ongoing cognitive coping processes that are utilized by an individual in assessing and subsequently adopting to stressful stimuli. This direction in the development of a psychology of stress can be seen in the ego processing model of Haan (1977) in which she attempts to provide a systematic view of psychological processes involved in one's adaptation, or attempts at adaptation to one's environment.

Haan's model of ego processing is essentially the product of her attempt to integrate the contributions of psychoanalysis, ego psychology, and Piagetian thought. Since Lazarus' thinking is best identified as cognitive mediational theory which has grown out of social learning theory conceptions, these two authors obviously have different theoretical roots for their respective points of view. Nonetheless, there is a great deal of similarity in their respective positions.

First of all, both authors are concerned with the psychological processes utilized by an individual in his attempt to adapt to stressful stimuli. Secondly, while Lazarus does not refer directly to the "ego", his reference an an "executive agency" within

the personality of an individual as well as his concept of "self-regulation" of emotion suggests his own affinity for a theoretical formulation involving the construct of the "ego" as found in Haan's work. Thirdly, Haan's emphasis upon a constructivist view of the ego in which the individual is perceived as actively participating in shaping his adaptive responses to stress is similar to Lazarus' emphasis on the pro-active role of the person in his "adaptive commerce" with his environment. Finally, Haan, like Lazarus, maintains that cognition plays a significant role in emotion.

Their theoretical agreement on this most important point is clearly demonstrated by Haan (1977) when she states that "A person cannot be emotional about a situation without first knowing, or having some inkling of what it means for him" (p. 168). Thus, in accordance with Lazarus' formulation, Haan maintains that there must be an initial cognitive appraisal of the environmental stimulus configuration. According to Haan (1977), "The initial appraisal involves the ego processing of the objective, cognitive elements of the situation in terms of its likely social, personal, and affective implications" (p. 51). Similar to Lazarus, Haan also describes a subsequent series of appraisals in which the individual utilizes perception, memory, and cognitive constructions to devise strategies for responding to the environmental stimuli that one confronts.

Haan's unique contribution to this formulation is that it is conceptualized in terms of the Piagetian notions of assimilation

and accommodation. This is demonstrated in the statement of Haan (1977) that:

> The organizational work of ego processes can be generally described...by the same properties of exchange that characterize biological functioning and intellectual functioning within the Piagetian system, namely, assimilation and accommodation" (p. 48).

Haan (1977) explains this point by noting that "Both are evident in the ego's ceaseless work of absorbing and integrating ongoing experiences to already existing constructions (assimilation) and of constructing particular reactions and responses (accommodation) to these experiences" (p. 48).

Haan argues that the utilization of these two important concepts brings understanding to the issue of the role of cognition in emotion. Specifically, she maintains that the preliminary cognitive evaluation can be best understood in terms of assimilation. That is, Haan (1977) sees the preliminary cognitive appraisal as "an initial, rapid assimilation of the objective, cognitive elements of the situation that results in some judgement about the likely implications for the beholder--whether these are good or bad for him" (p. 168). She adds that "The rapidity of the assimilation causes some people to assume that emotion is automatic, instantaneous, and unbidden, but this supposition is untenable and not logical" (Haan, 1977, p. 168).

Following this assimilatory activity which provides the cognitive assessment necessary for affective responsivity, it is Haan's contention that accommodation then becomes important. That

is, assuming that one's repertoire of responses is not adequate to successfully adapt to a stressful stimulus, the constructive efforts of the individual to sort through one's options and gradually devise a strategy for response assumes prime significance. From Haan's point of view, the effort expended to find these workable accommodations constitute the creative, pro-active element of adaptation to stress. According to Haan, these creative, constructive efforts of the individual provides one with the experience of "self-transcendence," the experience in which the individual participates in evolving responses that go beyond his set repertoire of responses.

In utilizing these Piagetian concepts, Haan's model of ego processing goes beyond the Lazarus formulation in considering a broad range of psychological processes relevant to an individual's adaptation to environmental stimuli, rather than strictly focusing on cognitive processes. This is seen in Haan's taxonomy of ten ego processes which fall under four major categories of functions: the cognitive, the reflexive-intraceptive, the attention focusing, and the affective impulse regulation functions. According to this scheme, Haan subsumes under cognitive functions the processes of discrimination, detachment, and means-end symbolization. Within this scheme, Haan (1977) maintains that "the cognitive sector generally represents the active, outer-directed instrumental aspects of man's problem-solving efforts and involves extensive extrapsychic accommodation" (p. 38). Under the second category of the reflexive-intraceptive functions, Haan (1977) places the ego processes of delayed response, interpersonal sensitivity and time reversion,

which are conceived of as representing "the person's assimilatory engagement with his own thoughts, feelings, and intuitions" (p. 38). The third category is the attention-focusing function which is comprised of processes of selective awareness. The final category is the affective-impulse regulation functions made up of the processes of diversion, restraint, and transformation. These processes are thought to represent modes of accommodation to feelings and emotion which are not directly expressed in their primitive form.

In positing this model, Haan acknowledges that the division of ego processes into these four functions is not clear-cut and absolute. Indeed, she acknowledges the importance of cognition in the areas of function other than that which is specified as the cognitive sector. However, she maintains that this model is a useful conceptual convenience for differentiating various functions of human psychological processes. For example, Haan's cognitive sector represents rational, instrumental, problem-solving modes of cognition while the reflexive-intraceptive functions represent processes of introspection and self-awareness.

In addition to her specification of different functions of psychological processes, Haan's model postulates that these ten ego processes represent "generic" ego processes which find their expression in three different psychological modes: the coping, defending, and fragmenting modes. Essentially, this taxonomy of ego processes (see Table 1) was developed by the rational extrapolation of the processes underlying the basic mechanisms of defense set forth by

TABLE 1.--Haan's Taxonomy of Ego Processes.

Generic processes			
	Coping	Defense	Fragmentation
	Cognitive functions		
1. Discrimination	Objectivity	Isolation	Concretism
2. Detachment	Intellectuality	Intellectualizing	Word salads, neologisms
3. Means-ends symbolization	Logical analysis	Rationalization	Confabulation
	Reflexive-intraceptive functions		
4. Delayed response	Tolerance of ambiguity	Doubt	Immobilization
5. Sensitivity	Empathy	Projection	Delusional
6. Time reversion	Regression-ego	Regression	Decompensation
	Attention-focusing functions		
7. Selective awareness	Concentration	Denial	Distraction,fixation
	Affective-impulse regulations		
8. Diversion	Sublimation	Displacement	Affective preoccupation
9. Transformation	Substitution	Reaction formation	Unstable alternation
10. Restraint	Suppression	Repression	Depersonalization, amnesia

Source. From Coping and Defending: Processes of Self-environment Organization by N. Haan. Copyright 1977 by Norma Haan.

psychoanalytic theory. In tracing the developing of this rationally constructed model, Haan (1969) explains that

> the defensive intents of the ten classical mechanisms lead by logical extension first to the identification of the generic and coping processes and later to the fragmenting functions, which were derived in the same manner and on the same grounds after these various clinical terms, often used to describe psychotics, were also seen to be processes (p. 20).

This taxonomy of ego processes set forth by Haan is particularly relevant to the development of a psychology of stress since it represents an attempt to bring conceptual clarification to a confusion in terminology between coping and defense which has plagued stress research. As noted by Haan, this confusion can be seen, on the one hand, in psychoanalytic formulations maintaining that defenses can be successful, which have thereby contributed to the idea that coping can be regarded as a subcategory of defense. On the other hand, certain researchers consider defense as a subcategory of coping. As an example, Haan (1977) cites the work of Lazarus who "identifies coping as specific to stress and as encompassing any problem solving or mastery effort, including both realistic forms and the most pathological processes" (p. 162-163). In opposition to these points of view, Haan argues that there are important formal properties that distinguish defensive functions from their coping counterparts.

In her attempt to clarify these differences, Haan asserts that coping processes: 1) involve choice and therefore represent a flexible form of behavior; 2) are characterized by their orientation to consensually validated inter-subjective reality; 3) are

oriented toward goals in the future while taking into account the reality of the present situation; 4) involve the awareness of intrapersonal experience related to disturbing affects; and 5) permit various forms of affective satisfaction in an open and controlled manner. In contrast, Haan argues that defensive processes: 1) are rigid forms of behavior characterized by the lack of choice; 2) are characterized by their distortion or negation of intersubjective reality; 3) are motivated by past experiences; 4) operate under the assumption that disturbing feelings can be magically removed; and 5) only permit affective gratification via subterfuge.

Since Haan delineated these formal properties which distinguish the coping and defending processes as presented in her proposed model of ego functioning, research has investigated the usefulness of this model in the study of stress. In one important research effort, Folkins (1970) studied the coping and defensive processes of subjects in the stressful situation of being threatened with the administration of electric shock. In this study, measures of skin conductance and heart rate were used as physiological indices of stress. The coping and defending processes were assessed on the basis of post-experimental interviews for six experimental groups which differed according to the length of their anticipation intervals. An important finding of this study relevant to Haan's model was that there was a significant trend for elevation of coping scores at intervals in which the physiological stress reactions were low. In addition, there was no significant trend reported for the defense scores.

These findings support Haan's contention of the greater adaptiveness of the coping processes in the mediation of the stress response.

In another study, Hunter and Goodstein (1967) found that, in an experimentally manipulated situation of stress, that high ego strength subjects used more logical analysis (one of the coping processes) and less denial and rationalization (defensive processes) than low ego strength subjects. In research of a similar design, Margolis (1970) reported that "High ego-strength Ss showed significantly more coping responses than did low ego-strength subjects" (p. 427). Both of these studies provide further support for the utility of the coping-defense dichotomy in the study of stress.

Thelen and Varble (1970) also investigated the scores on coping and defending scales for two groups of college students, one group seeking psychotherapy and a nontherapy control group. Despite a few exceptions on certain scales, the findings were generally consistent with their prediction of lower coping scores and higher defending scores for the therapy group. This finding was maintained in the comparison of both male and female therapy and nontherapy groups.

In addition to this above research supporting Haan's ego process formulation in which the differentiation between coping and defending processes is made, Haan's own research efforts have provided evidence in support of this model. In a study based on a sample of male and female adult subjects drawn from Berkeley's Oakland Growth Study, Haan (1963) reported that coping functions tended to correlate positively with Stanford Binet measures of I.Q.

while defensive functions tended to correlate negatively with I.Q. While the latter finding was diluted somewhat by the fact that only 2 of 20 hypothesized negative correlations reached statistical significance, the overall trends of the findings nonetheless were consistent with Haan's predictions for the coping and defending ego functions. In another study drawn from the same subject pool, Haan (1964) compared coping and defending processes of subjects to their social mobility, and found total coping to be related to socioeconomic gains. In interpreting the results of this study, Haan (1977) concludes that "Social achievement can be partially understood as a result of possessing coping skills which facilitate effective transactions with the environment in seeking valued goals" (p. 255).

The weight of the evidence in all these studies provides consistent support of the utility of differentiating the coping and defending modes of psychological functioning in the study of human attempts at adaptation to the environment. Stated simply, this distinction permits the delineation of an adaptive mode of psychological functioning from a less adaptive or maladaptive mode. Thus, in this study I shall investigate the differential impact of these two modes of psychological functioning in mediating stress. To this end, I will attempt to show the greater adaptive utility of a coping orientation to stress over the defensive orientation as based on measures of total coping and total defense.

In addition to these global measures of coping and defending orientations, I will also investigate more specific aspects of coping and defending processes. This investigation will be undertaken on

the basis of the criticism that the summary measures of coping and defense may not reflect the underlying configurations of ego functioning as hypothesized by Haan's model.

In support of this particular approach in the investigation of coping and defending processes, the findings of a factor analytic study (Haan, 1963) of the coping and defending scales is most relevant. In this study, Haan reported four factors that had parallel loadings for men and women, which she labelled controlled coping, expressive coping, structured defense, and primitive defense. These findings have inspired the attempt to derive scales on the basis of this factor structure.

In pursuing this kind of research, Joffe and Naditch (1977) found four factors that were similar in their pattern of loadings to the factor structure suggested by Haan's previous research. For males, the first factor extracted was characterized by high positive loadings on the coping processes of objectivity, intellectuality, logical analysis, and substitution, and negative loadings on displacement, regression, and projection. For females, this first factor was similar, except for the absence of high negative loadings on the defense processes. Considering this pattern of loadings for this factor, Joffe and Naditch (1977) concluded that "This factor seems to describe a personality that is cognitively capable and well socialized" (p. 287). On the basis of this logic and in concurrence with Haan's earlier work, they labelled this factor as controlled coping.

The second factor extracted was also characterized by positive loadings on coping processes and negative loadings on defending processes. In contrast to the controlled coping factor, however, the cognitive coping functions did not dominate this second factor. Rather for males the highest loadings were on the reflexive-intraceptive coping processes of regression in service of the ego and empathy followed by negative loadings on the defense processes of repression and reaction formation. For females there was again the absence of high negative loadings on the defense processes. However, the pattern of positive loadings was similar to the males with the highest loadings on the coping processes of empathy, suppression, and regression in service of the ego. Due to this factor structure, Joffe and Naditch (1977) labelled this factor as expressive coping reasoning that "This configuration...seems to reflect an emphasis on intrapersonal and interpersonal accuracy as well as heightened flexibility and creativity" (p. 287).

The third factor derived from their analysis was characterized by high loadings on seven defense processes. For males, the highest loading was on intellectualization, followed by rationalization, projection, and isolation. For females, the highest loadings were on regression, intellectualization, and rationalization. Despite the greater relative importance of regression in the female factor, Joffe and Naditch (1977) argued that the pattern of loadings on this factor for both sexes suggest that this factor represents a cognitively sophisticated and well-integrated pattern of defense which they labelled as structured defense.

The final factor extracted for males was comprised of positive loadings on the defense processes of doubt and regression, and negative loadings on the coping processes of concentration and sublimation. This factor for females was characterized by positive loadings on the defense processes of reaction formation, denial, and repression, and a negative loading on the coping process of tolerance of ambiguity. While this last factor manifested no common major loadings for the two sexes, Joffe and Naditch (1977) maintain that this factor, in each case, appears to represent a poorly integrated pattern of defense, which they labelled as primitive defense.

In considering these four factors based on Joffe and Naditch's analysis, there appears to be a parallelism between the coping and defending factors. That is, on the one hand, factor one, controlled coping, and factor three, structured defense, appear to represent contrasting modes (coping versus defending) for utilizing one's cognitive abilities in responding to stressful stimuli. This can be seen in the predominance of cognitive processes within these respective factors. On the other hand, factor two, expressive coping, and factor four, primitive defense, seem to represent contrasting modes of affective expression. This latter relationship, while less obvious, is sustained by the careful scrutiny of these two factors. First of all, while expressive coping emphasizes the active processing of current intrapersonal experience as reflected in the high loading on regression in service of the ego, primitive defense in males is characterized by the distortion of intrapersonal experience by past experiences (positive loading on regression), or in

females by the negation of intrapersonal experience (positive loadings on reaction formation, denial, and repression). Secondly, in contrast to primitive defense, the expressive coping factor encompasses the capacity for accurate interpersonal perception as manifested by the high loading on empathy. Finally, whereas expressive coping is characterized by enhanced flexibility and creativity facilitating appropriate affective expression, primitive defense represents a pattern of ego functioning which immobilizes and stultifies emotional expression.

An important theoretical extrapolation based upon the parallelism of these four factors is that there are identifiable coping and defending modes of ego functioning governing the spheres of thinking and feeling. Thus, a final objective of this study will be the investigation of the impact of these coping and defending modes within these respective spheres of psychological functioning upon one's capacity to achieve mastery over stressful life experiences.

Statement of Hypotheses

The basic purpose of this study is to provide a more in-depth analysis of the moderate, but consistent relationship between life stress and stress related dependent measures which has been reported in the stress literature. To this end, this study initially attempts to provide corroboration of this frequently reported finding. Thus, the first major hypothesis of this study examines the

relationships between a measure of life stress and two measures of anxiety. Specifically, it is hypothesized that for the entire subject sample:

I. Life stress correlates positively with state and trait anxiety.

The second area to be investigated in this study pertains to the important issue raised by recent research (Kobasa, 1979; Johnson and Sarason, 1978) regarding the role of personality in moderating the impact of life stress. This position merits consideration because it offers a possible explanation for why life stress measures and stress related dependent measures only correlate at a moderate level.

In this study, the investigation of this issue is undertaken in accordance with Lazarus' (1977) cognitive mediational theory of emotion, specifically as applied to "stress emotion," which postulates the role of personality in both the perception of stress and the particular psychological strategies adopted by an individual in response to stress. Consistent with this theoretical viewpoint, the second and third major hypotheses investigate further the role of certain personality factors in moderating the impact of life stress.

The second major hypothesis has to do with Lazarus' (1977) notion of the "self-regulation" of emotion. On the basis of this concept, Lazarus maintains that an important determinant of the effects of stress may be whether the stressful life events are perceived and psychologically responded to as being within or outside the control of the individual. In line with his thinking, it seems

reasonable to expect that an internal locus of control orientation is associated with diminished anxiety in response to stress, and that an external locus of control orientation is associated with increased anxiety in response to stress. This hypothesis is examined by investigating the relationships between an index of life stress and the stress related dependent measures of anxiety as a function of subjects' locus of control orientation. Specifically, it is hypothesized that:

> II. Life stress correlates positively with state and trait anxiety only with subjects external in their locus of control orientation.

The third major hypothesis to be investigated concerns Haan's (1977) postulate of the adaptiveness of coping ego functions and the maladaptiveness of the defending ego functions. In accordance with her formulation, it is hypothesized that the coping mode of ego functioning represents an adaptive mode of ego processing which diminishes the effects of stress, and that the defending mode of ego functioning represents a maladaptive mode of ego processing which enhances the effects of stress. The two facets of this hypothesis are examined in terms of two sub-hypotheses which investigate the relationships between an index of life stress and measures of anxiety as a function of coping and defending ego function orientations. These sub-hypotheses are tested in terms of summary measures of coping and defense as well as in terms of the more specific ego configurations of controlled coping, expressive coping, structured defense, and primitive defense. Specifically, with respect to the

measures of coping ego function orientations, it is hypothesized that:

IIIa. Life stress correlates positively with state and trait anxiety only with subjects low on each measure of coping (summed coping, controlled coping, expressive coping).

In contrast, with respect to the defending ego function orientations, it is hypothesized that:

IIIb. Life stress correlates positively with state and trait anxiety only with subjects high on each measure of defending (summed defense, structured defense, primitive defense).

A final issue for investigation is whether the hypothesized moderating effects of locus of control and coping and defending orientations are equally effective at different levels of stress. To explore this issue, the relationships between the anxiety measures and measures of locus of control and coping and defending orientations are studied with respect to high and low stress groups. As this aspect of the hypothesis is exploratory in nature, this final major hypothesis is posed in the null form that there are no differences in the magnitude of the correlations between the stress related dependent measures of anxiety and measures of locus of control, coping ego function orientations, and defending ego function orientations, for high and low stress groups.

This general hypothesis is tested with respect to two sub-hypotheses. The first sub-hypothesis relates to Lazarus' theory regarding the role of locus of control in moderating the impact of life stress. Specifically, to investigate the generality of the

impact of this personality variable at different levels of stress, it is hypothesized that:

> IVa. There are no differences in the magnitude of the correlation between locus of control and each measure of anxiety for high and low stress groups.

The second sub-hypothesis concerns the implication of Haan's view regarding the role of coping and defending ego function orientations in moderating the impact of life stress, which is tested in terms of the aforementioned measures of coping and defense. Specifically, to investigate the generality of the impact of these different ego function orientations at different levels of stress, it is hypothesized that:

> IVb. There are no differences in the magnitude of the correlations between each ego function measure and the anxiety measures for high and low stress groups.

CHAPTER II

METHODS

Design of Study

This study involved the testing of a large subject pool (N = 236) in group testing sessions. In these sessions, all subjects were asked to complete a life stress questionnaire, an anxiety questionnaire, two personality tests, and a brief demographic questionnaire. On the basis of the data obtained in this manner, four hypotheses were investigated.

To investigate the first major hypothesis of this study, data obtained from the entire subject sample were examined. Specifically, to test this hypothesis, correlations between life stress scores and anxiety measures were investigated for the entire subject sample.

To investigate the other three major hypotheses of this study, different groups of subjects drawn from parts of the subject sample were studied. With respect to the second major hypothesis of this study, two groups of subjects drawn from segments of the subject pool were examined: an internal locus of control group and an external locus of control group. These two groups were constituted on the basis of data obtained from the Internal-External Locus of Control Scale. Specifically, subjects from the sample who fell below the median on the locus of control scale were assigned to the

internal group, and the subjects from the sample at or above the median on this scale were assigned to the external group. To test this second major hypothesis, correlations between life stress scores and anxiety measures were examined for the two groups to determine whether the personality variable of locus of control moderates this relationship in the manner predicted.

A similar design was employed to investigate the sub-hypotheses which constitute the tests of the third major hypothesis of this study. That is, for each measure of coping or defense, the subject sample was divided via the method of the median split. Then, the correlations between life stress and anxiety for the groups thus formed (e.g. high summed copers versus low summed copers, high summed defenders versus low summed defenders) were examined to determine whether these ego function orientations would moderate these relationships in the manner predicted.

To investigate the last major hypothesis of this study, two groups of subjects drawn from the subject pool were studied: a high stress group and a low stress group. These two groups were constituted on the basis of the data obtained from the life stress questionnaire. Specifically, the subjects from the sample who fell in the upper third of the distribution for life stress were assigned to the high stress group, and those who fell in the lower third of the distribution for life stress were assigned to the low stress group. For these two stress groups, the correlations between the measures of anxiety and the measures of locus of control, coping ego function orientations, and defending ego function orientations

were investigated to determine whether these correlations are the same or different at these two levels of life stress.

Subjects

This study required an initially large subject sample (N = 236) in order to obtain sufficiently large groups for study. The subjects for this study were male and female undergraduate volunteers at Michigan State University who were enrolled in the introductory psychology course. For their participation in this study, the students received credit that was applied toward their grade in the course.

Demographically, the subject sample was quite homogeneous, except for differences in sex (males: n = 110; females: n = 126). The average age of the sample was 18.75, with a standard deviation of 1.26. The subjects from the sample were predominantly white, middle class students who were freshmen or sophomores in college.

Instruments

Measurement of Stress

As the measure of objective stress, a modified form of a recently devised scale of life stress, the Life Experiences Survey (LES: Sarason, Johnson, and Siegel, 1978) was employed in this study. The LES is a 57-item self-report measure that allows respondents to indicate the life events that they experienced during the last year. The scale is divided into two segments. Section I is comprised of a list of 47 specific events which are life changes that commonly occur in the general population. Section II consists

of a list of 10 events that are commonly experienced in the college academic environment. This section is specifically designed for use with subjects from a college student population. Due to my utilization of a student sample in this study, both sections of the LES were employed in obtaining a measure of life stress.

In the development of the LES, in particular, Section I, Sarason et al. based most of the items on those found in the Social Readjustment Rating Scale (SRRS: Holmes and Rahe, 1967) which has been widely used in stress research. Other items were included pertaining to frequently occurring events that might potentially have a significant impact upon the lives of persons experiencing them. In addition, nine of the items of Section II were unique to the LES.

The LES was devised as a subjective measure of stress in which the individual rates the positive or negative impact of events. Specifically, the format of the LES calls for the respondent to indicate those events that they have experienced during the past year and then rate the perceived impact of those events at the time of their occurrence on a 7-point scale ranging from extremely negative (-3) to extremely positive (+3), with the middle point (0) for those events judged to be neutral in their impact. However, due to the possible impact of personality upon the perception of stress, it can be argued that this type of stress measure would be confounded by personality differences, perhaps the very personality variables under investigation for their moderating effects upon stress. Thus,

in this study, an objective measure of stress was employed, which was based on the items of the LES.

In order to develop this objective measure of stress, certain modifications of the LES were necessary. First of all, several of the events were changed into more clearly desirable and undesirable categories. For example, "major change in financial status (a lot better off or a lot worse off)" was changed to include both "major improvement in financial status" and "marked deterioration of financial status." Secondly, certain items lacking sufficient specificity were also changed. For example, item 11 on the LES, "male: wife/girlfriend's pregnancy," was changed to include both "married male: wife's pregnancy" and "single male: girlfriend's pregnancy." A third modification of the instrument was to eliminate three items ("major change in sleeping habits," "major change in eating habits," and "sexual difficulties") which might confound the measurement of life stress with the dependent variable of trait anxiety. After these modifications, the final list comprised 71 events.

Utilizing this modified version of the LES, three graduate students in psychology were employed as independent judges to rate these items with respect to desirability. The instructions provided to these raters were to classify each item in the survey according to the following definitions:

Undesirable event: An event or change that other people would generally consider undesirable.

Desirable event: An event or change that other people would generally consider desirable.

Ambiguous event: An event or change whose desirability is ambiguous because people probably disagree about its desirability or due to lack of information about the event.

The ratings of the three judges were very reliable. Specifically, the percentage of agreement for raters 1 and 2, 1 and 3, and 2 and 3 were 85%, 86%, and 77%, respectively. Furthermore, the overall rate of agreement amongst the three raters was 75%. Disagreements were resolved by choosing the modal judgment (the rating of two out of the three judges) to classify the event. On the basis of these ratings and in conjunction with the conceptualization of stress utilized in this study, the objective measure of stress employed consisted simply of the number of life events checked by a subject independently judged as undesirable.

To establish the validity of this measure of stress, it was necessary to address the three major aspects of this measure: 1) the inclusion of only undesirable life events in this measure; 2) the employment of independent judges' ratings of the desirability of life events; and 3) the unit scoring system for each undesirable event reported. In regard to these three issues, two recent studies (Vinokur and Selzer, 1975; Mueller, Edwards, and Yarvis, 1977) reported evidence supporting the validity of this type of measure. First of all, both studies reported that an undesirability measure of stress consistently showed higher correlations to stress-related dependent measures than a desirability measure, a balance of undesirability measure, or a total change measure. This evidence clearly

supported the utilization of an undesirability measure as the most valid measure of stress. Secondly, these same studies also reported that this pattern of correlations between measures of life stress and stress-related dependent measures was essentially the same whether the desirability of events was independently rated or subjectively defined by the respondents. Finally, these two studies compared measures of life stress based on the unit scoring system to the life change unit scoring system in which each life event is rated according to its relative degree of stressfulness. The findings of these studies were that unit scoring system measures correlated .90 or better with life change scoring system measures, regardless of whether the life stress measure was based on undesirability, desirability, balance of undesirability, or total change. This evidence provides a sound empirical basis for the convergent validity of a unit scoring system.

Measurement of Anxiety

In order to obtain measures of anxiety in this study, the State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, and Lushene, 1970) was employed. This inventory is comprised of separate self-report scales for measuring two distinct anxiety concepts: state anxiety, a transitory condition of perceived tension and apprehension, and trait anxiety, a relatively enduring personality characteristic of anxiety-proneness.

The state anxiety scale was utilized in this study to measure the current condition of subjects with respect to anxiety. This

scale served as one index of stress vulnerability on the basis of the reasoning that higher stressed subjects are more likely to experience the state of anxiety than lower stressed subjects. The trait anxiety scale also served as an index of stress vulnerability. While it can be argued that this measure of anxiety is theoretically independent of levels of life stress, research suggests the utility of this scale as a measure of anxiety in response to stressful situational factors confronted by an individual in his life. Specifically, Sarason, Johnson, and Siegel (1978) reported a significant positive correlation between their measure of life stress and trait anxiety. On the basis of these findings, the trait anxiety scale was employed as the second measure of stress vulnerability in this study.

The state anxiety (A-state) scale consists of 20 statements regarding how the subject feels at a particular moment in time, while the trait anxiety (A-trait) scale consists of 20 items which assess how the subjects generally feel. Subjects respond to each item by rating themselves on a four-point scale. The categories of response on the A-state scale are: 1) Not at all; 2) Somewhat; 3) Moderately so; and 4) Very much so. The categories of response on the A-trait scale are: 1) Almost never; 2) Sometimes; 3) Often; and 4) Almost always. To control for the potential influence of an acquiescence set, 10 of the items on the A-state scale are worded so that a high rating indicates low anxiety as opposed to the other 10 items where the reverse is true. While this balance of the items

was not possible for the A-trait scale, 7 of the 20 items are stated so that a high rating indicates low anxiety.

Consistent with the fact that the state anxiety scale attempts to measure a current condition of subjects rather than a stable disposition, simple test-retest reliabilities on this scale are quite low. Specifically, test-retest reliabilities for a normative sample of undergraduates, reported separately for males and females, are as follows - one-hour interval: .33 (males) and .16 (females); 20 days: .54 and .27; 104 days: .33 and .31. However, alpha reliability coefficients for several samples (high school juniors, college freshmen, introductory psychology students) ranged from .83 to .92. Furthermore, evidence for the validity of this scale has been shown in a wide variety of studies. For instance, scores on this scale have been compared for subjects given two different instructional sets: 1) a normal set, and 2) a set in which the subject imagines himself in a stressful situation. Scores on this scale have shown dramatic increases under the stress-imagination set as compared to the normal condition, suggesting that this scale does tap changes in one's phenomenological experience of anxiety. Also, a series of studies have been conducted in which this scale was administered subsequent to experimental manipulations of different states of mental distress. In these studies, the scale has been shown to be a reliable measure of increases in the state of anxiety.

Research on the reliability and validity of the trait scale indicates that it represents a suitable measure of the construct of

trait anxiety. In regard to the reliability of this scale, test-retest reliabilities reported separately for male and female undergraduate students were as follows - one-hour interval: .84 (males) and .76 (females); 20 days: .86 and .76; 104 days: .73 and .77. Also, alpha reliability coefficients for normative samples ranged from .86 to .92 on this scale.

The validity of this scale has been estimated by correlating scores on this scale with the IPAT Anxiety Scale, Taylor Manifest Anxiety Scale, and Affect Adjective Checklist. In a sample of 126 college women, the coefficients of correlation were .75, .80, and .52, respectively. Other research has also shown that the group means of patients in all neuropsychiatric classifications except one (character disorders) are significantly above the means for nonpsychiatric patients.

Measure of the Locus of Control Variable

As the measure of the personality variable of locus of control, the Internal-External Locus of Control Scale (I-E Scale) as developed by Rotter (1966) was utilized. The I-E scale is a 29-item, forced choice test. The I-E Scale score is based on responses to 23 items designed to measure subjects' generalized expectancy for internal-external control. To obtain this measure of generalized expectancy, the items were chosen which would represent samples of subjects' attitudes in a wide variety of different situations. This test also includes six filler items which were added in an effort to disguise the purpose of the test.

Extensive investigations into the reliability and validity of the I-E Scale have established the adequacy of this measure for its designated purpose. In regard to the reliability of the scale, data obtained in a series of high school and college samples have established a moderately high level of internal consistency for an instrument of this length. Specifically, a split half reliability of .73 was reported for a sample of 100 male and female college students. Also, in three studies, two involving college samples and one a national stratified sample of high school students, Kuder-Richardson reliabilities in the range from .69 to .73 were reported. This scale has also been shown to be moderately stable over time. Specifically, in test-retest studies of this instrument with two very different samples, one a college sample and the other a sample of male prisoners, correlations of .72 and .73 respectively were reported after a one-month interval.

In addition to evidence supporting the reliability of this scale, numerous studies have been conducted to determine the construct validity of this test. First of all, two studies have reported findings supporting the convergent validity of this scale. Adams-Webber (1963) found that ratings of the internal-external control variable based on a story-completion tests were significantly related to the I-E Scale scores. Also, judges' ratings of this personality variable based on a semi-structured interview (Cardi, 1962) have shown a significant correlation with the I-E Scale scores.

Secondly, several studies have provided data in support of the discriminant validity of this scale. In particular, Rotter (1966)

cites data from three studies reporting negligible or low correlations between measures of intelligence and the I-E Scale scores. Rotter (1966) also notes that in five studies involving college student samples where males and females were combined, the median correlation between scores on the Marlowe-Crowne Social Desirability Scale and I-E Scale scores was -.22, with the range of correlations varying from -.12 to -.29. This represents an improvement on a previous I-E Scale developed by Liverant and Scodel (1960) in which the correlations between the scale scores and social desirability scores ranged between -.35 and -.40.

Finally, the most important evidence for the construct validity of Rotter's I-E Scale is found in studies demonstrating hypothesized differences in behavior for individuals who fall above or below the median of the scale. Relevant findings in this regard reported by Rotter (1966) were: 1) that internally oriented individuals are more likely to concentrate on their successes and forget their failures than externally oriented individuals (Efran, 1963); 2) that internals report greater evidence of achievement motivation than externals (Franklin, 1963); and 3) that internals are more resistant to external manipulation than externals (Strickland, 1962; Getter, 1962). These studies all provide corroboration of predicted differences between individuals who believe that they are in control of their own destiny (internals) and individuals who believe that their behavior is controlled by external forces (externals).

In addition to this evidence for the reliability and validity of this scale, there have been numerous investigations of the

normative characteristics of this scale. The results of these studies have generally shown no significant sex differences on this scale. However, evidence of significant social class differences have been reported. Specifically, in a study of a heterogeneous high school sample, Franklin (1963) reported a significant relationship between higher socio-economic status and internality. It is important to note, though, that social class differences have not been reported in studies of college samples. This has been attributed to the general homogeneity of college populations with respect to socioeconomic status. Since the present study involved a college sample, the significant impact of social class upon this personality variable was not expected.

Measurement of Patterns of Ego Process Functioning

In order to measure the coping and defending patterns of ego process functioning, twelve scales developed for this purpose (Joffe and Naditch, 1977) were utilized. These scales provided summary measures of coping and defense as well as measures of the more specific ego configurations of controlled coping, expressive coping, structured defense, and primitive defense, for both males and females.

These twelve scales are all self-report measures which were developed from items of the California Psychological Inventory (CPI: Megargee, 1972). The CPI is an instrument similar to the MMPI. That is, it is an extensive inventory of 480 true-false items, about half of which are items drawn from the MMPI. Also, comparable to

the MMPI, the CPI yields scores on 18 scales, three of them "validity" scales and the remaining 15 scales providing measures of personality dimensions. The CPI differs from the MMPI, however, in that it was specifically designed for use with normal populations from age 13 up. Thus, the scales were developed on the basis of responses from normal samples rather than on the basis of responses of specific pathological groups as in the MMPI. The twelve scales utilized in this study consisted of from 34 to 45 items drawn from the item pool of the CPI.

In developing these scales, Joffe and Naditch (1977) established the stability of these different scales over time. Specifically, in a test-retest study of 203 college students (95 males and 108 females) enrolled in a general psychology course at the University of Oregon, the tests were administered with a four-week interval between administrations. The results of this study relevant to the scales utilized in this research are reported in Table 2. The test-retest coefficients for the men's scales ranged from .68 for summed coping and summed defense to .83 for controlled coping, with a median of .715. Coefficients for women ranged from .58 for summed defense to .77 for primitive defense, with a median of .705. These results support the moderate to good reliability of these scales over time.

In addition to investigating the reliability of these scales, Joffe and Naditch (1977) also undertook a validation study of the CPI based ego scales which were used in the present research. The sample for their study consisted of 243 adult subjects (females =

TABLE 2.--Test-Retest Coefficients

	Coping			Defense	
	Male	Female		Male	Female
CPI based scales					
Summed coping	.68	.69	Summed defense	.68	.58
Controlled coping	.83	.72	Structured defense	.77	.70
Expressive coping	.73	.71	Primitive defense	.70	.77

Source: The data in Table 2 are from Joffe and Naditch, 1977.

132; males = 111) whose mean age was 42. The subjects of the sample were almost all white, generally above the national average socio-economically, and represented a range of emotional adequacy from socially successful individuals to a small number who had experienced psychiatric hospitalization for psychosis. In this study, the authors correlated the subjects' score on the CPI based ego scales with the criterion of clinical psychologists' ratings of the total or more specific aspects of subjects' coping and defending processes as determined from extensive clinical interviews. The results of this study pertaining to the relevant scales used in this research are reported in Table 3. For the men, four of the six scales yielded acceptable validity coefficients of .20 or greater, all of which were significant at the .05 level or better. For the women, all six scales yielded acceptable validity coefficients.

TABLE 3.--Validity Coefficients of the Ego Scales.

	Coping			Defense	
	Male	Female		Male	Female
CPI based scales					
Total coping	.49	.36	Total defense	---	.35
Controlled coping	.29	.27	Structured defense	---	.47
Expressive coping	.20	.24	Primitive defense	.27	.40

Source: The data in Table 3 are from Joffe and Naditch, 1977.

In criticism of these results, it might be pointed out that the predictive coefficients for these ten scales appear to be small. However, as noted by Cronbach (1970), "To the question, 'what is a good validity coefficient?' the only sensible answer is, 'the best you can get.' If a criterion can be predicted only with validity of 0.20, the test may still make an appreciable practical contribution" (p. 135). Thus, these ten scales will be employed in this study with the expectation that they will make "an appreciable practical contribution" to the evaluation of coping and defending processes. In addition, the two scales for men which did not achieve correlations with the criterion of the clinical ratings even at the .05 level of significance, the male scales for total defense and structured defense, were also employed in this study. Consequently, the results regarding these scales have to be interpreted with caution. However, they were included with the expectation that evidence for the construct validity of these scales, as with the other scales, might be provided in the course of this research.

Procedure

The procedure in this study simply entailed the administration of the demographic questionnaire and the four instruments (a modified version of the LES, the STAI, the I-E Scale, and the CPI) to a large sample of subjects in group testing sessions. In these sessions, each subject was given a booklet containing these items. At the beginning of the session, subjects were assured of the

confidentiality of all test data, and thus were requested to answer all questions as truthfully as possible. The subjects were then asked to complete the demographic questionnaire, and subsequently proceed to the four tests. Subjects were instructed to start at the beginning of their test booklet and work straight through. To control for order effects, the test order for the four instruments was varied so that all different permutations were given in equal frequency. The total time to complete the testing ranged from an hour to an hour and forty-five minutes, with the median time for completion about an hour and fifteen minutes.

Scoring

The scoring procedures for three of the instruments used in this study consisted of a simple additive process. Specifically, the life stress score based on the modified form of the LES was simply the sum of the life events reported by the subjects which were independently rated as undesirable. According to this scoring scheme, high scores are indicative of high levels of stress, and low scores represent low levels. The score on the I-E Scale tapping the personality variable of locus of control was also a summed value. On this scale, the score was the sum of the items endorsed which are indicative of external locus of control. On the basis of this scoring scheme, high scores on this scale denote an external locus of control orientation, and low scores represent an internal locus of control orientation. Finally, while the scores on the CPI-based coping and defending scales are often reported as standard scores,

for the purpose of this research it was only necessary to employ simple summed values. Thus, comparable to the scores on the I-E Scale, the scores on these scales were simply the sum of the items endorsed indicative of a particular coping or defending ego function orientation.

The scoring on the state and trait scales of the STAI was more complicated than the other scales due to the fact that some of the items on this inventory (direct items) are worded so that a high rating indicates a high level of anxiety, while other items (reversed items) are worded so that a high rating indicates a low level of anxiety. Due to this aspect of the inventory, scoring weights are determined differently for the direct and reversed items. For the direct items, the scoring weights correspond to the number marked for those items on the test form. However, for the other items, the scoring weights are reversed. That is, the weighted scores for responses marked 1, 2, 3, and 4 on the reversed items are 4, 3, 2, and 1, respectively. These scoring weights, derived in this manner, were added to yield scores on the state and trait anxiety scales.

Data Analysis

The basic statistical procedure employed in this study was the Pearson product-moment correlation. To test Hypotheses I, II, and III, the correlations obtained were evaluated to determine whether they achieved a level of statistical significance. In testing Hypothesis III in this way, the relevant correlations were

analyzed separately for males and females since the coping and defending scales were derived separately for men and women. To test Hypothesis IV, the correlations obtained on any two variables for the two stress groups were analyzed by *t* tests to determine whether there were differences between groups in the magnitude of the correlations. As with Hypothesis III, the sub-hypotheses of Hypothesis IV involving measures of coping and defending ego function orientations were tested separately for males and females.

CHAPTER III

RESULTS

Hypothesis I

The negative life change measure of stress correlates positively with both state and trait anxiety.

The results concerning this hypothesis are presented in Table 4. Consistent with the predictions, the negative life change scores correlated positively with both the state and trait anxiety measures. As expected, while these correlations were statistically significant, they were nonetheless only weak correlations. These findings provide empirical justification for the attempt to identify personality and personality-influenced variables that may moderate life stress-anxiety relationships.

TABLE 4.--Correlations between Negative Life Change and Anxiety.

Life Change Scores	Anxiety	
	State	Trait
Negative (N = 236)	.21**	.18*

Note. Significance levels are based on one-tailed tests.

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

The above findings were strengthened by an additional analysis in which the common variance due to social desirability[1] was partialled out of the correlations between life stress and anxiety. The results of this analysis (see Table A in Appendix A) indicated that a social desirability response bias, while slightly diminishing the positive relationships between life stress and anxiety, did not reduce these correlations below the level of statistical significance.

Hypothesis II

Locus of control serves as a moderator variable in the relationship between negative life change and the stress-related dependent measures of state and trait anxiety. Specifically, a positive correlation between life stress and each measure of anxiety is predicted only for subjects external in their locus of control orientations.

The results concerning this hypothesis are presented in Table 5. These findings demonstrated that, contrary to the prediction, the correlations between the negative life stress measure and each measure of anxiety were significant positive relationships for both internals and externals. In fact, while the correlations for externals slightly exceeded those of the internals, the size of these correlations for internals and externals were clearly quite comparable.

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[1] Items of the Marlowe-Crowne Social Desirability Scale had been imbedded at random in the CPI measure.

TABLE 5.--Correlations between Negative Life Change and Anxiety for Subjects Differing in Locus of Control Orientation

Locus of Control	Anxiety	
	State	Trait
Internals (n = 124)	.18*	.16*
Externals (n = 112)	.21*	.18*

Note. Significance levels are based on one-tailed tests.

*$p < .05$.

Due to the fact that locus of control score means for males ($\bar{X}$ = 10.33) and females ($\bar{X}$ = 12.06) were found to be significantly different from each other ($t = -3.35$, $p < .001$), further investigation of this hypothesis was undertaken in separate analyses for males and females. These analyses (see Table B in Appendix A) provided additional disconfirmatory evidence for the originally proposed hypothesis regarding the role of locus of control in the moderation of life stress. In fact, certain relationships in these analyses manifested a trend which was the reverse of the prediction. That is, certain internal groups showed higher life stress-anxiety correlations than their corresponding external groups. This same trend was found in additional analyses (see Table C in Appendix A) investigating more extreme groups on the locus of control dimension.

Hypothesis III

Coping and defending ego process orientations serve as moderator variables in the relationship between life stress and the stress-related dependent measures of state and trait anxiety. Specifically, with respect to the coping functions, a positive correlation between life stress and anxiety is predicted only for subjects low in coping. With regard to the defensive functions, this prediction is reversed. That is, a positive correlation between life stress and anxiety is predicted only for subjects high in defense.

The findings relevant to the sub-hypotheses concerning the coping orientations are presented in Table 6. These results are

TABLE 6.--Correlations between Negative Life Change and Anxiety for Subjects Differing in Coping Orientations.

Coping Orientations	Anxiety	
	State	Trait
Females		
High Summed Coping (n = 63)	.05	-.15
Low Summed Coping (n = 63)	.47***	.54***
High Controlled Coping (n = 68)	.19	.14
Low Controlled Coping (n = 58)	.31**	.32**
High Expressive Coping (n = 69)	.27*	.23*
Low Expressive Coping (n = 57)	.23*	.22
Males		
High Summed Coping (n = 56)	.20	.24*
Low Summed Coping (n = 54)	.16	.13
High Controlled Coping (n = 59)	.18	.19
Low Controlled Coping (n = 51)	.07	.04
High Expressive Coping (n = 53)	.29*	.11
Low Expressive Coping (n = 57)	.00	.20

Note. Significance levels are based on one-tailed tests.

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

provided separately for males and females due to differences in the male and female coping scales.

The findings based on the female subsample showed that the differentiation of subjects on both the summed coping and controlled coping measures resulted in the moderation of the life stress-anxiety relationships in the manner predicted. These findings were consistent for the relationships involving either state or trait anxiety. This pattern did not hold for the expressive coping measure. With this measure, the correlations for high and low coping groups were nearly equivalent.

An entirely different pattern of relationships was found for the male subsample. In five of the relationships investigated for the male subsample, the high coping groups manifested higher life stress-anxiety correlations than the low coping groups. In fact, the life stress-trait anxiety correlations in which subjects were differentiated on the summed coping measure and the life stress-state anxiety correlations in which subjects were differentiated on the expressive coping measure both showed a pattern opposite to the prediction. That is, in these relationships, a significant positive correlation between life stress and anxiety was found for the high coping group rather than the low coping group. The only instance in which the pattern of correlations was even in the direction predicted for the male subsample was the life stress-trait anxiety correlations in which subject groups were differentiated on the expressive coping measure.

Given these findings for the male and female subsamples, t-tests were subsequently done to determine the magnitude of the differences in the correlations obtained for the high and low coping groups. The results of these analyses were mixed. For ten of the twelve t-tests performed (6 out of 6 from the male subsample and 4 out of 6 from the female subsample), no differences in the correlations for the high and low coping groups were found. However, significant differences between groups were found for the female subsample in the direction predicted when the summed coping measure was utilized to differentiate the two groups. For this variable, the life stress-state anxiety relationships for the high versus low coping groups were found to be statistically different at the .02 level of significance, while the life stress-trait anxiety relationships for the two coping groups were statistically different at the .001 level. These findings provide empirical support for the original hypothesis concerning the role of coping functions in the moderation of life stress.

With regard to the subhypotheses pertaining to the defending orientations, the findings illustrated in Table 7 did not generally support the prediction of higher life stress-anxiety relationships for the high defense groups. In fact, a general pattern evident for both male and female subsamples was for the low defense groups to show slightly higher life stress-anxiety correlations than the high defense groups. Indeed, there were several cases in which only the groups that were low in defense showed a significant positive correlation between life stress and anxiety. Nonetheless, it should

TABLE 7.--Correlations between Negative Life Change and Anxiety for Subjects Differing in Defending Orientations

Defending Orientations	Anxiety	
	State	Trait
Females		
High Summed Defense (n = 65)	.22*	.18
Low Summed Defense (n = 61)	.26*	.22*
High Structured Defense (n = 58)	.20	.16
Low Structured Defense (n = 68)	.24*	.17
High Primitive Defense (n = 67)	.24*	.19
Low Primitive Defense (n = 59)	.28*	.24*
Males		
High Summed Defense (n = 63)	.09	.09
Low Summed Defense (n = 47)	.18	.14
High Structured Defense (n = 56)	.09	.22
Low Structured Defense (n = 54)	.27*	.14
High Primitive Defense (n = 54)	.15	.00
Low Primitive Defense (n = 56)	.01	.10

Note. Significance levels are based on one-tailed tests.

*$p < .05$

be noted that in no case was the discrepancy in the correlations for high and low defense groups large enough to even approach statistical significance. Thus, while no empirical evidence was found for the hypothesis that higher defense orientations result in higher life stress-anxiety relationships, the results indicated that the differences in defense have no appreciable moderating impact upon the effects of life stress.

Hypothesis IV

This final hypothesis stated in the null form is that locus of control and the coping and defending orientations differ in their impact in the mediation of the effects of stress at different stress levels. To investigate this hypothesis, relationships between the stress-related dependent measures of anxiety and measures of locus of control, coping orientations, and defending orientations for high and low stress groups were studied.

The results pertaining to this hypothesis are provided in Tables 8, 9, and 10. Table 8 presents the findings relevant to the locus of control-anxiety relationships for the high and low stress groups. This aspect of the final hypothesis was analyzed for the extreme groups of the total subject sample. These groups consisted of subjects in the upper and lower third of the stress score distribution.

The findings for these polar groups can be summarized in three ways. Firstly, all of the locus of control-anxiety relationships manifested slight to moderate positive relationships, with

TABLE 8.--Differences in the Correlations of Locus of Control and Anxiety for High and Low Stress Groups.

Level of Stress		z	
High Stress[a]	Low Stress[b]	Value	Significance
Locus of Control-State Anxiety Correlations			
.21	.22*	-.09	n.s.
Locus of Control-Trait Anxiety Correlations			
.22	.35**	-.85	n.s.

Note. The significance levels are based on two-tailed tests. The tests of differences are based on a statistical test for this purpose defined by Glass and Stanley (1970).

[a]High Stress: n = 73.

[b]Low Stress: n = 88.

*p < .05
**p < .01

the relationships involving the low stress groups achieving statistical significance. Secondly, the locus of control-state anxiety correlations were nearly the same for the high and low stress groups. Finally, the locus of control-trait anxiety correlations was slightly larger for the low stress group, but this difference in the correlations failed to reach or even approach statistical significance. Thus, there was a failure to reject the null hypothesis for the high and low stress groups for this particular aspect of the fourth hypothesis.

Table 9 provides the data regarding the differences in the coping orientation-anxiety correlations for high and low stress groups, with separate analyses for males and females. In both analyses, the pattern of the distribution dictated the cutoff points for composing extreme groups roughly equivalent in size. Utilizing this criterion for constituting the polar stress groups, the high and low stress groups for the male subsample were composed of the upper and lower third of the stress score distribution while the extreme stress groups for the female subsample were comprised of the upper and lower quarter of the distribution.

An examination of the results from the female subsample demonstrates an overall pattern of weak correlations for both stress groups. This point is accentuated by the fact that, of the twelve correlations investigated, only the summed coping-trait anxiety correlation for the low stress females achieved significance. Nonetheless, it is noteworthy that the high and low stress female groups manifested reverse trends in the direction of the correlations.

TABLE 9.--Differences in the Correlations of Coping Orientations and Anxiety between High and Low Stress Groups.

Coping Orientation	Level of Stress		z	
	High Stress[a]	Low Stress[b]	Value	Significance
State Anxiety Correlations				
Females				
Summed Coping	-.13	.24	-1.34	n.s.
Controlled Coping	.06	.26	- .78	n.s.
Expressive Coping	-.24	.19	-1.57	n.s.
Males				
Summed Coping	-.14	-.09	- .21	n.s.
Controlled Coping	-.16	-.18	+ .08	n.s.
Expressive Coping	.27	-.04	+ .97	n.s.
Trait Anxiety Correlations				
Females				
Summed Coping	-.33	.43*	-2.93	$p < .005$
Controlled Coping	-.14	-.04	- .33	n.s.
Expressive Coping	-.21	-.08	- .48	n.s.
Males				
Summed Coping	.03	.09	- .24	n.s.
Controlled Coping	-.23	-.30	+ .29	n.s.
Expressive Coping	.35*	.24	+ .45	n.s.

Note. The significance levels for the correlations reported are based on two-tailed tests. The test of differences in the correlations are based on the statistical test previously noted in Table 8.

[a]High Stress: Females, n = 28; Males, n = 37.

[b]Low Stress: Females, n = 31, Males, n = 32.

*$p < .05$

Specifically, the high stress groups showed correlations between the coping orientations and anxiety measures which ranged from essentially no relationship to weak negative correlations, while the low stress groups showed correlations which ranged from zero to weak positive relationships. It is noteworthy that, in the case of the summed coping-trait anxiety correlations, the reverse trend for the high and low stress groups was significantly different ($z = -2.93$, $p < .005$).

Similar to the findings with the female subsample, the extreme stress groups derived from the male subsample were also characterized by weak coping orientation-anxiety correlations. However, three important differences in the pattern for the male groups were discerned. First of all, the direction and size of the correlations were roughly equivalent for the high and low stress groups. Secondly, these correlations ranged from essentially no relationship to slight negative correlations. The only exceptions to this trend were the weak positive correlations between expressive coping and state anxiety for the high stress group, and correlations within the same range between expressive coping and trait anxiety for both the high and low stress groups. Finally, in no instances were the discrepancies in the correlations for the male stress groups large enough to achieve statistical significance.

The final set of data regarding the fourth hypothesis is illustrated in Table 10. This table presents the findings regarding the differences in the defending orientation-anxiety relationships for high and low stress groups. As in the previous analyses, these

TABLE 10.--Differences in the Correlations of Defending Orientations and Anxiety between High and Low Stress Groups

Defending Orientation	Level of Stress		z	
	High Stress[a]	Low Stress[b]	Value	Significance
State Anxiety Correlations				
Females				
Summed Defense	.11	.29	- .70	n.s.
Structured Defense	.37	.36*	+ .02	n.s.
Primitive Defense	.09	-.19	+1.05	n.s.
Males				
Summed Defense	.08	.22	- .57	n.s.
Structured Defense	-.13	.00	- .54	n.s.
Primitive Defense	.39*	.31	+ .38	n.s.
Trait Anxiety Correlations				
Females				
Summed Defense	.33	.64**	-1.62	n.s.
Structured Defense	.38*	.74**	-2.02	$p < .05$
Primitive Defense	.31	.12	+ .72	n.s.
Males				
Summed Defense	.36*	.30	+ .30	n.s.
Structured Defense	-.11	-.13	+ .11	n.s.
Primitive Defense	.73**	.46**	+1.69	$p < .10$

Note: The significance levels for the correlations reported are based on two-tailed tests. The tests of differences in the correlations are based on the statistical test noted previously in Table 8.

[a]High Stress: Females, n = 28; Males, n = 37.

[b]Low Stress: Females, n = 31; Males, n = 32.

*$p < .05$

**$p < .01$

findings are reported separately for males and females, and the same polar stress groups as above were investigated.

In summarizing the results of these analyses, it should be noted, first of all, that a trend for positive defending orientation-anxiety relationships was manifested for both males and females. Indeed, one third of the correlations for both males and females showed positive correlations which achieved statistical significance. These trends stand in contrast to the generally weak, insignificant associations found between the coping orientations and anxiety. Secondly, it is noteworthy that six of the eight of these correlations pertain to relationships involving trait anxiety, which suggests an understandable association between defensiveness and anxiety proneness. Finally, certain differences in the pattern of the correlations were found for both males and females. One such difference was the fact that the female subsample showed moderate to high positive correlations between structured defense and the anxiety measures while the male subsample manifested slightly negative correlations for these relationships. In contrast, the male subsample showed larger positive correlations between primitive defense and anxiety than the female subsample. This discrepancy in the pattern of results by virtue of sex was also illustrated in the tests of differences in the trait anxiety correlations for high and low stress groups. Specifically, with the female subsample, the correlations of summed defense and structured defense with trait anxiety were appreciably larger for the low stress group. In fact, the correlation between structured defense and trait anxiety was significantly

greater ($z = -2.02$, $p < .05$) for the low stress group than the high stress group, thereby rejecting the null hypothesis. However, these same correlations for the high and low stress male groups showed a pattern of relative stability. The exception to this pattern of differing trends for males and females was found with the primitive defense-trait anxiety relationships. Here, for both males and females there was a trend for a diminished relationship between the defense measure and trait anxiety for the low stress groups. However, it should be noted that the strength of all these primitive defense-trait anxiety relationships was appreciably greater for the males than the females.

Post Hoc Analyses

Analysis Related to Hypothesis I

While the original correlations obtained between the negative life change stress measure and the stress-related dependent measures of anxiety were statistically significant and within the range of values reported in the literature, the values obtained clearly fell within the lower end of that range. For this reason, it was decided to compare the life stress-anxiety relationships obtained with the negative change measure with the three alternative methods of measuring life stress (the positive change measure, the total change measure, and the balance of undesirability measure) which have been proposed.

The results of this analysis are provided in Table 11. The findings indicated that, despite the low level of the life

change-anxiety correlations obtained with the negative change measure, this measure was equal to or superior to the alternative measures of life stress. These findings provide empirical justification for the employment of the negative life change score as the measure of life stress in this study.

TABLE 11.--Correlations between Life Change Scores and Anxiety.

Life Change Scores	Anxiety	
	State[a]	Trait[a]
Negative	.21***	.18**
Positive	.04	-.01
Total (negative + positive events)	.16**	.11*
Balance (negative - positive events)	.18**	.20**

Note. Significance levels are based on one-tailed tests.

[a]N = 236

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

Analyses Related to Hypothesis II

A. Due to the disconfirming evidence for this original hypothesis, a further analysis was undertaken to explore the role of locus of control orientation as a possible moderator variable in the relationship between positive life change and anxiety. As in the original analyses involving the negative life change measure, the comparison groups were determined by the median split procedure generally employed with the locus of control variable.

The results of this analysis are presented in Table 12. The findings demonstrated correlations that were opposite in direction for internals and externals. Specifically, for both measures of anxiety, the internals showed weak negative correlations while the externals manifested weak positive correlations. Despite the generally insubstantial size of these correlations, one of the relationships, the positive change-trait anxiety correlation for internals, was statistically significant. Furthermore, due to the reverse trends in the direction of the correlations for internals and externals, the difference in the positive change-trait anxiety correlations for the two groups was statistically significant ($z = 2.15$, $p < .05$). This finding provides empirical evidence for the role of locus of control as a moderator variable in the relationship between positive life change and anxiety. More specifically, it supports the diminution of anxiety for internals in response to positive life change as compared to the slight enhancement of anxiety in response to such stimuli for externals.

TABLE 12.--Correlations between Positive Life Change and Anxiety for Subjects Differing in Locus of Control Orientations

Locus of Control	Anxiety	
	State	Trait
Internals (n = 124)	-.05	-.15*
Externals (n = 112)	.13	.13

Note. Significance levels are based on one-tailed tests.
*$p < .05$.

B. An additional post hoc analysis undertaken with regard to the locus of control variable was the investigation of whether subjects distinguished on this personality dimension differ in the frequency with which they reported negative life experiences. To this end, t-tests were performed to determine whether the negative life change scores differed for internals versus externals. These t-tests were performed separately for the male and female subsamples.

The results of these analyses are presented in Table 13. The findings demonstrated that, for both males and females, internals had lower negative life change means than externals. For the female subsample, this difference was statistically significant beyond the .01 level. For the male subsample, while the difference in the means failed to achieve significance at the .05 standard, the difference obtained was significant at the .06 level. Thus, the findings indicate than an internal locus of control orientation is related to a diminished occurrence of negative life events for females and that there is a strong tendency in this direction for males.

Analyses Related to Hypothesis III

After a full review of the results that were obtained with the original analyses regarding this hypothesis, it was clear that certain unexpected patterns had emerged. Specifically, most of the hypotheses regarding the male subsample were opposite in direction from the predicted. Secondly, however, it seemed odd that a trend in the direction predicted was manifested for the female subsample

TABLE 13.--Differences in the Negative Life Change Score Means for Internals versus Externals

Groups	Negative Life Change Score Means		t Value
	Externals[a]	Internals[b]	
Females	4.17	2.87	2.79*
Males	4.55	3.58	1.96

Note. For the female subsample, internals IE $\leq$ 12; externals IE > 12. For the male subsample, internals IE $\leq$ 10; externals IE > 10.

[a]Females N = 59; Males N = 55.

[b]Females N = 67; Males N = 55.

*$p < .01$

with controlled coping as the moderator variable while an opposite trend was found for the male subsample on this measure. That is, based on sex role stereotypes, it seemed reasonable to expect this cognitive coping orientation to be a more effective moderator variable of life stress for males. Due to the reverse trends found, several analyses were undertaken to establish the legitimacy of these findings.

A. First of all, the means and standard deviations on the summary coping and defending measures were determined for both the male and female subsamples. This data is presented in Table 14. These results were comparable to the findings reported by Joffe and Naditch (1977) for a student sample. Furthermore, while the number of items on the male cognitive coping and defending scales exceeded that of the females, the difference in the two groups' means on these measures was greater than the difference in the number of items. Thus, on the basis of the means, the stereotypical cognitive orientation for males was supported.

B. The second set of analyses regarding the original test of this hypothesis consisted of scatterplots of the correlations initially obtained. In all cases, these scatterplots showed the distribution of points consistent with the original correlations obtained.

C. A third set of analyses undertaken to validate the original findings involved individual CPI-based measures of coping and defense processes. These measures had been included in the original testing materials due to the limitations of the coping and

TABLE 14.--Means and Standard Deviations on the Summary Coping and Defending Measures.

Ego Process Orientation	Males[a]		Females[b]	
	Mean	SD	Mean	SD
Summed Coping	18.31	3.12	18.59	2.89
Controlled Coping	24.80	4.15	21.78	2.96
Expressive Coping	19.44	3.82	19.72	3.13
Summed Defense	14.17	3.58	11.70	3.72
Structured Defense	22.71	3.56	18.56	5.30
Primitive Defense	12.56	3.92	11.01	3.32

[a] n = 110

[b] n = 126

defending orientation summary measures as acknowledged by Joffe and Naditch (1977). With regard to the individual coping processes assessed, the CPI measures of intellectuality and logical analysis had been administered due to their high positive loadings on the factor analytically derived controlled coping measure. Likewise, the CPI scale for regression in service of the ego had been employed due to its high positive loading on the expressive coping measure. Similarly, with regard to the individual defending processes investigated, the CPI measure of intellectualization had been utilized due to its high loading on the structured defense summary measure while the scales for doubt and regression were used due to their high positive loadings on the primitive defense summary measure. In addition to the above reasoning, the scale for denial had been administered due to the research evidence in support of the role of this defense mechanism in the mediation of stress (Haan, 1977; Speisman, Lazarus, Mordkoff, and Davison, 1965). Nonetheless, six of seven of these individual measures, when employed as moderator variables, provided a final test for the trends reported in the original analyses.

In general, the reliabilities of these scales for both males and females reflected in test-retest coefficients ranged from acceptable (.67) to good (.81), with a median reliability of .78. Unlike the summary measures of coping and defending orientations, all of these scales had acceptable validity coefficients; that is, correlations of these scales with clinicians' ratings of these ego

processes were all statistically significant ranging from .21 to .57, with a median validity coefficient of .385.

The results of these investigations of the possible role of individual coping and defending processes as moderator variables in the relationship between life stress and anxiety are presented in Tables 15 and 16, with analyses again performed separately for male and female subsamples.

As illustrated in Table 15, the findings regarding the individual coping measures for the female subsample reinforced the findings manifested on the summed coping and controlled coping measures. Indeed, for five of the six life stress-anxiety correlation comparisons performed (two involving state anxiety and three involving trait anxiety), the coping measure, when employed to differentiate high and low coping groups, resulted in significant positive life stress-anxiety correlations for only the low coping groups. Furthermore, tests of the differences in the correlations for high and low coping groups were statistically significant beyond the .05 level in both comparisons (state and trait anxiety relationships) involving logical analysis as the moderator variable and in the trait anxiety comparison involving intellectuality as the variable differentiating coping groups. In addition, the life stress-trait anxiety correlation comparisons involving regression in service of the ego resulted in differences which approached the .05 standard of significance ($z = 1.92$, $p < .06$).

The pattern of these findings reinforced the trend found for the female subsample with the factor analytically derived, and

TABLE 15.--Correlations of Negative Life Change and Anxiety for Subjects Differing on Coping Measures

Coping Processes	Anxiety	
	State	Trait
Females		
Hi Intellectuality (n = 60)	.12	-.02
Lo Intellectuality (n = 66)	.37***	.36***
Hi Logical Analysis (n = 72)	.05	-.07
Lo Logical Analysis (n = 54)	.49***	.54***
Hi Ego Regression (n = 61)	.19	.00
Lo Ego Regression (n = 65)	.22	.34**
Males		
Hi Intellectuality (n = 56)	.19	.31**
Lo Intellectuality (n = 54)	.16	.07
Hi Logical Analysis (n = 52)	.33**	.29*
Lo Logical Analysis (n = 58)	.03	.09
Hi Ego Regression (n = 50)	.13	.07
Lo Ego Regression (n = 60)	.21	.24*

Note. Significance levels are based on one-tailed tests.
*$p < .05$
**$p \leq .01$
***$p < .001$

therefore, perhaps, less precise controlled coping measure. Indeed, the individual cognitive coping processes were found to be effective moderator variables of the life stress-anxiety relationships. While the findings regarding regression in service of the ego also came close to providing empirical support for the moderating impact of this variable upon the life stress-trait anxiety relationships, it is noteworthy that the cognitive coping processes rather than the affective coping process were the effective moderator variables for the female subsample.

The pattern of findings obtained with the individual coping measures for the male subsample also reinforced the original pattern of findings based on the summary coping measures. In particular, as in the original analyses, the pattern of the life stress-anxiety correlations generally ran counter to the predictions. That is, the high coping groups rather than the low coping groups generally manifested the significant positive correlations. The single exception to this pattern occurred with the life stress-trait anxiety correlations involving regression in service of the ego. This correlation was as predicted significantly greater than zero for the low coping group only. Unlike the female subsample, however, none of the differences in the correlations for high and low coping groups were significant, or even approached significance. Thus, none of these variables fulfilled the criterion of a moderator variable.

As with the individual coping measures, the results of the analyses involving the individual defending measures, as illustrated in Table 16, generally reinforced the original findings involving

TABLE 16.--Correlations of Negative Life Change and Anxiety for Subjects Differing on Defense Measures

Defending Processes	Anxiety	
	State	Trait
Females		
Hi Intellectualization (n = 58)	.27*	.09
Lo Intellectualization (n = 68)	.23*	.32**
Hi Doubt (n = 59)	.23*	.16
Lo Doubt (n = 67)	.25*	.27*
Hi Regression (n = 68)	.24*	.12
Lo Regression (n = 58)	.24*	.35**
Hi Denial (n = 59)	.22*	.24*
Lo Denial (n = 67)	.24*	.15
Males		
Hi Intellectualization (n = 55)	.04	.21
Lo Intellectualization (n = 55)	.29*	.15
Hi Doubt (n = 53)	.17	.03
Lo Doubt (n = 57)	.05	.17
Hi Regression (n = 51)	.09	.06
Lo Regression (n = 59)	-.01	-.08
Hi Denial (n = 59)	.10	.32**
Lo Denial (n = 51)	.24*	.02

Note. Significance levels are based on one-tailed tests.
*p < .05
**p < .01

the summary defense measures. In particular, as in the original analyses, differences in the life stress-anxiety correlations for high and low defending groups did not occur in many cases. Furthermore, in cases in which the differences were found, several of the correlations were opposite from the prediction with only the low defending groups manifesting significant positive correlations. The only exception to this trend was that, when both male and female groups were differentiated on denial, only the high defending groups showed significant positive correlations. Finally, in all cases manifesting differences, the discrepancies in the correlations between high and low defending groups were not significant. Thus, these findings essentially corroborated those based on the summary defense measures which showed no moderating impact of defense processes in the mediation of life stress.

D. In light of the findings supporting the legitimacy of the original findings and the reinforcement of the original pattern of findings with the individual measures, a final post hoc analysis was undertaken, as had been done with the locus of control variable, to determine whether differentiation on the coping and defending measures affected mean frequency of negative life events reported. These findings are presented in Table 17.

With regard to this analysis, the findings which achieved significance can be summarized by two important observations. First, a significantly greater frequency of negative life events was found for high expressive coping females and the high summed defense and high primitive defense males. These results suggest the possibility

TABLE 17.--Differences in the Negative Life Change Score Means for High and Low Copers and Defenders.

Ego Process Orientations	Negative Life Change Score Means		t Value	Significance
	High	Low		
Coping Orientations[a]				
Females				
Summed Coping	3.41	3.53	- .26	n.s.
Controlled Coping	3.60	3.32	.57	n.s.
Expressive Coping	3.99	2.86	2.38	$p < .02$
Males				
Summed Coping	4.41	3.98	.32	n.s.
Controlled Coping	3.61	4.59	-1.99	$p < .05$
Expressive Coping	4.51	3.65	1.75	n.s.
Defending Orientations[b]				
Females				
Summed Defense	3.66	3.28	.80	n.s.
Structured Defense	3.86	3.15	1.49	n.s.
Primitive Defense	3.39	3.58	- .39	n.s.
Males				
Summed Defense	4.68	3.23	2.99	$p < .005$
Structured Defense	4.38	3.74	1.28	n.s.
Primitive Defense	4.80	3.36	3.00	$p < .005$

Note. The significance levels are based on two-tailed tests.

[a]The n's for the male and female high and low coping groups are provided in Table 6.

[b]The n's for the male and female high and low defending groups are provided in Table 7.

that males employ more defensive processes, particularly primitive defenses, in response to high stress levels while females employ the coping counterpart of expressive coping. Secondly, as shown for internally oriented subjects, high controlled coping males on the average experienced significantly fewer negative life events. This finding suggests that this coping orientation has adaptive value due to the decreased occurrence of negative life events associated with this pro-active, problem-solving orientation. In support of this view, it should be noted that high controlled coping males were found to have significantly lower means on both state ($t = -3.75$, $p < .001$) and trait anxiety ($t = -4.45$, $p < .001$) than the low controlled coping males. These findings, in conjunction with above evidence, suggest that, while this coping mechanism may not moderate life stress-anxiety relationships, it may function in a stress preventative role to diminish the negative effects associated with life stress.

Analyses Related to Hypothesis IV

Given that very few of the relationships investigated in Hypothesis IV demonstrated differences between high and low stress groups, further analyses were undertaken to determine whether a clearer pattern might emerge in comparisons of groups drawn from the entire spectrum of life stress. Thus, it was decided to investigate relationships of Hypothesis IV in comparisons involving high, medium, and low stress groups. To accomplish this end, subjects were assigned to groups on the basis of stress score distributions.

Specifically, as nearly as possible, the high, medium, and low groups were composed of the upper third, middle third, and lower third of the distribution, respectively. In addition, due to the previously reported differences between males and females on the locus of control variable, the analysis concerning this variable as well as the analyses concerning the coping and defending functions were undertaken separately for males and females.

When dividing the male subsample according to the high-medium-low scheme, the nearest approximation of the targeted goal going from high to low stress groups was a 34%-37%-29% breakdown. For the female subsample, it was a 28%-47%-25% breakdown. This uneven distribution for the female subsample was necessitated by the preponderance of female subjects with medium range stress scores.

The results of the high, medium, and low stress group comparisons are presented in Tables 18, 19, and 20. The locus of control-anxiety correlations for these three groups are shown in Table 18. Essentially, the pattern of the findings with locus of control for both males and females was consistent with the previously reported findings involving the high and low stress groups. That is, while only some of the correlations were statistically significant, the correlations for all groups were positive, and none of the differences in the correlations between groups were statistically significant.

Table 19 presents the coping orientation-anxiety correlations for the three stress comparison groups. In general, these analyses for male and female subsamples resulted in elaborations of patterns

TABLE 18.--Correlations of Locus of Control with Anxiety for High, Medium, and Low Stress Groups.

Level of Stress	Personality Variable	Anxiety	
		State	Trait
Females			
High Stress (n = 36)	Locus of Control	.26	.25
Medium Stress (n = 59)	Locus of Control	.22	.21
Low Stress (n = 31)	Locus of Control	.16	.36*
Males			
High Stress (n = 37)	Locus of Control	.09	.16
Medium Stress (n = 41)	Locus of Control	.29	.47**
Low Stress (n = 32)	Locus of Control	.21	.32

Note. Significance levels are based on two-tailed tests.

*p < .05
**p < .005

TABLE 19.--Correlations of Coping Orientations with Anxiety for High, Medium, and Low Stress Groups.

Level of Stress	Coping Orientation	Anxiety	
		State	Trait
Females			
High Stress (n = 36)	Summed Coping	-.02	-.15
	Controlled Coping	.06	-.15
	Expressive Coping	-.15	-.19
Medium Stress (n = 59)	Summed Coping	.26	.22
	Controlled Coping	-.09	-.14
	Expressive Coping	-.27*	-.31*
Low Stress (n = 31)	Summed Coping	.24	.43*
	Controlled Coping	.26	-.04
	Expressive Coping	.19	-.08
Males			
High Stress (n = 37)	Summed Coping	-.14	.03
	Controlled Coping	-.16	-.23
	Expressive Coping	.27	.35*
Medium Stress (n = 41)	Summed Coping	-.09	-.16
	Controlled Coping	-.66**	-.62**
	Expressive Coping	.06	.12
Low Stress (n = 32)	Summed Coping	-.09	.09
	Controlled Coping	-.18	-.30
	Expressive Coping	-.04	.24

Note. Significance levels are based on two-tailed tests.

*p < .05
**p < .005

found in the two group comparisons. There were, however, certain analyses in which the three group comparisons resulted in differences not evident in the two group comparisons.

For the female subsample, these differences were manifested in the expressive coping-anxiety correlations. In these relationships analyzed across the entire spectrum of life stress, the medium stress group correlations were found to be more negative than that of the high stress groups. In fact, the only significant expressive coping-anxiety correlations found for the three stress groups were the negative correlations found with the medium stress groups. Thus, the opposite directionality in the correlations between expressive coping and anxiety found between high and low stress in the two groups comparisons was even more pronounced in the medium and low stress groups of the three group comparisons. In fact, unlike the original high-low comparisons, the discrepancy in the expressive coping-state anxiety correlations for the medium versus low stress groups was statistically significant ($z = -2.02$, $p < .05$).

For the male subsample, the three group comparisons investigating the correlations between controlled coping and anxiety provided evidence of a curvilinearity in these relationships across the stress continuum which was not evident in the original extreme group comparisons. Specifically, while all three stress groups showed negative correlations between controlled coping and anxiety, the strength of these relationships was considerably greater for the medium stress groups. In fact, the correlations between controlled coping and state anxiety for the medium stress group was

statistically different from that of the high stress ($z = -2.65$, $p < .01$) and low stress ($z = -2.45$, $p < .02$) groups. Likewise, the correlation between controlled coping and trait anxiety for the medium stress group was significantly different from that of the high stress group ($z = -2.04$, $p < .05$), and this trend was maintained for the medium-low groups comparison ($z = -1.67$, $p < .10$). These findings suggest that this coping mechanism for males is most effective under medium life stress conditions.

In addition to these findings, it is noteworthy that the pattern of the results in the three group comparisons supported the evidence for sex differences found in the original high-low group comparisons. This was reflected, first of all, in the fact that the expressive coping-anxiety correlations were generally opposite in direction for males and females. Specifically, females showed weak negative correlations while males showed weak positive correlations. Secondly, this was revealed in the different trends in the relationships between controlled coping and anxiety for males and females in the three group comparisons. That is, in contrast to variation in the degree of the relationship between controlled coping and anxiety at different stress levels for the male subsample, the female subsample manifested a stable pattern of weak, insignificant negative correlations for all three stress groups. These two sets of findings suggest that both the expressive coping and controlled coping orientations may differ in their effects by sex across the stress continuum.

The final analysis undertaken in the three group comparisons pertained to the defending orientation-anxiety correlations. The results of this analysis are presented in Table 20. The results for both the male and female subsamples were for the most part consistent with the trends found in the two group comparisons. For the female subsample, this was manifested in defending orientation-anxiety correlations which were generally positive and significant as well as in the tendency for these correlations to increase as you go from the high stress to the low stress groups, particularly in the trait anxiety correlations. Despite this latter trend, as in the two group comparisons, the only evidence of differences between groups was found with the structured defense-trait anxiety correlations. Here, the correlation of the low stress group was significantly greater ($z = -2.03$, $p < .05$) than that of the high stress group. For the male subsample, the three group comparisons paralleled even more closely the trends found in the two group comparisons. For each defending orientation-anxiety correlation, the pattern of correlations found in the two group comparisons was maintained in the three group comparisons. As in the original analyses, the only relationship that showed any evidence of differences between groups in the levels of correlations obtained were found in the primitive defense-trait anxiety correlations. Specifically, the size of the correlations obtained between primitive defense and trait anxiety with both the high and medium stress groups were large enough to at least be significantly different from the low stress group at the .10 level.

TABLE 20.--Correlations of Defending Orientations with Anxiety for High, Medium, and Low Stress Groups.

Level of Stress	Defending Orientation	Anxiety	
		State	Trait
Females			
High Stress (n = 36)	Summed Defense	.27	.40*
	Structured Defense	.41*	.41*
	Primitive Defense	.14	.34*
Medium Stress (n = 59)	Summed Defense	.33**	.54***
	Structured Defense	.39***	.53***
	Primitive Defense	.29*	.29*
Low Stress (n = 31)	Summed Defense	.29	.64***
	Structured Defense	.36*	.74***
	Primitive Defense	-.19	.12
Males			
High Stress (n = 37)	Summed Defense	.08	.37*
	Structured Defense	-.13	-.11
	Primitive Defense	.39*	.73***
Medium Stress (n = 37)	Summed Defense	.41**	.39*
	Structured Defense	.02	.00
	Primitive Defense	.58***	.72***
Low Stress (n = 32)	Summed Defense	.22	.30
	Structured Defense	.00	-.13
	Primitive Defense	.31	.46**

Note. Significance levels are based on two-tailed tests.

*p < .05
**p < .01
***p < .005

CHAPTER IV

DISCUSSION

In order to adequately interpret the results of this study, two important areas need to be addressed. First of all, the theoretical assumptions underlying the methodology of this study need to be considered. Secondly, the findings of this study need to be evaluated with respect to the theoretical framework that guided this research endeavour. Specifically, the results need to be viewed in reference to Lazarus' cognitive mediational model of stress and Haan's theory of the coping-defending dichotomy.

With regard to the theoretical issues relating to the methodology of this study, three critical areas of concern are: 1) the nature of the life stress measure employed; 2) the adequacy of the stress-related dependent measures; and 3) the employment of correlations as the primary method of analysis.

With respect to the first methodological issue, life stress was conceptualized in terms of stimuli characterized by their undesirability. This conceptualization of stress was actually tested in the analysis pertaining to the first hypothesis. This initial analysis as well as the post hoc analyses performed provided empirical support for this conceptualization. This was indicated, first of all, by the statistically significant, positive relationships between the negative change measure of life stress and the

stress-related dependent measures of anxiety. Secondly, when the negative life change measure was compared to the alternative measures of stress, the negative change measure was found equal to or superior to the other measures of life stress in terms of the enhancement of the life stress-disturbance variable relationship. In this respect, the results of this study provide empirical support for defining stress in terms of events characterized by their undesirability. This finding is consistent with the cognitive mediational model of stress which maintains that the crucial aspect of stress is the perception of threat or danger posed to the organism.

Despite this confirmatory evidence for this view of stress, a critical qualifier of these results was the general weakness of all the life stress-anxiety correlations investigated. That is, even as the measure equal to or superior to the other measure of life stress, the negative change-anxiety correlations did not exceed .2. Thus, based on the findings of this study, less than 4% of the variance in the negative life stress scores was accounted for by the anxiety measures. In considering this fact, it can be argued that, while the negative life change measure compares favorably to the other measures of life stress, it is nonetheless an inadequate measure for life stress.

In opposition to this stance, three important points should be made. First of all, in other studies which have compared the four alternative measures of life stress (Vinokur and Selzer, 1975; Mueller, Edwards, and Yarvis, 1977; and Sarason, Johnson, and Siegel, 1978), the superiority of the negative change measure, as found in

this study, has been consistently maintained. Secondly, while it is true that the life stress-anxiety correlations in this study are small, comparisons with similar studies suggest that this may be due to differences in methodology. For example, Mueller et al. (1977) reported a correlation of .40 between a negative life change measure and a psychiatric symptom scale. However, the measure of stress in that study was based on the subjects' report of events that had occurred in the last thirty days. This contrasts with the fact that in the present study the life stress measure was based on the subjects' report of events over the last year. This difference in the recency of events for the two measures could account for the discrepancy in the correlations obtained. Similarly, in the study by Sarason et al. (1978) reporting higher life stress-anxiety correlations, the negative change measure was based on the subjective rating of the impact of the events experienced. This contrasts with the method employed in the present study of defining negative life change as the sum of events reported by the subjects which were rated by independent judges to be undesirable. A final point regarding the weakness in the life stress-anxiety relationships obtained in this study is that these findings are consistent with the view of the cognitive mediational model of stress. That is, this model maintains that psychological processes employed by an individual moderate the impact of stress thereby precluding a one-to-one relationship between stress and dependent measures of stress.

With regard to the second methodological issue, some general observations regarding the adequacy of the stress-related dependent

measures of anxiety in this study are in order. Overall, the relationships involving the two measures of anxiety in this study can be characterized by two patterns. First of all, there was generally a similarity in the direction and size of the relationships involving state and trait anxiety. This finding is consistent with the expectation that a trait anxious individual is more likely to experience states of anxiety. Secondly, the relationships involving trait anxiety were generally more effective in differentiating groups in the various analyses undertaken. With respect to the life stress-anxiety relationships, in particular, this may have been due to the fact that a measure of anxiety proneness is more likely to reflect the impact of stressful life events over a period of time. It should be pointed out, however, that the label "trait anxiety" for such a scale may be somewhat of a misnomer since it implies that the anxiety measured is strictly a function of personality predisposition. The positive relationships obtained between life stress and trait anxiety in this study, which have been replicated in other studies, suggests the sensitivity of this instrument to effects due to environmental impact. This is an issue of theory underlying current methodology that needs to be acknowledged in the stress literature.

The third methodological issue of theoretical relevance to the interpretation of the findings of this study is the fact that the primary method of analysis in this study was correlational. This method was utilized with a clear recognition of the limitations of correlational techniques in specifying causal relationships.

However, this method was consistent with the exploratory intent of this study. Specifically, the goals of this study were two-fold: 1) to attempt to identify important psychological stress-mediating variables; and 2) to provide clues to the nature of the impact of such variables upon the mediation of stress. In this way, it was hoped that this study might contribute to the further development of a psychology of stress.

These important goals have been pursued in this study in the separate investigations of locus of control, coping orientations, and defending orientations as potential moderator variables of life stress. These particular variables were chosen to test aspects of the cognitive mediational model of stress elaborated by Lazarus and the conceptually related ego process model of Haan.

With regard to Lazarus' thinking, the findings of this study did not corroborate the prediction based on his theory of "self-regulation" of emotion that an internal locus of control orientation would have greater adaptive value in terms of mitigating or nullifying the effects of negative life change. Rather, in the original analysis based on the total sample, internals and externals both showed weak, but statistically significant positive correlations between negative life change and the anxiety measures. Furthermore, these correlations were roughly equivalent to the life stress-anxiety correlations obtained for the entire sample undifferentiated on this personality dimension. Based on these results, no empirical evidence was provided for the hypothesized role of locus of control

as a moderator variable in the relationship between life stress and anxiety.

In light of these results, further analyses investigating the male and female subsamples separately as well as analyses based on more extreme groups on the locus of control dimension were undertaken. Both these subsequent analyses, but in particular the latter analyses, showed differences in the life stress-anxiety correlations for internals versus externals opposite from the prediction. While none of these differences were statistically significant, in one case (the negative life change-trait anxiety correlations for the combined male and female extreme groups) these differences approached the conventional level of significance. Thus, if anything, greater support was found in this study for the position that an external locus of control orientation is more effective in diminishing the harmful effects of negative life change.

While these findings clearly contradicted the general premise of Lazarus that a sense of personal control over events universally serves to diminish the negative effects of stress, a further post hoc investigation of the role of locus of control as a moderator variable in the positive life change-anxiety relationships is noteworthy. In contrast to the results obtained with the negative change measure, the findings pertaining to the positive change-trait anxiety correlations demonstrated a statistically significant diminution of anxiety associated with this class of event for internals as opposed to externals.

In opposition ot Lazarus' view, these findings on the negative change and positive change measures suggest that the moderating effects of locus of control differ according to whether the event is positive or negative. Evidence for this person X situation framework for understanding the moderating effects of locus of control has been substantiated in the research literature. Specifically, with respect to negative experiences, Davis and Davis (1972) reported that internals manifested a greater tendency to blame themselves for failures than externals. Furthermore, Wortman, Panciera, Schusterman, and Hibscher (1976) reported an experiment in which subjects, under experimental manipulation, failed a task and then were provided with information to influence them to attribute their performance to their own ability or to situational factors. They found that subjects who attributed their failure to their own incompetence experienced considerably more stress than subjects who made situational attributions. Taken together, the findings of these two studies are consistent with the notion that internals tend to take responsibility or blame themselves for certain negative life experiences which, in turn, serves to enhance rather than diminish the negative effects associated with these events.

With regard to positive events, there is evidence for an opposite effect of the locus of control orientation. Specifically, findings reported by Efran (1963) indicate that internals tend to concentrate more on their successes than externals. This finding is consistent with the diminution of anxiety associated with positive life events for internals as found in this study. A plausible

explanation of these findings is that the internal's attribution of these positive events to his own efforts or ability enhances his self-esteem, thereby reinforcing such attributions, and at the same time clearly mitigating the anxiety associated with these events.

Consistent with this analysis for internals, several researchers (Rotter, 1966; Davis and Davis, 1972) have suggested that externality may be associated with defensiveness. Specifically, it has been argued that an external locus of control orientation may be adopted to defend against failures. According to this notion, the external need not deny a negative event, rather the event is simply construed as due to environmental factors rather than one's own efforts. Similar to internal locus of control, though, it is argued that the external locus of control orientation is adopted to maintain self-esteem.

In considering these arguments regarding internal and external locus of control orientations, an integrated theory is suggested. On the one hand, it can be argued that, with respect to a valued goal (i.e. enhancement of self-esteem for the internal; maintenance of self-esteem for the external), each locus of control orientation may have adaptive significance. That is, there may be adaptive value to accepting negative life events as externals tend to, especially if one lacks control over the event as might well be the case for many negative experiences. Likewise, attributing positive events to one's own efforts as internals tend to do would seem to be adaptive in terms of enhancing self-esteem. However, the apparent problem with each locus of control orientation, as substantiated in

part in this study, is that its adaptiveness may be limited to a particular class of events, i.e. negative events for externals and positive events for internals. Specifically, while an external locus of control orientation may reduce the anxiety associated with negative life events (relative to internal locus of control orientation), it is questionable that the failure to make self attributions regarding positive events is adaptive. Indeed, on account of this, the experience of these positive events might be conducive to altering one's attributional framework from external to internal factors. This could account for the greater association between positive life change and trait anxiety as noted for externals in this study. Similarly, while attributions of personal responsibility for positive life events may be self enhancing, these same attributions in regard to negative life events may in many instances distort reality, and, as suggested by the trends noted in the extreme group comparisons on locus of control in this study, exacerbate the harmful effects associated with negative life experiences. While the results in this study supporting this analysis must be considered as tentative, the implication of this interpretative framework for understanding the moderating impact of locus of control upon one's life experiences is that adaptability may be a function of one's flexibility in adopting either locus of control orientation to the appropriate situation.

Despite this proposed revision in theory from Lazarus' view of the general adaptive value of having a sense of personal control over events, the final post hoc analysis regarding locus of control

did provide qualified support for Lazarus' position. This was reflected in the significantly lower mean negative life change for internals versus externals in the female subsample and a strong trend in this direction for males. These findings suggest that, even if internal locus of control does not diminish the effects of negative life changes upon experiencing them, a personal sense of control over events may reduce the probability of these stressful negative life events. Conceivably, this may be due to a stress preventative effect associated with the pro-active internal locus of control orientation.

This view is supported by Strickland (1978) in her review of locus of control research relevant to health behaviors. That is, consistent with the findings of this study as noted above, Strickland (1978) cites evidence from various studies showing the greater likelihood of internally oriented individuals to engage in health-sustaining, preventative behaviors (e.g. scheduling regular check-ups, maintaining regimes of regular exercise, exercising control over their diet, etc.).

With regard to the second major area of theoretical exploration in this study, the results pertaining to the coping and defending orientations provided qualified support for two important aspects of Haan's ego processing model: 1) her proposed dichotomy of coping and defending ego processes; and 2) her differentiation of affective and cognitive ego processes.

Limited empirical support for this first aspect of Haan's model was reflected in the distinctive results for the coping and

defending measures as moderator variables in the life stress-anxiety relationships as found in the investigations pertaining to the female subsample. Specifically, in the original analyses for the females, one of the summary coping measures investigated (summed coping) was found to serve as an effective moderator variable which significantly diminished the effects associated with negative life stress. In addition, comparable results in post hoc analyses were found for the individual coping measures of intellectuality and logical analysis. However, the defending measures in all cases (the summary measures and the post hoc analyses involving individual measures) failed to significantly alter life stress-anxiety relationships for high and low defending groups. These findings, while limited to the female subsample, provide a modicum of empirical support for Haan's contention of the differential impact of coping and defending processes in moderating the effects of life stress.

With respect to the second issue, the utility of differentiating cognitive and affective ego processes was supported by the results involving the coping measures for both female and male subsamples. In the original analyses involving females, this was reflected in the relative equivalence of life stress-anxiety relationships for the expressive coping groups in contrast to moderate differences in the correlations obtained, in the manner predicted, for the controlled coping groups. This difference in the pattern of the correlations when differentiating female subjects on affective versus cognitive coping processes further manifested itself in the post hoc analyses involving the individual coping measures.

Specifically, in these analyses, it was only the cognitive coping processes of logical analysis and intellectuality that were found to significantly reduce the negative effects associated with life stress for the high coping females relative to the low copers. In the analyses with the males subsample, while no significant differences in the correlations for high and low coping groups were found, different patterns in the correlations for affective versus cognitive coping processes were also seen. In particular, the differentiation of male subjects on the affective coping measures (i.e. the summary affective coping measure of expressive coping and the individual affective coping measure of regression in service of the ego) resulted in trends in the direction of the original prediction, while the cognitive coping measures manifested opposite trends. These findings for both females and males provide modest empirical support for the differential impact of cognitive versus affective ego processes.

In addition to this support for Haan's model, the findings in this study provide an empirical basis for the theoretical speculation that the sex of an individual may be a critical factor in determining the coping processes that function as effective moderator variables of the life stress-anxiety relationships. Specifically, based on the findings of the female subsample, the hypothesis can be advanced that it is the coping mechanisms stereotypically characteristic of the opposite sex which function as moderator variables of life stress. This position is suggested by the fact that, while sex role stereotypes support a more affective role for women and a

more cognitive role for men, it was the cognitive coping processes of logical analysis and intellectuality which were found to diminish the negative effects associated with life stress for females in this study. While the significant findings of this study only support this view for the female subsample, it is noteworthy that for the male subsample the only coping measures that manifested a trend in the direction of the original prediction were the expressive coping measure and the affective coping measure for regression in service of the ego. Thus, the trends in the results for the males were also consistent with this hypothesis.

In addition to the above findings, the post-hoc analyses regarding coping process-anxiety correlations for high, medium, and low stress groups provide support for this hypothesis when interpreted from a point of view posited by Anderson (1976). In an investigation of coping and defense processes utilized by individuals in response to a natural disaster, Anderson (1976) provided evidence for the view that a moderate level of stress represents the "optimum" level for the effective employment of these stress-mediating processes. When viewed from this perspective, it is interesting to note that in the present study the medium stress males showed sizable negative correlations between controlled coping and anxiety (both state and trait) which were statistically different from the weak relationships shown for the high and low stress groups. While no such differentiation of stress groups was found on the controlled coping measure for females, a trend similar to the pattern found for males on controlled coping was found for the

females with the expressive coping measure. Based on these findings, it can be argued that sex-preferred mechanisms are employed at "optimum" stress levels, and that these mechanisms are controlled coping for males and expressive coping for females.

In considering the above evidence for this point of view, it would appear that support for the contention that adaptability is a function of flexibility, as suggested with the locus of control variable, has also been found with respect to the coping measures. That is, as adaptive value may be linked to a flexible as opposed to a rigid locus of control orientation, this view regarding how sex interacts to determine the coping processes which function as effective moderators of life stress also emphasizes the value of flexibility in response options. Specifically, the crux of this proposed view is that to persist in the utilization of the sex-preferred, socially reinforced coping mechanism beyond the "optimum" medium range stress levels may be maladaptive. Rather it is proposed that at this point, when the limits of the effectiveness of a response has been reached, the adaptive response is to adopt the alternative ego processing mode (i.e. affective mode for a cognitive mode, or vice versa) for dealing with the stressful life changes.

Summary and Conclusions

In considering the overall results of this study, it must be acknowledged that the conclusions that can be drawn are tentative due, as previously noted, to the correlational nature of this research. Also, the limitations of the coping and defending measures

utilized in this study suggest the need for caution in the interpretation of the results. With these qualifications in mind, however, the following conclusions regarding the original hypotheses are supported by the empirical findings. First, it appears that a negative change measure does correlate positively with anxiety measures indicating its usefulness as a life stress measure. Secondly, a personal sense of control over events as reflected in an internal locus of control orientation is not more effective than an external locus of control orientation in diminishing the impact of negative life change. Thirdly, certain coping measures are related to the diminution of the negative effects associated with life stress. However, these effects are limited in this study to females. And finally, differentiation of groups on high versus low levels of stress does, in certain cases, affect the degree of association between ego process measures and anxiety.

In addition to these findings, the following conclusions based on post hoc analyses received empirical support. First, it appears that a negative change measure of life stress either matches or is superior to other measures of life stress. Secondly, while failing to diminish the anxiety associated with negative life change, an internal locus of control orientation does significantly reduce the anxiety associated with positive life change relative to external locus of control orientation. Thirdly, pro-active modes of psychological processing (i.e. locus of control, controlled coping) appear to be related to the reduction of the negative life events experienced. And finally, differentiation of groups across the

entire spectrum of stress does result, in certain instances, in differences in the degree of association between ego processes and anxiety.

In addition to these specific findings, the totality of the findings in this study have important implications for the further development of a psychology of stress. First, based on the findings pertaining to locus of control and the coping measures, the concept that adaptability is a function of response flexibility is supported. Secondly, the methodological framework for investigating this concept of adaptability is suggested. Specifically, the important results of this study argue for the development of a truly ecological, interactional model for investigating the psychological factors mediating stress. In such a model, the following four factors in their dynamic interplay should be accounted for: 1) the nature of the stimulus (i.e. positive or negative); 2) the context in which the stimulus is imbedded (e.g. high, medium, or low stress levels); 3) social factors influencing modes of psychological processing; and 4) the contributions of personality predispositions.

APPENDICES

APPENDIX A

Tables

TABLE A.--Correlations between Negative Life Change and Anxiety with Social Desirability Partialled Out.

Life Change Scores	Anxiety	
	State	Trait
Negative (N = 236)	.19*	.15*

Note. Significance levels are based on one-tailed tests.

*p < .01

TABLE B.--Correlations of Negative Life Change and Anxiety for Male and Female Groups Differing in Locus of Control.

Locus of Control	Anxiety	
	State	Trait
Females		
Internals (n = 67)	.21*	.14
Externals (n = 59)	.15	.14
Males		
Internals (n = 55)	.18	.27*
Externals (n = 55)	.16	.07

Note. Significance levels are based on one-tailed tests.

*p < .05

TABLE C.--Correlations of Negative Life Change and Anxiety for Groups at Opposite Extremes on Locus of Control.

Locus of Control	Anxiety	
	State	Trait
Internals		
Females (n = 26)	.48**	.24
Males (n = 24)	.21	.31
Both Sexes (n = 50)	.36**	.24*
Externals		
Females (n = 32)	.31*	-.08
Males (n = 22)	.13	-.18
Both Sexes (n = 54)	.22	-.12

Note. Significance levels are based on one-tailed tests.

*p < .05
**p < .01

APPENDIX B

Consent Form

APPENDIX B
Consent Form

Dear Student:

I am conducting research to investigate the relationship between experienced life events and their effects. In order to carry out this research, I would like to request your participation in this project. Essentially, this project involves completing several questionnaires regarding your recent life experiences, current feelings, as well as more general attitudes, feelings, and opinions that you have. You will also be asked to complete a brief demographic questionnaire. You will note that your test materials have been number coded so that you will remain completely anonymous. In addition, the data from all questionnaires will be held in strict confidence. Within these restrictions, group results of the study will be made available to you upon request. Furthermore, once data collection is completed, debriefing sessions will be held to explain the design of the research in greater detail.

If you are willing to participate in this study, please sign the statement below.

Sincerely yours,

John Pepple

****

I hereby agree to take part in this research. In giving this consent, I understand that I have the right to drop out of the study at any time if I so chose. Furthermore, I consent to participate in this study with the understanding that all questionnaire data will be held in strict confidence and that my anonymity will be preserved as indicated above.

_____

APPENDIX C

Background Information Sheet

APPENDIX C
Background Information Sheet

DIRECTIONS:

Please answer the six background information questions to follow by using answer spaces 51 through 56 on your GREEN answer sheet. For each question, simply blacken the numbered circle that corresponds to the numbered alternative which applies to you. For item 2 (ethnic origin) and item 3 (religion), if the response "Other: specify _____" applies to you, please give the more specific information on this sheet in the blank provided and then blacken the appropriate numbered circle on the answer sheet.

1. Year in college:

   ____ 1. Freshman
   ____ 2. Sophomore
   ____ 3. Junior
   ____ 4. Senior

2. Ethnic origin:

   ____ 1. White
   ____ 2. Black
   ____ 3. Hispanic
   ____ 4. Oriental
   ____ 5. Other: specify_____

3. Religion

   ____ 1. Catholic
   ____ 2. Jewish
   ____ 3. Protestant
   ____ 4. Other: specify_____

4. Estimate the yearly family income earned by one or both parents:

   ____ 1. Less than $10,000
   ____ 2. $10,000 to $19,999
   ____ 3. $20,000 to $29,999
   ____ 4. $30,000 to $39,999
   ____ 5. More than $40,000

5. Do both your parents work half-time or more at a job?

   ____ 1. Yes
   ____ 2. No

6. Which parent earns the major portion of the family income?

   ____ 1. Father
   ____ 2. Mother
   ____ 3. Both contribute equally

APPENDIX D

Internal-External Scale

APPENDIX D
Social Reaction Inventory

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered 1 or 2. 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 more 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.

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. For each numbered question mark and answer sheet 1 or 2, whichever you choose as the statement most true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more 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.

Remember

Select that alternative which you personally believe to be more true.

I more strongly believe that:

1. ____ 1. Children get into trouble because their parents punish them too much.
   ____ 2. The troube with most children nowadays is that their parents are too easy with them.

2. ____ 1. Many of the unhappy things in people's lives are partly due to bad luck.
   ____ 2. People's misfortunes result from the mistakes they make.

3. ____ 1. One of the major reasons why we have wars is because people don't take enough interest in politics.
   ____ 2. There will always be wars, no matter how hard people try to prevent them.

4. ____ 1. In the long run people get the respect they deserve in this world.
   ____ 2. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. ____ 1. The idea that teachers are unfair to students is nonsense.
____ 2. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. ____ 1. Without the right breaks one cannot be an effective leader.
____ 2. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. ____ 1. No matter how hard you try some people just don't like you.
____ 2. People who can't get others to like them don't understand how to get along with others.

8. ____ 1. Heredity plays the major role in determining one's personality.
____ 2. It is one's experiences in life which determine what they're like.

9. ____ 1. I have often found that what is going to happen will happen.
____ 2. Trusting to fate has never turned out well for me as making a decision to take a definite course of action.

10. ____ 1. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
____ 2. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. ____ 1. Becoming a success is a matter of hard work. Luck has little or nothing to do with it.
____ 2. Getting a good job depends mainly on being in the right place at the right time.

12. ____ 1. The average citizen can have an influence in government decisions.
____ 2. This world is run by the few people in power and there is not much the little guy can do about it.

13. ____ 1. When I make plans, I am almost certain that I can make them work.
____ 2. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. ____ 1. There are certain people who are just no good.
____ 2. There is some good in everybody.

15. ____ 1. In my case getting what I want has little or nothing to do with luck.
____ 2. Many times we might just as well decide what to do by flipping a coin.

16. ____ 1. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
____ 2. Getting people to do the right thing depends upon ability: luck has little or nothing to do with it.

17. ____ 1. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
____ 2. By taking an active part in political and social affairs the people can control world events.

18. ____ 1. Most people can't realize the extent to which their lives are controlled by accidental happenings.
____ 2. There really is no such thing as "luck".

19. ____ 1. One should always be willing to admit his mistakes.
____ 2. It is usually best to cover up one's mistakes.

20. ____ 1. It is hard to know whether or not a person really likes you.
____ 2. How many friends you have depends upon how nice a person you are.

21. ____ 1. In the long run the bad things that happen to us are balanced by the good ones.
____ 2. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. ____ 1. With enough effort we can wipe out political corruption.
____ 2. It is difficult for people to have much control over the things politicians do in office.

23. ____ 1. Sometimes I can't understand how teachers arrive at the grades they give.
____ 2. There is a direct connection between how hard I study and the grades I get.

24. ____ 1. A good leader expects people to decide for themselves what they should do.
____ 2. A good leader makes it clear to everybody what their jobs are.

25. ____ 1. Many times I feel that I have little influence over the things that happen to me.
____ 2. It is impossible for me to believe that chance or luck plays an important role in my life.

26. ____ 1. People are lonely because they don't try to be friendly.
____ 2. There's not much use in trying too hard to please people, if they like you, they like you.

27. ____ 1. There is too much emphasis on athletics in high school.
____ 2. Team sports are an excellent way to build character.

28. ____ 1. What happens to me is my own doing.
____ 2. Sometimes I feel that I don't have control over the direction my life is taking.

29. ____ 1. Most of the time I can't understand why politicians behave they way they do.
____ 2. In the long run the people are responsible for bad government on a national as well as on a local level.

END

APPENDIX E

CPI Item Composition of Coping and Defending Scales

APPENDIX E

Item Composition of the CPI Based Ego Scales

Summed coping: Male (35 items).
True: 18 30 69 103 114 152 160 211 213 219 223 225 292 375 378 407 418
False: 41 45 55 73 76 141 143 165 230 253 255 258 340 347 397 404 436 463

Summed coping: Female (34 items).
True: 18 25 30 103 114 152 160 209 211 213 225 292 375 378 407 418
False: 41 45 55 73 76 101 141 143 165 230 253 255 258 340 347 397 404 436

Controlled coping: Male (41 items).
True: 69 114 212 215 225 246 268 317 368
False: 5 29 39 41 55 71 94 119 121 143 147 165 170 173 191 214 220 238
248 252 257 270 299 308 340 357 369 417 431 436 467 474

Controlled coping: Female (39 items).
True: 18 53 86 103 129 133 148 160 179 197 211 213 224 225 243 249 256 280
281 292 295 403 407 418 445 454
False: 7 67 73 116 143 144 149 263 305 394 429 436 452

Expressive coping: Male (42 items).
True: 18 30 31 54 114 122 201 221 237 243 250 360 378 395 418 471
False: 5 41 45 55 68 88 138 141 165 168 195 202 210 230 253 340 361 371
376 386 397 404 419 442 463 479

Expressive coping: Female (38 items).
True: 4 19 25 29 32 37 44 130 146 160 179 189 209 211 213 232 243 244
275 281 292 311 327 373 375 407
False: 76 124 141 144 177 273 301 316 416 452 456 477

Summed defense: Male (37 items).
True: 76 94 121 143 165 252 253 257 258 341 416 417 419 420 429 431 436 463
474
False: 18 32 37 54 86 186 197 201 212 213 217 245 322 368 380 418 445 466

Summed defense: Female (35 items).
True: 76 94 121 143 165 252 253 257 258 341 416 417 419 420 429 431 436 463
474
False 18 32 37 60 86 192 197 212 213 225 245 322 368 380 445 466

Structured defense: Male (45 items).
True: 26 55 77 80 102 103 109 138 143 159 165 191 222 248 307 324 386 39
417 429
False: 7 38 69 83 106 124 128 149 168 186 197 201 212 219 227 229 300 302
333 368 378 394 418 441 442

Structured defense: Female (44 items).
True: 13 81 101 144 175 176 177 252 257 258 268 341 353 369 372 416 419 422
429 440 452 456
False: 25 32 37 86 126 133 168 187 197 224 225 232 245 249 276 322 329 367
368 380 408 413

Primitive defense: Male (34 items).
True: 13 27 40 43 47 71 76 94 238 335 341 344 369 416 419 422 429 449
477
False: 54 83 112 135 166 197 212 245 246 254 305 320 359 368 418

Primitive defense: Female (36 items).
True: 7 67 88 121 134 141 177 258 263 404 429 436 456
False: 1 4 18 25 52 60 86 148 152 211 213 222 244 256 264 280 292 375
395 412 418 433 445

Intellectuality: Male (35 items).																		
True:	17	31	46	85	103	160	172	179	200	211	215	239	303	320	403	407	418	
False:	41	45	55	73	110	141	144	230	238	241	255	258	263	340	357	371	436	452
Intellectuality: Female (35 Items).																		
True	17	46	57	60	103	160	172	179	200	211	215	239	243	303	320	403	407	
False:	41	45	55	73	116	141	144	230	238	241	255	258	263	340	357	371	436	452
Logical analysis: Male (33 items).																		
True:	38	46	112	135	140	160	179	204	211	215	225	227	378	407	418			
False:	22	41	45	55	73	89	116	121	143	165	170	238	241	253	255	326	340	357
Logical analysis: Female (32 items).																		
True:	46	57	112	135	140	160	179	204	209	211	215	225	226	378	407	418		
False:	41	45	55	73	89	116	121	143	165	238	241	253	255	326	340	357		
Regression in service of ego: Male (34 items).																		
True:	4	28	29	62	86	114	211	213	229	231	243	250	262	306	311	335	375	378
	399	423																
False:	45	55	71	88	141	149	174	230	255	316	347	397	408	451				
Regression in service of ego: Female (35 items).																		
True:	4	28	29	44	62	86	114	211	213	231	243	250	262	306	311	335	354	375
	378	399																
False:	42	45	88	124	141	149	174	180	230	255	316	347	397	408	451			
Intellectualization: Male (35 items).																		
True:	46	102	172	179	200	215	234	239	278	355	376	403	420	448				
False:	7	25	31	65	116	186	230	241	255	263	266	293	302	333	340	367	371	385
	387	443	466															
Intellectualization: Female (35 items).																		
True:	46	102	159	172	179	200	215	234	239	355	376	403	420	448				
False:	7	25	31	37	65	116	133	186	230	241	255	263	293	333	340	367	371	385
	387	443	466															
Doubt: Male (33 items).																		
True:	13	38	40	54	76	94	111	144	177	227	279	284	335	341	344	351	369	416
	419	422	429	449	452	456	467											
False:	37	129	161	202	245	264	305	368										
Doubt: Female (38 items).																		
True:	13	38	40	54	66	76	94	97	111	144	177	192	227	239	252	279	284	335
	341	344	351	369	373	383	416	419	422	429	449	452	456	467				
False:	37	129	202	245	367	368												
Denial: Male (34 items).																		
True:	3	8	36	41	45	121	131	143	229	230	245	253	263	312	357	404	467	
False:	18	32	54	70	128	152	180	186	243	285	289	309	327	373	375	378	444	
Denial: Female (37 items).																		
True:	3	8	36	41	45	88	121	131	143	229	230	245	253	263	312	357	404	456
False:	18	32	54	70	86	114	128	152	243	285	289	309	327	373	375	378	380	395
	444																	
Regression: Male (35 items).																		
True:	5	13	44	47	71	76	81	91	121	143	238	252	257	262	341	369	416	419
	429	467																
False:	24	54	83	149	150	168	197	212	221	245	246	367	368	380	451			
Regression: Female (37 items).																		
True:	5	13	44	47	71	76	81	91	121	143	238	252	257	262	341	369	416	419
	429	467																
False:	24	35	37	149	168	187	197	212	221	245	246	273	361	367	368	380	451	

APPENDIX F

Revised Form of the Life Experiences Survey

APPENDIX F
The Life Experiences Survey

DIRECTIONS:

This survey consists of a number of events which sometime bring about change in the lives of those who experience them and which necessitate social readjustment. Please indicate those events which you have experienced in the recent past and indicate the time period during which you experienced each event. Specifically, if you experienced an event listed on the survey within the past year, check under the first column if you experienced the event in the last six months (0 to 6 mos.), check under the second column if you experienced the event more than six months ago but within the past year (7 mos. to 1 yr.). If neither case applies, leave the answer space blank. Be sure to mark only those answer spaces that correspond to the events you have experienced.

At the end of this questionnaire (Items 85, 86, and 87), you will have the opportunity to list other recent experiences which have had an impact on your life. For these items, record your answer on the questionnaire by listing the event and then checking the time period within the past year that you experienced this event.

SECTION 1	0 to 6 mos.	7 mos. to 1 yr.
1. Marriage**********	_____	_____
2. Detention in jail or comparable institution**********	_____	_____
3. Death of spouse**********	_____	_____
Death of close family member: (items 4 through 10)		
4. mother**********	_____	_____
5. father**********	_____	_____
6. brother**********	_____	_____
7. sister**********	_____	_____
8. grandmother**********	_____	_____
9. grandfather**********	_____	_____

		0 to 6 mos.	7 mos. to 1 yr.
10.	other (specify)_____***	_____	_____
11.	Foreclosure on mortgage or loan******	_____	_____
12.	Death of close friend**********	_____	_____
13.	Outstanding personal achievement*****	_____	_____
14.	Minor low violations (traffic tickets, disturbing the peace, etc.)**********	_____	_____
15.	Married male: Wife's pregnancy******	_____	_____
16.	Single male: Girlfriend's pregnancy*	_____	_____
17.	Demoted or moved to less responsible job**********	_____	_____
18.	Promoted or moved to more responsible job**********	_____	_____
19.	Improvement in working conditions and working hours**********	_____	_____
20.	Worsening of working conditions and working hours**********	_____	_____
21.	New job**********	_____	_____
	Serious illness or injury of close family member: (items 22 through 29)		
22.	father**********	_____	_____
23.	mother**********	_____	_____
24.	sister**********	_____	_____
25.	brother**********	_____	_____
26.	grandfather**********	_____	_____
27.	grandmother**********	_____	_____
28.	spouse**********	_____	_____
29.	other (specify)_____**	_____	_____

		0 to 6 mos.	7 mos. to 1 yr.
30.	Trouble with employer (in danger of losing job, being suspended, demoted, etc.**********	_____	_____
31.	Trouble with in-laws**********	_____	_____
32.	Major improvement in financial status	_____	_____
33.	Marked deterioration in financial status**********	_____	_____
34.	Increased number of family get togethers**********	_____	_____
35.	Decreased number of family get togethers**********	_____	_____
36.	Gaining a new family member (through birth, adoption, family member moving in, etc.)**********	_____	_____
37.	Moved to a better neighborhood*******	_____	_____
38.	Moved to a worse neighborhood********	_____	_____
39.	Marital separation from mate (due to conflict)**********	_____	_____
40.	Major increase in attendance at church activities**********	_____	_____
41.	Major decrease in attendance at church activities**********	_____	_____
42.	Marital reconciliation with mate*****	_____	_____
43.	Marked increase in number of arguments with spouse**********	_____	_____
44.	Marked decrease in number of arguments with spouse**********	_____	_____
45.	Married male: Wife began work outside the home**********	_____	_____
46.	Married male: Wife ceased work outside the home**********	_____	_____

		0 to 6 mos.	7 mos. to 1 yr.
47.	Married male: Wife changed to a new job**********	_____	_____
48.	Married female: Husband began new job**********	_____	_____
49.	Married female: Husband lost job (due to lay off, being fired)********	_____	_____
50.	Married female: Husband retired*****	_____	_____
51.	Major increase in the usual type and/or amount of recreation**********	_____	_____
52.	Major decrease in the usual type and/or amount of recreation**********	_____	_____
53.	Borrowing more than $10,000 (buying home, business, etc.)**********	_____	_____
54.	Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)**	_____	_____
55.	Being fired from job**********	_____	_____
56.	Married male: Wife having abortion**	_____	_____
57.	Single male: Girlfriend having abortion**********	_____	_____
58.	Married female: Having abortion*****	_____	_____
59.	Single female: Having abortion******	_____	_____
60.	Major personal illness or injury*****	_____	_____
61.	Marked increase in social activities (e.g., parties, visiting)**********	_____	_____
62.	Marked decrease in social activities*	_____	_____
63.	Marked improvement in family living conditions (remodeling home, improvement of neighborhood)**********	_____	_____

		0 to 6 mos.	7 mos. to 1 yr.
64.	Marked worsening of family living conditions (deterioration of home, neighborhood)**********	_____	_____
65.	Divorce**********	_____	_____
66.	Serious illness or injury of close friend**********	_____	_____
67.	Retirement from work**********	_____	_____
68.	Son or daughter leaving home (due to marriage, college, etc.)**********	_____	_____
69.	Ending of formal schooling**********	_____	_____
70.	Separation from spouse (due to work, travel, etc.)**********	_____	_____
71.	Engagement**********	_____	_____
72.	Breaking up with boyfriend/girlfriend	_____	_____
73.	Leaving home for the first time******	_____	_____
74.	Reconciliation with boyfriend/girl-friend**********	_____	_____

SECTION 2

75.	Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.)**********	_____	_____
76.	Changing to a new school at the same academic level (undergraduate, graduate, etc.)**********	_____	_____
77.	Academic probation**********	_____	_____
78.	Being dismissed from dormitory or other residence**********	_____	_____
79.	Failing an important exam**********	_____	_____

	0 to 6 mos.	7 mos. to 1 yr.
80. Changing a major**********	_____	_____
81. Failing a course**********	_____	_____
82. Dropping a course**********	_____	_____
83. Joining a fraternity/sorority********	_____	_____
84. Financial problems concerning school (in danger of not having sufficient money to continue)**********	_____	_____

Other recent experiences which have had an impact on your life. List any such events in the spaces provided below and check the time period.
DO NOT RECORD THESE ANSWERS ON THE ANSWER SHEET.

85._____	_____	_____
86._____	_____	_____
87._____	_____	_____

APPENDIX G

State-Trait Anxiety Inventory

APPENDIX G
Self-Evaluation Questionnaire

STAI Form X-1

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

		Not At All	Somewhat	Moderately So	Very Much So
1.	I feel calm.....	1	2	3	4
2.	I feel secure.....	1	2	3	4
3.	I am tense.....	1	2	3	4
4.	I am regretful.....	1	2	3	4
5.	I feel at ease.....	1	2	3	4
6.	I feel upset.....	1	2	3	4
7.	I am presently worrying over possible misfortunes	1	2	3	4
8.	I feel rested.....	1	2	3	4
9.	I feel anxious.....	1	2	3	4
10.	I feel comfortable.....	1	2	3	4
11.	I feel self-confident....	1	2	3	4
12.	I feel nervous.....	1	2	3	4
13.	I am jittery.....	1	2	3	4
14.	I feel "high strung".....	1	2	3	4
15.	I am relaxed.....	1	2	3	4

		Not At All	Somewhat	Moderately So	Very Much So
16.	I feel content.....	1	2	3	4
17.	I am worried.....	1	2	3	4
18.	I feel over-excited and "rattled".....	1	2	3	4
19.	I feel joyful.....	1	2	3	4
20.	I feel pleasant.....	1	2	3	4

Self-Evaluation Questionnaire

STAI Form X-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

		Almost Never	Sometimes	Often	Almost Always
21.	I feel pleasant.....	1	2	3	4
22.	I tire quickly.....	1	2	3	4
23.	I feel like crying.....	1	2	3	4
24.	I wish I could be as happy as others seem to be.....	1	2	3	4
25.	I am losing out on things because I can't make up my mind soon enough.....	1	2	3	4
26.	I feel rested.....	1	2	3	4
27.	I am "calm, cool, and collected".....	1	2	3	4
28.	I feel that difficulties are piling up so that I cannot overcome them.....	1	2	3	4
29.	I worry too much over something that really doesn't matter.....	1	2	3	4
30.	I am happy.....	1	2	3	4
31.	I am inclined to take things hard.....	1	2	3	4
32.	I lack self-confidence....	1	2	3	4
33.	I feel secure.....	1	2	3	4

		Almost Never	Sometimes	Often	Almost Always
34.	I try to avoid facing a crisis or difficulty.....	1	2	3	4
35.	I feel blue.....	1	2	3	4
36.	I am content.....	1	2	3	4
37.	Some unimportant thought runs through my mind and bothers me.....	1	2	3	4
38.	I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
39.	I am a steady person.....	1	2	3	4
40.	I get in a state of tension or turmoil as I think over my recent concerns and interests.....	1	2	3	4

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