The relationship between the primary appraisal of stress, dialectical thinking and moral dilemmas that threaten the self

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Introduction

Psychology as a profession has growth beyond the traditional role of an exclusive mental health discipline. Currently, as Resnick and Rozensky (1977) point out, psychology is conceptualized as a true health care profession, and psychologists are expected to contribute to health care delivery systems.

One of the more pervasive threats to human well being is stress. Psychological stress, a key concept in health psychology, has been associated among other things with cardiovascular problems (Grossman & Defares, 1986; Dembroski et. al. 1986; Rosenman & Chesney, 1986, Carroll, 1992), smoking behavior (Eysenck, 1986), development of ulcers (Carrol, 1992), headaches, backaches and high blood pressure (Blumhagen, 1980), depression and anxiety (Lipowski, 1990) and Raynaud's disease and fibromyalgia (Alfici, Sigal & Landau, 1989).

As we will see, there are several types of stressors or stimuli that produce stress, each one with a different extent and duration. In this paper, I will focus on the kind of stress that is produced in adults by threats to the self. The purpose of this paper is to address the potential relationships between cognitive functioning -especially high levels of cognitive development, mainly dialectical thinking- and the primary appraisal of stress.

A Model of Stress

The meaning of the term stress

There are several traditions for the study of stress, each with a different focus (Singer, 1986). Usually, the term stress is meant to convey that people are faced with demands on their behavior that they find difficult to meet. According to Hamilton (1986, p. 13), these demands "require the injection of physiological energy, rapid processing of stimuli more infrequent and more complex than usual, and the search for responses that yield the subjectively required level of equanimity and quiescence."

Initially, the word *stress* was an imprecise generic term. It was used to identify the whole process, that is, the stimulus, the response, and a hypothetical state. Carrol (1992) maintains that it was Walter Cannon in 1935 the first to use the term stress in a non-engineering context, regarding it as a disturbing force which upset the person's usual balance. Following this point of view, in 1971 Spielberger defined *stress* as the external forces that act on an individual. This is an extension of the definition of stress that is used in mechanics and engineering in which the effect on material subjected to physical stress is known as strain. In fact, the term *stress* was first used in physics to indicate a mechanical force acting on a body, with strain being the reaction to stress (Endler, 1988). Lazarus (1966, p. 27) uses the word *stress* "as a generic term for the whole area of problems that include the stimuli producing stress reactions, the reactions themselves, and the various intervening processes". For Lazarus (1966) stress is not the stimuli, the

response or any of the intervening processes, but rather a collective term for an area of study.

According to Sarason (1986) stress is currently conceptualized as something occurring within the organism in interaction with the environment, rather than a characteristic of the situation itself. This definition contains strong subjective elements. In fact, it is acknowledged that stress cannot exist without a person's interpretation of stimuli as stressful or critical. This interpretation needs specific focuses of selective attention and cognitive predisposition to code one type of input as distressing, aversive or excessive (Hamilton, 1986). Certainly, identical stimuli may be evaluated as anxiety-provoking, neutral or even pleasant for different persons (see Eysenck, 1986). A stressful situation may not be perceived as threatening by an individual who either does not recognize the inherent danger or has the necessary skills and experience to cope with it. Stress is, in fact, a specific kind of relationship between the person and the environment, one in which the person evaluates the environment as exceeding his or her resources. As Folkman (1984) argues, in this definition stress is not a property of the environment or the person, nor it is a stimulus or response, but "a particular relationship between the person and the environment".

As the term *stress* evolved, the word *stressor* was introduced to denote the eliciting factor. Lazarus and Cohen (1977) suggested that there are three broad types of stressors, each of which has its own magnitude and persistence. They called cataclysmic events to the first group of stressors, mainly natural disasters such as floods, and also human provoked catastrophes such as war. A second class of stressors was called personal stressors; they are such things as the death of a close person, divorce, loss of job

and so on. Lazarus & Cohen identified also a third group of stressors they called daily hassles. Daily hassles are considered as background stressors, stressors that are omnipresent, frequent and persistent in the life of the person. An example of this kind of stressors is the job environment.

Under this paradigm, it is crucial to focus not only on the external stimulus (which may elicit different responses in different individuals) but also on the subjective reaction of the person to whom the stimulus is applied. This subjective reaction is shaped by an array of mediator variables associated to the experience of stress, mainly personal and social resources and coping strategies. These variables are considered stress moderators. In the next section I will analyze the Lazarus' model of cognitive appraisal, which focuses on some of these mediator variables.

Lazarus's model of stress: the primary and secondary appraisals

Lazarus's model of stress postulates two processes, cognitive appraisal and coping, as mediators of stress. As we have already seen, Lazarus proposed a relational theory of stress, one that emphasizes the dynamic relationship between the cognitive processes of the person and the characteristics of her/his environment.

The concept of cognitive appraisal is central in Lazarus's model. Lazarus (1966) meant by *cognitive appraisal* the interaction between the real situation and the characteristics of the individual. It is the "person's continually re-evaluated judgments about demands and constrains in ongoing transactions with the environment and his or her resources for managing them (Coyne & Lazarus 1980, p. 150). *Primary cognitive*

appraisal is “a judgment about the meaning or future significance of a situation based not merely on the stimulus, but on the psychological makeup” (Lazarus 1966, p. 44).

Primary appraisals are judgments about the significance of a specific transaction with respect to well being. The specific transaction may be evaluated as irrelevant, benign-positive or stressful (Folkman, 1984; Lazarus & Folkman, 1984). If a transaction is evaluated as irrelevant it has no significance for well being; if it is evaluated as benign-positive, the transaction does not exceed the person’s resources and signals only positive consequences. To perceive a stimulus as stressful the person evaluates it mainly as a threat, as harm/loss or as a challenge. According to Folkman (1984), harm/loss refers to injury already done, such as the loss of a limb, damage to a friendship or loss of self-esteem; threat refers to a potential for harm or loss, and challenge to an opportunity for growth, mastery or gain. Folkman points out that harm/loss and threat appraisals are characterized by negative emotions such as anger, fear or resentment, whereas challenge appraisal are characterized by enjoyable emotions such as excitement and enthusiasm. Lazarus (1966) maintains that primary appraisal is affected by the ambiguity of the stimuli, the balance of power between harm and counterharm resources, general belief systems about transactions with the environment, whether or not the event is familiar or novel, motive strength and patterns and the imminence of the confrontation with harm.

The cognitive processes that underlie coping are called by Lazarus (1966) *secondary appraisal*. Secondary appraisal is the process that allows the person to evaluate coping resources, constrains and options. These processes have the goal of getting the individual out of danger, and they intervene between primary appraisal and the coping process. Factors contributing to secondary appraisal include the degree of threat, viability of

alternative coping actions, the location of the agent of harm, situational constrains, motives strengths and pattern, ego resources and coping dispositions (Lazarus, 1966). Primary and secondary appraisals converge to shape the meaning of every experience.

How is a primary appraisal shaped? The primary appraisals are formed by person and situation factors such as beliefs and commitments. Folkman (1984) describes beliefs as preexisting notions about reality that serve as perceptual lens; they determine how things are in a given person-environment transaction. Commitments reveals what is important and has meaning to the person. They can be defined at many levels of abstraction. Commitments determine the stakes that are involved in a specific encounter. Any experience that involves a strongly held commitment will be appraised as significant with respect to well-being to the extent that the expected outcome harms or threatens that commitment. Vulnerability represents potential threat and persons are most vulnerable in areas where they have a high commitment (Lazarus & Folkman, 1984).

In this paper I am concerned with the appraisals that lead to negative emotions, especially threat. According to Lazarus (1966), threat is an anticipation of harm. It does not refer directly to observable factors but must be inferred from antecedent conditions and responses. Lazarus points out two main characteristics of threat:

(a) It is anticipatory or future-oriented (that is, involves expectations of future harm)
(b) It is brought about by cognitive processes involving perception, learning, memory, language and thought.

For threat to occur the person must do an evaluation of the situation, an evaluation based on his/her own understanding of harm. So, the individual's knowledge and beliefs contribute to the significance of harm derived from a particular situation. In addition to that, I do believe that the cognitive level that the individual has developed also plays an essential role in shaping the meaning of her/his evaluation. That is, the primary appraisal process is directly affected by the individual's cognitive level.

In the next sections I will analyze the relationship between stress and the self system and the role of cognitive development (mainly post-formal/dialectical thinking) in the conceptualization of a particular situation as threatening or harmful.

Stress and Cognitive Development

Stress as a threat to the self: The relationship between post-formal cognition and stress

We have already seen that a stressful situation is mainly a condition that is perceived by the individual as harmful and exceeding his or her personal resources. In this paper I am concerned with the kind of situations that may be perceived as threatening because they may potentially harm the most essential human construction: the self.

The self is a variable that is fully recognized as a powerful regulator of many aspects of human behavior. It is an essential psychological concept that helps to integrate

a variety of cognitive variables in a coherent frame. As Cross & Madson (1997) point out, the self directs perception, memory and inference concerning both, oneself and others, and is also a source of human agency and volition. The self regulates intentional behavior and permits the person to function effectively in her or his social world. Over the years, several facets of the self have been identified. As Higgins (1987) states, it is possible to find descriptions of "actual" selves and "ideal" selves. Two actual selves are the kind of person an individual believes she or he actually is and the kind of person an individual believes that others think she or he actually is. The ideal self is constructed by imagining how a "better I" would appear in the minds of persons who look up to. The ideal self involves an aspiration, a different state that a person wants to reach.

When talking about human beings' stress, it is necessary to include into the model the concept of self. As Epstein (1986) argues, although it is reasonable to extend the theories of emotions from lower to higher order animals, the difference between human beings and other animals imposes a serious limitation on this procedure. Human beings have a highly developed conceptual system that structures the concept of what they fear. Furthermore, this conceptual system must itself be defended against threat, as many fears in human beings are primary a consequence of threats to the self. Lazarus himself (1966) maintains that there is a great danger in trying to generalize from animal models of stress to human beings. According to him, although research with lower animals contribute to the understanding of human stress, many of the problems of psychological stress in human beings cannot be approached with lower animals, especially the kind of stress that is produced by attacks to the self concept. In fact, it is interesting to point out that Lazarus (1976) distinguished between physical stressors such as extreme heat or cold or

physical injuries, from psychological stressors such as social conditions that may be damaging to the self. In this paper I will focus on the later group of stressors. They will be conceptualized as moral dilemmas.

Moral dilemmas and stress

Life is full of developmental tasks, and many of them may be potential crises. All cultures specify normative courses of life, which generates tasks and crises specific to that particular culture. Although the context and content of that tasks and crises may vary according to the culture, most of them share the common characteristic of being a situation in which the individual must take an important decision, one that will influence the individual well-being as well as the well-being of others.

These situations can be described as moral dilemmas. A moral dilemma is an ambiguous situation in which the person has to choose between one or another course of action. As we have seen, Lazarus (1966) argues that ambiguity (exposure to a stimulus whose meaning is unclear) can often be a source of threat. A moral dilemma, being an ambiguous situation in which the best action to take is not evident, may be a situation potentially stressful and problematic. However, the categorization of a stimulus as ambiguous depends on the concept of ambiguity that the person has developed for himself or herself (although probably most of the time individuals are not aware that they hold this notion). The idiosyncratic concept of ambiguity that every human being holds can be understood as an individual's cognitive characteristic, and may be directly related to the level of thought that the individual has developed. Although Lazarus only mentions

two personal characteristics, namely commitments and beliefs, as elements of psychological vulnerability, I believe that the level of cognitive development, as any other individual difference that affects appraisal and coping, may also be an important determinant of psychological vulnerability (see Lazarus & Folkman, 1984).

In a very general sense, Kohlberg assumes people process the information in all moral dilemmas through the cognitive structures that define their current stage of moral and cognitive development. In *The Psychology of Moral Development* (1984) Kohlberg maintains that the "stage of moral reasoning is a filter through which… situational forces are perceived, interpreted and acted upon" (p. 564). That means that the moral principles that define Kohlberg stages, and the cognitive operations that the individual is able to, supply the general premises from which propositional deductions about correct courses of action in concrete situations are made.

Taking into account that the cognitive level of an individual acts as a filter for interpreting the world and for deriving meaning from experiences, in the following section I will analyze a model of dialectical thinking and its potential role in determining how a person appraises and copes with threat.

The role of dialectical thinking

Based on the work of Jean Piaget, several researchers have proposed the existence of a different, more mature level of cognition, one which develops beyond formal operations and reaches its optimal level only during adulthood (Riegel, 1973; Meachan, 1975; Basseches, 1980). The formal operational thinker has as one of her/his main

characteristics the affirmation of the certainty of truths. In contrast, a post-formal thinker is more relativistic and dialectic in the way she or he approaches to reality (Leadbeater, 1986). As Riegel (1973) points out, it is impossible to ignore the facts of life which include not just problem solving but problem finding, contradiction, unresolvability and the like. In this context, contradiction and conflict are not negative aspects but the driving forces of development. Perry (1968) argues that the development of a mature, dialectical way of thinking implies the recognition of the contextual relativism of all knowledge which leads to a revolutionary transformation in intellectual and ethical thought. A dialectical approach to cognition stresses contradiction, development through internal movement and the setting of individuals in social, historical and economic relations (Meachan, 1975). The focus is on change, instability and the continuos and interpenetrating nature of human interactions. Dialectics involve growth and transition via contradictions and conflicts, which lead in a transitory resolution, which is again the basis for new conflict. The model emphasizes processes of continuing change, rather than the understanding of momentary changes within a world of permanence. The nature of change is qualitative. Dialectical maturity involves a recognition of the fundamental nature of contradiction, and an acceptance of the occurrence of contradiction as providing opportunities for further development (Riegel, 1975).

The postformal operation stage of optimal adult development has the main following characteristics:

a) The person recognizes the relativity of various formal systems through life experiences, and is able to assume contradictory points of view

b) The person acknowledges the interrelatedness of all experience and the inevitability of change and transformation
c) The person adopts a more “metasystemic” or reflective and integrative approach to thinking (often dialectical)
d) The person makes choices with commitment to a certain course of action (Csikszentmihalyi, M. & Rathunde, K., 1995, Riegel, 1973; Commons, Richards & Kuhn, 1982)

Reviewing the literature on adult development, it is possible to find agreement among different authors about the relativistic nature of adult mature thinking (Basseches, 1980, 1988; Kramer & Woodruff, 1986, Riegel, 1973). This characteristic implies the acceptance of contradiction and the conceptualization of reality as a whole.

A formal operational thinker will have difficulties to integrate in her/his conceptual framework the relativity of reality, the constant change of human relationships and social processes, including her/his constant change. Life is a continuos process of adjusting internal conditions to external demands, and these adjustments are made necessary by changes which occur in both the organism and the environment. The maintenance of a healthy identity under this process of movement may be a stressful task that will require cognitive structures that the person, at the level of formal operations, does not have. This incapability may lead the person towards the experimentation of anxiety and stress, especially the kind of stress that arises as a product of feeling useless and hopeless in controlling a changing reality. Dialectical analysis of daily situations such as courtships, breakups, intergenerational value disagreements etc. -situations that

may be evaluated as threatening- do not preclude formal analysis. But in each case, dialectical analysis provide alternatives to views of the problem which are destructive to self or others. As Basseches (1988) points out, it provides an alternative which affirm the self within the context of historical change. Affirming the self, although may not prevent the person from feeling psychological pain, will allow her/him to understand the situation without the guilt, shame and other negative and stressful emotions that derive from a destructive self evaluation.

Stress resistance and coping in stress provoked by threats to the self

The way people interpret and explain their troubles have an impact on how they feel and behave. However, looking for causal attributions is not the only process necessary for understanding and explaining events. Brewin (1988) argues that very few studies have examined causal and moral attributions separately, and also very little research have been done examining coping strategies and dialectical thinking. It is acknowledged that many persons remain healthy in spite of high exposure to stressors. This characteristic has been described as "stress resistance", "resilience" or "invulnerability" (Holahan & Moos, 1994). Most authors explain stress resistance in terms of personal characteristics and resources that help individuals to maintain themselves healthy when stressors occur. However, although the idea of the relationship between moral dilemmas, stress resistance and cognitive maturity is not new, very few studies have linked these three concepts, empirically or theoretically. Rather, research mostly identify as stress protective factors situational factors such as social support,

coping strategies, and the individual's past experience with similar situations (Endler, 1988); for children, high IQ, good problem-solving ability, superior coping styles, task related self efficacy, autonomy, a sense of self-worth, interpersonal awareness and empathy, planning abilities and sense of humor are pointed (Fonagy et. al., 1994).

Several studies have shown that life change (particularly negative change) is related to stress reactions that involve anxiety and depression as well as psychosomatic symptoms (Dohrenwend & Dohrenwend, 1981). But, as Holahan & Moos (1994) argue, individuals show high variability in their reactions to stressors. Currently, researchers are interested in the study of stress resistance factors such as coping strategies and social resources. This point of view sees the individual as active and resourceful.

Lazarus (1966) identifies two main types of coping strategies. One consists of actions aimed at mitigating or eliminating the anticipating harmful confrontation that defines the threat. The other consists of cognitive procedures through which appraisal is altered without action directed at changing the objective situation. Lazarus called this last group of coping strategies, defense mechanisms. However, primary appraisal may also be altered by mean of the cognitive capabilities of the individual. Primary appraisal is a very basic process, one which leads the person towards a cognitive/emotional evaluation of her/his experiences. It is almost an automatic judgment about the characteristics of particular situations. What I maintain in this paper is that if a person is able to understand that change is inherent to every life experience, and that every human interaction is a dynamic process rather than a static one, she/he will be in a better condition to evaluate daily situations (primary appraisal) less as threats and more as challenges, or even as irrelevant or benign-positive circumstances.

Empirical research

From an empirical point of view, although it is possible to find studies linking stress, cognitive development and moral development, none of them connects directly dialectical thinking, self identity and stress, or moral dilemmas, cognitive level and stress. So, it seems important to begin doing research in this direction.

There are, however, some studies that can be enlightening. Berg et. al. (1994) carried out a study to explore the effects of moral development on the relationship between combat intensity and severity of Posttraumatic Stress Disorder (PTSD). The sample was constituted by 24 Vietnam War veterans who scored either high or low on the Vietnam Veterans Questionnaire Issues Test. The effects of combat intensity on PTSD Interview total scores and several individual stress disorder symptoms ratings was substantial in subjects who scored low in moral development, but was negligible in subjects who scored high in moral development. This study suggests that moral development may blunt the effect of combat severity on PTSD.

Regarding the relationship between the self and stress, there exist some studies aimed at testing the hypothesis that self-complexity moderates the adverse impact of stress and depression and illness. Under this model, greater self-complexity involves representing the self in terms of a greater number of cognitive self-aspects and maintaining greater distinctions among self-aspects. Linville (1987) tested the self-complexity buffering hypothesis. In her study, subjects completed measures of stressful events, self-complexity, depression and illness in two sessions separated by two weeks.

A multiple regression analysis used depression and illness at time 2 as outcomes, stressful life events and self-complexity as time 1 as predictors, and depression and illness at time 1 as control variables. The stress/self-complexity interaction provided strong support for the buffering hypothesis. Subjects higher in self-complexity were less prone to depression, perceived stress, physical symptoms, and occurrence of the flu and other illnesses following high levels of stressful events. These results suggest that vulnerability to stress related depression and illness is due, in part, to differences in cognitive representations of the self.

Kalthoff & Neimeyer (1993) followed Linville's model and tested the ability of 3 distinct measures of self-complexity to function as buffers in a multiple regression model against variations over time in depression, stress and physical symptoms among 127 college students. In this case, results supporting the buffer hypothesis were approximated only when the trait-sort operationalization of self-complexity employed by Linville was used. Although these studies are not aimed at examining the relationship between dialectical thinking and stress, the linkage between complex self representation and stress may be taken as a model for the relationship between higher order thinking (dialectical thinking) and stress.

Basseches (1988) presents a dialectical schemata framework with 24 different schemata for evaluating dialectical thinking. The schemata differ from each other in the kinds of operations on forms which they describe. He uses his dialectical schemata framework to interpret the transcripts of interviews conducted with college students and faculty members. As a result, he found that the faculty members as a group used a significantly broader of elements of dialectical thinking that did the seniors as a group,

who in turn used a significant broader range than did the freshmen. This study suggests that dialectical thinking is strongly associated with level of education and with maturation of other psychological processes, which is also related to age. So, in order to understand dialectical thinking differences among individuals we have to take a developmental perspective for interpretation. Any attempt to study the relationship between dialectical thinking and stress should have to take into account this perspective.

Conclusions

Several studies described a different way of thinking, one which goes beyond the stage of formal operations presented by Piaget and that is characteristic of adult development. This stage of thinking is conceptualized as more relativistic and subjective than the formal operations stage. It is hypothesized that post formal thinking develops due to demands on the mature knower for dealing effectively with reality.

Stressful situations are part of reality. Research suggests that there are many facets of the relationship between stress and cognitive level, specifically, the relation between primary appraisal of stress and dialectical thinking. The relationship between these two concepts needs to be studied more carefully, taking into account the context of stress (for example, the type of moral dilemma the person is experiencing) and the type of dialectical thinking that the individual has developed. It is crucial to do research about the role of dialectical thinking in shaping the way people judge and interpret potentially stressful situations.

References

Alfici, S.; Sigal, M., & Landau, M. (1989) The mind of Africa. Chicago: University of Chicago Press

Basseches, M. (1980) Dialectical schemata: a framework for the empirical study of the development of dialectical thinking. *Human Development*, 23, p. 400-421

Basseches, M. (1988) Dialectical Thinking and Adult Development. New Jersey: Ablex Publishing Corporation.

Berg, G. E.; Watson, C.; Nugent, B.; Gearhart, L.P. et. al. (1994) Journal of Clinical Psychology, Vol. 50 # 5, p. 669-676

Blumhagen, D. (1980) Hypertension: a folk illness with a medical name. *Culture, Medicine and Psychiatry*, Vol. 4, p. 197-227

Brewin, C. R. Explanation and adaptation in adversity. In: Fisher, S. & Reason, J. *Handbook of Life Stress, Cognition and Health* Chichester: John Wiley & Sons

Carroll, D. (1992); Health Psychology: Stress, Behavior and Disease. London: The Falmer Press

Cohen, S. & Herbert, T. B. (1996) Health psychology: Psychological factors and physical disease from the perspective of human psychoneuroimmunology. *Annual Review of Psychology*, vol. 47, p. 113-142

Commons, M.L.; Richards, F. and Kuhn, D. (1982) Metasystemic reasoning: a case for a level of systemic reasoning beyond Piaget's stage of formal operations. *Child Development*, 53, p. 1058-1069

Coybe, J. C. & Lazarus, R. S. (1980) Cognitive style, stress perception and coping. In Kutash, I.L. & Schlesinger, L. B. (eds.) *Handbook of Stress and Anxiety: Contemporary Knowledge, Theory and Treatment*. San Francisco: Jossey-Bass Publishers

Cross, S. E. & Madson, L. (1997) Models of the self: Self-construals and gender. *Psychological Bulletin*, Vol. 122, # 1, p. 5-37

Csikszentmihalyi, M. & Rathunde, K. (1995). The psychology of wisdom: evolutionary interpretation. In: Sternberg, R. J. (Ed.) *Wisdom. Its Nature, Origins and Development.* Cambridge: Cambridge University Press

Dembroski, T. M.; MacDougall, J. M.; Eliot, R. S. & Buell, J. C. (1986) A social-psychophysiological model of biobehavioral factors and coronary heart disease. In:

Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 9, Washington: Hemisphere Publishing Corporation

Dohrenwend, B. S. & Dohrenwend, B. P. (1981) Stressful Life Events and Theirs Contexts. New York: Neale Watson

Endler, N. (1988) Hassles, health and happiness. In Pierre Janis, M. *Individual differences, Stress and Health Psychology*. New York: Springer-Verlag

Epstein, S. (1986) Anxiety, Arousal and the Self-Concept. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 10, Washington: Hemisphere Publishing Corporation

Eysenck, H. J. (1986) Stress, personality and smoking behavior. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 9, Washington: Hemisphere Publishing Corporation

Folkman, S. (1984) Personal control and stress and coping processes: a theoretical analysis. *Journal of Personality and Social Psycholog*y, Vol. 46, # 4, p. 839-852

Fonagy, P.; Steele, M.; Steele, H.; Higgit, A. et. Al. (1994). The theory and practice of resilience. The Emanuel Miller Memorial Lecture, 1992. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, Vol. 35 # 2, p. 231-257

Grossman, P. & Defares, P. B. (1986) Breathing to the heart of the matter. Effects of respiratory influences upon cardiovascular phenomena. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 9, Washington: Hemisphere Publishing Corporation

Hamilton, V. (1986) An information processing analysis of environmental stress and life crises. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 7, Washington: Hemisphere Publishing Corporation

Higgins, E.T. (1987) Self-discrepancy: a theory relating self and affect. *Psychological Review*, Vol. 94, # 3, p. 319-340

Holahan, C. J. & Moos, R. (1994) Life stressors and mental health. Advances in conceptualizing stress resistance. In: Avison, W. & Gotlib, I. H. *Stress and Mental Health. Contemporary Issues and Prospects for the future*. New York: Plenum Press

Kalthoff, R. & Neimeyer, R. (1993) Self-complexity and psychological distress: a test of the buffering model. *International Journal of Personal Construct Psychology*, Vol. 6 # 4, p. 327-349

Kohlberg, L (1984) Essays in Moral development. Vol. 2: The Psychology of Moral Development. New York: Harper and Row

Kramer, D. a. & Woodruff, D. S. (1986) Relativistic and dialectical thought in three adult age-groups. *Human Development*, 29, p. 280-290

Lazarus, R. S. (1966) Psychological Stress and the Coping Process. New York: Mc Graw- Hill

Lazarus, R. S. (1976) Patterns of Adjustment. New York: Mc Graw- Hill

Lazarus, R. S. & Cohen, J. B. (1977) Environmental stress. In: Attman, I. & Wohlwill, J.F. (Eds.) *Human Behavior and Environment. Current Theory and Research.* New York: Plenum Press

Lazarus, R.S, & Folkman, S. (1984) Stress, Appraisal and Coping. NY: Springer

Leadbeater, B. (1986) The resolution of relativisim in adult thinking: subjective, objective or conceptual? *Human Development*, 29, p. 291-300

Lipowski, Z. (1990) Somatization and depression. *Psychosomatics*, Vol. 31, p. 13-21

Liville, P. (1987) Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology*, Vol. 52 # 4, p. 663-676

Meachan, J.A. (1975) A dialectical approach to moral judgment and self-esteem. *Human Development*, 18, p. 159-170

Perry, W. B. (1968) Forms of Intellectual and ethical development in the College Years: a Scheme. New York: Holt, Rinehart & Winston

Resnick, R.J. & Rozensky, R. H. (1997) Health Psychology Through the Life Span. Practice and Research Opportunities. Washington DC: American Psychological Association

Riegel, K.F. (1973) Dialectical operations. The final period of cognitive development. *Human Development*, 16, p. 346-370

Riegel, K.F. (1975) Adult life crises: a dialectical interpretation of development. In: Datan, N. & Ginsberg, L.: *Life Span Developmental Psychology: Normative Life Crises*. New York: Academic Press

Rim, Y. (1992) Moral development and coping styles. *Personality and Individual Differences*, Vol. 13, # 5, p. 627-629

Rosenman, R. H. & Chesney, M. A. (1986) Type A behavior and coronary heart disease. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 9, Washington: Hemisphere Publishing Corporation

Sarason, I. (1986) Life stress, self-preoccupation, and social support. In: Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 7, Washington: Hemisphere Publishing Corporation

Singer, J. E. (1986) Traditions of stress research; Integrative comments. In : Spielberg, C. D. & Sarason, I. G. (eds.) (1986) *Stress and Anxiety*. Vol. 7, Washington: Hemisphere Publishing Corporation

Spielberger, C. D. (1971) Trait-state anxiety and motor behavior. *Journal of Motor Behavior*, Vol. 3, p. 265-279

Taylor, S. E. & Repetti, R. L. (1997) Health psychology: What is an unhealthy environment and how does it get under the skin? *Annual Review of Psychology*, vol. 48, p. 411-447