THE RELATIONSHIP BETWEEN HARDINESS AND TRANSFORMATIONAL COPING PROCESSES

by

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ABSTRACT

The present study was designed to examine the relationship between personality-based Hardiness and transformational coping processes, two factors known to buffer the illness-provoking effects of stressful life events. Subjects were 234 male and female undergraduate students, age 17-40 years (mean=21.85 years), in the Department of Psychology at Simon Fraser University. Questionnaire packages containing the abridged Hardiness scale, the Ways of Coping Checklist (revised 1985), and five author-designed Likert-scale items measuring the cognitive appraisals of stress, threat, challenge, control, and commitment, were administered during class tutorials one week prior to midterm examinations. Subjects were asked to respond to the coping indices with respect to current experiences regarding the upcoming examination session. Correlational analyses, both complete and partial, revealed that hardiness is negatively related to the use of Blame-self, Wishful Thinking, and Avoidance coping strategies, and positively related to the use of Problem-focused and Seeks Social Support, although the latter trend was not significant. Hardiness also showed a significant inverse relationship with stress and threat appraisals. Common Factor Analysis with Maximum Likelihood estimation for initial factor extraction and "direct quartimin" rotation yielded four interpretable factors, accounting for 36.6% of the total variance: "Regressive Coping"; "Autonomy and Worth"; "Personal Stakes"; and "Active-realistic Coping". Factor intercorrelations

indicate that "Autonomy and Worth" (loading most heavily on the commitment and control components of the hardy disposition), relates negatively to "Personal Stakes" and the use of "Regressive Coping", and positively to the use of "Active-realistic Coping". Factor analysis also indicated that when "Personal Stakes" are high, both "Regressive" and "Active-realistic" coping strategies are mobilized. A negative correlation between the regressive and active coping factors supports the notion that these represent two distinct modes of dealing with stress. Implications for future theory and research, and clinical applications to stress management are discussed.

DEDICATION

In loving memory of my father,

Dr. John P. Ferri Jr., M. D.

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PART A

INTRODUCTION

It has long been recognized that stress is an important factor in determining man's well-being. As early as 1939, Walter Cannon noted that "stress", or unspecified environmental demands, necessitated operation of the organism's homeostatic or self-righting adjustments "in order to prevent a check on its functions or a rapid disintegration of its parts" (p. 25).

Shortly thereafter, Hans Selye (1950; 1956) described the "General Adaptation Syndrome" (G.A.S.), a triad of interdependent physiological changes (including adrenal cortical enlargement, atrophy of the thymus gland and other lymphatic structures, and deep bleeding ulcers of the stomach and gastro-intestinal tract), accompanying diverse sets of noxious stimuli, and ultimately resulting in death if not reversed.

Selye's doctrine of non-specifity with respect to the type of stimulus as well as the physiological response, is now widely recognized as the cornerstone on which decades of stress research in both biological (c.f. Burchfield, 1985) and psycho-social science (c.f. Fleming, Baum, & Singer, 1984; Mason, 1975a; Mason, 1975b; Monat & Lazarus, 1977) has flourished.

Within the psycho-social perspective, the key focus of stress research is on healthy, normal humans and non-physical stressors, with an emphasis on the interaction between stressful agents and the human system. Most often, non-invasive stressors are used, and only rarely are morphological changes studied. As

corroborated by biological research (e.g., Mason, 1975b; Septoe, 1983), the physical characteristics of the stressor are seen as being of minimal or negligible importance, relative to psychological parameters such as human appraisal or evaluation of the situation. From this it follows that no events are considered to be universally stressful, and "at the extreme, this view would suggest that nothing is stressful unless the individual defines it as such" (Fleming et al., 1984, p. 940).

In the psycho-social stress literature, life event research predominates. This particular line of investigation attempts to demonstrate a temporal association between illness onset and a recent increase in the human events that require socially adaptive responses on the part of the individual. The well-known Schedule of Recent Experiences (SRE; Holmes & Rahe, 1967; Rahe, 1979) and the Social Readjustment Rating Scale (SRRS; Holmes & Rahe, 1967) developed by Holmes, Rahe, and colleagues, are typically used to index the number and severity of life events recently experienced. A variety of instruments have been used to assess illness.

Using this paradigm, numerous studies have consistently demonstrated the significant association between the number and intensity of life events and the onset of both physical and mental illness symptoms (c.f. Dohrenwend & Dohrenwend, 1974). However, although the correlation between stressful life events and illness symptoms is dependable, it is also typically quite low, ranging from .20 to .78 with the majority falling below .30

(Rabkin & Struening, 1976). As well, the variability of both distributions, although often overlooked, is extreme (Rabkin & Struening, 1976). It is therefore not surprising that stress responses have been found to vary, both between individuals, and within individuals over time (Mason, 1975a).

In light of these observations, psycho-social researchers have begun to shift their focus to an examination of idiosyncratic tendencies, and groups of individuals who are particularly susceptible or resistant to illness when under stress. This newly emerging era of research on "vulnerability theory" posits that stressful life events are moderated by pre-existing personal dispositions and social conditions that make the individual more (or less) vulnerable to the impact of life events (c.f. Dohrenwend & Dohrenwend, 1981).

In contrast to psychosomatic theory (Alexander, 1950), where the occurrence of specific disease processes is determined by the nature of latent, unresolved psychodynamic conflicts, vulnerability theory (e.g., Zubin & Spring, 1977) regards susceptibility as being multi-dimensionally determined, and allows for direct incorporation of factors such as genetic and biological constitution, learning experiences, social support, coping styles, and stressful life events, in addition to personality and psychological predispositions.

Implicit in the vulnerability concept is the notion that the impact of life stress is not uniform, but rather, is "moderated"

or "buffered" by a third set of variables. As explicitly stated in the "stress-buffering hypothesis", the relationship between stress and illness is non-linear when moderator variables are taken into account (Felton, Revenson, & Hinrichsen, 1984).

Along with these theoretical advances, the current emphasis in research has come to be on that set of variables that moderate, buffer, or systematically vary the illness-provoking effects of life stress. As mentioned previously, the list of potential moderator variables is extensive, and accordingly, understanding of the effects of life stress has become increasingly complex.

In effort to contribute one conceptual link to part of the ever growing nomological net on stress research, the present thesis will be confined to an examination of the relationship between "hardiness" and "transformational processes", two specific variables within the respective broader classifications of "Personality as Moderator" and "Coping as Moderator".

The literature review (to follow) is a representative survey of pertinent research in these areas, included with the intention of providing a contextual framework from which the findings of the present empirical investigation can be interpreted, and their relevance ascertained.

CHAPTER I

PERSONALITY AS MODERATOR

The body of research dealing with personality as an intervening factor in the stress reaction is relatively thin, and attempts to examine this relationship began only in the late 1970's. Since stress research in general has been so heavily influenced by Selye's model, personality variables have typically been neglected in past life-event-illness literature. Although personality variables play a prominent role in transforming specific events into specific somatic illnesses in psychosomatic theories (Alexander, 1950), "stress" models of physiological disorders underscore the non-specificity of pathogens and the arbitrariness of resulting dysfunctions with regard to "stressors" (Selye, 1950; 1956).

To date, only a few personality dimensions have been examined. These include "Locus of Control" (Bulman & Wortman, 1977; Johnson & Sarason, 1978; Lefcourt, 1980; Lefcourt, 1981; Schill, Ramaniah, & Toves, 1982; Schmale & Iker, 1966; Witmer, Rich, Barcikowski, & Mague, 1983), "Sensation Seeking" (Cooley & Keesey, 1981; Johnson, Sarason, & Siegel, 1979; Smith, Johnson, & Sarason, 1978), the A-B dimension (Cooper, Detre, & Weiss, 1981; Friedman & Rosenman, 1974; Graeff et al, 1980; Matthews, 1982), coherence (Antonovsky, 1979), commitment (Antonovsky, 1974; Ganellen & Blaney, 1984; Kobasa, 1982a; Pearlin & Schooler, 1978), self-esteem (Pearlin & Schooler, 1978),

self-denigration and mastery (Pearlin & Schooler, 1978), and most recently, the new concept of hardiness (Ganellen & Blaney, 1984; Kobasa, 1979; Kobasa, 1982b; Kobasa, Hilker, & Maddi, 1979; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa Maddi, & Puccetti, 1982; Kobasa Maddi, & Zola, 1983; Kobasa & Puccetti, 1983; Rhodewalt & Agustsdottir, 1984). On each of these dimensions, the significant impact of personality on health and well-being has been empirically validated.

Numerous studies have demonstrated the beneficial effects of an internal locus of control[1] (see Lefcourt, 1980 for review). On measures of both psychological distress (e.g. anxiety; depression) and physical illness symptoms, the presense of an internal locus of control has been found to significantly buffer the illness-provoking effects of life stress (e.g. Johnson & Sarason, 1978; Lefcourt, 1981; Schill et al., 1982; Witmer et al., 1983). Similar results have been reported with respect to a variety of life circumstances such as perceived adjustment of severe accident victims (Bulman & Wortman, 1977), and prognosis of women with symptoms of cervical cancer (Schmale & Iker, 1966).

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[1]Defined briefly, "internal control refers to the generalized expectancy that life experiences are contingent upon one's actions, whether those experiences are positive or negative ... [whereas] external control refers to generalized expectancies that life experiences are not contingent upon one's own behavior, but are determinable by a host of external causes - luck, fate, other people, or even perhaps by invariant characteristics of one's self, for example, beauty, or intelligence" (Lefcourt, 1980, p.210).

Moderator effects have also been observed for "Sensation Seeking", or the tendency to seek out novel or intense experiences. College students scoring below the median on the Sensation Seeking Scale (Zuckerman, Kolin, Price, & Zoob, 1964) show significantly positive correlations between life events and psychological distress (Johnson et al., 1979; Smith et al., 1978), or physical disorders (Cooley & Keesey, 1981), while this correlation disappears in high Sensation Seekers. In general, Sensation Seeking is also negatively correlated with anxiety (Zuckerman et al., 1964).

The Type A behavior pattern, characterized by persons high in competitive-achievement-striving, time-urgency, aggressiveness and hostility (Friedman & Rosenman, 1974), is a familiar construct in both psychosocial and bio-medical literature. Although the presense of Type A is known to significantly increase the likelihood of coronary heart disease (hence the name "coronary-prone" behavior), the relationship of this personality disposition to the onset of other illnesses is unclear (for extensive reviews see Cooper et al., 1981; Graeff et al., 1980; Matthews, 1982). As well, there is controversy over whether Type A exerts its detrimental effects through lifestyle directly (i.e., via exposure to a greater number of stressful life events), or indirectly, by consistently transforming life events into subjectively more stressful experiences (e.g., Kobasa et al., 1983; Rhodewalt & Agustsdottir, 1984). Even though morbidity data on coronary

heart disease is undisputed, the pathophysiologic mechanism whereby the Type A behavior pattern represents an increased vulnerability to such manifestations is not well understood.

Antonovsky (1974; 1979) adopted a "salutogenic orientation" and searched for factors that promote health rather than cause specific diseases; rather than a health-disease dichotomy, a health-ease/dis-ease continuum is proposed, on which those individuals falling toward the health end are of specific interest. Antonovsky describes eight basic categories of "Generalized Resistance Resources" (GRRs) or characteristics of the person, group, or environment that can facilitate effective tension management. According to Antonovsky, the most crucial of the interpersonal-relational GRR's is commitment, as opposed to alienation with reference to both primary (i.e., family, friends, work) and secondary (i.e., community, union, social class, nation) groups.

Although the mediating effect of commitment on the life stress-illness relationship has been empirically demonstrated (Ganellen & Blaney, 1984; Kobasa, 1982a), it also appears that the *direction* of this influence may vary as a function of context. Pearlin and Schooler (1978) for example, report that in the role areas of marriage and parenting, interpersonal "strains" are least likely to lead to [di]stress when the people remained committed and involved, while the converse is true for "strains" in the areas of occupation and economics.

In Antonovsky's (1979) model, GRRs are thought to interact and protect health by creating a generalized sense of coherence, or "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable, and that there is a high probability that things will work out as well as can reasonably be expected" (p. 123). As defined by Antonovsky, coherence is a crucial element in the basic personality structure of an individual, and if strong, represents a sense of confidence and faith, and a solid capacity to judge reality. For Antonovsky, the presense of a strong sense of coherence, and therefore the availability of GRRs is a major determinant of the health implications of stress. Although perhaps conceptually sound, "coherence" is somewhat more difficult to operationalize (Antonovsky, 1974).

With respect to the more narrowly defined personality characteristics, it has been found that freedom from self-denigration, and feelings of mastery and self-esteem (in decreasing order of significance) are also efficacious in vitiating stress (Pearlin and Schooler, 1978).

This brief overview attests to the notion that personality variables do indeed play a prominent role in the relationship between life-stress and ensuing illness. These significant findings also raise the question of whether there exists a more general, cohesive behavior pattern (like hardiness), akin but opposite to the Type A style, that renders individuals

stress-resistant.

Hardiness, a central variable in the present study, is a relatively new concept, first discussed in 1979 by Suzanne Kobasa. Similar in many respects to Antonovsky's "sense of coherence", hardiness is conceived as a global style, representative of a larger constellation of some specific adaptive tendencies. As will subsequently become more apparent, the hardy disposition incorporates several facets of the heretofore discussed moderators.

According to Kobasa, personality-based hardiness consists of commitment (vs alienation), control (vs powerlessness), and challenge (vs threat). In both retrospective (Kobasa, 1979; Kobasa et al., 1979; Kobasa, Maddi, & Puccetti, 1982; Kobasa et al., 1983; Kobasa & Puccetti, 1983; Rhodewalt & Agustsdottir, 1984) and prospective (Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982) designs, this factor has emerged as a buffer, significantly decreasing the severity of illness symptoms associated with stressful life events.

In a large-scale study of middle and upper level male executives at a public utility company, Kobasa and her colleagues found that those subjects high in stressful life events but low in illness had greater hardiness scores than executives in whom similar stressful life event levels were associated with much illness (Kobasa, 1979; Kobasa et al., 1979; Kobasa, Maddi, & Puccetti, 1982; Kobasa et al., 1983; Kobasa &

Puccetti, 1983). Hardiness and stressful life events, respectively decreased and increased illness, and interacted with each other such that hardiness emerged as most effective in periods of high stress (e.g., $F=19.83$, $d.f.=1$, $p < .000$). Hardiness and stressful life event scores also proved to be powerful predictors of change in executives illness over time (Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982).

There are also additive effects such that hardiness in combination with constitutional strengths (Kobasa et al., 1981), or physical exercise (Kobasa, Maddi, & Puccetti, 1982) is an especially powerful health protector, whereas hardiness in combination with the Type A behavior pattern represents increased vulnerability (Kobasa et al., 1983; Rhodewalt & Agustsdottir, 1984).

Hardiness also determines whether social supports render one protected from or debilitated by stressful events. In a group of male executives scoring low on the personality characteristic of hardiness, support from one's supervisor within the work place acted to buffer the illness-provoking effects of high-stress conditions, whereas support from one's family within the home appeared detrimental to health (Kobasa & Puccetti, 1983).

These results suggest that the global style of hardiness may represent, in Antonovsky's (1979) terms, a "generalized resistance resource" that promotes health in the face of life stress. The remainder of this chapter will be devoted to a

closer examination of the concept of hardiness, as well as the mechanism proposed to account for its buffering effects.

The "Hardy" Disposition

As described by Kobasa (1979; Kobasa et al., 1979; Kobasa & Puccetti, 1983), borrowing from existential psychology and a host of other theorists, hardiness is composed of three component personality characteristics: commitment, control, and challenge. These characteristics are thought to function as a resistance resource in the encounter with stressful life events by facilitating the kind of perception, evaluation, and coping that leads to successful resolution of situations created by these events.[2]

The commitment disposition is reflected in the hardy person's tendency to involve oneself (rather than experience alienation from) in whatever one is doing or encounters. Committed persons express curiosity about and sense of the meaningfulness of life, and feel an involvement with others that serves as a generalized resistance resource against the impact of stress. While commitment to all areas of life is theoretically characteristic of hardy persons, "staying healthy under stress is critically dependent upon a strong sense of commitment to self" (Kobasa, 1979, p. 4). An ability to

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[2] For a more detailed elaboration of the component characteristics than is presented here, the reader is directed to consult publications by Kobasa (and colleagues), a complete list of which is cited in the reference section.

recognize one's distinctive values, goals, and priorities, and an appreciation of one's capacity to have purpose and to make decisions, characteristic of those committed to self, is deemed essential for the accurate assessment of the threat posed by a particular event, and for the competent handling of it. Committed person's generalized sense of purpose allows them to identify with and find meaningful the events, things, and persons of their environment. Investment in self and others is also thought to promote perseverance in the face of stressful life events: "activeness and approach rather than passivity and avoidance are characteristic" (Kobasa, Maddi, & Kahn, 1982, p. 169).

The control disposition is expressed as a tendency to feel and act as if one is influential (rather than powerless and helpless), through the exercise of imagination, knowledge, skill, and choice, in the face of the varied contingencies of life. Perceptually, control is thought to enhance stress resistance by "increasing the likelihood that events will be experienced as a natural outgrowth of one's actions and, therefore, not as foreign, unexpected, and overwhelming experiences" (Kobasa, Maddi, & Kahn, 1982, p. 169). Cognitive control, enables one to interpret, appraise, and incorporate various sorts of stressful events into an ongoing life plan and, thereby, deactivate their jarring effects. Control also is deemed responsible for the development of a broad and varied repertoire of responses to stress, so that such individuals are

capable of autonomously choosing among various courses of action to handle the stress.

"The challenge disposition is expressed as the belief that change, rather than stability is normal in life and that the anticipation of changes are interesting incentives to growth rather than threats to security" (Kobasa, Maddi, & Kahn, 1982, p. 170). Perceptually, the challenge component colors events as stimulating rather than threatening. Challenge is thought to foster openness and cognitive flexibility which allows integration and effective appraisal of the threat of new situations. The active coping style of individuals high in challenge is said to involve transforming oneself and thereby growing, rather than conserving and protecting one's former existence.

Kobasa emphasizes that these three components are not independent or mutually exclusive, but rather are "inextricably intertwined aspects" that bear a considerable resemblance to one another, and together comprise the overall personality style of hardiness. "One of these three cannot be emphasized in relation to hardiness without the other two being subsumed" (Kobasa, 1979, p. 9).

The mechanism through which Hardiness protects health

Implicit in the preceeding synopsis of Kobasa's formulation, and of central interest to the present study, is Kobasa's hypothesis that the observed buffering effect of hardiness

reflects a personality-based inclination to transform, and thereby diminish the stressfulness of life events. The hardy personality style "...is an amalgam of cognition, emotion, and action aimed at not only survival but also the enrichment of life through development" (Kobasa et al., 1981, p. 368).

Integrating the theoretical notions of Richard S. Lazarus (e.g., 1966), Kobasa defines hardiness as that which encourages "transformational coping", a dual process of cognition and action, typified in hardy individuals by "optimistic cognitive appraisal (so that the events can be seen in perspective and as not so terrible after all) and decisive interaction with the events, aimed at terminating their stressfulness" (Kobasa et al., 1981, p. 368).

Within the hardiness perspective (Kobasa, 1982a), transformational coping is defined as "problem-specific behaviors that aim at resolving the stressful situation, as well as transforming it into ... possibility (i.e., an opportunity for personal growth and the benefit of society)" (p. 709). This mode is distinguished from "regressive coping", typified by pessimistic appraisal, withdrawal, denial, and "attempt[s] to avoid or shrink from the situation" (p. 709). Hence, the proposed mechanism of optimistic cognitive appraisal followed by direct action, is thought to protect the health of hardy persons by transforming the situation, and effectively minimizing the psychological threat of a given stressor.

The manner in which the three components of hardiness are seen to interact in facilitating adaptive, transformational (as opposed to regressive) coping is illustrated in the following example of a man faced with being fired from work:

> The hardy person might not only try to have the decision reversed or look for another job (control), but also interview peers and supervisors in an attempt to get more information about what happened (commitment), and consider how the decision might actually be an important occasion to reconsider career plans (challenge). Faced with the same event, a person low in hardiness might be indecisive about what to do (powerless), try through distraction to avoid thinking about what happened (alienation), and consider the situation an unequivocal reversal (threat) (Kobasa et al., 1981, p. 369).

Although Kobasa's explicit formulation regarding the mechanism through which hardiness promotes health and well-being is logically sensible, there is yet to be direct empirical evidence validating these inferences. To date, the effects of hardiness on coping have not been directly examined, and only one study has investigated the impact of personality-based hardiness on the perception of life events:

Rhodewalt and Agustsdottir (1984) examined the relationship of the personality dimensions hardiness and the A-B typology, to the perception of life events, in order to account for the finding that despite conceptual similarities (i.e., internal locus of control, high degree of involvment, and active response to challenging situations), and a small but reliable association ($r(599)=.16$ $p < .001$) between the hardiness disposition and the Type A personality, the effects of these two behavioral styles on both physical and psychological well-being are opposite in

direction.

Consistent with Kobasa's formulation regarding the transformation of stressful life events, these researchers found that high hardy individuals were more likely than low hardy individuals to perceive life events as being desirable or positive, and to report that these life events are under their control.[3] The Rhodewalt and Agustsdottir study (1984) also indicated that different perceptual dimensions of events are more or less salient for different personality types: Type As find events that are less than completely controllable most disruptive, whereas individuals low in hardiness, appear to be most distressed by events perceived as negative or undesireable.

Summarizing their findings, Rhodewalt and Agustsdottir concluded: "It appears that one aspect of hardy individuals' stress resiliency is attributable to their propensity to interpret situations in less stressful ways" (Rhodewalt & Agustsdottir, 1984, p. 221).

These results support Kobasa's assertion that the robust buffering effect of hardiness is due, at least in part, to an optimistic bias in the perception and evaluation of stressful life events. Although these results support differential perceptual tendencies as a function of hardiness, the hypothesis regarding differential coping strategies remains at this time,

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[3]Type As did not differ from Type Bs in their perception of events, although Type As reported having experienced more life events during a specified time than Type Bs.

only an assumption, and one that will be investigated in the empirical study to follow.

CHAPTER II

COPING AS MODERATOR

The literature on stress and coping is vast and many empirical studies have demonstrated that the way people cope with various life circumstances has a significant impact on physical, social, and psychological well-being (c.f. Lazarus & Folkman, 1984; Monat & Lazarus, 1977). Before discussing findings on the adaptational efficacy of various coping attempts, a brief discourse on the conceptualizations of coping will be presented in order to facilitate comparison between studies of divergent methodologies.

Conceptualizations of Coping

While numerous authors have discussed different methods of coping, there is little consensus with regard to their classification or operationalization. Folkman and Lazarus (1980) describe three broad perspectives on which current approaches to the measurement of coping are based: 1) coping conceptualized in terms of ego processes; 2) coping conceptualized as traits; 3) coping conceptualized in terms of the special demands of specific kinds of situations.

Conceptualized in terms of defensive or ego processes, coping is defined as "realistic and flexible thoughts and acts that solve problems and thereby reduce stress" (Lazarus &

Folkman, 1984, p. 118). According to psychoanalytic tradition, the processes that people use to handle person-environment relationships can be organized hierarchically along various evaluative dimensions. For example, Menninger (1977) discusses five orders of regulatory devices representing different levels of disorganization, while Vaillant (1977) orders defensive processes from primitive to mature according to relative pathological import, with psychotic mechanisms at level one and "mature" mechanisms such as sublimation, altruism, suppression, and humour at level four. Haan (1969) has proposed a tripartite hierarchical system including coping, defending, and fragmentation or ego failures, using "adherence to reality" as the criterion to define processes in the coping mode. Notwithstanding the immediate confusion resulting from these divergent classification schemes, the conceptualization of coping in terms of ego processes poses several further difficulties for understanding the adaptational value of various coping strategies.

One problem, inherent in most psychoanalytic formulations, is the degree of inference required to label an ego process. Because manifestations of ego defenses are somewhat difficult to operationalize, inter-rater reliability is difficult to attain, and hence the validity of results is often suspect (c.f. Folkman & Lazarus, 1980).

A second major problem with this approach is the confounding of coping with outcome. Often times, information about a

subject's overall level of functioning is used to help score a behavior as indicative of a certain level of defense. These ego processes are placed on an evaluative dimension with some automatically considered superior to others, and are then compared with information regarding level of function as an indicator of outcome. This rationale creates a tautology, and in effect, defense and outcome are totally confounded: "When efficacy is implied by coping and inefficacy by defense, there is an inevitable confounding between the process of coping and the outcome of coping" (Lazarus & Folkman, 1984, p.133).

Further to the issue of confounded variables, is the question of superiority of certain types of "defenses" or coping modes. There is no a priori reason, beyond tradition or folklore, to assume that one coping strategy is inherently better that any other. Quite possibly, strategies ranked high in a hierarchy could be maladaptive in certain situations as well as low-ranked strategies being adaptive. One such example is denial, historically considered to be indicative of disorganization, primitivization, or distortion of reality, and traditionally thought to be maladaptive. Although initial studies (e.g., Janis, 1958) provided evidence for these classic assumptions, a host of subsequent research efforts have produced contradictory results (c.f. Lazarus, 1981; Lazarus & Folkman, 1984). It appears that under certain conditions (e.g., when there is no direct action that is relevant; in chronically uncontrollable situations; or in the early stage of crisis),

denial and denial-like forms of coping have favorable, rather than unfavorable outcomes (e.g., Andreasen & Norris, 1972; Cohen & Lazarus, 1973).

A final problem with the psychoanalytic conceptualization is that coping is treated as a defense system whose purpose of tension reduction and restoration of emotional equilibrium is largely palliative, with no regard for coping processes that focus on active, problem-solving strategies. As noted by Folkman and Lazarus (1980; 1985), a comprehensive model of coping must include problem-focused as well as emotion-focused strategies, since typically both of these styles are used in dealing with stress.

The aforementioned difficulties with the psychodynamic conceptualization of coping are well illustrated in a study by Vickers , Conway, and Haight (1983). In this study, measures of "coping mechanisms" are contrasted with those of "defense mechanisms" (e.g. intellectuality vs. intellectualization; logical analysis vs. rationalization; empathy vs. projection; or supression vs. repression), which are then correlated with measures of locus of control. Notwithstanding the fact that "this trend was largely based on sample size, because the typical correlation in the table was not large" (p. 327), the authors imply that the observed correlations of internal locus of control with coping mechanisms, and external locus of control with defense mechanisms explain the relatively "superior" adjustment of those individuals with an internal locus of

control. Here, the confound between coping and outcome is apparent in the explicit assumed superiority of "coping mechanisms". This problem of confounding is further compounded by the fact that from an objective and empirical standpoint, the initial distinction between coping and defense is highly questionable. Furthermore, as is typically the case in psychodynamically oriented stress research, strategies aimed at problem-solving are completely neglected.

A more comprehensive, although overly simplistic and equally unsatisfactory view of coping is seen in conceptualizations that regard coping as a type of personality trait or disposition. This approach, dominating past literature, overlaps with the first conceptualization of coping as an ego process where the traits are derived fron defense theory. Byrne's (1961, 1964) repression-sensitization scale, Gleser and Ihilevich's (1969) Defense Mechanism Inventory, and Goldstein's (1959) sentence completion test are but a few examples of the many defense-oriented measures of coping based on a trait approach. (For a comprehensive review of these and other trait measures of coping see Moos, 1974),

The assumption underlying trait measures is that people are behaviorally, cognitively and attitudinally consistent across situations; an assumption implying that personality rather than situational constraints are more influential in determining coping styles. In personality research however, substantial consistency has seldom been found, and as such trait measures

have been criticized as poor predictors of coping processes in terms of how people actually cope in a given situation (Cohen & Lazarus, 1973; Lazarus, Averill, & Opton, 1974)

Although several authors have concluded that situation factors are more influential in shaping the coping process than personality factors (Fleishman, 1984; Folkman & Lazarus, 1980; McCrae, 1982), or that there is little consistency within persons across situations (Folkman & Lazarus, 1980), these conclusions seem premature when flaws in statistical methodology (Shinn & Krantz, 1981), or the complex interactions of other variables are considered.

Studies employing more sophisticated research designs have found that consistency in the use of coping strategy varies as a function of the role area in which life stresses occur (Pearlin & Schooler, 1978), and is dependent upon the particular type or pattern of coping styles examined (Aldwin, Folkman, Shaefer, Coyne, & Lazarus, 1980; Fleishman, 1984). Furthermore, different personality characteristics influence different coping styles, so that depending on the nature of the specific situation in question (Fleishman, 1984), different personality dimensions may contribute more or less to choice of coping strategy.

A final consideration with respect to the consistency-variability issue is the level of abstraction from which researchers operate. Although Folkman and Lazarus (1981) would argue that coping is a highly variable process, they admit, "Low

consistency when coping is measured at a concrete, behavioral level does not rule out high consistency when coping is assessed at higher levels of abstraction....The existence of dispositions that make diverse environmental settings functionally equivalent for any given individual ... should not be ruled out" (p. 458).

Folkman and Lazarus (1985) also remark about the possibility of individual differences in terms of stability and variability, and indeed found that although their population in general was characterized by more variability than consistency, a small sub-sample (5%) were highly consistent in their use of coping styles (1980). The fact that this subgroup reported great variety in terms of situational context, people involved, and cognitive appraisals suggests that high consistency in coping is a function of a personality trait or factor, rather than a tendency to repeatedly be exposed to similar circumstances and stresses. These results suggest the influence of some stable predisposition in certain individuals to respond to a variety of life stresses in a relatively consistent manner.

Further to the level of abstraction issue is the possibility that although coping styles may reflect higher orders or processes that are consistent, stability may be obscured by choice of the dependent variable: "Different foci and styles can be combined and used in a deliberate, consistent manner that is always directed toward the same solution to stressful situations, ... [and although] people may be consistent in how they perceive stress and how they ultimately combat it, ... this

consistency may not be readily apparent because it involves systematic variations in focus and style" (Fleming et al., 1984, p. 942).

In light of these complex interactions, the consistency-variability issue in coping styles must be considered unresolved. To the degree that the fundamental assumption of cross-situational consistency is untenable, the utility of the trait approach is compromised.

A further weakness of trait measures is that they attempt to evaluate coping along a single dimension (e.g. repression-sensitization). Although this approach classifies subjects as approachers, avoiders, deniers, repressors or sensitizers, these dichotomous and theoretically contradictory forms of coping are not always negatively correlated within subjects over time (Cohen & Roth, 1984). Naturalistic observations (e.g., Winstead, 1984) also indicate that coping is a complex, multi-dimensional amalgam of cognitions and behaviors, not adequately reflected in the unidimensional quality of most trait measures. "Coping in sum is certainly not a unidimensional behavior. It functions at a number of levels and is attained by a plethora of behaviors, cognitions, and perceptions" (Pearlin & Schooler, 1978, pp. 7-8).

Trait measures also imply a static quality to the coping process. Presumably however, as a situation unfolds, the person-environment relationship changes and thereby creates new

demands on the individual's coping resources (c.f. Lazarus, 1977; Lazarus & Folkman, 1984). It seems therefore that coping is more properly described as an ongoing dynamic and shifting process, rather than a static or general disposition. "A stressful encounter should be viewed as a dynamic, unfolding process, not as a static, unitary event" (Folkman & Lazarus, 1985, p. 150).

The third approach, situation-oriented conceptualizations of coping, describes the ways in which people cope with specific kinds of situations. Some situations in which coping has been examined are severe burns (Andreasen & Norris, 1972), recovery from surgery (Cohen & Lazarus, 1973), and abortion (Cohen & Roth, 1984) (and see Monat & Lazarus, 1977, Section IV). In these studies coping efforts are grouped into categories such as maintenance of self-esteem, seeking information, and reduction of anxiety, according to the particular function they serve in a specific situation. This approach is superior to the trait approach in that it allows a more comprehensive and inclusive description of the coping process. It is however problematic in that findings tend not to be generalizeable to other situations since adaptational outcomes are studied in unusual or crisis-like situations.[1]

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[1]An exception to this rule is the well-known comprehensive study by Pearlin & Schooler (1978) in which coping processes were examined in the ordinary stresses people encounter in marriage, parenting, economics, and work.

Due to the aforementioned limitations and defects of traditional approaches to the study of coping, Lazarus and his colleagues (Aldwin et al., 1980; Lazarus, 1966; Lazarus, 1977; Lazarus & Folkman, 1984) have developed a cognitive-phenomenological theory of psychological stress. This theory, or "transformational model", will be presented here in some depth, as this approach to the conceptualization of coping is that which has been adopted, for reasons discussed above, in the present study.

A Transformational Model

Within the transformational model, the coping process refers to "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141).

As denoted by the words "constantly changing" and "specific demands", the overall theoretical framework is transactional or process-oriented (rather than trait-oriented), in that the person and the environment are seen in an ongoing reciprocal relationship with one another: each affects and is in turn affected by the other.

Also implied in this definition is a distinction between coping and automatized adaptive behavior by limiting coping to demands that are appraised as taxing or exceeding a person's

resources, while excluding those behaviors and thoughts that do not require effort and mobilization.

By including "efforts to manage", the problem of confounding coping with outcome is addressed. Any and all cognitive and behavioral efforts are subsumed, regardless of outcome: mastery over the environment is not a criterion for coping.

In response to psychological stress, Lazarus elaborates on two processes, outlined in the aforementioned definition, that mediate the person-environment relationship: cognitive appraisal which determines the meaning of the event, and coping which represents "efforts to manage".

Cognitive Appraisal

"Appraisal is the cognitive process through which an event is evaluated with respect to what is at stake (primary appraisal) and what coping resources and options are available (secondary appraisal)" (Folkman & Lazarus, 1980, p. 223). From this it follows that the degree to which a person experiences psychological stress is determined by the relationship between the person and the environment in a specific encounter, which is directly defined by both the primary appraisal of what is at stake, and the secondary appraisal of available coping resources and options.

Lazarus and Folkman (1984) outline three major types of stressful appraisals, harm-loss (damage that has already

occurred), threat (harm or loss that is anticipated), and challenge (anticipated opportunity for mastery or gain). Each of these appraisals are thought to be affected by person factors such as commitments and beliefs, and situation factors such as novelty, predictability, event uncertainty, imminence, duration, temporal uncertainty, ambiguity, and the timing of stressful events over the life cycle (c.f. Lazarus & Folkman, 1984). Although a large body of data exists on both of these subjects, for present purposes, only the more directly relevant variable of "person factors" will be discussed further.

In keeping with the notions of Kobasa (see previous discussion, pp. 13-19), proponents of the transformational model of coping assert that commitments and beliefs are among the most important person characteristics in determining cognitive appraisal. According to Lazarus and Folkman (1984), these factors influence appraisal by determining what is salient for well-being, shaping understanding of an event, emotions and coping efforts, and by providing a basis for evaluating outcomes.

Commitments are defined as expressions of what is important to people, and influence cognitive appraisal when they are engaged by a particular encounter. By defining areas of meaningfulness, commitments determine which encounters are relevant to well-being and thereby shape cue sensitivity (i.e., dictate which dimensions of situations are most salient or relevant) and guide people into and away from situations that

can challenge or threaten, benefit or harm them.

Commitments also influence appraisal through their bi-directional relationship to psychological vulnerability. On the one hand, the potential for an encounter to be psychologically harmful, threatening, or challenging is directly related to the depth with which a commitment is held: the greater the strength of commitment, the more vulnerable a person is to psychological stress in that area of commitment. By knowing a person's pattern of commitments (i.e., self, work, school , family, etc...), areas of vulnerability can be identified and therefore, predictions can be made regarding circumstances under which a person will feel harmed, threatened, or challenged.

On the other hand, commitments can also have a motivating quality in that the strength of a commitment can impel a person toward an ameliorative course of action that can reduce the threat and help sustain coping efforts: the depth with which a commitment is held determines the amount of effort a person is willing to put forth to ward off threats to that commitment. It is this effect of commitment that Kobasa (e.g., Kobasa, Maddi, & Kahn, 1982) considers prominent in formulating her theory of the stress-buffering effects of hardiness.

This bi-directional influence of commitment on psychological vulnerability is supported by the empirical finding that appraisals of personal stakes are significantly related to

feelings of both threat and challenge (Folkman & Lazarus, 1985).

Beliefs, a second person factor influencing appraisal, are defined as cognitive configurations or pre-existing notions about reality that serve as a perceptual set: they determine what is fact in the environment and they shape the understanding of its meaning. Unlike commitments, beliefs are affectively neutral and become emotional only when they converge with a strong commitment in the appraisal of a stressful situation. Lazarus and Folkman (1984) describe three types of beliefs that influence the coping process: general beliefs or dispositions regarding personal control; existential beliefs; and situational control appraisals or the extent to which persons believe they can shape or influence a particular stressful person-environment relationship.

Rotter's familiar "Internal/External Locus of Control" concept has been shown to have its largest effect in ambiguous situations where it functions as a dispositional factor, or tendency to make certain attributions about control in many contexts. For example, in an ambiguous situation, a person with and internal locus of control is more likely to appraise the situation as controllable, while a person with an external locus of control is more likely to appraise the situation as uncontrollable (c.f. Folkman, 1984). As postulated by Kobasa (e.g., Kobasa, Maddi, & Kahn, 1982), these general beliefs regarding personal control are directly related to primary appraisals regarding degree of threat (or challenge) posed by a

given situation.

Existential beliefs, such as faith in God or fate, are thought to enable people to create meaning out of life and to maintain or foster hope in difficult circumstances.

Situational control appraisals are a product of evaluation of the demands of a situation as well as coping resources and options, and ability to implement the needed coping strategies. Similar to Bandura's (1983) self-efficacy concept, expectancies of efficacy determine the extent to which a person feels threatened, and in the presense of incentives influence coping behaviors. "Self-efficacy theory posits that it is mainly perceived inefficacy in coping with potentially aversive events that makes them fearsome....Amounts of fear and injurious effects people envisage depends, ... on how much control they judge they will be able to wield over the threats" (Bandura, 1983, p. 466).

In Lazarus's terms, efficacy expectancies are part of secondary appraisal and therefore directly influence emotion and coping (c.f. Folkman, 1984). For example, fear is aroused by a specific stressful appraisal: As efficacy expectancies increase, the situation is appraised as less threatening, fears levels correspondingly and subsequently decrease, and coping behaviors are instituted.

Contrary to popular assumptions, the perception of having control does not always serve to reduce threat appraisals

(Folkman, 1984). For example, control can be stress inducing when it opposes a preferred style (c.f. Folkman, 1984), and physiological stress research suggests that in situations requiring active, effortful coping, having control is related to the undesirable state (if chronic) of heightened cardio-vascular reactivity (Steptoe, 1983).

These person factors (commitments, beliefs, and situation control appraisals), interacting with several situation factors, together determine the nature of the cognitive evaluation made, which in turn dictates what, if any coping efforts are instated.

Coping

"Coping is defined as the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them" (Folkman & Lazarus, 1980, p. 223). Coping responses can be grouped into two main types, problem-focused and emotion-focused, depending on the functions they serve. Problem-focused coping strategies are direct actions aimed at the management or alteration of the person-environment relationship that is the source of the stress. Emotion-focused strategies are palliative intrapsychic processes directed toward the regulation of stressful emotions.

Although these types of coping are distinct, in the vast majority of stressful encounters, some combination of both problem-focused and emotion-focused styles are employed (Folkman & Lazarus, 1980; 1985). In fact, it has been hypothesized that

in order for resolution to be successful when intense emotional states prevail, emotion-focused strategies must necessarily be employed. "Theoretically, the effectiveness of problem-focused efforts depends largely on the success of emotion-focused efforts ... otherwise, heightened emotions will interfere with the cognitive activity necessary for problem-focused coping" (Folkman, 1984, p. 845).

As with cognitive appraisal, a host of variables such as appraisal, situational context, locus of control, alienation, and other personality factors, have been shown to influence the degree with which different coping styles are utilized.

Consistent with Lazarus's appraisal theory, it has been found that cognitive appraisal is a critical determinant in coping strategies (Beattie & Viney, 1981; Folkman & Lazarus, 1980; 1985).

> Precisely as this analysis predicts, situations in which something constructive could be done and in which more information was needed generated higher levels of problem-focused coping than situations that had to be accepted. Situations that had to be accepted, on the other hand, and in which the person had to hold back from acting, generated higher levels of emotion-focused coping than those in which something constructive could be done (Folkman & Lazarus, 1980, pp. 231-232).

In general, in situations that are appraised as challenging or having potential for amelioration by actions, individuals tend to employ problem-focused coping, whereas in situations appraised threatening, harmful, or as holding few possibilities for beneficial change, emotion-focused coping is favored

(Folkman & Lazarus, 1980; 1985).

A second variable affecting the choice of coping style is the situational context in which stressful life events occur. Work-related stresses tend to promote higher levels of problem-focused coping while health-related problems generate emotion-focused coping (Folkman & Lazarus, 1980).

Another way in which context has been shown to influence coping styles is through interaction with individual's locus of control. In situations where the level of control is incongruent with one's personal locus of control orientation, high levels of "suppression " (both thoughts and actions) are generated (Parkes, 1984).

As noted previously, some have argued that "personality presumably predisposes people to prefer certain types of specific coping behaviors" (Fleishman, 1984, p. 231). Beliefs regarding control as well as personal commitments have been hypothesized as being powerful determinants of coping style.

Folkman (1984) reviews the literature on locus of control and concludes that an internal locus of control is related to exertion and persistence in achievement situations. Internals also tend to endorse "direct coping" more frequently than externals, whereas externals endorse "suppression" and "general coping strategies" (Parkes, 1984). More interesting, however is that "internals perceive themselves as coping in a manner potentially adaptive in relation to their appraisal of the

situation, but this is not true of externals" (Parkes, 1984, p. 665).

"Alienation", defined as the polar opposite of commitment, has been shown to relate positively and significantly to "regressive" (attempts to deny, minimize, avoid) as opposed to transformational coping (Kobasa, 1982a), a finding that lends support to Kobasa's hardiness model (e.g., Kobasa, Maddi, & Kahn, 1982).

A large-scale study found that those scoring high on "self-denial" tend to use selective ignoring and other emotion-focused strategies; those scoring high in "mastery" tend to use problem-focused in non-personal situations, and avoid the use of selective ignoring, passive acceptance, or resignation; and those scoring high on "non-disclosure" are hesitant to seek advice (Fleishman, 1984; Pearlin & Schooler, 1978).

With respect to demographic variables, Pearlin and Schooler (1978) have noted that the use of selective ignoring (found to exacerbate stress in the role areas of marriage and parenting), was endorsed more frequently by women than men, whereas men more often employ responses that inhibit stressful outcomes.

Other authors (Folkman & Lazarus, 1980; McCrae, 1982) have noted that such observed demographic effects are not direct, but rather reflect the interaction with, and influence of, "type of stress" or situational context. For example, when contextual effects are ignored, men appear to use more problem-focused

coping, and women, more emotion-focused coping (Folkman & Lazarus, 1980). However, these *apparent* gender differences, actually reflect the fact that men reported more work-related stresses while women reported more health concerns. It appears therefore, that differences in situational context of stress are responsible for the apparent gender differences in the use of different coping strategies.

Likewise, McCrae (1982) studied the effects of age on coping and concluded: "[coping] differences in age are really attributable to differences in types of stress" (p. 457). In this investigation, challenging situations were found to decrease with age, while the frequency of threats were found to increase with age.

Education and income have also been found to correlate positively with adaptive, active coping styles (Pearlin & Schooler, 1978), but conceivably, this association reflects the operation of other factors such as realism with respect to degree of power, control, opportunity, etc... .

In sum, coping is a complex process, and one that is multi-dimensionally determined. Of the currently available conceptualizations of coping, only the transformational model (c.f. Lazarus & Folkman, 1984) appears adequate to encompass this process. That coping acts to buffer the effects of life stress is undisputed, although the precise nature of this complicated interaction is yet to be fully understood. An

overview of the findings on adaptational efficacy of various coping strategies will now be presented.

Coping and Adaptational Outcome

According to popular belief, direct action-oriented coping strategies are more effective in dealing with stress than are emotion-focused or palliative styles. Self-appraised effective problem-solvers were found to have significantly higher problem-focused and lower "Blame-Self" scores than self-appraised ineffective problem-solvers (Heppner, Reeder, & Larson, 1983).

Generally speaking, this assumption is borne out in the literature. Whether it be chronic illness (Felton, Revenson, & Hinrichsen, 1984) or severe burns (Andreasen & Norris, 1972); anticipation of electric shock (Averill & Rosenn, 1972); the aftermath of abortion (Cohen & Roth, 1984); or simply the life stresses of parenting (Barth, Schinke, & Maxwell, 1983), occupation, marriage, or economics (Ilfeld, 1980; Kobasa, 1982a), the use of a more active approach in coping produces more favorable outcomes in terms of psychological distress, "strain", long-term adjustment, self-esteem, or physiological arousal (Averill & Rosenn, 1972), than do the more indirect or avoidant-like emotion-focused strategies.

Divergent from this norm, under certain circumstances such as early in the stage of a crisis, or in chronically

uncontrollable situations, or those in which there is no direct action that is relevant, denial or denial-like forms of coping seem preferable (e.g. Andreasen & Norris, 1972; Cohen & Lazarus, 1973).

A further observation suggests that extremes, of either problem-focused or avoidant styles may be maladaptive in terms of health consequences. Kneier and Temoshok (1984) found that independent of disease severity, malignant melanoma patients were significantly more "repressed" than cardiovascular disease patients, while the cardiovascular patients were significantly more "sensitized". The convergence of both self-report and physiological measures as used in this study suggests that these findings may be highly reliable.

Results with respect to coping efficacy in dealing with stressors from different role areas suggest that any conclusions must be evaluated in terms of situational context. Two separate studies (Ilfeld, 1980; Pearlin & Schooler, 1978) indicate that while attempts at coping significantly buffer stresses in marriage and parenting, and less so in financial matters, coping efforts have minimal or no influence on the impact of stress in occupational roles. This apparent general resistance of occupational problems to coping interventions suggests that the ill effects observed in certain groups may be more a reflection of excessive stress in the occupational arena (especially to those who are highly committed to their job) rather than a general deficit in coping strategies.

If a general conclusion is to be made about coping efficacy, this cursory overview of the literature suggests that active, problem-focused styles tend to have more beneficial effects, or alternatively, regressive strategies have more deleterious effects.

CHAPTER III

SUMMARY

An overview of pertinent literature suggests that there is ample evidence to consider both personality, and coping style as potent determiners of the outcome of interactions with life stress. With regard to personality, the newly conceived disposition of "hardiness" appears to encompass salient dimensions of several known moderators, and numerous studies have demonstrated the buffering effect of this more global style. With regard to coping, several conceptualizations were considered, with preference given to the "transformational model", on the grounds that other approaches are inadequate to encompass the complexity of this process. A brief overview of literature examining the efficacy of various coping strategies, indicated that problem-focused styles are associated with more favorable adaptational outcomes than are emotion-focused styles. The proposition linking these two bodies of research is that hardiness exerts its effect through facilitation of a more adaptive, problem-focused approach to tension management. It is on this conceptual link that the following empirical investigation is focused.

PART B

THE PRESENT STUDY

As previously discussed (see pp. 11-19) "hardiness" refers to a personality-based disposition which has been shown to buffer the illness-provoking effects of stressful life events (Kobasa, 1979; Kobasa et al., 1979; Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa, Maddi, & Puccetti, 1982; Kobasa et al., 1983; Kobasa & Puccetti, 1983; Rhodewalt & Agustsdottir, 1984).

In the aforementioned articles, Kobasa claims that the mechanism through which hardiness protects health is by facilitating adaptive transformational coping (cf. Lazarus & Folkman, 1984), which effectively minimizes the psychological impact of taxing life demands. More specifically, hardiness is thought to "encourage optimistic cognitive appraisal ... and decisive interaction with the events, aimed at terminating their stressfulness" (Kobasa et al., 1981, p.368).

Although Kobasa's claimed mechanism (i.e., adaptive transformational coping) is tenable on both logical and intuitive levels, it has not yet received empirical validation. It is for purposes of achieving this end that the present study was designed.

To test Kobasa's claim that hardiness protects health via transformation of stressful events, a number of individuals were assessed on indices of hardiness, cognitive appraisal, and coping style, in order to examine the relationship between hardiness and coping processes.

CHAPTER I

METHOD

Subjects and Procedure

Subjects were student volunteers obtained from undergraduate psychology courses at Simon Fraser University. These students were asked to fill out a questionnaire package that took approximately 15 minutes to complete. Students were contacted in their tutorials where they were told about the general purpose of the investigation and the voluntary nature of their co-operation. Students who were willing to participate were then administered the questionnaires in the classroom. No remuneration was provided, but after the questionnaires were completed, the subjects were given a general outline of the research project and of the field, and when they so desired, were given feedback on their personal scores on the questionnaires and on the general results of the study.

Measures

The questionnaire package given to all subjects attempted to measure the following variables (see Appendix):

-socio-demographic data (age and sex)

-the personality variable "hardiness"

-the type of cognitive appraisals and coping efforts made by subjects in response to a particular current stressful life

event (i.e., anticipation of university midterm examinations).

The survey instrument contained three sets of questionnaires, designed to measure hardiness, coping style, and cognitive appraisal. The abridged hardiness scale was used as a measure of hardiness; and coping style was assessed using the "Ways of Coping" checklist. Cognitive appraisal was operationalized by a series of Likert-scale items, designed by the present author.

Each of these instruments will be discussed in turn.

The abridged Hardiness scale

Because hardiness is a constellation of personality dimensions (i.e., commitment, control, and challenge), it is measured by five scales, each providing negative indicators of hardiness. Raw scores are transformed into standard scores, and these are added across the five sub-scales to produce a total, overall hardiness score.[1]

The composite questionnaire is made-up of all or parts of standardized tests, and one newly constructed instrument (the Alienation Test). Each of these scales as well as their use as a composite has been shown to have adequate reliability and validity. (c.f. Kobasa et al., 1981; Kobasa, Maddi, & Kahn,

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[1]An alternate scoring method, mentioned only once by Kobasa (Kobasa, Maddi & Kahn, 1982), is to double the standard score on the Security scale before summing with the other four sub-scales. This procedure was completed in the present empirical investigation, but since weighting the Security scale made no appreciable difference to the results, the unweighted sum of the five hardiness sub-scales was used in all analyses.

1982)

The aforementioned presence of an overall style of hardiness has been empirically validated. Intercorrelations between subscales on the abridged hardiness scale are all substantial (r=.17-.74 mean r=.42) and highly significant (all ps < .005), and Cronbach's alpha (a second measure of internal consistency) is .81. A principal components factor analysis performed on the subscales reveals a first and only large factor, "general hardiness" that accounts for 46.5% of the total variance. Also, the hardiness composite has shown a stability correlation of .61 over a five year period (Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982).

In terms of discriminant validity, hardiness is unrelated to measures of stressful life events, job level, exercise, constitutional predisposition (indexed by parents' illness), social supports, or demographic variables (age, education, marital status, religious practise) (Kobasa, 1979; Kobasa et al., 1979; Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa, Maddi, & Puccetti, 1982; Kobasa et al., 1983; Kobasa & Puccetti, 1983). Additionally, Rhodewalt and Agustsdottir (1984) found that hardiness is unrelated to sex.

The abridged hardiness scale, revised form (Kobasa, 1985 personal communication), consists of 20 items answered on a four point scale from 0 (not at all true) to 3 (completely true), and measures the commitment (6 items), control (9 items), and

challenge (5 items) components separately.

Commitment is measured negatively by the Alienation from Self and Alienation from Work scales of the Alienation Test (Maddi et al., 1979). High scores on the Alienation from Self scale reflect a "lack of involvement with one's distinctive skills, sentiments, and values, and a passive attitude toward personal decision making and goal setting. ... Strong agreement with these items indicates a lack of self-recognition and fundamental sense of purpose associated with the committed person" (Kobasa et al., 1981, p. 372). Two items from the Alienation from Self scale are used: "The belief in individuality is only justifiable to impress others" and "Unfortunately, people don't seem to know that they are only creatures after all".

High scores on the Alienation from Work scale (items 1-4) indicate a "lack of personal investment in that area of work involving a socially productive occupation ... [and] portray a general sense of meaningless, apathy, and detachment" (Kobasa et al., 1981, p. 372). Sample items are "Most of my life is wasted in meaningless activity" and "I find it difficult to imagine enthusiasm concerning work".

Both the Alienation from Self and Alienation from Work scales have been shown to have high internal consistency, test-retest reliability, and demonstrated construct validity (Maddi et al., 1979).

Challenge is measured negatively by five items (7-11) from the Security scale of the California Life Goals Evaluation Schedule (Hahn, 1966). This scale measures "the degree to which safety, stability, and predictability are deemed important, ... [such that] persons scoring high on this scale are unlikely to perceive changes as stimulating challenges to growth" (Kobasa et al., 1981, p. 372). Sample items are "There are no conditions which justify endangering the food and shelter of one's family or of one's self", and "The young owe the old complete economic security". This scale has been used widely with normal adult samples and has established reliability and validity (cf. Kobasa et al., 1981).

The control dimension of hardiness is measured by six items (15-20) from the External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962), and three items (12, 13, 14) from the Powerlessness scale of the Alienation Test (Maddi et al., 1979). The locus of control scale is a familiar and well established instrument, presented in a forced-choice format, indexing "decisional control" or autonomy (i.e., the belief in whether one is controlled by external or internal forces). The Powerlessness scale measures "cognitive control" or the ability to find meaning in stressful life events (Kobasa, 1979). Sample items are "Often I do not really know my own mind" and "Thinking of yourself as a free person leads to great frustration and difficulty". This scale has been shown to have high internal consistency, test-retest reliability and demonstrated construct

validity (Maddi et al., 1979).

The Ways of Coping Checklist

The Ways of Coping Checklist (WCCL) is a binary, yes or no, checklist answered with a specific stressful event in mind.

In the present study, students were instructed to answer with respect to current feelings concerning anticipation of upcoming midterm examinations for two reasons: 1) To ensure that all subjects would have a recent "stressful" situation to consider. The fact that this situation is unlikely to be equally "stressful" for all subjects was not seen as a problem as they were asked directly to rate "How stressful is this situation for you?" Additionally, perceived stressfulness is expected to vary directly with the hardiness dimension, so in this sense perceived stressfulness can be conceived of as an outcome measure, rather than an independent (and therefore potentially confounding) variable.

2) The situation of "anticipating" midterm examinations (rather than waiting for or, dealing with the outcome of) was favored as it is during this time that ambiguity with respect to outcome is greatest, and therefore appraisals should be more heavily influenced by personal tendencies, as opposed to "reality" judgements which would become more salient after examinations had been completed. Also, previous research indicates that hardiness-relevant appraisals peak during the anticipation period (Folkman & Lazarus, 1985).

Items on the WCCL describe a broad range of behavioral and cognitive coping strategies and sample the domains of defensive coping (e.g. avoidance, intellectualization, isolation, suppression), information seeking, palliation, problem-solving, inhibition of action, direct action, and magical thinking.

In its original form (Folkman & Lazarus, 1980), the WCCL consisted of 68 items classified into two rationally derived categories: Problem-focused coping (P scale) and Emotion-focused coping (E scale). Internal consistency of the classification of items, as assessed by four separate methods was found to be high (e.g. Cronbach's alpha: P scale=.80; E scale=.81). An analysis of principal components (with varimax rotation) revealed one Problem-focused scale and six different types of emotion-focused coping. (Aldwin et al., 1980).

A recent and comprehensive attempt to examine the psychometric properties of the WCCL resulted in a revised 42 item checklist (Vitaliano, Russo, Carr, Maiuro, & Becker, 1985). With this revised version, principal components analysis yielded five interpretable factors, each accounting for an appreciable percentage of the total variance.

Psychometric properties of the revised WCCL favour the use of this version over the original 68 item form. All coefficient alphas (internal consistency reliability) were greater than or equal to those of the original scales (mean Cronbach alpha =.82); and the average reduction in percentage of variance

shared by any two scales was substantial (6%, 40%, and 33% respectively, in three distinct samples), indicating less overlap than in the original scales. With respect to demographic factors, gender had significant effects on all revised scales, such that females had higher scores than males. Neither age, education, or marital status were related to the revised set of coping scales.

For purposes of the present study, the 42 items of the revised WCCL were ordered according to a random sampling technique. The five revised scales (Vitaliano et al., 1985) used in the present study are as follows:

Problem-focused. The 15 items comprising this scale (1, 4, 6, 16, 17, 18, 20, 23, 24, 29, 30, 31, 33, 35, 38) account for a large part of the variance (40%). This scale includes items such as "Made a plan of action and followed it", and "Stood my ground and fought for what I wanted".

Blame-Self. This scale contains three items: "Blamed myself", "Criticized or lectured myself", and "Realized I brought the problem on myself". These items which originally included yourself/you as personal pronouns were changed to read myself/my, in keeping with the format of all other items in the checklist.

Avoidance. Ten items (8-12, 14, 22, 25, 27, 32), such as "Went on as if nothing happened", and "Slept more than usual" comprise this scale. The Blamed-Self and Avoidance scales together account for 15.2% of the total variance.

Wishful Thinking. The eight items in this scale (7, 34, 36, 37, 39-42) account for 8.2% of the variance and are exemplified by "Hoped for a miracle", and "Wished that I could change what had happened".

Seeks Social Support. This scale contains six items (2, 13, 15, 21, 26, 28) that together account for 8.3% of the variance. Sample items are: "Talked to someone about how I was feeling"; "Asked someone I respected for advice and followed it".

Ratings of cognitive appraisal

Five items (11 point Likert-scales) measuring cognitive appraisals of the situation (i.e., midterm examinations) were appended to the WCCL. These items were designed by the present author since the previously used appraisal items (Folkman & Lazarus, 1980) did not appear relevant or interpretable with respect to the hardiness construct. For each item, ratings were made on a scale from 0 (not at all) to 10 (extremely) on perceived stressfulness ("How stressful is this situation for you?"), threat ("To what extent are these midterm examinations an undesireable threat to the security of your ongoing life plan?"), challenge ("To what extent are these midterm examinations a stimulating challenge for you?"), control ("To what extent do you feel that you have the situation under control?"), and commitment ("In general, how important are these midterm examinations to you?"), with reference to the current situation of anticipating midterm examinations.

Predictions

According to Kobasa's formulation, hardiness is a dispositional person factor that influences the way people cope with life stressors. In order to test Kobasa's proposed mechanism, the relationship between hardiness and two coping variables (appraisal and style) was examined, and specific predictions were made regarding the nature of each of these relationships.

The relationship between hardiness and style

According to Kobasa, hardy individuals are predisposed to "direct action ... aimed at terminating the stressfulness of events. ... Committed person's relationships to themselves and to the environment involve activeness and approach rather than passivity and avoidance" (Kobasa, Maddi, & Kahn, 1982, p.169). Translated into the present operationalization of coping style, the above conceptualization predicts that hardiness should correlate positively with scores on the Problem-focused scale.[2]

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[2]A complete test of Kobasa's theory involves within-person comparisons between the endorsement of problem-focused and emotion-focused coping styles. This type of analysis is not possible at the present time since it requires coping measures on comparable scales, or alternatively, population norms on coping styles. Unfortunately, neither of these are currently available. The present study, employing comparisons between persons within coping styles, constitutes therefore, only a partial test of Kobasa's conceptualization.

Conceptually, hardiness should also correlate negatively with emotion-focused coping styles, but this prediction is more difficult to operationalize. As mentioned previously, the original emotion-focused scale is split into four scales (Blame-Self, Wishful Thinking, Seeks Social Support, Avoidance) in the present form of the WCCL, and the extent to which all of these scales qualify as pure emotion-focused coping styles is unclear. Because of this ambiguity, no precise hypothesis regarding the "emotion-focused" scales was made.

Using a multivariate correlation technique, the mediating effect of appraisal between hardiness and coping style was partialled out. According to Kobasa, there is a direct relationship between hardiness and coping style, over and above that which is due to correlations between appraisal and coping style (cf. Folkman & Lazarus, 1980; Vitaliano et al., 1985). It was expected that the correlation between hardiness and style might decrease somewhat when the effect of appraisal was removed, but would not approach zero (i.e., there is a relationship between hardiness and style independent of appraisal). Because appraisal is presumably a function of the reality of the situation as well as personality disposition, it was not expected that all of the variance in coping style would be predicted by hardiness.

The relationship between hardiness and appraisal

According to Kobasa, hardy individuals are predisposed to "optimistic cognitive appraisals". "Persons high in hardiness involve themselves in whatever they are doing (commitment), believe and act as if they can influence the events forming their lives (control), and consider change to be not only normal but also a stimulus to development (challenge)" (Kobasa et al., 1983, p. 42). Translated into the measures used in the present study, hardiness was expected to relate positively to perceived challenge, control, and commitment; and negatively to perceived threat.

The global assumption is that "hardy persons transform stressful events into less stressful forms" (Kobasa et al., 1981, p. 369). It was therefore expected that hardiness scores would be negatively related to self-reports of the perceived stressfulness of anticipation of midterm examinations.

Data Analysis

A series of correlations was run to examine the relationships between the variables of interest. This method of analysis was preferred to multiple pair-wise t-tests because t-tests require distinct groups, and would therefore necessitate arbitrarily splitting subjects into groups on the basis of questionnaire scores.[3]

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[3]Because population norms on both the hardiness questionnaire

Partial correlation and multivariate regression analysis was conducted for purposes of examining the relationship between hardiness and coping style when the effect of cognitive appraisal is held constant. The partialling-out of appraisal is necessary to examine the unique effect of hardiness on coping style, as cognitive appraisals and coping style are known to be related (e.g. Folkman & Lazarus, 1980; 1985).

Both Common Factor Analysis (Maximum Likelihood Factor Estimation) and Principal Components analysis were conducted to determine if the observed relations amoung variables could be separated along meaningful dimensions.

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[3](cont'd) and the WCCL were not available, separation into groups could only be accomplished through statistical considerations based on the characteristics of the present sample, rather than on known distributions of the central variables of interest. For this reason, it was decided that the most conservative procedure would be to treat the variables as continuous, rather than arbitrarily selecting high/low cutpoints.

CHAPTER II

RESULTS AND DISCUSSION

All analyses were conducted using revised BMDP statistical software programs (University of California, 1983).

Description of the Sample

A total of 251 students were contacted, and all agreed to complete the questionnaire package. From this group, seven questionnaires were excluded from the analyses because of failure to complete all items from the hardiness scale (2 questionnaires), the WCCL (2 questionnaires), or both scales (3 questionnaires). An additional four questionnaires were eliminated because of duplicate responses for items on the hardiness questionnaire (3 questionnaires), or the WCCL (1 questionnaire). Two other questionnaires were left out of the analyses because of a failure to report age and sex, and four more were deleted because they answered "NO" to the question "Did you answer all questions to the best of your knowledge?".

Exclusion of these 17 questionnaires resulted in a usable sample size of 234. Upon visual inspection, the eliminated questionnaires did not differ from the questionnaires retained for analyses in any manner other than the deficiencies specified above.

The means and standard deviations for the total sample (N=234) on the principal variables are presented in Table 1.

The age range of the sample was 17-40, with a mean age of 21.85 years, and gender composition was 40.2% male (n=94) and 59.8% female (n=140). Both of these distributions compare with that of other researchers using undergraduate subjects (Folkman & Lazarus, 1985; Rhodewalt & Agustsdottir, 1984; Vitaliano et al., 1985), indicating that the present sample of students is not atypical with respect to these particular demographic characteristics.

Overall, the situation of anticipating midterm examinations was seen as highly important, fairly challenging and stressful,

TABLE 1:

MEANS and STANDARD DEVIATIONS of PRINCIPAL VARIABLES (N=234)

VARIABLE NAME	MEAN	STANDARD DEVIATION
Age	21.85	5.08
Sex	0.60	0.49
Hardiness	0.00	3.04
Cognitive Appraisals:		
stress	5.77	2.66
threat	4.90	2.74
challenge	5.97	2.24
control	5.45	1.87
commitment	7.61	1.86
Coping Styles:		
Blame-Self	1.96	1.04
Wishful Thinking	4.76	2.25
Problem-focused	10.32	2.80
Avoidance	2.90	1.90
Seeks Social Support	3.12	1.56

generally "under control", and somewhat threatening. Mean scores for each of the coping styles indicate that on the average, subjects endorsed approximately 70% of the "Problem-focused" strategies, 65% of the "Blame-Self" strategies, 60% of the "Wishful Thinking" strategies, 50% of the "Seeks Social Support" strategies, and only 30% of the "Avoidance" strategies.

The mean score of zero for hardiness is slightly lower than that reported with older, male subjects (Kobasa et al., 1983). The standard deviation (3.04), skewness (-.34), and kurtosis (.43) parameters indicate that the hardy disposition is approximately normally distributed, as would be expected in a random sample.

Correlational Analysis

Correlation of Hardiness, Cognitive Appraisals, and Coping Styles, with Demographic Variables

The correlations of age and sex with hardiness, cognitive appraisals, and coping styles are found in Table 2.

Hardiness was positively related to both age and sex, indicating that females and older subjects tended to have higher hardiness scores than males or younger subjects.

The relationship between hardiness and age is slightly larger than that reported in the literature (Kobasa et al., 1981; Kobasa, Maddi, & Puccetti, 1982; Kobasa, et al., 1983;

TABLE 2:

CORRELATIONS of AGE and SEX with

HARDINESS, COGNITIVE APPRAISAL, and COPING STYLE

	Age	Sex
Hardiness	.13[1]	.20[2]
Cognitive Appraisals:		
stress	-.06	.21[3]
threat	-.17[2]	.14[1]
challenge	.09	.02
control	.10	-.19[2]
commitment	-.16[1]	.22[3]
Coping Styles:		
Blame-Self	-.09	.07
Wishful Thinking	-.27[3]	.09
Problem-focused	.22[3]	.07
Avoidance	-.06	-.01
Seeks Social Support	.07	.31[3]

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

Kobasa & Puccetti,. 1983), but previous studies used subjects between the ages of 32 and 65 (with a mean of approximately 50 years), and hence the true relation may have been attenuated because of the restricted age range. Alternatively, this relation may be a reflection of self-selection, and therefore unique to the present sample: It could be that hardiness is a necessary precondition for university attendance among those of more advanced age. Finally, because the observed relation between hardiness and age ($r=.13$, $p < .05$) represents only a small portion of the variance (< 2%) it is possible that this association is the result of a large sample, and not of strong

associations.

Obviously, firm conclusions must await replication with different samples. According to the learning theory of hardiness' development (Kobasa, Maddi, & Puccetti, 1982), one would however expect hardiness scores to increase with age as new experiences are confronted.

The relationship between hardiness and sex, accounting for 4% of the variance is also at odds with reports from the one study that has included both males and females (Rhodewalt & Agustsdottir, 1984). Again, conclusions as to the reliability of this association await replication.

With respect to cognitive appraisals, negative correlations between age and evaluations of threat ($r=-.17$, $p < .01$) and commitment ($r=-.16$, $p < .05$), indicate that older subjects tended to perceive the situation of midterm examinations as less threatening to the security of an ongoing life plan, and less important in general than did younger subjects. The relevance of these correlations will become apparent later, as the appraisals of threat, commitment, and stressfulness (also lower, although not significantly so in older subjects), together represent degree of emotional investment, which in turn is negatively related to dispositional buffers. Overall, it suggests that older subjects' perceptions may be more adaptive in terms of health preservation in the face of stress.

As opposed to males, females appraised the situation as being more stressful ($r=.21$, $p < .001$), threatening ($r=.14$, $p < .05$), and important ($r=.22$, $p < .001$), while males were more likely than females to report that they had the situation "under control" ($r=-.19$, $p < .01$). This pattern suggests that in the present situation, females tended to be more emotionally invested, or to have more "personal stakes" than males.

With respect to coping, older subjects favoured the use of the "Problem-focused" style ($r=.22$, $p < .001$) while younger subjects tended to endorse "Wishful Thinking" strategies ($r=-.27$, $p < .001$). The ascription to a more adaptive coping style with advancing age parallels the associations of age with cognitive appraisals and hardiness, and further supports a learning hypothesis with respect to the efficacy of stress management.

With the exception of "Seeks Social Support", which was endorsed more frequently by females ($r=.31$, $p < .001$), there were no significant relationships between gender and the coping strategy employed. Although consistent with a previous finding (Aldwin et al., 1980), this association could be an indirect reflection of sex differences in "non-disclosure", which also is related to advice-seeking behaviors (Fleishman, 1984). Others have found that females also score higher than males on other or all coping styles (Folkman & Lazarus, 1980; Vitaliano, et al., 1985), and hence no firm conclusions can be made at present.

The aforementioned associations of age and sex with hardiness and coping variables are generally small, and taken together with results of previous research, suggest that if the demographic variables of age and sex do have an influence on the stress processes, their role is only minor.

Regarding the specific hypotheses of the present study, separate analyses were run using males only, females only, subjects under 22 years, and subjects 22 or older, in order to see if gender or sex had an appreciable effect on the relationships between the variables of interest. In all cases, the primary relationships were similar enough across these distinct groups to make it reasonable to collapse across gender and age for the remainder of the analyses, and to generalize the present findings across these groups.

Correlation of Hardiness with Coping Styles

The correlations of hardiness with coping styles are presented in Table 3.

Although hardiness is positively related to the use of "Problem-focused" coping strategies as hypothesized, this trend is not of sufficient magnitude to satisfy conventional significance requirements. The absence of a significant relationship between hardiness and "Problem-focused" coping may reflect, at least in part, the overall high endorsement (70%) of these strategies by the sample as a whole, presumably in the service of studying for the upcoming examinations. As well, it

TABLE 3:

CORRELATIONS of HARDINESS with COPING STYLE

Blame-Self	-.24[3]
Wishful Thinking	-.32[3]
Problem-focused	.09
Avoidance	-.17[2]
Seeks Social Support	.04

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

is possible that the relative influence of the general personality variable "mastery" (Fleishman, 1984; Pearlin & Schooler, 1978) reflecting perceived instrumental task competence, was great enough to outweigh any influence of the hardy disposition. These speculations are only tentative, and require further empirical validation.

The coping style "Seeks Social Support" also did not vary directly with hardiness. Social support seeking strategies are known to be heavily influenced by personal tendencies of disclosure/non-disclosure (Fleishman, 1984), and it appears that the hardy disposition is a relatively non-salient factor.

In contrast, the expected negative relation between hardiness and emotion-focused coping was observed for all three of the palliative strategies: "Blame-Self" ($r=-.24$, $p < .001$); "Wishful Thinking" ($r=-.32$, $p < .001$); and "Avoidance" ($r=-.17$, $p < .01$).

The relative magnitude of these correlations suggests that the primary effect of hardiness may be reduction in the use of palliative or regressive emotion-focused strategies, rather than the facilitation of an active Problem-focused style, as was formerly assumed.

Correlation of Hardiness with Cognitive Appraisals

Only two of the hypotheses with respect to the relationship between hardiness and cognitive appraisals were supported (See Table 4).

Individuals scoring high on hardiness tended to report the situation as being less stressful ($r=-.13$, $p < .05$), and less threatening ($r=-.23$, $p < .001$), than those with lower hardiness scores. This finding is consistent with the global effect of a buffering disposition, and argues that hardiness does indeed protect individuals from psychological devastation in the face of difficult life challenges.

TABLE 4:

CORRELATIONS of HARDINESS with COGNITIVE APPRAISALS

Stress	-.13[1]
Threat	-.23[3]
Challenge	.07
Control	.10
Commitment	.00

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

With respect to the control and commitment appraisals, post hoc speculations offer some explanation for the negative findings.

It was assumed that the internal locus of control orientation of hardy individuals would predispose them to more highly endorse the situation appraisal of "under control". It is known however, that locus of control has its largest effect on appraisal in highly ambiguous situations (Folkman, 1984), and possibly in the present study, although ambiguity was high relative to post-examination phases, it was not high in a more absolute sense. If this speculation is correct, then "reality" judgements rather than personality tendencies, would be a more potent determinant of the situation control appraisals.

Alternatively, the phrase "under control" may have been interpreted by subjects as pertaining to management of the situation or "efficacy expectancies" (Bandura, 1983), which are not dimensions necessarily relevant to the hardy disposition. Perhaps more appropriate wording would have been "To what extent do you feel that you *have control over* this event?" rather than *have the situation "under control"*, but this phraseology was originally rejected because it was thought to connote power in determining the occurrence of examinations, which realistically was nil for most, if not all subjects.

The assumption underlying the postulated relationship between hardiness and the commitment appraisal, was that the

hardy person's tendency to be committed to life in general would be reflected in a greater investment in all endeavors, including a university examination session. However, upon further consideration, the observed zero-order correlation is not necessarily incongruent with Kobasa's notions regarding the hardy person's sense of commitment.

Items from the "Alienation from Work" and "Alienation from Self" scales appear to reflect a philosophical stance that human life and human endeavors are meaningful and worthwhile. From this it does not necessarily follow that any given situation will be seen as imperative; and on the contrary, if "commitment" represents a deeply held conviction regarding the meaning of human existence, then it is reasonable that a single examination period would not be seen as critical when put in the perspective of one's entire being. When viewed in this manner, "commitment" would suggest that regard for one's self and one's life is not contingent or "conditional" upon performance or outcome of a specific situation.

In general, these explanations suggest that while hardy individuals may in a general or global sense feel committed and in control of their destiny, these qualities may not be manifest in more "micro" analyses that pertain to one specific life event.

Notwithstanding methodological considerations, the pattern of correlations between hardiness and cognitive appraisals

suggests that in specific situations, the primary or salient effect of hardiness is the tendency to avoid negative or fatalistic appraisals, rather than to directly entertain optimistic evaluations. Similar to the findings on coping style, the primary effect of hardiness seems to be through an absence of negative appraisals, rather than a preponderance of optimistic evaluations.

The remainder of the correlational analyses include associations for which no explicit hypotheses were forwarded. However, because these observations have relevance for theories on both hardiness and transformational coping processes, they will be presented and discussed, although only briefly.

Intercorrelations among Hardiness Subscales

The intercorrelations of the hardiness subscales are presented in Table 5.

TABLE 5:

INTERCORRELATIONS among HARDINESS SUBSCALES

	1.	2.	3.	4.
1. Alienation from Work				
2. Alienation from Self	.26[3]			
3. Security	-.11	.05		
4. Powerlessness	.40[3]	.38[3]	.02	
5. Locus of Control	.32[3]	.25[3]	-.01	.36[3]

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

With the exception of the Security scale (measure of the challenge component), all of the hardiness subscales are highly correlated. The lack of association between the security scale and all other subscales is not in keeping with Kobasa's finding (Kobasa, et al., 1981; Kobasa, Maddi, & Kahn, 1982) that commitment, control, and challenge are interrelated components of hardiness.

Kobasa's conclusion (Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982) of the presence of an overall style of hardiness was based on research using an exclusively male, middle-aged sample (mean age=48 years). It is possible that within this group, the challenge measure connotes a different philosophy than that which was interpreted by the present sample (predominantly under 22 years and 60% female). For example, it is known that issues such as responsibility for oneself, or pride in self-sufficiency and independence are foremost in the minds of those of advancing age, and to a large degree, well-being ultimately rests on achievement of these ideals (c.f. Quinn & Houghston, 1984). The fact that scores on the Security scale are significantly associated with age ($r=.22$, $p < .001$) is congruent with this speculation, and such an interpretation is also consistent with the buffering role of hardiness.

With respect to the present sample, it could be argued that the Security scale is not the equivalent of a negative indicator of challenge. In looking at the negative equivalents of the five items intended to measure challenge, it appears as though they

could represent "subscription to socialistic political ideology" as much as anything else. The underlying theme of each of these items is a utilitarian view whereby sacrifice of the individual for the good of the whole predominates. It is therefore highly questionable that Kobasa's idea of challenge as a tendency to perceive changes as a "stimulating challenge" or "interesting incentive to growth", is accurately captured in this index.

The question of efficacy of the Security scale is further compounded by the observation that, on its own this component does not significantly buffer the effects of stressful life events (Kobasa, 1979). More research is in order to clarify the role of this measure, and/or the "challenge" component itself, in the bufferring effects of life stress.

Relationship between Cognitive Appraisals and Coping Styles

The fundamental premise of the transformational model is that cognitive appraisal is a critical determinant of coping styles. Although causal statements are not justified on the basis of a correlational analysis, the present findings are in keeping with the transformational hypothesis: Fifteen of the 25 intercorrelations between cognitive appraisal and coping style are statistically significant (see Table 6), and with the exception of "Seeks Social Support", and the "commitment" appraisal, a regular pattern is evident.

When the situation is appraised as highly challenging and "under control", problem-focused coping strategies are favored

TABLE 6:

CORRELATIONS of COGNITIVE APPRAISALS with COPING STYLES

	Cognitive Appraisals:				
	stress*	threat	chall	contr	commt
Coping Styles:					
Blame-Self	.21[3]	.21[3]	-.13[1]	-.30[3]	.13[1]
Wishful Thinking	.30[3]	.35[3]	-.26[3]	-.35[3]	.09
Problem-focused	-.05	-.04	.19[2]	.17[2]	.03
Avoidance	.11	.18[2]	-.23[3]	-.28[3]	-.04
Seeks Social Support	.01	.11	.06	-.02	.14[1]

*Cognitive Appraisals are:
stress
threat
challenge
control
commitment

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

exclusively, and regressive strategies are avoided. When the situation is appraised as highly stressful, "Blame-Self" and "Wishful Thinking" tend to be used; and the strategy of "Avoidance" is added to these two in the presence of high threat appraisals. It appears that optimistic appraisals foster more adaptive active coping attempts, while more pessimistic appraisals are accompanied by regressive strategies. These results replicate those of a previous study (Folkman & Lazarus, 1985) where the use of the Problem-focused style coincided with challenge appraisals, while Wishful Thinking and Seeks Social Support styles coincided with threat appraisals.

Intercorrelations of Cognitive Appraisals

Intercorrelations of the cognitive appraisals are presented in Table 7.

The following pattern of relationships among self-reported situation perceptions emerges: 1) threat and stress are directly related; 2) commitment is directly related to challenge, threat, and stress; and 3) degree of control is directly related to challenge and inversely related to degree of threat and stress.

The first and third observations are consistent with self-efficacy theory which posits: "the amount of fear and injurious effects people envisage depends ... on how much control they judge they will be able to wield over the threats" (Bandura, 1983, p. 466). When people feel they are in control, the situation is seen as challenging, rather than threatening, and subjective stress levels decrease. Alternatively, stress

---

TABLE 7:

INTERCORRELATIONS of COGNITIVE APPRAISALS

	1.	2.	3.	4.
1. stress				
2. threat	.39[3]			
3. challenge	.10	.04		
4. control	-.19[2]	-.24[3]	.27[3]	
5. commitment	.23[3]	.40[3]	.25[3]	-.12

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

---

levels are high when there is low control, and correspondingly high threat.

Observation number two suggests that to the degree that a person has investment in a given situation, levels of threat are elevated, and the situation will be experienced as highly stressful. This finding is consistent with Folkman and Lazarus's (1985) observation that "personal stakes" are highly potent determiners of levels of threat, and to a lesser degree, challenge.

Also noteworthy is the absence of a significant relationship between reports of threat and challenge, which indicates that these appraisals are normatively independent, and not opposing poles on a single continuum, as is frequently assumed. Additionally, challenge appraisals appear to be heavily influenced by how much "in control" the person is feeling, whereas threat appraisals are most heavily determined by personal stakes or commitment. Because these results echo previous findings (Folkman & Lazarus, 1985), their reliability is enhanced.

Intercorrelations of Coping Styles

Intercorrelations of coping styles are presented in Table 8.

The relatively large significant intercorrelations between Blame-Self, Wishful Thinking, and Avoidance strategies, suggest that these styles consistently form a coping response triad that

TABLE 8:

INTERCORRELATIONS of COPING STYLES

	1.	2.	3.	4.
1. Blame-Self				
2. Wishful Thinking	.44[3]			
3. Problem-focused	-.03	-.17[2]		
4. Avoidance	.34[3]	.43[3]	-.09	
5. Seeks Social Support	-.02	.03	.35[3]	-.07

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

may represent a general tendency to repress at a higher level of abstraction.

Problem-focused and Seeks Social Support strategies are highly correlated ($r=.35$ $p < .001$), and together seem to represent an "Active-realsitic" stance, which in general is negatively related to the "Regressive" trend described above. Contrary to former belief (Aldwin et al., 1980; Folkman & Lazarus, 1980), "Seeks Social Support" strategies seem to be more closely related to action-oriented or "Problem-focused" strategies that the more palliative, emotion-focused styles. Folkman and Lazarus (1985) have also observed this relationship.

These observations and interpretations are further evidenced in the results of the factor analysis, to be discussed later.

Partial Correlational Analysis

Partial correlation and regression analysis was conducted to examine the relationship between hardiness and coping style when the effects of cognitive appraisal are removed, since it is known that cognitive appraisals and coping strategies are directly related. It was hypothesized that there is a direct relation between hardiness and coping style, over and above those effects which are due to the interposed cognitive appraisals.

The results of the partial correlational analysis on hardiness and coping styles with different cognitive appraisals partialled out are presented in Table 9.

A scan of the table by rows indicates that the relationship between hardiness and each of the coping styles remains the same regardless of whether one, all, or none of the cognitive appraisals are partialled out. These results, essentially identical to those of the complete correlational analyses, replicate the significant negative relations of hardiness with the regressive triad of "Avoidance", "Blame-Self", and "Wishful Thinking", and demonstrate further that these relationships are direct, rather than merely reflecting the combined effect of correlations between hardiness and appraisal, and appraisal and coping.

TABLE 9:

PARTIAL CORRELATIONS OF HARDINESS and COPING STYLES

with DIFFERENT COGNITIVE APPRAISALS PARTIALLED OUT

	Cognitive Appraisals* Partialled Out:						
	1-5	1	2	3	4	5	none
Coping Styles:							
Avoidance	-.10	-.16[1]	-.14[1]	-.17[2]	-.13[1]	-.16[1]	-.17[2]
Seeks Social Support	.06	.04	.04	.04	.07	.04	.04
Blame-Self	-.19[2]	-.22[3]	-.22[3]	-.24[3]	-.20[2]	-.23[3]	-.24[3]
Wishful Thinking	-.24[3]	-.29[3]	-.30[3]	-.32[3]	-.26[3]	-.31[3]	-.32[3]
Problem-focused	.07	.09	.08	.09	.09	.08	.09

*Cognitive Appraisals are:
1. stress
2. control
3. commitment
4. threat
5. challenge

[1] $p < .05$
[2] $p < .01$
[3] $p < .001$

Factor Analysis

Preliminary analyses indicated that extraction of Principal Components was not appropriate for the data at hand because of high uniquenesses of the variables, indistinguishable from error variance when Principal Components Analysis is used. Due to this consideration, Common Factor Analysis with maximum likelihood estimation for initial factor extraction was used and several rotations were completed. Since the pattern of factor scores was the same for all rotations, except for minor shifts in the position of non-salient variables, the "direct quartimin" oblique rotation was preferred for reasons of conceptual clarity in interpretation.

The above procedure yielded four factors with eigen values greater than one that together accounted for 36.6% of the total variance. It was decided that these four factors would be retained, as residual correlations were unacceptably large with a three factor solution, and the extraction of five factors produced no substantial increment in goodness of fit or interpretability. The retained rotated factor solution can be found in Table 10.

The obtained factor structure is consistent with the results of the correlational analysis previously discussed. Factor 1 loads positively on "Wishful Thinking", "Avoidance", and "Blame-Self", and negatively on the challenge and control

TABLE 10:

ROTATED FACTOR LOADINGS (DIRECT QUARTIMIN)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
stress	.10	-.04	**.47***	-.01
threat	.10	-.09	**.64***	.04
challenge	**-.56***	-.09	.29	.12
control	**-.49***	-.09	-.19	.04
commitment	-.16	.14	**.69***	.08
Blame-Self	**.45***	-.14	.16	.11
Wishful Thinking	**.61***	-.21	.21	.02
Problem-focused	-.04	-.01	-.16	**.75***
Avoidance	**.57***	-.04	-.00	.03
Seeks Social Support	.05	.02	.05	**.48***
Alienation from Work	-.01	**.57***	.07	.21
Alienation from Self	.02	**.48***	.03	-.03
Security	-.04	.01	-.25	.07
Powerlessness	.09	**.78***	.02	-.09
Locus of Control	-.13	**.47***	-.11	-.01

* factor loadings exceed .29

appraisals. The combination of variables creating this factor closely resembles what Maddi (1980, as cited in Kobasa, 1982a) has called "Regressive Coping". It combines pessimistic appraisals of self-denigration and resignation that the situation is beyond one's control and therefore not worth expending coping efforts, with attempts to shrink from dealing directly with the situation through distraction techniques such as fantasizing, suppression, denial, and withdrawal.

Factor 2 loads highly on four of the five hardiness subscales measuring commitment and control: consistent with the results of the correlational analysis, the challenge component is conspicuously absent.

Examination of the individual items contributing to commitment and control scales, reveals two experiential components: "Autonomy and Worth". The commitment items seem to reflect the extent to which one values human endeavors, and a belief in individuality and worth, while the control items seem to reflect a belief in personal control, accountability, responsibility, and self-determination.

The third factor, with its highest loadings on the cognitive appraisals of commitment ("importance"), threat, and stressfulness, may best be interpreted as representing "Personal Stakes": For those who are emotionally invested, the situation is seen as important and stressful insofar as it constitutes a threat to an ongoing life plan.

Factor four with its highest loadings on "Problem-focused" and "Seeks Social Support" represents the more global style of "Active-realistic coping".

Intercorrelations of Factors

A potential disadvantage of oblique rotations is that they allow factors to correlate with one another. However, in the present study the pattern of factor intercorrelations is congruent with the relations observed in the previous analyses, and can be interpreted logically from a conceptual viewpoint.

The observed factor intercorrelations for the rotated factors are presented in Table 11.

Factor 2 ("Autonomy and Worth") is negatively related to Factors 1 ("Regressive Coping") and 3 ("Personal Stakes"), and positively related to Factor 4 ("Active-realistic Coping"). These relations suggest that the control and commitment components of hardiness serve to discourage the use of Regressive coping strategies (such as Wishful Thinking,

TABLE 11:

FACTOR INTERCORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00			
FACTOR 2	-.24	1.00		
FACTOR 3	.25	-.14	1.00	
FACTOR 4	-.20	.05	.12	1.00

Avoidance, and Blame-self) in favor of Active-realistic styles. Furthermore, it appears that when one's sense of individuality and purpose is strong, the relative import (i.e., "Personal Stakes") of performance on a specific task (e.g., midterm examinations) is diminished.

Positive correlations of Factor 3 ("Personal Stakes") with Factors 1 ("Regressive Coping") and 4 ("Active-realistic Coping") suggests that when there is strong emotional investment and personal stakes are high, all coping resources (as measured here) are mobilized. Folkman and Lazarus (1980; 1985) also have found that when life stresses mount, both problem-focused and emotion-focused strategies are employed.

The negative correlation between Factors 1 and 4 supports the notion that regressive and active coping strategies are two distinct modes of dealing with stress, and suggests the presence of one of these global, cohesive styles within given individuals.

Summary of Results

The present study was designed to test two central hypotheses:

1) Hardiness facilitates active "Problem-focused" coping, and discourages palliative, emotion-focused strategies.

2) Hardiness encourages "optimistic" cognitive appraisals such

as challenge as opposed to threat; and predisposes individuals to "involve themselves in whatever they are doing" (commitment), and to "believe they can influence the events forming their lives" (control).

Also tested was the global assumption that "hardy persons transform stressful events into less stressful forms". In addition, several adjunctive observations were made, as these are of relevance to current conceptualizations of both hardiness, and coping processes in general. For purposes of clarification, a summary of the major findings will be presented.

The significant association with respect to coping style was the negative relation between hardiness and the "Regressive" strategies of "Wishful Thinking", "Blame-self", and "Avoidance". Partial correlational analysis suggested that these relationships are direct, and not merely an artifact of interactions with cognitive appraisals. The alternate hypothesis, linking hardiness to "action-oriented" coping, received only minimal support as evidenced in small associations with the "Active-realistic" strategies of "Problem-focused" and "Seeks Social Support". It was suggested that personality characteristics such as "mastery" (Fleishman, 1984; Pearlin & Schooler, 1978) and "non-disclosure" (Fleishman, 1984) respectively, may be more potent than hardiness in determining the use of active-realistic coping strategies.

On measures of "optimistic" cognitive appraisals (i.e., control, challenge, and commitment), overall hardiness had virtually no effect. It was suggested that this absence of significant associations could have partially reflected inappropriate wording on the "control" item, demand characteristics of the situation regarding ambiguity, and/or the level at which the hardiness components reside. With respect to the third possibility, it was speculated that ascription to a global belief in the value and meaning of human existence (i.e., "commitment") does not necessarily dictate, and in fact would more likely negate, large personal investments (e.g., challenge) in the outcome of a single specific situation.

Notwithstanding the marginal correlations with specific items, insofar as these appraisals contributed to the factor "Regressive Coping", a small negative relation with a component of hardiness (commitment plus control) labelled "Autonomy and Worth" was evidenced.

The central premise that hardiness effectively reduces subjective perceptions of stressfulness (and threat) was supported. However, the overall pattern of results suggests that this is not primarily due to active and optimistic tendencies, as hypothesized, but rather, is associated with an absence of "Regressive" inclinations.

A second major finding, and one that has substantial implications for the measurement, and potentially the concept of

hardiness, is the lack of association between the Security scale (measuring challenge) and the other hardiness subscales. Although Kobasa describes the three components of hardiness as "inextricably intertwined", results of the present study suggest that only the aspects of commitment and control are highly related.

The commitment and control measures together, appear to represent a philosophical stance attesting to the "Autonomy and Worth" intrinsic to life and human endeavors, while it is unclear what the reversed Security scale embodies. Based on face validity, it was suggested that the Security scale is misused as a measure of Kobasa's "challenge" concept.

Results of the present study argue for further research with representative, random samples, in which the interrelationship and role of the hardiness components in buffering the effects of stress is more closely examined.

CHAPTER III

CONCLUSIONS

The empirical investigation presented in this thesis was designed to examine the relationship between hardiness and transformational coping, dispositional and process buffers, respectively, in the life events-illness paradigm. The specific hypotheses tested were:

1) hardiness is positively related to optimistic cognitive appraisals (i.e., challenge, control, and commitment), and the use of an active, "Problem-focused" coping style; and alternatively

2) hardiness is negatively related to perceptions of threat and stress, and the use of palliative, emotion-focused coping styles.

Correlational and factor analyses supported the second set of hypotheses (as above), but found little evidence of the first set of postulated relations.

This pattern of results suggests that the primary mechanism through which hardiness exerts its effect is by reducing regressive tendencies when dealing with stress, rather than facilitating adaptive transformational processes, as formerly assumed.

Conceptual Implications

Although it has been assumed (e.g., Kobasa et al., 1981; Kobasa & Puccetti, 1983) that transformational coping is the conceptual link between hardiness and staying healthy under stress, results of the present study suggest that these ideas on the role of hardiness in the stress process may require revision.

The notion that hardiness facilitates adaptive, action-oriented, transformational coping was not supported in the present thesis. Instead, it appears as though hardy individuals may be more prone to avoid regressive or maladaptive strategies.

Present results also suggest that the hardy disposition itself requires closer analysis. While Kobasa claims that the control, commitment, and challenge components are highly related and "inextricably intertwined", they did not appear to be so in the present study. A general factor, labelled "Autonomy and Worth", loading heavily on only the control and commitment components emerged in the present study. The challenge component (measured by the Security scale of the California Life Goals Evaluation Schedule; Hann, 1966) did not load significantly on any factor, nor was this component related to the other hardiness subscales, or any of the coping styles (not reported here), as the other four subscales were.

Furthermore, the validity of this scale as a measure of what Kobasa intends "challenge" to represent is questionable. It is plausible that interpretation of the Security scale may vary according to age, and hence, its usage inappropriate with respect to hardiness for certain groups. Suspicions regarding this measure are further reinforced by the finding that on its own, the Security scale does not significantly buffer the effects of life stress (Kobasa, 1979).

At least as far as differential coping processes are concerned, it appears as though the influential components of hardiness, as measured at present, are the dimensions of control and commitment. These measures together appear to reflect a certain philosophical stance to life, and it may well be that their role in buffering the effects of stress is to devalue the import of any given event by ordering priorities according to some larger scheme of the meaning of life.

Generalizability

To determine the extent to which the specific results of the experimental investigation reported in this thesis are generalizable, an examination of its limitations is required. Here, the pertinent issues include: methods used, research design, and sample characteristics.

Because all variables in the present investigation were measured by questionnaire, the dangers of common error variance introducing spurious correlations, and of limited generalizability of results to non-verbal manifestations of these variables was posed. It is held however, that the influence of these conditions was minimal.

It could be argued that the questionnaire method of measurement, due to response style or the like, may bias reports and hence affect the correlations between variables. However, the present study was not intended to measure absolute amounts of any of the variables, or the strength of associations between variables, but focused primarily on the differential associations of hardiness with cognitive appraisals and coping styles. It is unlikely that common measurement variance was able to bias these differential relationships. Furthermore, any effect of a generalized response set would have levelled the differences, rather than artificially inflated them. It is held that, apart from purposeful misrepresentation, there was little latitude for response style and other measurement artifacts to bias subjects' responses.

Additionally, items on the WCCL refer to specific behaviors and cognitions employed by subjects, whereas the more subjective hardiness and cognitive appraisal measures refer to opinions, feelings, and perceptions. To the degree that levels of

subjectivity differ between these indices, any common measurement variance would be reduced. Also, to minimize possible biasing influences on the more subjective variable, the hardiness items were presented first in the questionnaire package.

In conjunction with the above considerations, it is also the case that dangers of self-report methods are intrinsic to this area of social-psychology research, and that the variables in the present study could not have been reasonably assessed by means other than questionnaire.

Personality variables such as hardiness, are typically assessed by the questionnaire method. Alternatively, extensive interviews with expert raters can be used, but this method introduces representation problems of its own and biases the sample beyond recognition due to self-selection. Furthermore, such a method would necessarily reduce the sample to a size precluding sophisticated data analyses. Also, there is no instrument presently available, other than the scale used here, through which one can assess personality-based hardiness.

The cognitive appraisal and coping style variables were also measured by self-report questionnaires. Of these, the cognitive and perceptual elements could not have been reasonably measured otherwise, as argued above. The alternative for evaluating overt coping behaviors would have been to follow subjects through their lives. Even if this was feasible, it would produce similar

and even more serious problems with respect to sample size and bias as mentioned above.

Finally, because this investigation was intended to solidify a conceptual link in the growing nomological net on stress resistance, methods that allow for comparisons with previous research are both essential and preferred.

Research Design

The finding of this investigation that hardiness is unrelated to active "Problem-focused" coping must be considered non- conclusive until replicated, because of an unforeseen complication of the present research strategy, which may have masked a true relationship between these variables.

At the outset, it was decided that subjects would be instructed to respond to items on the WCCL with respect to their "current" situation of anticipating midterm examinations. This procedure was chosen instead of the usual protocol primarily to eliminate variance in coping styles due to source or context of the stressful life event in question (Folkman & Lazarus, 1980; 1985; McCrae, 1982).

It was also reasoned that if subjects were required to reproduce their own stressful life event, additional confounds may have been introduced. Conceivably, events would be remembered and/or reported selectively as a function of the particular coping strategies employed, or the efficacy with

which specific situations were dealt, rather than according to the more "objective" criteria of stressfulness.

Although stressfulness of a given situation is not assumed to be constant across individuals, and in fact was expected to vary with hardiness, the design of the present study was adopted to control for objective parameters.

It is possible however, that the choice of midterm examinations as the stressful event resulted in a masking of certain hardiness effects. This particular situation is highly concrete, and apparently, particularly amenable to "Problem-focused" coping for subjects in general. The overall high endorsement rate (70%) on the "Problem-focused" items, rendering any differential associations with hardiness obscure, may therefore have been a reflection of demand characteristics that were potent enough to outweigh the relative contribution of dispositional factors.

Although the pattern of negative relations between hardiness and regressive strategies is clear, associations with the "Problem-focused" style require further investigation. It is possible that under different circumstances, a positive relation between hardiness and "Problem-focused" coping would emerge.

Sample

The present sample consisted mainly of first and second year university students, with all the resulting restrictions in age and other socio-demographic characteristics. In addition, as previously mentioned, divergent findings on hardiness have emerged from different samples (Kobasa, 1979). Factor analysis on two different age groups (over 22 years, and 22 or younger) and males and females separately (not reported here), further suggests that within subgroups based on age and sex, slightly different relations between variables emerge.

It was suggested that the challenge component of hardiness may assume different meanings in different populations. At present therefore, reservations against uncritical generalizations to other populations, especially different age groups, is warranted. Despite the limited generalizability to other populations, however, the relationships found here are relevant. To the extent that findings are not replicable across sub-populations, studies of "normal" populations will yield fictitious results. The patterns found here are significant for this particular population, and may or may not be so for other populations. External validity on the relation between hardiness and coping process observed here, remains to be established.

Implications for Future Research

Results of the present investigation argue for continued research on the hardy disposition on several counts:

While the negative association between hardiness and regressive tendencies is clear, the lack of an association between hardiness and optimistic, action-oriented inclinations must be considered more tenuous. Since it is known that context, or source of stress affects the choice of coping strategy (Folkman & Lazarus, 1980; McCrae, 1982), conclusions based on a single episode would be remiss, especially in light of the overall high endorsement of "Problem-focused" strategies in the present study. Although the consistency observed in the negative relations of hardiness with pessimistic cognitive appraisals and regressive coping strategies is promising, firm conclusions should not be made until this pattern is replicated in other studies employing longitudinal designs that examine coping processes across different episodes.

Of specific relevance to the hardiness construct itself, was the observation that the challenge component was not significantly related to the other dimensions of hardiness; a finding that is discrepant with other reports (Kobasa et al., 1981; Kobasa, Maddi, & Kahn, 1982). This observation, together with the finding (Kobasa, 1979) that the challenge component does not independently buffer the effects of life stress (as the other hardiness components do), calls for a re-examination of

current theorizing on the "global" disposition of hardiness.

Because most previous research on hardiness (Kobasa, 1979; Kobasa, 1982b; Kobasa, Hilker, & Maddi, 1979; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa Maddi, & Puccetti, 1982; Kobasa Maddi, & Zola, 1983; Kobasa & Puccetti, 1983) has employed exclusively male, middle-aged executives as subjects, all findings are in need of replication with different populations. To the degree that results are found to differ across sub-groups, generalizations regarding the existence and/or role of hardiness to the population as a whole are limited.

In addition, understanding of resistance resources would benefit greatly if future research was directed toward examinations of combinations of potential buffers in mediational roles, in efforts to identify core constellations of potent variables. To date, the relationship between hardiness and other health-relevant personality dimensions is unknown.

Examination of moderator variables in the life-events-illness paradigm is now accepted as both a worthwhile and necessary adjunct to stress research in general. As constellations of protective personality characteristics are isolated, clinical application to stress management can proceed. Because it is unreasonable, if not impossible, to instruct people to avoid stress, the only potentially fruitful endeavor of clinicians in the social-science fields is to devise

intervention programs whereby "vulnerable" individuals can be identified, and subsequently, helped to change.

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PART C

APPENDIX: THE QUESTIONNAIRE PACKAGE

This package was given to all subjects. It contained an introductory page (taken from Veiel, 1984) (p. 106), the abridged hardiness scale-revised (Kobasa, 1985 personal communication) (pp. 107-108), the Ways of Coping Checklist-revised (Vitaliano et al., 1985) (pp. 109-111), five author-designed cognitive appraisal items (p. 112), and a concluding page (p. 113).

Due to copyright reservations, hardiness items 7-11 taken from the Security scale of the California Life Goals Evaluation Schedule (Haan, 1966), and 15-20 taken from Rotter's Locus of Control scale (Rotter et al., 1962) are not included here.

This study is part of an M.A. thesis research project. In this package, you'll find a number of questions which will take you about 15 minutes to answer.

Your cooperation is voluntary, and the data collected will be totally anonymous. You are not required to provide any information as to your identity other than your age and sex, and all questionnaires will be destroyed immediately after they have been scored and the scores entered into a large data pool. However, if you would like to know your scores on the questionnaires, you should enter a codeword, number, or pseudonym in the space below.

If you are interested in knowing more about this research project, you are welcome to see me in room CC5216.

Completion of this questionnaire will be taken as your consent to the use of the information as outlined above.

Thank you.

Jean Toth

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Codeword
Codenumber (optional)
Pseudonym

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Age: ____ years

Sex: ____ male ____ female

Instructions: The following items consist of attitudes with which you may or may not agree. As you will see, many of the items are worded very strongly. This is so you can decide the DEGREE to which you agree or disagree. Please indicate your reaction to each item according to the following scheme:

0= Not at all true.
1= A little true.
2= Quite true.
3= Completely true.

Please read the items carefully. Be sure to answer all on the basis of the way you feel now. Don't spend too much time on any one item.

____ 1. Most of my life is wasted in meaningless activity.

____ 2. I find it difficult to imagine enthusiasm concerning work.

____ 3. It doesn't matter if people work hard at their jobs; only a few bosses profit.

____ 4. Ordinary work is too boring to be worth doing.

____ 5. The belief in individuality is only justifiable to impress others.

____ 6. Unfortunately, people don't seem to know that they are only creatures after all.

____ 7.

____ 8.

____ 9.

____ 10.

____ 11.

____ 12. Those who work for a living are manipulated by the bosses.

____ 13. Thinking of yourself as a free person leads to great frustration and difficulty.

____ 14. Often I do not really know my own mind.

Instructions:

For the following questions, please indicate which of the two statements provided (a or b) BETTER represents your attitude. Print that letter in the space beside the appropriate question.

Items 15-20, from Rotter's Locus of Control Scale were presented on this page.

Instructions: The purpose of this questionnaire is to find out how people deal with stressful situations that are encountered in life.

You will soon be writing midterm examinations. In anticipating this event, take a few moments and think about how this situation is affecting you at the present time. Reflect on how you have been feeling, what you have been thinking about, and what you have been doing during this anticipation period, and put a check in the "YES" or the "NO" column for each item, depending on whether that item applies to you.

	YES	NO
1. Bargained or compromised to get something positive from the situation.	____	____
2. Talked to someone to find out about the situation.	____	____
3. Blamed myself.	____	____
4. Concentrated on something good that could come out of the whole thing.	____	____
5. Criticized or lectured myself.	____	____
6. Tried not to burn my bridges behind me, but left things open somewhat.	____	____
7. Hoped a miracle would happen.	____	____
8. Went on as if nothing had happened.	____	____
9. Felt bad that I couldn't avoid the problem.	____	____
10. Kept my feelings to myself.	____	____
11. Slept more than usual.	____	____
12. Got mad at the people or things that caused the problem.	____	____
13. Accepted sympathy and understanding from someone.	____	____
14. Tried to forget the whole thing.	____	____
15. Got professional help and did what they recommended.	____	____
16. Changed or grew as a person in a good way.	____	____

	YES	NO
17. Made a plan of action and followed it.	____	____
18. Accepted the next best thing to what I wanted.	____	____
19. Realized I brought the problem on myself.	____	____
20. Came out of the experience better than when I went in.	____	____
21. Talked to someone who could do something about the problem.	____	____
22. Tried to make myself feel better by eating, drinking, smoking, taking medications.	____	____
23. Tried not to act too hastily or follow my own hunch.	____	____
24. Changed something so things would turn out all right.	____	____
25. Avoided being with people in general.	____	____
26. Asked someone I respected for advice and followed it.	____	____
27. Kept others from knowing how bad things were.	____	____
28. Talked to someone about how I was feeling.	____	____
29. Stood my ground and fought for what I wanted.	____	____
30. Just took things one step at a time.	____	____
31. I knew what had to be done, so I doubled my efforts and tried harder to make things work.	____	____
32. Refused to believe it had happened.	____	____
33. Came up with a couple of different solutions to the problem.	____	____
34. Wished I was a stronger person--more optimistic and forceful.	____	____
35. Accepted my strong feelings, but didn't let them interfere with other things too much.	____	____

	YES	NO
36. Wished that I could change what had happened.	____	____
37. Wished I could change the way that I felt.	____	____
38. Changed something about myself so I could deal with the situation better.	____	____
39. Daydreamed or imagined a better time or place than the one I was in.	____	____
40. Had fantasies or wishes about how things might turn out.	____	____
41. Thought about fantastic or unreal things (like perfect revenge or finding a million dollars) that made me feel better.	____	____
42. Wished the situation would go away or somehow be finished.	____	____

Instructions: Rate each of the following items on a scale from 0 (not at all) to 10 (extremely). Circle the number corresponding to your response.

1. How stressful is this situation for you?

0	1	2	3	4	5	6	7	8	9	10
not at all stressful										extremely stressful

2. To what extent are these midterm examinations an undesireable threat to the security of your ongoing life plan?

0	1	2	3	4	5	6	7	8	9	10
not at all threatening										extremely threatening

3. To what extent are these midterm examinations a stimulating challenge for you?

0	1	2	3	4	5	6	7	8	9	10
not at all challenging										extremely challenging

4. To what extent do you feel that you have the situation "under control"?

0	1	2	3	4	5	6	7	8	9	10
not at all "under control"										totally "under control"

5. In general, how important are these midterm examinations to you?

0	1	2	3	4	5	6	7	8	9	10
not important at all										of utmost importance

Did you answer all questions to the best of your knowledge?

(please circle).....YES NO

(Please be truthful. If you responded wrongly to one or more questions, your questionnaire can be eliminated from the study and no harm will be done.)

THANK YOU VERY MUCH FOR YOUR COOPERATION