Order Number 8914771

Personality and the stress-adjustment relationship during adolescence and the early adult transition: A longitudinal epidemiologic perspective

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City University of New York, 1988

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PERSONALITY AND THE STRESS-ADJUSTMENT RELATIONSHIP DURING ADOLESCENCE AND THE EARLY ADULT TRANSITION: A LONGITUDINAL EPIDEMIOLOGIC PERSPECTIVE

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1988

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

PERSONALITY AND THE STRESS-ADJUSTMENT RELATIONSHIP DURING ADOLESCENCE AND THE EARLY ADULT TRANSITION: A LONGITUDINAL EPIDEMIOLOGIC PERSPECTIVE

by

Carla Susan Lewis

Advisor: Professor Suzanne Kobasa Ouellette

Propositions from existential personality theory and developmental stress research were extrapolated and tested within a life events context. Prospective analyses of hardiness theory and the buffering hypothesis yielded epidemiological data on normal (nonclincal) population youth that confirmed personality factors as moderators of the stress-adjustment relation for adolescents and young adults. Specifically, perceived competence and goal directedness predicted lower post-stress behavioral symptoms, in general, and fewer specific stress reactions to the life-change event appraised as most disturbing by youth and parents. Albeit the results confirmed a "true", or linear, buffering effect (cf. Cohen & Wills, 1985) on youth's transient reaction; the effect on ongoing symptoms was conditional. Unexpectedly, high scores on these dimensions and life-stress may be more threatening to young people's adjustment than low scores. The findings were interpreted from a cognitive-developmental and social-interactionist perspective. Family context was also explored for its weight in predicting stress-resistance

in normal population youth. Confirming notions drawn from existential personality theory, nonpunitive (but structured) parenting and child centeredness (maternal closeness, support, warmth, availability) facilitated the development of competence and goal directedness in young people.

Acknowledgements

First, and foremost my gratitude to Professor Suzanne Kobasa Ouellette whose faith in my work was unfailing and whose standards both challenged and stretched my skills as a research psychologist. Similarly, Dr. Patricia Cohen without whom this research would not have been possible receives heartfelt thanks for her generosity, wisdom, and enduring support. Further acknowledgement goes to Dr. Charles Winick who has been consistently involved in my academic and professional development and continually impresses me with his concern and endless supply of encouragement. Special thanks also to Professors Florence Denmark, Howard Ehrlichman, and Harold Takooshian who helped me to believe in myself as a social scientist.

To the memory of Stanley Milgram and Boyd, Larry Chalfin, the Children in the Community staff, Anca, and my friends Judith Feldman, Nava, John Tarbox and Annette, Cathy, Katherine, and Valerie, Christina Paul and Judy Morgan, Marcia Torres, Joanne, and special acknowldegement to Mildred and Harry Lewis for their constancy, love, and support throughout this academic pursuit.

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CHAPTER I

INTRODUCTION

Few areas of research have grown as radically as the study of stressful life events and adjustment. Given the ubiquity of stress, the multitude of investigations since Holmes & Rahe's (1967) introduction of the life-change scale is not surprising. What is surprising, however, is the relative paucity of research on the impact of stressful life events for adolescents or young adults. Since Coddington's early (1972a & 1972b) study of life-change as a measure of stress for preschoolers and older children, developmental stress research has barely touched upon the role of moderator variables of the stress-adjustment relationship (Johnson, 1986). Recently, some of what we have learned from the adult literature has been applied to the refinement of scales such as Coddington's (See Johnson, 1986; also Compas, Davis, & Forsythe, 1985; Swearington & Cohen, 1985) that assess the nature of stress for youth. Unfortunately, the richness of the developmental literature on stress-resistance in high risk children (e.g. Garmezy, 1981; Garmezy, 1983; Rutter, 1983;

Murphy & Moriarity,1976; Werner & Smith, 1982) has not been explored for its generalizability. These missing pieces on stress and young people are especially evident when one considers the case of a randomly selected (nonclinical) sample of adolescents representative of the general population of adolescents

An overriding goal of this research is to integrate some of what we have learned from the adult literature about the complexity of the stress-adjustment relationship with theory and findings from the developmental literature concerning resiliency to stress in youth.

The problem which this research addresses is that some individuals seem to suffer significantly after exposure to particular kinds or combinations of stress; others do not. What factors distinguish these two groups? Kobasa and colleagues, guided by existential personality theory which endows the individual with the capacity to rise to the occasion of challenge, restructure events, and evolve personally by so doing, asked these questions of an adult population. The focus here is on the roots and import of hardiness in adolescence and the early adult transition.

The data used to accomplish this purpose were collected as part of a larger ongoing longitudinal project whose major focus has been the development and persistence of psychopathology in children. Included among the instruments in this larger study, the Children in the Community Project, were several interview items from which information about life events and stress-related conditions could be extracted.

The Children in the Community Project began in October 1982 under the directorship of Dr. Patricia Cohen of New York State Psychiatric Institute, Department of Epidemiology of Mental Disorders as a longitudinal follow-up to a study originally carried out by Dr. Leonard Kogan of the City University of New York. The project was funded by the Center for Epidemiological Studies of NIMH. The major focus of the original study has concerned the stability and persistence of childhood psychopatholgy. Recently, project staff have investigated-- (a) family factors influencing the onset and duration of psychopathology in childhood and adolescence; (b) risk factors for suicide attempts and suicidal ideation amongst youth; and (c) the utility of computer algorithms designed to

generate DSM III-R diagnoses for epidemiological studies. (For details regarding original sample selection and design, see Velez & Cohen 1983; Cohen & Brook, 1984; Lewis, Gorsky, Cohen, & Hartmark, 1985).

The research presented here is distinct from the Children in the Community studies in several respects. Unlike the Children in the Community's previous studies, the focus here is not on identifying risk factors for pathology. Instead, resistance resources that promote health are investigated. Specifically, the thrust is towards identifying protective personality and familial factors that would serve to buffer the impact of stress for youth. Using a broad array of personality, social psychological, and environmental data on about 800 randomly selected mother-child pairs from the Children in the Community's data base, this study tests hypotheses concerning the role of personality as a moderator of the stress-adjustment relationship. The data on stress and stress reactions are being analyzed for the first time. Using these data, the present research addressed the following specific aims:

1) To define a concept of "hardiness" (cf.Kobasa, 1982) for adolescents that is theoretically and empirically related to the construct as applied to adults.

2) To examine the familial and environmental roots of the construct from the perspective of existential personality theory.

3) To examine the role of stress and hardiness, individually and cojointly, in predicting later adjustment for adolescents in early adult transition.

It was predicted that hardiness would serve to moderate the longitudinal impact of stress for adolescents as it has been observed to do for adults (See Kobasa, Maddi, & Kahn, 1982).

The Problem

While the field is plagued with debate concerning conceptual and operational definitions of stress, most investigators acknowledge the link between diverse sources of stress and psychological, physical, and interpersonal strain. Stress is defined here as the degree of readjustment required on the part of youth to adapt to particular events, or disruptions (either positive or negative) in routine (cf. Holmes & Rahe, 1967). Stress, as conceived here is posited to have an additive impact on both the onset and seriousness of illness (Holmes & Masuda, 1974).

This life-change model is compatible to Selye's early definition of stress (1954) which states that general adaptation to the wear and tear of life may eventually exceed an individual's physical and psychological resources and cause a change in health-status. A cardinal theme, however, underlying Selye's (1954) model is that stress does not invariably have negative effects: In fact, for Selye, the absence of stress equals death. Similarly, Felsman and Vaillant (1987) also advance the notion that stress is not invariably negative. The authors refer, first-- to Ernst Kris's concept of "optimal stress" which is defined as a facilitator of development and competence. Secondly, they point out that the Chinese symbol for "crisis" stands for opportunity as well as danger.

The Stress-Adjustment Relationship

The stress-adjustment relationship is not a straightforward one. A review of the adult literature (e.g., Dohrenwend & Dohrenwend, 1981) indicates that the relationship is multidetermined (on both sides of the regression equation) and highly interactive. For example, the stressfulness of a particular stimulus will vary according to the meaning it has to particular

individuals (Monat & Lazarus, 1977). Response to stress has been shown to vary cojointly with all of the following: appraisal processes (Cervantes & Castro, 1985), personal and social resources (Kobasa, 1983), preexisting vulnerabilities (Fox, 1978), and the controllability of the stressor (Fisher, 1984; Silver, Wortman, & Klos, 1982). The relationship is complex. Some researchers (e.g., Lazarus, 1966) find it more useful to define stress generically, as a "whole area of problems that include the stimuli producing stress reactions, the reactions themselves, and the various intervening processes" (p.27). Others disagree with such broad treatment of stress for investigative purposes (Bolger & Eckenrode, 1986).

Contemporary adult stress research focuses on both intrapersonal (e.g., efficacy and control beliefs) and situational (e.g., social support) factors which may moderate the stress-disorder relationship. Antonovsky (1982), for example, found that personal resources and social/community-ties mediated responses to crisis. In a similar vein, Moos & Billings (1982) propose that control beliefs such as internality function as resistance resources against stress, as do appraisal processes (Pearlin, 1982; Roskies & Lazarus, 1980),

mastery and self-esteem (Pearlin & Schooler, 1978), social interest (Crandall, 1984), efficacy beliefs (Bandura, 1977; Kobasa, 1982; Langer, 1983), and transformational coping skills (Kobasa et al., 1982).

Individual Differences and The Stress Response

With adults, the multitude of studies reporting significant relationships reported between stressful life events and emotional disorder rarely mention that the magnitude of stress-disorder relationships are actually quite low (Rabkin & Streuning, 1976). Cognizant of the fact that correlations rarely exceed .30, researchers are now investigating the interplay of individual difference variables, stressful events, and adjustment.

Kobasa (1982) formulated a model in which hardiness, a multifaceted personality dimension, is hypothesized to buffer the debilitating effects of stress. The tendency for hardy individuals to utilize transformational coping, or the kind of coping strategies that minimize the negative effects of stress is elaborated in the construct's three components: (1) control, belief in one's ability to have an impact upon the environment; (2) commitment, the tendency to absorb

oneself fully in valued activities and be deeply engaged in the process of living; and (3) challenge, the conviction that adversity, change, and new experiences furnish avenues for growth. Challenge was also described as consisting of cognitive flexibility and tolerance of ambiguity (Kobasa, 1979). The underlying assumption here is that hardiness buffers the illness-producing effects of stress because the hardy individual, challenged-- not threatened by change, will transform or restructure stressful experiences into something that can be positively assimilated, learned from, and built upon.

There is an interesting interface between the challenge and control components that may be explained by flexibility. Unlike the characterological rigidity of the Type A individual, the hardy person is not threatened by uncontrollability. They are internally anchored, and thus have enough leverage, or flexibility, from which to adapt to situations beyond their control. Undaunted by superficial frustrations, the hardy individual embraces ideals and goals that buffer the impact of temporary setbacks. The ability to endure, or bounce back, conceivably stems from the hardy person's flexible cognitive orientation.

Uncertainties are faced courageously because predictability is neither anticipated, or preferred. The evolved sensibility of the hardy may be a by-product of their strong future-orientation (Kobasa & Maddi, 1977) which compels them to establish meaningful priorities. The overall picture that emerges reflects an individual who lives strenuously (Kobasa & Maddi, 1977; cf. William James, 1842-1910) and copes vigilantly rather than defensively with the vicissitudes of life.

The Developmental Literature

The flexibility implied in hardiness has been explicitly linked by Rutter and Garmezy (1983) to resiliency in youth. Others identified flexibility as a precursor to good coping skills insofar as resilient children demonstrated early on "the capacity to accept substitutes and restructure a situation" (Murphy, 1987, p. 104). This allows resilient children to "bounce back" in their effort to accommodate, what Murphy conceives of as an innate drive towards wholeness and growth. Murphy's notion of "a growth drive" is conceptually related to several social psychological concepts reported by Kobasa (1979) such as Allport's

propriate striving, White's effectance motivation, and Fromm's productivity to illustrate "fullfilment" theories of personality (p.3). This perspective readily accepts the individual as "an active shaper of the stress experience" (Roskies & Lazarus, 1980, p. 42; see also Antonovsky, 1982; Selye, 1974; Kobasa, Maddi, & Courington, 1981). Can the same be said for youth?

It is highly likely that researchers, such as Block (1981) who champion a continuous model of personality structure (see also Murphy & Moriarity, 1976) would support the notion of hardiness in young people. Happily the evidence suggests the same: Self-help skills, problem-solving capacities, and autonomy distinguished younger children who managed to thrive despite adverse conditions from cohorts who did not cope well (Werner & Smith, 1982). And later on developmentally, internal control, positive self-concept, and achievement needs were identified as discriminators. Although Werner & Smith utilized chronic stress measures rather than discrete life events their findings lend support to a buffering hypothesis.

Paralleling the adult literature, diverse methodological and conceptual perspectives emerge from the literature on children's and adolescent's adjustment to stress. While several theoretical models can be derived from this literature, some (e.g. Coddington, 1972; Johnson, 1982; Gersten, Langer, Eisenberg, & Simcha-Fagan, 1974) explicitly address the impact of stressful life events. Others (e.g. Garmezy, 1985; Garmezy & Rutter, 1983; Werner & Smith, 1982) operationalize stress broadly, i.e. as poverty, parental psychopathology, family instability, or constitutional vulnerability . Recently, Garmezy (1986) identified the following domains as representative of burgeoning interest in children and stress: studies on posttraumatic stress; bereavement; developmental transitions; disadvantaged status; illness and disability; war; risk for psychopathology; and sexual and physical abuse.

As the research scope expands across domains, much of the research within domains remains cursory. Surprisingly little has been done with stressful life events for children and adolescents (Rutter, 1983; Lewis, Siegel, & Lewis, 1984). Considering the numerous developmental issues surrounding this transitional

period, the neglect is surprising. In terms of refinement, the field lags behind that of stress research on adults. Investigators are caught up in perennial methodological debate concerning the clustering of events and scaling (e.g. Newcomb, Huba, & Bentler, 1981; Monroe, 1982; Compas, Davis, & Forsythe, 1985; Swearingen & Cohen, 1985) to the extent that propositions regarding variation in response to life events have virtually been ignored. Like the adult literature, much research on children and life-change events also focuses primarily on negative effects. One literature has been examining the adverse impact of cumulative events (e.g. Coddington, 1972); another, specific/single events, such as divorce, and implications for particular behavioral problems (e.g. Wallerstein, 1983). Both are united, however, in their emphasis on maladjustment. In essence, this body of research supports a significant relationship between stressful events and lower competencies at school (Sterling, Cowen, Weissberg, Lotyczewski, & Boike, 1985); maladjustment at home (Gersten, Langer, Eisenberg, & Orzeck, 1974); and the kinds of disturbance in personality functioning that have been

observed in adult life-change studies (Newcomb, Huba, & Bentler, 1981).

Theoretical Framework

A more optimistic perspective can be derived from the work of Garmezy (1983; 1985) and Rutter (1983). These authors address the remarkable ability of some young people to develop normally despite growing up under conditions that most adults would find stressful.

In an excellent review, Garmezy (1981) summarizes research that confirms the striking resiliency of some children who have suffered major deprivation and trauma. As far back as Theis (1924), observations on the remarkable adjustment in adulthood of children who one would expect to be "irreparably harmed" (Meier, 1965, p. 12) have been made. Although methodological problems plagued many of these earlier studies, there was ample justification for follow-up of the unexpected positive outcomes for traumatized children. Why the lag in efforts to expand upon these findings?

The Invulnerables

Almost two decades ago Kadushin (1967) found that adopted youth who had experienced poverty, abuse,

family mental illness and criminality were usually able to recover from these circumstances in later years. Murphy & Moriarity (1976) also cite evidence (e.g. Barker et al., 1943) which reveals that a significant percent of younger children not only failed to regress under adverse conditions but exhibited more tenacity than other children. Little time has been spent studying what distinguishes these children from others. Modes of coping had been relegated a peripheral position in the developmental literature compared to studies of youth disability and pathology.1 The neglect still puzzles many of the leaders in the field (e.g. Garmezy, 1983; Murphy & Moriarity, 1976).

Lately, research efforts have been redirected towards factors that contribute to mastery. In 1976, Werner & Smith dedicated their book to the "self-righting tendencies" of human beings as evident in the "invincible" children of psychotic parents (cf.Garmezy, 1974; also Rutter, 1979). As Rutter (1978) observed, "Even with the worst circumstance that human beings can devise only a proportion of the children succumb..."

1. Garmezy distinguishes two perspectives: developmental psychology versus developmental psychopathology. The emphasis in developmental psychology is now on competence.

(p.57). Likewise, Segal & Yahraes (1978) refer to youth who thrive rather than break under dire circumstances. Anthony (1987) recalls Garmezy's (1971) use of the phrase "children of the dream" in his quest for factors that might facilitate adaptive functioning under adversity for all children.

While risk models do not deal with responsivity to discrete life events, per se, or change as a unit which cumulatively places excessive demands on the individual, as implemented here, they do address the fascinating issue of resiliency to stress. Under the auspices of Project Competence in Minnesota, Garmezy & his colleagues study children who manage to retain their competency despite chronic exposure to high risk conditions. Garmezy (1983) suggests that by studying such youth we may uncover the "clues to protective factors" which may "innoculate" all populations of youth under stress. He defines three factors as joint determinants of maintenance, or loss of equilibrium, under stress: (a) temperament; (b) precipitators or events; and (c) protective factors. The present study is concerned with the latter--protective factors that "innoculate" or provide resiliency in young people under stress. Several sources of protection derived

from diverse studies of youth who managed to thrive despite the stress of poverty, family discord, and trauma are presented below:

(1) ego resilience, flexibility as opposed to ego brittleness or inflexibility (Bloch & Bloch, 1980).

(2) a positive self-image/ sense of personal control or power (Garmezy & Neuchterlein, 1972).

(3) internality on the locus of control dimension. (Garmezy, 1981).

(4) autonomy/independence/parental support of self-directedness (Garmezy, 1981).

(5) warmth/stability within family structure (Rutter, Yule, Quinton, Rowlands, Yule, & Berger, 1975).

(6) social responsivity (Murphy & Moriarity, 1976; Werner & Smith, 1982).

(7) ecological support (Rutter et al., 1975).

Much of this literature on high-risk but resilient, or invincible youth, refers to underlying processes in childhood and adolescence that are common to hardiness. As previously stated, the hardy person is cognitively flexible and internally controlled: Garmezy (1983) defines internality and flexibility as "innoculating factors". Most pertinent to this research

are Garmezy's three dimensions --(1) flexibility vs. inflexibility, (2) active vs. passive coping, and (3) competence vs. incompetence which are suggestive of transformational (cf. Kobasa, 1982) coping styles in adults; and undergirds item-selection and analyses presented here. Active, purposeful coping strategies reflect the ability to make choices and thereby activate a chain of events or restructuring of an adverse circumstance. Kobasa refers to "decisional control" and "coping skill" which overlap with competence insofar as they facilitate the assertion of priorities and ultimate transformation of consequences. The motivation to do so would stem from stylistic beliefs in one's ability to make an impact, or attain a desired result. Flexibility can be conceived of as an adaptive cognitive structure which facilitates the perception that change of any sort could be revelatory, novel, and challenging rather than something to be feared or avoided.

The main task of this research is to extrapolate and integrate such propositions from hardiness theory with those of developmental researchers whose focus was on stress-resistant hi- risk youth, defined by Garmezy (1981) as children who retain their competence despite

exposure to the kind of stress that would typically be associated with psychopathology and incompetence.

Whereas Kobasa investigated the utility of hardiness for mitigating the physical effects of stress and Garmezy studied protective factors enhancing competency, the interest here is on psychosocial adjustment. Two outcome variables are targeted. The first is overall post- stress behavioral difficulties, or symptoms, that are typically found in clinical populations. The second is transient adjustment to a specific event that the adolescent reported to be particularly distressing in contrast to others experienced over a two year period.

Conceptual and Methodological Issues

The present study is both epidemiological and prospective. It embraces a theoretical model that addresses the complex interplay of individual differences and coping with life-stress. In contrast, most developmental life event research has tended to be retrospective, confined, and atheoretical (Johnson, 1986; Anthony, 1987).

Another strength is that the present study employs items specifically created and administered to adolescents. The applicability of adult concepts of stress to youth have been viewed as problematic in the developmental literature. Lewis, Siegel, & Lewis, (1984) contend that typical measures of young people's events have been based on preconceived notions of what adults define as stressful. The life event checklist utilized here was adapted from Coddington's (1972) measure by Dr. Patricia Cohen and Dr. Mary Shwabe-Stone in an attempt to reconcile these concerns.

The problem of total reliance on an adolescent's recall of events which are over six months old has been addressed by several investigators (See Johnson, 1986). To reconcile this pitfall, the present study utilizes a combined measure of youth plus parent-about-youth report of stressful events. Life event studies are typically based on parental report only (e.g., Gersten et al., 1977). This is problematic because as Swearington & Cohen (1985) point out, childhood secrets and resistance towards divulging the occurence of distressing events to parents is familiar to all of us. To consider findings meaningful, events need to be based on youth report as well. Otherwise more weight

may be given to family-oriented events than those, such as abortion or pregnancy, which may ultimately be straining the adolescent. It was determined that if youth forget, or underreport events that occur they will also be likely to underreport reactions to these events. Thus, the most valid measure of events and reaction to events seemed to be the combined measure of youth and parent-about-youth report. Since stress reaction is based on a simple count of concrete behavioral symptoms (See Methods section or Appendix) the possibility of interpretive or perceptual bias on the part of the parent seemed unlikely (given that maternal psychopathology a potential contaminant was partialed out).

Appraisals of life events have also been found to mediate the stress-adjustment relationship. Both youth and parent-about-youths' appraisal of a particular event as most upsetting are available and included in the analyses. The present study also treats demographics as first-step predictors in all analyses. A limitation of prior research has been the failure to look at demographics or past exposure to particular kinds of events (Newcomb, Huba, & Bentler, 1986). According to the authors, young people who had

previously experienced particular types of events perceived them differently than young people who never experienced the event. Although prior experience with events was not available in the Children in the Community protocol, appraisals were available and included in analyses of transient stress reactions.

And finally, the present study attempts to control chronic sources of stress, like maternal psychopathology and socioeconomic status since life events have sometimes been conceptualized as a consequence of chronic stress (See Swearington & Cohen, 1985) rather than as a predictor of distress.

Purpose of the Present Study

As stated earlier, this research represents an attempt to explore the meaningfulness of hardiness for middle and older adolescents, making the early adult transition. If hardiness does significantly differentiate response to stressful events in the positive direction, then an awareness of the parenting styles that may facilitate the development of hardiness in children would also be of substantial clinical impact. A demonstrated hardiness effect for youth may encourage prevention and intervention studies. Youth

hardiness is investigated here for its utility in predicting differences in overall response to life-stress as well as transient response to particular events.

Hypotheses

The following hypotheses were tested:

H1: Adolescents who are high in personality hardiness will have significantly lower post-stress symptom levels than adolescents who are low in personality hardiness.

H2: Adolescents who are high in personality hardiness will have a significantly less maladaptive transient reaction to life-stress than adolescents who are low in personality hardiness.

H3: As life-stress increases so will the buffering effect of personality hardiness: Significantly less evidence of maladaptive reactions to life-stress will emerge in hardy adolescents as life-stress increases.

Facilitators of hardiness were explored in order to identify characteristics of the environment, such as

parent-child interaction, parent-child identification, and parental control. Although it was expected (See Chapt. II) that factors such as parental warmth, consistency, affection, and child centeredness would be related to hardiness (cf. Musick, Stott, Spencer, Goldman, & Cohler, 1987), only one hypothesis was explicitly derived from existential personality theory.

H4: Mother-child relationships characterized by structured but independence-granting parenting styles will be significantly more predictive of personality hardiness in adolescents than mother-child relationships characterized by more disciplinary styles.

Summary

The concept of hardiness in the general literature is quite similar to the concept of resilience as applied to childhood research. The overlap was exploited in order to derive predictors from which to study the "positive side of coping" (as Garmezy puts it) with life-stress. The overriding goal was to-extrapolate from Garmezy and Kobasa hypotheses concerning stress-resistance which could be tested

within a life events paradigm for normal population youth.

The roots of resiliency in youth have also been addressed by the Minnesota group (APA 1986) and existential personality theorists (Kobasa & Maddi, 1977). Variables were selected for their relatedness to propositions derived from this literature.

CHAPTER II

METHODOLOGY

This chapter includes a description of the data base from which the analyses were generated, an explanation of the general design and rationale underlying specific methodological decisions and scale construction.

Study Sample

The data for this study were taken from the Children in the Community project initiated in 1975 with the interviewing of 976 children. These children were then between 1 and 10 years of age. The actual data used in this study were the 2 follow-up interviews with the children and their mothers, conducted when the children were between 9 and 18 (the 1983 follow up) and when they were between 11 and 20 (the 1985 follow-up). Fortunately the sample remained largely intact throughout the study period. Presently, there are approximately 750 mother-child pairs remaining. See appendix B Table B-1 for a demographic breakdown.

Originally derived in 1975, the sample (See Kogan, Smith & Jenkins, 1977, for detailed characteristics)

included families that were representative of urban/rural North Easterners on several parameters, with at least one child between the ages of one and ten. By 1983, 85% of the sample was located for a second wave of interviewing and a supplemental sample of low SES urban families was added to replace those lost in follow-up. The mean age of the youth at the time of the second wave of interviewing was 13.6 (and 16.3 at the 1985 follow-up) with approximately 50% of the youth being male, and 50% female.

Analysis I: Hardiness and Life-Stress

The Measures

Initially, a global and process-oriented measure of personality hardiness was constructed to investigate through hierarchical multiple regression analyses its ability to predict differences in post-stress symptoms and transient adjustment. Since traditional indicators of hardiness (viz. commitment, challenge, and control) -- Kobasa's (1982) adult concept of hardiness-- were insufficiently represented in the Children in the Community protocol; a composite scale was constructed from theoretically relevant dimensions (See Appendix

for component scales and specific items) which seemed useful for defining hardiness in adolescents.

Psychological Hardiness. Analyses were generated with the following composite hardiness measure:

Goal Directedness

Confidence/Empowered

Internality

Competence

This 4-component instrument (alpha=.71) was based on individual factor solutions derived by Dr. Patricia Cohen, principal investigator of the Children in the Community project. The internality items (e.g., What happens to me in the future mostly depends on me.) relates in a fairly straightforward manner to Kobasa's control component. Since the scale is short, a Competence scale was utilized as another indicator of control. This component relates to Kobasa's formulation of control as coping skill (as measured on the Achievement scale of the Personality Research Form). In sofar as goal directedness (e.g., When you try to do something and have trouble with it, what happens most of the time. Do you usually keep trying by yourself, call for help, or switch to something else?) relates to

perseverence, tenacity and future-orientation, it is reflective of aspects of commitment and the endurance component of challenge. The Confidence/Empowered scale (e.g., To what degree can you be described as-- self-reliant, independent, assertive) was chosen for its general relevance. Considering the reductionistic quality of the available project measures, competence serves as a "catch-all" component which relates to different areas of the original components. Whereas goal directedness (See appendix for the 12-item scale) can be explicitly derived from existential personality theory (see Kobasa & Maddi, 1977 on future-orientation); the competence and confidence/empowered dimensions tie in to other areas of the personality literature that generate predictions concerning attributions of personal powerlessness and control.

The proposed measure of hardiness is broad. In a sense it is exploratory in nature: We do not know what hardiness in youth consists of or if hardiness (as defined here) is even operative by middle or late adolescence. The items presented in the appendix reflect an attempt to investigate fresh notions about the kinds of processes underlying stress-resistance in young people. They were chosen for their relatedness to

the original hardiness construct. In no way are these methods suggested to be replica of hardiness as operationalized by Kobasa (1979).

In order to adhere to the original notion of hardiness as an emergent style that is a product of three reciprocally interactive units, analyses included only that subsample of the adolescents who received all component scales. This happened to be the older group (n=456) whose mean age was 15. 98 years.

Achenbach's Child Behavior Checklist. The original Child Behavior Checklist (CBCL) consists of 118 behavioral and 20 social competence items. Behavior problems consists of items as varied as destroys others' things, can't concentrate, accident prone, or cries alot (See appendices for original instrument). For present purposes measures of behavioral symptoms which were adapted from the CBCL for the Children in the Community protocol were employed: One of two dependent measures in this study --Total (ongoing) symptoms was based on the sum of mothers' CBCL ratings of youth for both internalizing (e.g., major depression) and externalizing disorders (e.g., attention-deficit hyperactivity). Since the

discriminant validity between the two was weak, a composite (total symptoms) measure was utilized. As reviewed in the Ninth Mental Measurement Yearbook (Mitchell, 1985, p. 303) CBCL items are "relatively noninferential". The use of a straightforward symptom count should minimize bias stemming from parental inference.

It is important to note that most of the Achenbach test-related and scoring literature pertains to clinically referred and demographically matched controls. According to Feldman (1987), although descriptive data for scores which do not meet clinical criterion are not given by Achenbach, expected percentages can be determined according to a normal curve. In a random, geographically-based sample such as the children of the community sample, the criterion level for detection of clinically significant symptoms would be equal to CBCL scores at, or above, the 90th percentile. As would be expected in a parametric sample of this size, less than 10% of the children in the community would ostensibly be identified as at-risk for major depression or severe conduct disorder. A nominal few would be comparable, in terms of risk factors, to clincially identified suicide attempters or completers.

Since cut-off points for making definite (either/or) clinical decisions are arbitrary (Velez & Cohen, 1983); it is best to focus on the strength of the sample as a referent population rather than get caught up citing prevalence rates.

While the prevalence rate for "diagnosable" disorders in epidemiologic samples is low, the expectation of variance in adjustment is high. As reflected in Feldman (1987) who disagrees with Achenbach's "either-or approach" to pathology -- "...very few children are wholly maladjusted or, for that matter, fully adjusted; instead the vast majority of children vary considerably between these polar extremes, especially those who fall into Achenbach's nonclinical category" (p. 82). The rationale guiding this research is that given a "normal" population of youth vulnerability to stress will be observed. All things being equal, however, differences in coping styles will render some of these adolescents more immune than others

In the Children in the Community study certain CBCL items were asked in a format differing from the Achenbach in order to maintain comparability with the

instrument used in the study's original Time 1 (1975) interview and to avoid duplication. These items typically included more response options than the parallel CBCL items which range from zero (not true of the adolescent) to three (very true of the adolescent). Therefore they were rescaled by Dr. Patricia Cohen to match the mean and standard deviation of the CBCL standardization sample prior to scale construction. Their psychometric properties (alpha = .86) are thus nearly indistinguishable from the original CBCL.

Life Events. The items used to assess the occurrence of single and/or multiple stressful events are presented below (See Table 4, Chapt. III). Items were based on Coddington, Huba & Bentler, & Dohrenwend, with additions specifically constructed to reflect adolescent events. These are the measures of acute stress included in the protocol. All analyses are based on a cumulative tally of life events: One event (viz., Achieving something that was very important to you) had to be deleted as clearly not negative. There was complete agreement amongst three psychologists on the final measure of life-change. If a youth did not report an event (EVT) but parents did-- the parent's data were

inserted to minimize missing cases. Subsequently, other variations in informant (e.g., EVT-Youth, EVT-Parent, EVT-SUM) were constructed for the analyses. Since several critics of the developmental literature view the typically complete reliance on parental report of youth's events as problematic and others question the recall of young people, the possibility of a combined parent-child measure seemed an asset. This view was reinforced by the observation that reactions to events (as measured by the transient adjustment scale) could potentially be underreported if events themselves are forgotten.

It is important to distinguish between two measurement perspectives so that results reported in Chapter Three will be more clearly understood. The first perspective is epidemiological and the major concern is objectivity and accuracy in measurement. Since epidemiologists assume that observations are never reflective of the "true" reality, they compromise and rely on indices of reproducibility (Kelsey, Thompson, & Evans, 1986). To control measurement error, the accepted procedure is to use multiple measures, since reliance on one "imperfect" measure would be less sensitive (e.g., event truly occured but was not

reported) and less specific (e.g., event truly did not occur but was reported).

Since the life event recall fall-off rate is high even for adults reporting on events beyond a one year period, the most accurate measure according to the epidemiological perspective would be equal to the sum of youth plus parent report of events (EVT-SUM).

In essence, there are biases inherent in getting all kinds of information from a person. In order to control recall bias and underreporting of symptoms which is always a problem in a nonclinical sample (resilient youth may have overcome their difficulties and forget to report them), two observers were used. In the case of this study, these two observers were the adolescent and his or her mother.

The second measurement perspective is psychosocial, i.e. -- "stress is as stress is perceived".. The interest here is on individual perceptual indices of events and reactions. Since both perspectives are of value, significant findings for either the pure youth or parental measure of events were reported.

All respondents were asked the following stress question:

> In the past two years has something happened in your life like the loss of someone you loved or a big change in your life that was so upsetting that for quite a while you had a lot of problems doing the things you usually do?

Those who spontaneously recalled a particular event were then asked specific questions about the nature and severity of their response to this event. The interviewer then returned to the life event checklist to ask about other events that may have occured over the past two years. Respondents who responded negatively to the initial stress question (i.e. did not spontaneously recall an event) were read the life events checklist and then probed as to which event was hardest to adjust to. A specific adjustment measure (See below) was administered to all respondents except the small percentage who did not report any events.

Chronic Stressors: Two measures of chronic stress, SES and maternal psychopathology, were also included. According to Achenbach & Edelbrock (1981) there is a tendency for low SES children to have more psychiatric symptoms than high SES children. SES and continuous measures of parental psychopathology (See

Appendices for specific items originally derived from Derogatis, Lipman, Rickles, Uhlenhuth, & Covi, 1974 to reflect maternal depression, anxiety, and obsessiveness) were statistically controlled in order to separate out the effect of these chronic sources of stress (cf. Gersten et al., 1977).

Similarly, several researchers (e.g., Kashani, Orvaschel, Burk, & Reid, 1985) argue that error due to informant variance bias indices of adolescent psychopathology based on parental report. Maternal illness for example, may (Greist et al., 1979; 1980), or may not (Kazdin et al. 1983), be functioning as a confound: In all likelihood disturbed mothers have a real and not a confounding effect on their children's symptoms.

Perhaps Kohn & Cohen (1986) summarize best--empirical findings support specificity: The use of maternal report may be more sensitive for measuring behavioral symptoms and the use of youth report more accurate for assessing internal states. Thus, regression analyses which involved parental report of youth's CBCL symptoms were run both ways--with and without parental psychopathology controlled.

Specific (Transient) Adjustment. Following the administration of a stressful life events measure the Children in the Community 1985 protocol provided both youth- and parent-generated measures of reactivity to specific events. The measure (See Appendix) includes items that reflect the nature, severity (e.g., impairment), and duration of response to a specific stressor. For present purposes a simple, continuous symptom count was used. A previously conceived diagnostic algorithm for adjustment disorder seemed too restrictive for present purposes, given the epidemiologic nature of the sample. Transient adjustment was originally based on summed scores of parallel youth- or parent-generated measures when youth's were missing. Subsequently, it was thought more interesting to run regression analyses with a psychometrically stronger continuous measure based on youth plus parent report of transient adjustment. With two possible sources of bias, the final adjustment score reflects the averaged sum of both observations. Analyses were also based upon youth plus parental report of stressful events because of the enhanced psychometric strength offered by such measurement. In child psychiatry, assessments typically involve the

collection and synthesis of data from multiple informants (Shaffer & Schwab-Stone, 1983). And as stated earlier-- when appropriate, both epidemiological and psychosocial perspectives in measurement were considered in reporting all relevant findings.

The Design

A diagram which identifies wave of data collection and specific measures is displayed in Figure 1. Time 2 personality factors are explored for their utility in predicting differences in Time 3 ---a)post-stress symptomatology as measured by the Achenbach Child Behavior Checklist (CBCL); and b) transient post-stress adjustment as measured by a continuous count of distress symptoms from the Children of the Community 1985 protocol originally constructed to reflect the DSM-IIIR definition of adjustment disorder.

TIME 2		TIME 3
(1983)		(1985)
Hardiness		
	Life Events	
Base line CBCL Symptoms		Ongoing CBCL Symptoms Transient Adjustment

Figure 1. Time sequence of data collection for independent and dependent measures in Analysis I.

The following hypotheses were tested in Analyses I:

H1: Adolescents who are high in personality hardiness will have significantly lower post-stress symptom levels than adolescents who are low in personality hardiness.

H2: Adolescents who are high in personality hardiness will have a significantly less maladaptive transient reaction to life-stress than adolescents who are low in personality hardiness.

H3: As life-stress increases so will the buffering effect of personality hardiness: Significantly less evidence of maladaptive reactions to life-stress will emerge in hardy adolescents as life-stress increases.

An advantage of the longitudinal design conducted here is that base line indicators of dependent measures can be established and "ongoing"(See Gersten et al., 1977) risk factors controlled in order to strengthen any causal interpretation of the stress-adjustment relationship. All analyses were run with age, sex, and socioeconomic status partialed out as first-step factors. Parental psychopathology (See Appendix for

items) was also entered as a control when parental report of youth's behavior was utilized. To further the causal connection, regression analyses were performed with 1983 base line measures of CBCL symptoms statistically controlled.

Analysis II: Family facilitators

A second set of analyses were run on cross-sectional (1983) and prospective (1985) data to answer a different set of questions. Several investigators (e.g., Rutter, 1981) suggest that facilitators of hardiness are likely to be rooted in family structure and dynamics. For example, independence-granting but structured parenting (See Kobasa & Maddi, 1977) should foster expectations of environmental control and competence (Bandura, 1977) in their offspring. Parent-child interaction variables such as support, affection, and autonomy should also be related to differences in coping (Mondell & Tyler, 1981). Such variables originally derived from Shaefer (1965); Shaefer & Finkelstein (1975); Shaefer, Edgerton, & Comstock, (1976); and Avgar, Bronfenbrenner, & Henderson, (1977) were available in the Children of the Community Protocol.

The Measures

Since several of these individual scales were interrelated, higher-order factors that were the result of factor analyses conducted by Dr. Patricia Cohen of New York State Psychiatric Institute were then explored

in regression for their ability to predict hardiness (See Appendix A for higher-order scales, components, and items). Father as role model for example, is a higher order factor with the following components: admiration of father, emulation of father, and father-child identification. See appendices for breakdown of component scales to item level.

ENVT-Y & ENVT-P reflects the sum of individual parenting scales for youth and parents respectively. The two aggregate measures were constructed expressly for the purpose of this analysis. Table 11, Chapt. III lists alphas for individual and higher-order scales.

Essentially ten individual (parent-generated) scales were chosen to explore the weight of diverse parenting styles on hardiness:

1. Maternal Discipline - Parenting that relies upon stringent criteria and regulatory strategies for acceptable behavior. High scores on this dimension reflect punitive parent-child interactions.

2. Child Centeredness - Parenting characterized by care, interest, and enjoyment. High scores on this dimension reflect the tendency to view parenting as a priority.

3. Permissiveness - A nonregulatory mode of parenting that provides minimal structure and supervision.

4. Maternal Consistency - Parenting that is dependable, consonant, and definitive. Parental behavior is relatively constant and predictable. Such a style is likely to reflect an environment of trust, continuity, and safety.

5. Control through Guilt - Parenting that is both martyred and self-serving. A withholding style based on manipulation for behavioral regulation.

6. Maternal Support - A highly nurturant style that involves commitment, closeness, and positive reinforcement.

7. Time Spent with Youth - Parenting that entails the likelihood of behavioral, emotional, and spiritual involvement. High scores on this dimension reflect active involvement and sharing of activities and experiences.

8. Orientation to Parental Authority - Scored positively this dimension reflects dogmatic and authoritative parenting. Inquisitiveness and self-direction are discouraged in such parent-child interactions.

9. Encouragement of Child's Ideas - Parenting that encourages independent thinking and self-disclosure. Parent-child interactions readily accommodate divergency.

10. Maternal Affection - Parenting that is demonstrative, loving, and supportive.

Psychometric properties of individual scales are reported in Chapter III and scale items, in the appendix.

The Design

Existential personality theory implies that while the hardy may struggle, or suffer like the nonhardy, he or she will grow or mature from the experience however anxiety producing it may be. Similarly, the child who learns to tolerate frustration will be more adept at transcending later difficulties. It is predicted that parents who impose limits or structure (cf. Kobasa & Maddi, 1977) yet encourage autonomy will instill a sense of individuality, confidence, and personal control in their children. Thus,

H4: Mother-child relationships characterized by structured but independence-granting parenting styles will be significantly more predictive of personality hardiness in adolescents than mother-child relationships characterized by more disciplinary styles.

Two individual scales were used to operationalize independence-granting, but structured parenting: a "Maternal Discipline" scale scored negatively to reflect nonpunitive styles; the other a "Permissive"

scale scored negatively to reflect structured parenting and limits. Two higher-order scales, "Maternal Control" and "Independence" (See appendix) were also used to test Hypothesis 4.

Regression analyses of both individual and higher -order parenting factors on personality hardiness were conducted. The empirical thrust was exploratory in nature: Only the broad band factors-- control and independence, were predictable from existential personality theory. When relevant the environmental perceptions of youth versus parent were compared. Since Time 3 hardiness which was relatively stable (r= .61) from Time 2 to Time 3 was recently constructed; differences were tested both cross-sectionally and prospectively.

SUMMARY. Factors posited to be protective against stress were entered into hierarchical regression analyses to investigate their utility for predicting differences amongst general population youth to life-change events. The family context that might facilitate personality hardiness was also explored. Specific mother-child relationship variables revolving around the issue of control, autonomy, closeness, and modeling were investigated for their ability to predict differences in personality hardiness. Stress-resistance in adolescents has been addressed by the Minnesota group (APA 1986) and existential personality theorists (Kobasa & Maddi, 1977). Scales were selected here for their relatedness to propositions derived from this literature.

CHAPTER III

RESULTS

Included in Chapter III are the following: descriptive and psychometric properties of both project and originally constructed indices of independent variables (viz. hardiness and parenting), dependent variables (global symptoms and transient adjustment), and controls; analyses of bivariate relations; and, tests of hypotheses.

Analyses I: Hardiness and Stress

The following prospective analyses were conducted to test the hypothesis that Time 2 personality hardiness will moderate the effects of life-stress on Time 3 symptoms, with Time 2 symptoms controlled. Positive findings would provide support for the buffering (Kobasa, 1982) hypothesis. A second analysis was conducted to test the hypothesis that personality hardiness would also explain differences in transient response to specific life-stress. Positive findings, that is higher hardiness for those who report less post-stress maladjustment (e.g. palliative or regressive modes of coping, trouble at school, with

friends, tearfulness) than those who are low in hardiness would also support a buffering model of stress-resistance.

Descriptive Data

Table 1 displays the means and standard deviations for Time 2 and Time 3 variables. Correlational and more refined descriptive data for individual hardiness subscales are presented in Tables 2 and 3.

Table 1
Time 2 and Time 3 Means and Standard Deviations

Variable	Time 2		Time 3	
	M	SD	M	SD
Hardiness	122.63	11.96	120.08	10.32
Age	13.72	2.72	(N=776)	
	15.98	1.78	(older subsample)	
Life Events				
(youth report)			3.10	2.51
(parent report)			2.33	2.14
(sum of youth + parent report)			5.37	3.97
Specific Adjustment				
(youth report)			14.89	3.77
(parent report)			15.92	4.42
(avg.of youth + parent report)			15.40	6.73
Total Symptoms	21.26	11.67	28.71	13.69
(externalizing disorders)	11.71	7.25	12.72	5.96
(internalizing disorders)	9.55	6.08	10.08	7.41
Parental Psychopathology	37.98	10.68		
Socioeconomic Status	38.88	8.11		

While responses to hardiness in general were normally distributed; the range of responses on the internality subscale was restricted (e.g., M = 12.42, SD = 1.73) which suggests that social desirability may be operative here (or at least a culturally shared perspective on life).

Table 2
Descriptive Statistics and Alpha Coefficients for Time 2 Hardiness and Component Scales

Hardiness	Mean	122.63
	SD	11.96
	alpha	.71
Goal directed	Mean	34.42
	SD	4.89
	alpha	.60
Confident/empowered	Mean	50.18
	SD	5.70
	alpha	.72
Internality	Mean	12.42
	SD	1.73
	alpha	.52
Competence	Mean	25.17
	SD	3.32
	alpha	.53

The results also confirmed that parent- and youth-generated responses to both the life event checklist and the transient reaction-to-event scale were significantly concordant (r = .49 and r = .47, respectively). Responses on each, however, (since scales were contingent) were skewed, with a concentration at the healthy end of the scale. Table 4 displays the number of youth to whom specific events happened. Clearly, the occurence of particular kinds of events (e.g., 199 out of the 456 older adolescents changed schools) like transition are more common to an adolescent population than others. Cluster scores for life-stress were not derived since the items were judged to be almost invariably negative. Cumulative event scores ranged from 0 - 27. On the average, 5 events were reported by youth plus parents. Separately, parents and youth generated means of 2 and 3 events respectively.

Table 3
Correlation Matrix of Hardiness and Subscales[a]

	I.	II.	III.	IV.	V.
I. Goal directed	1.00				
II. confident/empowered	.40**	1.00			
III. internal control	.37**	.48**	1.00		
IV. competence	.50**	.47**	.42*	1.00	
V. hardiness (T2)[b]	.78*	.83*	.64*	.75*	1.00

a.Subscales are the results of factor solutions provided by Dr. Patricia Cohen of N.Y.S. Psychiatric Institute.

b.See appendix for Time 3 Hardiness Correlation Matrix.

**p < .01

The mean adjustment score (which could range from 12 to 36) was 15.40, SD =6.7 with the bulk of the sample clustered at the "adjusted" end of the scale. Higher scores reflect greater maladjustment.

Overview of Data Analyses I

Bivariate relations are reported first, followed by results of the regression analyses. The entry of independent variables and controls was hierarchical. Overall, age, sex, and socioeconomic status (SES) were entered as first-step predictors. The initial decision to control for parental psychopathology (the additive effect of parental depression, obsessiveness, and anxiety) was reversed for certain analyses.

Although sex and hardiness are significantly related, the magnitude of the relationship is modest (r = .15) with males having a mean hardiness score less than 1/10 standard deviation higher than females . Because of this difference sex is consistently carried as a control variable and potential differential effects for males and females are investigated.

Bivariate Analyses

Table 5 provides a zero order Pearson product-moment correlation matrix of independent, dependent, and control variables. Counterintuitively, hardiness was unrelated to age (r = .09) but this may be attributable to the restriction in age range here. The decision to eliminate the younger children from the total sample was made because a pivotal component of the hardiness construct-- internal locus of control-- was not measured in this group in the Time 2 data. Hardiness also shared little variance with lifestress, as reported by parents, youth, or the combined report of each (r = .07).

Hardiness was significantly related to SES (r = .20, $p > .01$) as well as to global CBCL symptoms (Times 2 and 3 respectively, r = - .25; and r = - .19). Directional expectations were confirmed: hardiness was inversely related to total symptoms -- a composite of internalizing and externalizing disorders. However as mentioned in the previous chapter, evidence for the discriminant validity of the CBCL subscales was weak (internalizing and externalizing subscales correlated .58 at Time 2 and .51 at Time 3) so results are based on the summed total.

Table 4
Frequencies of adolescents and life eventsa occurring in the past two years

1. Change of school or job (which?)	199
2. Serious problem at school or job (which?)	44
3. Serious illness or accident.	42
4. Serious illness or accident of someone you are close to (Who?)	116
5. Being a victim of a crime or assault (What?)	15
6. Getting in trouble with the law	28
7.Someone you are close to getting in trouble with the law	69
8. Separation or divorce of parents	20
9. Marriage of parent to stepparent	16
10. Serious fights between you and someone else in family	68
11. Serious fights between other family members	52
12. Death of someone you loved (who?)	129
13. Birth of a brother or sister	8
14. Serious problems with money (who: parent? self?)	46
15. You or someone you are close to getting fired or laid off from a job (who?)___(which?)____	69
16. Move to a new community	67
17.Not succeeding in achieving something that was very important to you (what?)	60
18. Problems in your relationship such as breaking up or feeling rejected.	23
19. Getting engaged or married	24
20. Break-up of your engagement or marriage	14
21. Pregnancy or abortion had by (you or) someone you are close to (who?) ____ (which?)_____	66
22Some other serious problem that you or someone close to you had (who?) ____(which?)_____	45

a. for older portion of the sample (n=456)

Table 5

Pearson Correlations Between Independent, Dependent, and Controll Variables from Analysis I

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
I Events. (P)	1.00											
II Trans. Adj.(P)	.57	1.00										
III Events (Y)	.51	.32	1.00									
IV Trans. Adj. (Y)	.45	.46	.62	1.00								
V Hardiness (T2)	-.07	-.09	-.05	-.10	1.00							
VI Age	.19	.03	.16	.08	.09	1.00						
VII Sex	-.06	-.10	-.11	-.15	.15	-.01	1.00					
VIII Events (Y+P)	.85	.50	.89	.62	-.07	.20	-.10	1.00				
IX Trans. Adj. (Y+P)	.59	.81	.57	.89	-.11	.07	-.15	.66	1.00			
X SES	-.13	-.11	-.07	-.10	.19	-.02	.12	-.11	-.12	1.00		
XI CBCL Symptoms T2	41	.41	.27	.34	-.25	-.003	-.11	.38	.43	-.22	1.00	
XII CBCL Symptoms T3	.42	.56	.26	.31	-.19	-.03	-.09	.39	.49	-.21	.73	1.00

Multivariate Analyses

In these regression analyses, the adolescent's ongoing CBCL symptoms and transient adjustment were predicted by their total life-stress, personality hardiness, and the interaction between the two.

Tests of Hypotheses

Hypothesis 1: Adolescents who are high in personality hardiness will have significantly lower post-stress symptom levels than adolescents who are low in personality hardiness.

I. Longitudinal Effects of hardiness and life-stress on Total CBCL Symptoms. The analysis revealed that even with previous symptoms partialled out personality hardiness and life-stress individually, and jointly contribute towards explaining differences in post-stress symptoms for youth. Of the four controls (age, sex, socioeconomic status, and Time 2 total symptoms) entered as a first-step set, previous symptoms emerge as the most significant predictor (Beta = 67; $p < .0001$). Although previous symptomatology is significantly related to hardiness ($r = -.24$), they do not completely explain (See Table 6 Analysis B) subsequent differences. Hypothesis 1 was supported by the results. Hardiness (Beta = -.12, $p < .05$) and life-stress (Beta = 13, $p < .001$) contributed significantly to the predictive equation in the expected directions. Above and beyond the general positive effect of hardiness on symptoms, there was also a stress-specific effect. The joint (hardiness x

stress) influence (Beta = .15, p < .02). was crossed, i.e. signs are in opposite directions (cf. Cohen & Cohen, 1983). As shown in Figure 2 there is a buffering effect to a point. The effect, however is conditional:

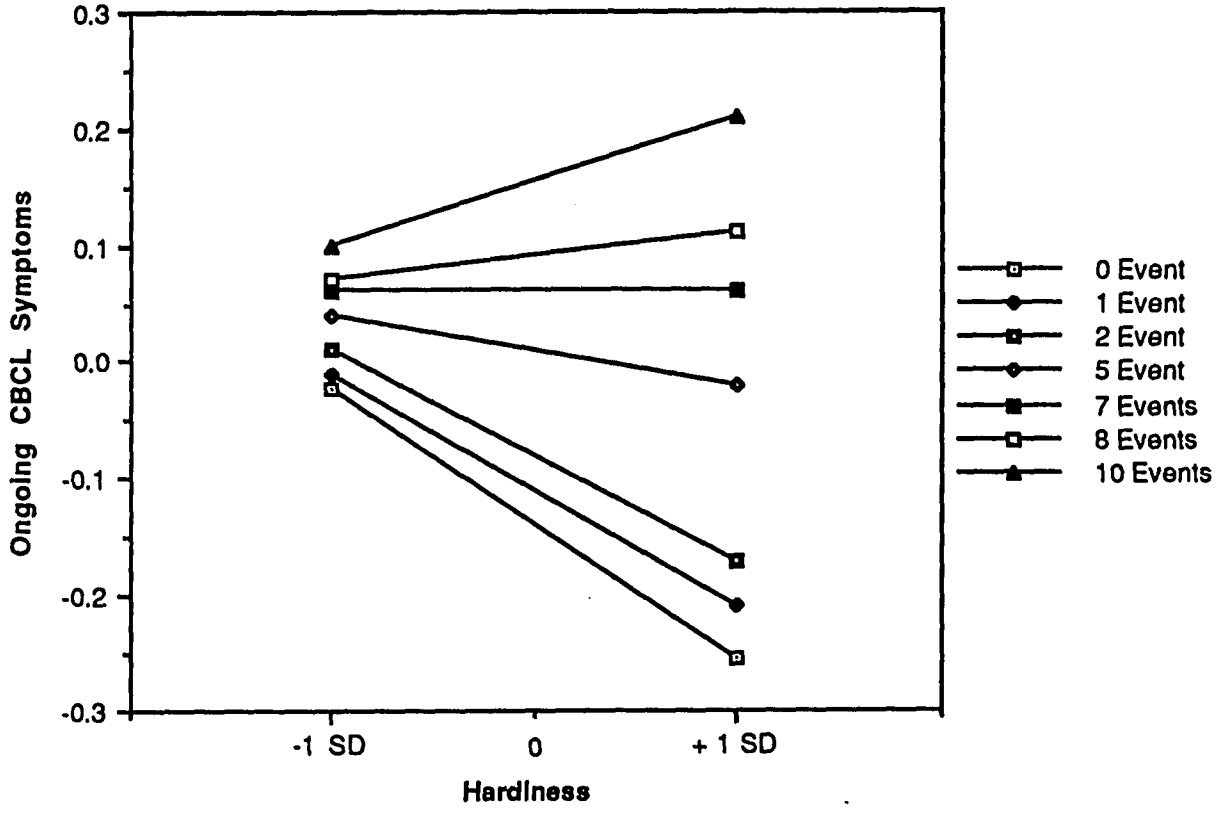

Figure 2. Interaction between hardiness and life events on CBCL Symptoms.

Having experienced one to five life events, hardy adolescents display less ongoing symptomatology than nonhardy adolescents. As the number of life events increase, bypassing mean levels (e.g., 7 events), the differences attenuate so that hardy and nonhardy adolescents become virtually indistinguishable. The results suggest that for adolescents confronted with increasingly stressful conditions (e.g., 10 events) hardiness may even be counterhealthy. Table 7 displays the unadjusted means for four groups (high hardiness/low events, low hardiness/low events, high hardiness/high events, and low hardiness/high events).

Because of the correlation between hardiness and Time 2 symptomatology (r = -.24), a second analyses was run to estimate the causal effects of hardiness on Time 3 symptomatology: With the multicolinearity between hardiness and initial symptoms eliminated (See Table 6: Analysis B), an even greater contribution from personality hardiness and life-stress x hardiness emerged (Betas = -.28 and .18 respectively, $p < .001$ =and .02). Similarly, with the variance that age and SES shared with initial symptoms eliminated, their significant weight on symptom level also became apparent (Betas = -.11 and -.16, $p < .02$ and .001,

respectively), with low SES as expected predicting higher levels of symptomatology. Bivariate analyses revealed hardiness and events to be practically orthogonal (r= - .06).

Table 6

Hierarchical Regression Analyses of Time 2 Hardiness and Life Events On Time 3 Total CBCL Symptons

Variable	Beta	
Analysis A		
Age	-.06	
Sex	.002	
SES	-.07	
T2 Symptons	.67**	
Hardiness (T2)	-.12*	
Events	.13**	
Hardiness x Events	.15*	Multiple R= .75
Analysis B: (without Time 2 symptoms entered)		
Age	- .11*	
Sex	-.01	
SES	-.16**	
Hardiness	-.28**	
Events	.37**	
Hardiness x Events	.18*	Multiple R=.46

Note. When Analysis B was run for youth only report of events (rather than the sum of youth + parent's), the main effect for hardiness retained significance (Beta = - 17*) but the hardiness x event interaction washed out. Interestingly, with only parent's report of events entered the hardiness effect was stronger (Beta= - .23**) and the interaction effect (Beta= .15*) retained significance.
* p < .05 **p < .01

Next, analysis B was run with maternal psychopathology entered as a control. Even with the redundancy between maternal psychopathology and hardiness at Time 2 (r=. -.16 and r= -.22 at Time 3), hardiness retained its significance for predicting overall symptoms (Beta = -.15) at the .05 level. While the direction of the hardiness x event interaction was, directionally consistent with analysis B, the influence on symptoms was nonsignificant.

Table 7

Standardized CBCL Symptom Cell Means

	Hi Hardy	Low Hardy
Hi Events	.07	.29
Low Events	-.52	-.25

Note. High Events = more than 5, Low Events = 5 or less. High and low hardiness was dichotomized at the mean which equals 0.

Table 8 displays the independent contribution of maternal psychopathology-- a chronic stressor, to the equation (Beta = .37, $p < .001$). Adding an ongoing source of stress increased the efficiency of the equation (Multiple R increased from =.47 to .58) but

did not wash out the significance of hardiness as a moderator.

Table 8

Hierarchical Regression Analyses of Time 2 Maternal Psychopathology, Hardiness, and Life Events On Time 3 Total CBCL Symptons

Variable	Beta
Age	-.10*
Sex	-.01
SES	-.12**
Maternal Psychothology	.37**
Hardiness (T2)	-.15*
Eventsa	.29**
Hardiness x Events	.09
	Multiple R= .58

a Events=the average sum of youth- and parent-based report.

*p < .05 **p < .01

In sum, the findings for Hypothesis 1 confirmed an independent positive effect for hardiness on ongoing behavioral symptoms, as well as an anticipated negative

life-stress effect. More complicated was the "mixed" (at times inverse) interaction effect (see Wills, 1985).

Hypothesis 2: Adolescents who are high in personality hardiness will have a significantly less maladaptive transient reaction to life-stress than adolescents who are low in personality hardiness.

II. Longitudinal effects of hardiness and life-stress on specific and transient adjustment.

Utilizing a second dependent measure, specific stress reaction, the buffering hypothesis by definition was confirmed. Table 9 displays the positive impact of hardiness (Beta = -.13, $p < .05$), contrasted with the negative impact of life events (Beta = .67, $p < .01$) on adolescents' adjustment.

In essence, when chronic stressors (SES and maternal psychopathology) are not in the equation, hardiness emerges as a significant stress-resistance resource for adolescents. In contrast, however the inclusion of more enduring stressors supresses the positive effects of hardiness (See Table 10).

Hypothesis 3: As life-stress increases so will the buffering effect of personality hardiness. As reported earlier, the results do not unconditionally support the hypothesis that hardiness will increase in importance with an increase in stress. Hardiness was an asset but its effect was not uniform across all levels of events. For transient adjustment reaction, however, there was by definition a distinct buffering effect. Controlling for the number of background stressors, adolescents who were high in hardiness experienced significantly fewer transient symptoms, such as unusual nervousness, tearfulness, or anger in reaction to their "most difficult" event (Beta = -.13, $p < .05$ See Table 9) than adolescents who were low in hardiness. However, the buffering effect on adjustment did not increase as life-stress increased.

TABLE 9

HIERARCHICAL REGRESSION ANALYSES OF TIME 2 HARDINESS AND DISCRETE STRESS (EVENTS) ON TRANSIENT ADJUSTMENT

Variables	Beta
Age	-.08*
Sex	-.07*
Eventsa	.67**
Hardiness	-.13*
Hardiness x Events	.11
	Multiple R=.68

a Events = the sum of youth + parental report.

Note. A more powerful indicator may be found in the youth only report of transient adjustment and events in which hardiness retained significance at the .05 level (Beta = -.14).

*p < .05 **p <.01

TABLE 10
HIERARCHICAL REGRESSION ANALYSES OF TIME 2 HARDINESS, CHRONIC STRESS, AND LIFE EVENTS ON TRANSIENT ADJUSTMENT

Variables	Beta	
Age	-.08*	
Sex	-.07	
SES	- .03	
Maternal Pathology	.12**	
Eventsa	.64**	
Hardiness	-.09	
Hardiness x Events	.08	Multiple R=.68

a Events = the sum of youth + parental report.

*p < .05 **p <.01

Table 11 presents a matrix of unadjusted mean values for transient adjustment on high hardiness/high events, low hardiness/low events, low hardiness/low events, and low hardiness/high events, as reported by parents and youth. Contrasting values for youth only reports of adjustment and events are presented in Table 12. The regression of transient adjustment (based on youth report) on hardiness was significant (Beta = -.14*). As Table 12 illustrates there is no interaction effect.

Table 11
2 X 2 Raw Mean Values for Transient Adjustment as Reported by Parents and Youth

	Hi Hardy	Low Hardy
Hi Evts	17.64	17.70
Low Evts	13.50	14.06

Note. High Events = more than 5, Low Events = 5 or less. High and low hardiness were dichotomized at the mean which equals 0.

Table 12
2 X 2 Raw Mean Values for Transient Adjustment as Reported by Youth Alone

	Hi Hardy	Low Hardy
Hi Evts	19.13	19.07
Low Evts	13.51	14.74

Note. High Events = more than 5, Low Events = 5 or less. High and low hardiness were dichotomized at the mean which equals 0.

In sum, hardiness predicted less behavioral problems after stressful events as measured by Achenbach's Child Behavior Checklist even with base line measures of symptoms controlled, and less maladaptive reaction to specific stressors, but hardiness did not increase in significance with an increase in number of stressors. The relationship was more complex. Essentially, hardiness had stress-specific effects above and beyond its positive main effect on adolescents's behavior up to a point: The buffering effect was upheld across two dependent measures. However, the effect on overall symptoms was conditional. As stress rose above mean levels, differences between hardy and nonhardy adolescents attenuated. Under high stress (7 events) the groups were virtually indistinguishable. An unexpected negative trend emerged at 10 events indicating that hardy adolescents may lose ground compared to nonhardy adolescents as stress mounts.

Analysis II: Family Facilitators

The following cross-sectional analyses were conducted to: a) test the hypothesis that personality hardiness will be related to (and perhaps facilitated by) independence-granting and disciplinary-- but nonpunitive parenting styles; and b) to examine differences in parent versus youth-generated perceptions of parenting factors on hardiness. Positive findings would provide support for developmental hypotheses derived from existential personality theory (See Kobasa & Maddi, 1977).

Exploratory analyses with other parent-child interaction measures were also completed to explore their usefulness in predicting adolescent hardiness. However the lack of functional independence amongst several of the parenting scales (e.g. maternal support, affection, child-centeredness, availability) indicate the need for higher-order analyses. Thus, several broad band factors were also examined prospectively for their weight in the development of personality hardiness. All analyses were performed with SES, age, and sex partialed out as first-step factors.

Descriptive Data

Table 13 displays the range, means, standard deviations, and alphas for Time 2 parent-child interaction variables. The results are reported separately for youth and parent-generated report as well as for higher and lower-order factors.

Table 13

Family Context: Individual and Higher-Order Scales

Variable	Higher-Order[a]		Individual[b]	
	M	SD	M	SD
youth report				
paternal closeness (2 scales, alpha=.42)	15.43	3.57		
maternal closeness (2 scales, alpha=.77)	33.60	5.52		
father as model (3 scales, alpha=.90)	48.46	11.10		
mother as model (3 scales, alpha=.88)	48.95	10.21		
disciplinary -both (2 scales, alpha=.76)	26.63	6.30		
autonomy-both (2 scales, alpha=.80)	22.91	4.65		

Table 13 (Continued)

Table 13 (Continued)

parental report				
maternal closeness (6 scales, alpha=.71)	75.79	6.94		
conflict w parents (4 scales, alpha=.75)	-8.66	10.77		
maternal control (4 scales, alpha=.58)	37.24	7.56		
Independence (2 scales, alpha=.30)	22.95	4.29		
total environment	141.97	10.22		
Component Scale	(alphas)			
maternal consistency	(.73)		8.33	1.92
maternal support	(.43)		14.87	2.84
maternal affection	(.61)		14.23	1.71
maternal time spent	(.64)		10.71	2.58
maternal communication	(.58)			
maternal availability	one item			
child centeredness	(.64)		16.66	2.24
authority orientation	(.74)		12.21	3.79
encourages child's ideas	(.60)		13.31	1.66
control through guilt	(.78)			
			15.73	3.20
Permissiveness	(.58)		9.97	2.55
maternal discipline	(.58)		13.06	2.82

[a] n = 367 list-wise deletion of data.
[b] n = 430 list-wise deletion of data.

Since responses to several parenting factors (e.g. maternal affection, support, time, child centeredness) were interrelated; the higher-order factors (maternal

closeness, conflict, and control) were entered in regression.

Bivariate Analyses

Table 14 provides a zero-order Pearson product-moment correlation matrix of independent, dependent, and control variables. Aggregate measures of both youth and parent-based perceptions of the environment (ENVTY/ENVTP) were significantly related to hardiness ($r = .21$ and $r = .14$, p's $< .003$ respectively).

YOUTH REPORT

Hardiness was significantly related to youth's feelings of closeness to mothers ($\underline{r} = .38$, $p > .001$) and fathers ($\underline{r} = .35$, $p > .001$), and as predicted, negatively related to punitive styles ($\underline{r} = -.21$, $p< .001$). Apparently youth felt less close to both mothers and fathers when they were more punitive ($\underline{r} = -.29$ and $r = - .25$, $p > .001$ for mothers and fathers respectively). The results also revealed that youth who were high in hardiness had more of a tendency to view their parents as role models ($\underline{r} = .45$ and $r = .43$, $p > .001$ for maternal and paternal models respectively) than youth who were low in hardiness. Also interesting--the less disciplinary parents were emulated the most

($\underline{r}$ = -.29 and $\underline{r}$ = -.26 p > .001 mothers and fathers respectively).

PARENTAL REPORT

Overall, the youth-generated relationships were of greater magnitude. Table 14 reveals several higher-order factors as significantly related to personality hardiness. Conflict with parents seems especially strong ($\underline{r}$ =-.35, p> .001) in relation to other parent-child interaction variables such as maternal closeness ($\underline{r}$ = .12 , p = .006) and independence which had a borderline relationship with hardiness ($\underline{r}$= . 10, p = .07). The marginal association between hardiness and independence-granting parenting will be examined in discussion. It may be that a component subscale-- extreme autonomy from parents has washed out the effect of the other subscale--low discipline which had demonstrated a significant independent effect.

Table 14

Pearson Correlations Between Independent, Dependent, and Control Variables from Analyses II

	I	II	III	IV	V	VI	VII	VIII
I Hardiness	1.00							
Higher-order Youth Report								
II Closeness to father	.35	1.00						
III Closeness to mother	.38	.49	1.00					
IV Displine fr both	-.20	-.25	-.29	1.00				
Higher-order Parent Report								
V Closeness to mother	.15	.18	.34	-.15	1.00			
VI Control	-.09	-.04	-.04	.07	.03	1.00		
VII Independence	.07	.02	.12	-.17	-.04	-.30	1.00	
VIII Conflict	-.35	-.26	-.27	.22	-.36	.26	-.16	1.00
Controls								
IX Age	.06	-.13	-.09	-.10	-.22	-.001	.27	.05
X SES	.18	.10	.05	-.02	-.13	-.45	.08	-.23
XI Sex	.17	-.07	-.04	.13	-.01	-.04	.02	.04
XII ENVTP	.15	.15	.23	-.11	.67	-.65	-.06	.42
XIII ENVTY	.25	.56	.65	.45	.19	.01	-.05	-.12
Lower-order Factors								
XIV M Consistency	.17	.10	.10	-.08	.15	-.16	-.19	-.39
XV M discipl/puni	-.19	-.06	-.17	.21	-.06	.35	-.81	.32
Exploratory Factors								
XVI F as model	.45	.56	.38	-.26	.16	-.02	.04	-.23
XVII M as model	.43	.38	.65	-.27	.26	-.05	.06	-.16
XVIII B autonomy	-.02	-.05	.11	-.24	-.07	-.06	.31	.11

(Table 14 continued on next page)

Table 14 (Continued)

	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
IX Age	1.00									
X SES	.01	1.00								
XI Sex	.00	.08	1.00							
XII ENVTP	-.21	.22	.03	1.00						
XIIIENVY	-.18	.06	.04	.14	1.00					
XIV M Consistency	-.02	.12	-.01	39	.04	1.00				
XV M Displ/Puni	-.19	-.13	.03	-.03	.02	-.05	1.00			
XVI F as Model	.03	.10	.18	.10	.30	.05	-.11	1.00		
XVII M as Model	-.04	.02	.09	.18	.37	.05	-.14	.66	1.00	
XVIII Autonomy	.32	-.11	.00	-.08	-.12	-.15	-.16	-.05	-.02	1.00

Bivariate Analyses

SES was significantly related to most of the broad band factors. Table 14 reveals that the higher one's socioeconomic status; the less control imposed upon youth ($r = -.45$ for control and SES, $p > .001$). Parents who were high in SES also spent less quality time than parents who were low in SES and were more child centered ($r = -.31$, $p > .001$).

The bivariate results suggest two things. First, is that the variance shared by several of the parenting variables with hardiness may be explained by SES. And second, several variables are interrelated and may be cancelling each other out in regression.

The following section introduces sequentially both higher and lower-order cross-sectional factors in regression on Time 2 personality hardiness.

Tests of Hypotheses

I. Cross-sectional effects of Time 2 individual family context factors on hardiness. A preliminary analysis revealed that as a set 7% of the variance in hardiness was predicted (above and beyond the 6% contributed by age, sex, and SES) by the nine individual parenting factors displayed in Table 15 (Increment in R2 (IR2) = .07; p = .0008.

Hypothesis 4: Mother-child relationships characterized by structured but independence-granting parenting styles will be significantly more predictive of personality hardiness in adolescents than mother-child relationships characterized by more disciplinary styles.

Results support Hypothesis 4. Parenting that was reported to be nondisciplinarian (i.e. nonpunitive) was significantly predictive of adolescent hardiness; whereas unstructured or permissive parenting (e.g. I allow my child to spend his/her money in any way he/she likes) did not predict hardiness. A further test of Hypothesis 4 was provided by analyses on higher-order parenting factors.

Table 15

Effects of Specific Parenting Scales As Reported by Mothers on Youth Hardiness, Time 2.

Variable	Beta	IR2
Eq 1		.06**
controlling age	.09	
sex	.15**	
SES	.16**	
Eq 2		.07**
+low discipline	.14**	
child centered	.13*	
permissiveness	-.09	
maternal consistency	.08	
no control w guilt	.05	
maternal support	-.03	
maternal time	.03	
low authority orient	.02	
encourages ideas	.01	
maternal affection	.01	

* p < .05 **p < .01

Because of the multicolinearity problem with individual scales the decision to carry out regression analyses using higher-order, more inclusive, parenting factors. The results are as follows.

II. Cross-sectional effects of higher-order factors (closeness, control, independence, and conflict) on Time 2 hardiness. To examine the nonredundant effects of individual parenting style, scores as reported by mothers were replaced by more general factors extracted by Dr. Patricia Cohen, and entered in separate steps. Closeness and conflict with parents emerged as significant predictors of hardiness: Providing no support for hypothesis 4-- Control and Independence as broad band factors added nothing to the equation. It is speculative but permissiveness (a subscale of independence) may have suppressed the effect of nondisciplinary parenting --the other component of Independence.

Overall, Table 16 reveals that after age, sex , and SES was partialed out-- maternal closeness and conflict with parents contributed 4 and 8 % respectively to differences (IR2's = .04 and .08; p's =

.0002 and .0001) in hardiness. The broad band results challenge hypothesis 4.

Table 16

Effects of Higher-Order Parenting and Parent/Child Relationship on Time 2 Youth Hardiness

Variable	Beta	IR2
Eq 1		.06**
controlling age	.08	
sex	.17**	
SES	.13*	
Eq 2		
Parental Report		
+ Conflict w parents	-.32	.08**
+ maternal closeness	.07	.04**
+ maternal control	-.05	.001
+ Independence	.002	.001

*p < .05 **p < .01

III. Cross-sectional Effects of Exploratory Factors (youth-based) on Hardiness. The analyses revealed that as a set the six youth-generated variables displayed in Table 17 explained 25% of the variance in personality hardiness (IR2 = .25; p = .0001). An examination of the partials indicate that viewing mother and father as role models whom they admired (partialr = .14 and .14; p < .005 and .007 respectively); as well as maternal closeness (partialr = .14; p < .006) accounted for

most of the variance. The weight of autonomy, discipline, and paternal closeness on hardiness was negligible.

Table 17

Exploration of (Youth-generated) Parenting Factors on Time 2 Hardiness

Variable	Beta	IR2	Partials
Eq 1			
controlling SES	.13*	.06**	.17**
sex	.14**		.16**
age	.09		.06
Eq 2			
+ M role model	.12	.25**	.15**
F role model	.20**		.14**
F closeness	.10		.08
M closeness	.18**		.14**

*p < .05**p <.01

Overall, the cross-sectional parent-child interaction effects reported by youth was of greater magnitude (R2 = .06; p = .001) than the effects attributable to parental report (R2 = .02; p = .02). The issue of informant effects will be treated in discussion.

results also confirmed the prospective significance of youths'regarding fathers as role models (Beta = .19, p = .02). In contrast to the cross-sectional findings, Closeness to father rather than mother emerged as more predictive of Time 3 Hardiness (Beta = .17; p = .01). Table 18 displays standardized coefficients (Betas) for all factors explored longitudinally.

Table 18

Exploration of Time 2 (Youth-generated) Parenting Factors on Time 3 Hardiness

Variable	Beta
Eq 1	
controlling SES	.09
sex	.09
age	.12*
Eq 2	
+ M role model	.003
F role model	.19*
F closeness	.17*
M closeness	.08

*p < .05 **p <.01

In conclusion, the environment that is most related to hardiness is one in which parents are admired, often emulated, and felt close to. There are developmental differences (by Time 3 paternal rather than maternal closeness emerged) in the specific object of identification, affection, and role modeling; but the dimensions do consistently differentiate hardy from nonhardy young people. The hardy youth's parents are not especially disciplinarian but they are characterized as consistent, dependable, and child centered. The general atmosphere was reported to have little parent-child conflict.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

Chapter IV includes a discussion of the results and their implications for specific theoretical models and the empirical findings of others. Methodological limitations and directions for future investigations into the roots of hardiness and its import for adolescents under stress are discussed. A summary of the results and major conclusions follow.

Hardiness, Stress, and Adjustment

Confirming prior adult stress research, the value of negative life-change is linearly related to psychological reaction and overall well-being in normal population youth. Apparently, the change required in readjustment to life-change events is also damaging to youth. As expected, some adolescents are more vulnerable than others: Young people who were high in personality hardiness, as operationalized here, were distinguishable from young people who were low in personality hardiness in several respects. Controlling for events, hardiness predicted less ongoing symptomatology; and

as conventional wisdom would have it, life-stress predicted higher levels of symptomatology. It is important to emphasize that in an epidemiological sample such as this, the incidence of "diagnosable", or clinically significant psychopathology is quite low. However, within the range of "normalcy", all young people will be vulnerable, to a greater or lesser degree, to environmental changes and psychosocial stress. According to the findings, those who are high in hardiness are simply less vulnerable given certain conditions.

First, the buffering hypothesis was upheld in that specific stress reactions to youth's most disturbing event were less extreme given high hardiness scores. On the second dependent measure, CBCL behavioral symptoms, the matter becomes more complicated. Essentially, a significant stress x hardiness interaction did emerge: Above and beyond the positive main effect hardiness has on ongoing health, at a certain point (8+ events), there is also an unexpected stress-specific negative effect.

To reiterate, whereas stressful events had a negative impact on children's ongoing symptom levels, personality hardiness had a positive, or enhancing effect. Second, hardiness buffered the impact of the event adolescents perceived as most difficult to adjust to: Transient adjustment, or specific stress reactions, were less

maladaptive for adolescents high in personality hardiness than for adolescents low in personality hardiness. Overall, the findings are generally in accord with Kobasa's notion of hardiness as a mediator of the stress-adjustment relationship except for certain qualifications. The buffering effect on ongoing CBCL symptoms was not linear. It was contingent upon the number of life events confronting the youth. When moderate (up to mean levels of events) adaptation was demanded of the adolescent, the ameliorating effect of hardiness was operative. When stress exceeded mean levels, CBCL symptom levels of hardy versus nonhardy youth were indistinguishable. Unexpectedly, under extreme conditions, it was the hardy young person who suffered more.

Many would agree that personality attributes which are positive in one context may be deficits in another. Situational specificity has long been heralded as an important consideration in all kinds of research efforts. From a social interactionist perspective, for example, Feldman, Stiffman, & Jung (1987) contend that it is insufficient to examine situations or coping styles independently. Coping styles, or level of exposure to stress per se, cannot predict one's position on what the authors view as a "continuum" of adjustment. Instead, it is the reciprocal net effect of situational stressors and protectors, as they interact with either adequate, or inadequate, coping skills. The interaction, or balancing of

these factors, according to the authors, ultimately determines one's vulnerability, or position on the continuum.

Working within a chronic stress paradigm, the authors advocate the use of an at-risk continuum -- victim, vulnerable, invincible -- to capture the range of possibilities for differences in adjustment to stress. As the present findings indicate, no young person is immune to stress. The social interaction model is conditional, as are the results of this study. Applied to a life events framework, the model would predict that under mounting levels of life-change, any person (possessing from strong to weak coping styles) could potentially fall victim to its effects. Derived from social-psychological theory, the model is "relative and interactive rather than absolute and static" (Feldman et al., 1987, p. 57).

In a sense its utility was borne out by the results of this study. For example, when maternal mental illness, an additional form of stress, was added in regression analysis, the positive effect of "hardiness" on transient reaction virtually washed out. The value of multiple regression analyses is that the contribution of each factor can be determined in relation to others (cf. Cohen & Cohen, 1983). The results illustrate that when maternal psychopathology was entered simultaneously with stressful life events, its

contribution in explaining differences in reaction to a specific stressor was not only independently significant, but theoretically relevant in that it offset what Feldman et al. refer to as "the relative balance" and canceled the buffering capacity of hardiness.

The notion of an upper limit, or threshold, for coping style is interesting, but does not quite tie together all the pieces. Specifically, at high levels of stress, supposedly "hardy" youth are not simply rendered equivalent to nonhardy youth -- they do worse. A more all encompassing explanation can be found in Cohen, Evans, Stokols, and Krantz (1986) who discuss the "cost of coping" in their study of a younger cohort exposed to extreme environmental stress. The authors contend that the price of continuous, heightened arousal associated with adaptation to stress (as defined by Selye) is the eventual wearing down of individual resources, both physical and psychological. Furthermore, under certain conditions like uncontrollability, the psychological demands exact an even greater toll (see also Wortman & Brehm, 1975).

One contention here is that hardy youth are more prone to personalize uncontrollability. Such youth view themselves as causal agents and thus may attribute the onset of particular stressors as a consequence of personal (rather than circumstantial) failure. First, because as

adolescents, not quite past the early adult transition, they are maturationally unprepared to decipher that which is inevitable and beyond their control from that which is malleable. Ordinarily competent youth, burdened in this case with the tendency to perceive their actions as causally related to events, hardy youth may suffer more under extreme stress.

Interestingly, Cohen et al. even point out that given the high cost of coping under certain conditions, "passivity in the face of an uncontrollable stressor is adjustive..." (1986, p.19). It is doubtful that a teenager, especially a competent and goal directed one, would appreciate the notion of passivity as the more discerning, or evolved coping strategy. Conceptually, an adult might take comfort in (the wisdom of) "passively" accepting an uncontrollable stressor, but actively choose to confront its emotional consequences. Whether or not such refined, or differentiated, strategies are available by late adolescence is one of the research questions indirectly investigated here.

Given the tenacity and high self-efficacy beliefs of a hardy teenager or young adult, it is likely that under increasingly stressful conditions they would be first to experience the "cost" that Cohen et al. are referring to. Actually, Bandura's (1977) self-efficacy theory states that belief in one's ability to master the environment is

linearly related to persistence in coping. For adults, given reasonable levels of stress, high efficacy beliefs are thought of as resistance resources. During the early adult transition, however, they may exact a toll.

According to the "cost of coping" framework, the effects of stress are indirect. They stem from cumulative fatigue and coping side effects. Resolute, goal directed youth would thus seem especially vulnerable to this effect. At a certain point (which according to the findings appears to be when life events exceed mean levels), more hesitant or faltering youth appear to have more on reserve; youth with low self-efficacy percepts would be less likely to appraise, or "construe" (cf. Roskies & Lazarus, 1980) situations as malleable and more likely to conserve their energy under extreme stress than their confident, goal directed counterparts. In addition, the saliency of the challenge component in life-change would not be as tempting to youth who view themselves as less capable of transforming events. With such cognitions and (low) expectancies, multiple events would have, in a functional sense, as the results indicate, less of an impact on a nonhardy than a hardy adolescent.

Another, and not mutually exclusive, contention here is that hardiness has not in a sense "gelled" yet in this population, but that precursors which serve as the base for adult hardiness are operative. Kobasa & Maddi (1977) seem

to recognize its emergence sometime during adolescence. Longitudinal follow-up of this line of thought would be interesting. The developmental aspects of these factors over two life spans (adolescence/young adulthood) can be clarified through further prospective analyses.

Another issue is the gathering of baseline (in this case adolescent) data pertaining to the factors that would disentangle their independent and/or combined effects. To facilitate an understanding of the unexpected, or "mixed" hardiness x stress interaction (see Wills, 1985) reported here, component analyses were performed at the completion of this study. The result of the analysis indicates that all four components were not accountable for the positive effect hardiness had on ongoing symptoms, nor the negative effect on the self-same measure, as stress rose above mean levels. Instead two factors, goal directedness and competence (which entails some degree of "decisional control"), alone, explained almost all of the variance. {Unfortunately, the 3-item internal control subscale may not be adequately representative of the content domain (see Loevinger, 1978) to effect differences.}

Validity Issues

By illuminating how underlying factors relate, combine, and differ, particular configurations may confirm or raise

doubts about the meaning of a construct. Thus analytic techniques, such as regression or factor analyses, are useful in validating the internal structure of a measure. In this case, proponents of hardiness theory might argue that something other than hardiness may be operative or that the findings do not reflect a "true" buffering effect (see Cohen & Wills, 1985), because as stress increases so should the "true" hardiness effect. The first concern is serious in that Kobasa (1979, 1982) has always maintained the importance of the three interdependent subcomponents: control, commitment, and challenge. Critical to hardiness theory is its unity as a global construct. Hardiness was conceived as a configuration of inseparable components. Explicitly conceived as a "constellation", its meaningfulness and its utility are dependent upon the three existential concepts of control, challenge, and commitment. Although measurement issues related to the weighting of specific subscales remain controversial, Kobasa, Maddi & Courington (1981) underscore that intrinsic to hardiness is the interdependency of its parts. They conceptualize the components as

> inextricably intertwined aspects that bear a considerable resemblance to each other. One of the three cannot be emphasized in relation to hardiness without the other two being subsumed. Thus a hardy person's attempt to influence the course of some event

(control) includes curiosity about how it happened and interest in what it is (commitment) plus an attempt to learn from it whatever will influence personal growth (challenge) (p. 369).

In Chapter II (Methods) the rationale for selecting hardiness subscales was given based on its relatedness to Kobasa's operational measures. Unfortunately only the endurance aspect of challenge was tapped by the children in the community's scale so it could be argued that without flexibility, the emergent factor reflects a rather hard driving style which could intensify the effects of stress. The problem is one of conceptual precision.

Empirical Distinctions

Particularly in stress-resistance research, investigators are faced with questions concerning the differential weight of protective factors rendering the individual immune to the deleterious effects of stress. The delicate balance between personality resources and exacerbators of stress is evident in the following distinction between hardiness and pattern A behavior.

Pattern A and Hardiness

Empirically, the perspective of individual differences in response patterns to stress has been borne out for another personality dimension, Pattern A, confirmed by Kobasa, Maddi, & Zola (1983) as functionally distinct from hardiness. The interplay of individual difference variables, such as Pattern A with uncontrollability, was found to exacerbate the adverse effects of stress (Matthews, 1982). Type A's push themselves to the limit on endurance tasks, suppress fatigue, and cannot easily display patience unless a high "premium" is placed on doing so. In general, more precise measures are necessary to determine which components of Pattern A exacerbate stress.

To further illustrate the importance of running both factorial and process-oriented analyses, the Type A example is taken one step further. Critics might say this study is measuring Type A rather than hardiness, considering its operational emphasis on achievement strivings and empowerment. To this it is argued that there is neither a conceptual nor empirical basis for such an assumption for the following reasons: First, what characterizes Pattern A as a threat to health are the dramatic shifts in physiological activity which typify their day-to-day responses to challenge. The hyperactivity demonstrated by Type A's under conditions which threaten their sense of

control is abruptly reduced to subnormal levels when they lose the struggle for control (Glass, 1977). There is no evidence of an alternating coping/giving-up response on the part of hardy adolescents confronting mounting stress. And subsequent component analyses (reported on below) reveal that confident/empowered was not a significantly dynamic factor influencing the stress-adjustment relationship.

Second, recent evidence suggests that the achievement strivings of Type A's are extrinsically motivated; whereas those of hardy individuals are intrinsically motivated (Kobasa et al., 1983). Thus, the two personality dimensions are reflective of qualitatively different modes of functioning. One reflects compulsivity, impatience, and lack of authentic involvement; the other, volition, perseverance, and intense personal absorption.

Alternatively, some may call into question the use of the term hardy at all. Given the unexpected mixed interaction effect, it was useful to breakdown the hardiness composite to see which of its pieces were accounting for the effect. Support for this strategy comes from current research literature on stress resistance resources which advocates the importance of determining exactly what is having an effect. Along the lines of Briggs, Cheek & Buss (1980; see also Briggs & Cheek, 1986) components of hardiness were entered separately rather than hierarchically

in regression analyses because of multicollinearity (see appendix for intercorrelations amongst hardiness subscales). Apparently only two of the four factors -- competence (which as noted earlier is reminiscent of Kobasa's decisional control) and goal directedness/perseverance -- were significantly accountable for differences in CBCL symptom levels. Internality, represented only by three items, may not have sampled the content area (see Loevinger, 1978) adequately enough to capture the attribute -- internal control. Nevertheless, the full-scale hardiness measure lacks parsimony. As Tables B3 and B4 indicate (see appendix), only the two factors (both yielding main and interaction effects) were necessary to explain the variance in youth symptomatology. For future research an examination of the differential weight of these subscores on the second dependent measure -- transient adjustment -- would also be fruitful, even though the buffering effect of hardiness on transient adjustment (a specific stress reaction) was not equivocal.

Arguably, there appears to be a gap between hardiness -- the construct -- and its operationalization. To disentangle whether or not hardiness is operative by late adolescence (and/or under what conditions it emerges) from validity issues concerning its measurement here is a major task for follow-up research. One task would be to administer Kobasa's operational scales to normal population

youth. Unfortunately, the absence from the Children in the Community protocol of anything resembling cognitive flexibility (a factor weighted heavily in challenge) limits the meaningfulness, or comparability, of the measures. Perhaps this psychological dimension was critical to youth's readjustment to multiple events.

This study grows out of interest in stress-resistance factors for young people. More crucial than the validity of this particular operational definition is arriving at an understanding of the factors that do articulate stress-resistance for adolescents, and under what conditions they operate. Some insight into the philosophical roots of personality hardiness may help to bring construct validity issues into sharper focus.

Authenticity

The "psychoimmunity" characteristic of Camus' (1954) highly detached protagonist in The Stranger (see Anthony, 1987) which shields the individual from pain while robbing him of joy is atypical of hardiness. Hardiness which is adapted from the existential concept of authenticity (see Kobasa & Maddi, 1977) entails vulnerability, involvement, and responsivity to events. To clarify the distinction between psychoimmunity and psychological hardiness two

analogies, both offered by Anthony (1987), are particularly useful: One is Arnold Toynbee's (1972) historical model of varying types of response to adversity by societies:

> the disintegrative one, characteristic of the most vulnerable societies; a transient disintegration followed by reintegration, as the social group first succumbs to the adversity and then overcomes it; and, finally, the apparent ability to thrive on adversity and come out stronger, more cohesive, and more creative as a result of exposure to it." (p.10)

The second is an analogy of the variability in children and three kinds of dolls (glass, plastic, and steel). When struck by a hammer one shatters completely, the other bears a permanent dent, and the third according to Anthony (p.10), simply "gives out a fine metallic sound." Although contextual differences certainly bear upon individual reaction to stress, variability in resiliencies also influence outcome.

The conditions under which hardiness emerges for adolescents have not yet been established. Although this study did not determine if hardy youth reveal gains, or surpass baseline functioning, it did examine differences in post-stress symptoms and transient adjustment.

Compatible to Kobasa and Maddi's (1977) characterization of authenticity, this study's hardy adolescent demonstrates the capacity to suffer under adversity: The data suggest that exceeding moderate levels of stress differences between hardy and nonhardy youth attenuate, and that under high stress hardiness as defined here may be counter healthy. As stated previously, what may be lacking developmentally for hardy youth is an essential adult concomitant of hardy living -- acceptance of that which is uncontrollable as an inevitable part of life.

According to Kobasa & Maddi, "acceptance of inevitabilities sharpens one's perception of and commitment to what can be influenced through personal effort" (p. 253). Perhaps hardy adolescents take too much to heart. Perhaps they are simply foolhardy. Hardiness which entails a sense of competence (decisional control) over events may buffer the impact of stress to an extent; however as number of stressors increases, the hardy youngster who is likely to be actively confrontative may, as the results suggest, become overwhelmed. In actuality, component analyses run subsequent to this study (see appendix B) revealed that competence and goal directedness (indicating action-oriented) were the critical factors shaping adolescents' response to life-stress. By definition, hardiness involves high self-efficacy beliefs which according to Bandura (1977) has implications for motivation, effort expenditure, as well

as attributions regarding causality and personal control. See also Tyler (1981) on youth psychosocial competence, another hardiness related construct, that entails belief in oneself as causally related to the events in one's life, as well as the activity, or purposeful behaviors that carry them out. Under high stress, the passivity of nonhardy youth and/or young adults may ironically involve less self-blame, and more compatibility with the kind of grace that stems from unconditional acceptance of that which cannot be changed.

At the Hardiness Training Institute in Chicago a focal part of training involves a strategy referred to as "compensatory self-improvement." Essentially, the restructuring of malleable events is meant to compensate, as far as reinforcement goes, for uncontrollable situations that may threaten one's sense of competence or control. Individuals gain confidence through the positive reinforcement they get from transforming particular difficulties into growth experiences at the same time they learn to "let go" of events that are objectively uncontrollable. By compensating for frustrating events with active confrontation of challenges that are realizable, belief in one's ability to withstand uncertainty and self-direct eventually develops. From this perspective the

steadfast persistence of the so-called hardier young adults investigated here may actually be maladaptive under certain conditions.

Developmental Factors

An evolving adolescent may simply not yet be able to discern "inevitabilities"; or may lack the humility to understand personal limitations. Existential personality theory predicts that the idealism of youth, developmentally gives way to authenticity (or hardiness), with the realization and acceptance of "limited control" over events (see Kobasa & Maddi, 1977, p. 258).

Although speculative, a synthesis of several literatures suggests that competent, self-directed youth may deplete their resources through self-blame, or attempting to cope, unrealistically, with too many stressors at once. Another -- and simpler -- possibility is that the structures underlying the adult notion of hardiness are insufficiently developed by middle or late adolescence. This is in accord with existential personality theory on the development of self-directedness which according to Kobasa & Maddi "...presumably does not occur vigorously until adolescence" (1977, p. 256). Thus, the buffering effect of the factors

for singular events and the diminishment of this effect on CBCL symptoms for numerous events may be developmentally explained.

Pertinent empirical work (Daniel, 1986; Schmeid & Lawler, 1986) even suggests that hardiness increases with age. To date, research on hardiness in heterogenous adolescent populations has not been done. Although hardiness was operative in a homogenous student group (Schlosser, 1986), its generalizability for youth remains equivocal.

Analysis II: Family Facilitators

Kobasa stresses the importance of parenting which teaches limits. Children who are reared with beliefs (however well-intentioned) that they can accomplish anything if they set their minds to it may be dysfunctional under certain conditions. Unrealistic expectations can lead to low frustration tolerance, self-reproach for failure, depression, and even the "illusion of incompetence" (see Langer, 1983, p. 114).

Parent-Child Interactions

The results are in accord with the literature. Specifically, maternal closeness -- a higher order factor

that included affection, time spent, warmth, child centered, and availability -- was confirmed as predictive of hardiness. The findings indicate that parents who allowed their children to express their ideas, praised their individuality, shared their problems and experiences, and provided support across situations bred stress-resistant children. The families were not enmeshed. Boundaries and individuality were apparent. The homes were characterized by little conflict and parents were consistent in their emphasis of right and wrong. The results also support the significance of having resilient parents.

Maddi & Kobasa (1984) gathered clinical data from interviews with hardy executives to investigate the developmental roots of commitment, control, and challenge. Interestingly, their findings coalesce on several levels with the results presented here. Specifically, hardy executives came from environments characterized by vitality, warmth, and support. According to Maddi & Kobasa the availability and interest of parents (despite outside responsibilities) facilitates the development of commitment in the child. This body of literature concurs significantly with the relationships observed here. Essentially, mothers or fathers who were emulated, identified with, and admired, reared the most goal directed and competent youth. The results also support maternal closeness (warmth, affection, availability, support, etc.) as facilitators of hardiness.

Independently, child centeredness (eg., giving up something to get something for the child) was significant which coincides with empirical findings from studies on resiliency in at-risk younger children. For example, Musich, Stott, Spencer, Goldman, & Cohler (1987) found that children from discordant or psychiatrically impaired homes thrived if "maternal responsiveness, availability, and warmth" prevailed for at least some portion of their upbringing (p. 249). Furthermore, at-risk children retained their competency when a nondisturbed parent was able to compensate (see Rutter, 1978) with warmth, consistency, and positive, nurturing interactions.

According to the results, the kind of child-rearing that facilitates stress-resistance entails independence granting but structured parenting. The findings are in accord with those of Murphy & Moriarity (1976) who found that resilient children came from environments with available yet unobtrusive parents who were considered to be models of resilience themselves. In fact, identification with role-models was isolated by Anthony (1987) as germane to Murphy & Moriarity's classic developmental model. As interpreted by Anthony:

> the milieu that generates good coping processes provides a requisite amount of space, safety, and freedom. It furnishes the opportunity to draw upon

> inner resources, to reach self-generated conclusions, and to establish sound bases for assessing assets and liabilities that arise. The "facilitating environment" thus permits children to be active or inactive as the circumstance requires, to let off steam, and to discharge tensions without invoking catastrophic consequences. It is essentially a reliable setting that fosters reliability and self-reliance in the young individuals immersed in it...this very element of ordinariness encourages the development of a solid realism that is based on the adults' respect for the children's growing individuality -- the buttressing quality of a well-put-together environment where the parents set clear limits but yet expect the children to grow up in their own way (p. 17).

In sum, hardy youth, as operationalized here, come from environments that stress mastery and autonomy; but also provide the kind of support that allows failure. Thus, the adolescents are comfortable with risks and unthreatened by failure. According to the authors, such an environment breeds confidence and a sense of challenge. Parents "who are in a vigorous developmental process themselves" and "encourage children to...conceive of challenges as signs of richness and possibility" develop children that are unthreatened by change (Maddi & Kobasa, 1987, pp. 49-50).

Limitations

Measurement Issues

It is likely that the kind of commitment to self, ideals, or community that Kobasa conceived of as a buffer to stress, was not operative in this population; nor measurable by the protocols.

First, the psychological processes from which a robust sense of commitment to both self and community evolve take time. Thus, the strength of commitment as a stress-resistance resource for adolescents remains speculative. Besides the equivocal nature of commitment for adolescents who are likely to be just coming to terms with basic identity issues, this study had limited ability to reflect the breadth of Kobasa's construct with the goal directedness measure of the Children in the Community protocol.

Second, challenge was not adequately measured. Endurance was the only aspect of challenge tapped by the available measures; and there is strong reason to believe that cognitive flexibility may be the pivotal factor for stress-resistance. Its absence, particularly, may be the element doing most harm. For example, adolescents who can

accept alternatives to ameliorate disappointments at school, or in relationships, should fare better than adolescents who view these dimensions as sine qua non to well-being.

As the missing link, cognitive flexibility may explain the inability of high scoring (competent, goal directed) youth to endure under mounting stress. Without it, there may be an emergent factor, as mentioned earlier like (Type A's) rigidity or intolerance to reconcile. This is not to say we are measuring Type A instead. On the whole, differences between the two concepts were motivationally explained earlier on and do not appear (considering the stop and start mechanisms of Pattern A) to be effecting observed differences.

As previously noted, more refined and extensive analyses would be necessary to provide evidence of the construct validity for a hardiness, or durability, measure. For example, follow-up might entail investigating events categorically for their differential weight on this dimension. Discriminately, such analyses would be useful, in that truly hardy individuals, for example, would not be expected to have "problems with the law." Convergently, they would be expected to react more adaptively to "breaking up or feeling rejected" given their strong sense of self and personal competence. Future investigation based on clustered event scores would enhance the meaningfulness of

the findings. The validity of the hardiness measure would be even more dubious if, for example, hardy youth experienced more self-induced negative events than nonhardy youth.

Selection biases in measurement. Another limitation may be due to differences in parental opportunity to observe an adequate sample of the older adolescent's behavior at Time 3. The Child Behavior Checklist (CBCL) was originally developed for children up to age 16. According to Achenbach & Edelbrock (1981), complete reliance on parental report as on the CBCL for children over 16 is limited because of the significant number of adolescents making the early adult transition who move away from home after graduation from high school. Although the CBCL was not optimal for measuring general symptomatology in all of the Time 3 youth (age 11-20 by this time), the bulk of the sample did fall within the appropriate age range. Also, the CBCL was deemed the best of possible alternatives by Children in the Community staff.

In any case, it is conceivable that selection factors are biasing the results. Goal directed youth might leave home earlier than less ambitious youngsters and thus restrict the range at this end of the scale. A rival explanation is that parents of the more competent youth may be more sensitized to events that their children handle

poorly (cf. Helson's (1964) adaptation level theory of perception). Amongst multiple events, they therefore fail to report those that were handled easily. Perhaps the youth, themselves, forget or underreport events handled well which may explain the negative findings for competent and goal directed youth under excessive stress.

Informant biases in measurement. Also conceivable is the possibility that the closeness characterizing the parent-child relationship of high scoring youth results in a heightened sensitivity (and greater reporting) for this population of mothers when their children are under acute stress. In either case, informant variance may be, spuriously, effecting the observed differences in adolescent's symptom levels.

Competing hypotheses. Above and beyond selection, or informant effects, environmental factors may also be operative. Drawing upon the findings (and existential personality theory) regarding parenting and adult hardiness (cf. Maddi & Kobasa, 1984), it is conceivable that the closeness found in families here which bred the more goal directed children contributes, indirectly, to ongoing symptom levels. Stated differently, perhaps parents of "nonhardy" children are less sensitive and therefore not only underreport symptoms of their child's distress but contribute to it as well. Might not an alienated teenager

seek counsel, or clergy, in response to an event more often than a teenager who can communicate with their parents? Proximal familiar distress may certainly be contributing to symptoms of academic or social impairment. Future investigation of differences in these relationships would be both feasible and useful. Teasing out the effects of "hardiness" and those of family context would bolster the validity of the findings for personality as a moderator and further the notion of a buffering hypothesis.

As for the stress-protective main effect, do future-oriented, goal-directed youth simply report less maladaptation because they characteristically anticipate life-change (see Kobasa & Maddi, 1977, on future-orientation) and believe in their ability to withstand or even grow from it? In essence, is the effect more interpretive than real for such youngsters? Or do youth high on these dimensions actually take different actions?

Future Work

Kobasa & Maddi have emphasized the need for clarification of transformational coping skills (personal communication, August 26, 1987). No matter which measurement operations (Kobasa's three-pronged version or the post-hoc subscale recently generated here) are utilized

to predict differences in coping during adolescence, they are likely to operate vis-a-vis transformational strategies. And future research might focus on delineating this concept.

Maddi stated that transformational coping may be more painful than palliative coping, in the short run (CUNY, 1987, emphasis mine). Were the "so-called" hardy youth of this study simply more reactive to mounting stress initially? Future research might try to determine if population youth were differentiated in terms of persistence of symptoms. Unfortunately, specific stress reaction, the second dependent measure, was not analyzed for duration. It represented a continuous symptom count of both youth and parent report. Several questions warrant further investigation.

Felsman & Vaillant (1987) detected temporal variations in children's adjustment to chronic stress. Specifically, the authors traced a matrix of regressions and restoration, interspersed with periods of mastery in at-risk children who later thrived. Similarly, Anthony & Cohler (1987) pondered the variable nature of resilience over the developmental life-span, "with robustness giving place to vulnerability and vice versa." It is "the two together [that] create a rich and varied tapestry of strength and weakness" (p. xi, brackets mine). Somewhere on this matrix of vulnerabilities and strengths lies true personality hardiness.

Conclusions

Overall, the validity of the present findings are supported by systematic, directional consistencies across analyses. The results indicate that personality may contribute directly (coping), or indirectly (more parental support, interests) to the well-being of adolescents and young adults. The negative role of stressful events was confirmed; as was the positive independent role of goal-directedness/perseverance and competence on psychosocial adjustment. A complex interaction effect was interpreted from various perspectives. Specifically, the buffering effect of personality factors, its unexpected attenuation and negative trend under mounting stress was interpreted from both a cognitive-developmental and social-interactionist perspective: Young people scoring high on these dimensions are rendered equivalent to young people scoring low on the self-same dimensions under moderate stress; and tend to lose ground under high stress because they are not making necessary cognitive distinctions. Several authors (eg., Bandura, 1977, 1981) stress the critical distinction between efficacy and outcome expectancies which represent separable components of perceived control. The results here suggest that typically "hardy" children may be either internalizing failure and/or

depleting themselves through persistent readjustments to overlapping stressors. Compatible to developmental stress theory (Anthony, 1987), this investigation suggests that there may be temporal variation in resiliencies depending on what other factors are going on.

By definition "hardy" individuals are tenacious and should have the flexibility to accommodate life-change by reformulating goals if need be. Without precise measurement of the flexibility factor, the present study revealed some overlap with Pattern A which may prove harmful to teenagers confronting uncontrollability, or numerous events. Higher-order personality x situation interactions warrant investigation. Otherwise, the exact mechanism whereby life events become etiologically linked to psychosocial maladjustment in youth remains equivocal.

APPENDIX A

COMPOSITE HARDINESS SCALES

PERSONALITY HARDINESS SUBSCALES

I. Goal directedness

II. Confident/Empowered

III. Internal Control

IV. Competence

HARDINESS SUBSCALE ITEMS

Goal directedness (12 items, alpha=.60, N=756)

1. To drop out of school to get a job you are interested in. How wrong do you think that is?

2. Preparing for the future is more important to me than enjoying today (reverse).

3. It's no use worrying my head about public affairs; I can't do anything about them.

4. I have a reserved and cautious attitude about life (reverse).

5. I generally rely on careful reasoning in making up my mind.

6. Over the last few years, on the average, how much were you bothered by the following: Feeling

others are to blame for most of your troubles (reverse).

Please indicate how well the following describes you:

7. Analytical, that is thinks about things logically and carefully.

8. Ambitious.

9. When you try to do something and have trouble with it, what happens most of the time. Do you usually keep trying by yourself, call for help, or switch to something else (reverse).

10. If you start to do something and are interrupted, do you usually go back to it or don't you (reverse)?

11. Now thinking about the future, how far do you hope you will go in school.

12. Of course no one really knows for sure, but how far do you think you will go in school?

Confident/empowered (14 items, alpha= .72, N=756)

1. I feel I do not have much to be proud of (reverse).

2. I feel that my life is very useful.

3. People have a real duty to take care of their

aged parents even if it means making some pretty big sacrifices.

4. I feel that I have a number of good qualities.

5. I have a pretty good sense of humor.

Please indicate how well the following describes you:

6. Competitive.

7. Self-reliant.

8. Independent.

9. Assertive.

10. Dominant.

11. Acts as a leader.

12. Do you think you do things well.

13. Do you feel the work at school is too hard, too easy, or just about right?

14. How attractive do you think you are to other (boys/girls)?

Control/Internality (4 items, alpha=.52, N=756)

1. There is really no way I can solve some of the problems I have.

2. What happens to me in the future mostly depends on me.

3. I often feel helpless in dealing with the

problems of life.

4. I can do just about anything I really set my mind to.

Competence/Perseverence (7 items, alpha =.53, N=756)

1. When you do something how important is it to you to do it exactly right?

2. When you are doing something you like, how long will you usually do it?

3. When you read or do school homework, how long do you usually do it?

4. When doing things with your hands, would you say you are...

5. How about in moving around? Would you say you are...

6. How often do you lose your train of thought, that is, your mind drifts from one thing to another?

7. How careful are you about things? Would you say you.

FAMILY CONTEXT MEASURES

Parent-Child Interaction Scales AS REPORTED BY PARENT

Higher-Order Scales and Components:

1. Closeness to mother (6 scales, alpha =71, N=766)
    a. Maternal Child Centeredness
    b. Maternal Communication
    c. Maternal Affection
    d. Maternal Support
    e. Maternal Time Spent with Child
    f. Availability
2. Conflict with Parents (4 scales, alpha= .75, N=721)
    a. Child's Resistance to Maternal Control
    b. Child's Resistance to Paternal Control
    c. Maternal Satisfaction with Child (reversed)
    d. Maternal Consistency (reversed)
3. Maternal Control Efforts over Child (4 scales, alpha=.58, N=767)
    a. Maternal Possessiveness

b. Maternal Encouragement of Child's Ideas (reversed)

c. Orientation to Authority

d. Maternal Control through Guilt

4. Child Independence from Mother (2 scales, alpha= .30, N=767)

a. Permissiveness

b. Maternal Discipline (reversed)

Parent-Child Interaction Scales AS REPORTED BY CHILD

Higher-Order Scales and Components:

1. Closeness to Mother (2 scales, alpha=.77, N=728)

a. Maternal Affection

b. Communication with Mother

2. Closeness to Father (2 scales, alpha=.42, N=708)

a. Father's Affection

b. Communication with Father

3. Mother as Role Model (3 scales, alpha=.88, N=419)

a. Admiration of Mother

b. Emulation of Mother

c. Similarity to Mother

4. Father as Role Model (3 scales, alpha=.90, N=406)

a. Admiration of Father

b. Emulation of Father

c. Similarity to Mother

INDIVIDUAL SCALE ITEMS

CLOSENESS

Child Centeredness:(5 items, alpha=.66)

1. I like to talk with my child and be with (him/her) most of the time.

2. I give my child alot of care and attention.

3. I often give up something to get something for my child.

4. I enjoy staying at home with my child more than going out with my children.

5. I spend almost all of my free time with my children.

Maternal Communication (5 items, alpha=.58)

1. I allow my child to tell me if (her/she) thinks (his/her) ideas are better than mine.

2. I'm very easy to talk to.

3. I really understand how my child sees things.

4. I really want my child to tell me how (he/she) feels about things.

5. Which of the following best describes most of your conversations with your child? (very pleasant, somewhat pleasant, neither pleasant nor unpleasant, mildly unpleasant, very unpleasant)

Maternal Affection (4 items, alpha =.57)

1. I frequently show my love for my child.

2. I often praise my child.

3. I always hugged and kissed my child good night when (he/she) was small.

4. I frequently tell my child (he/she) makes me happy.

Maternal Support (3 items. alpha=.43)

1. My child can count on me to help (him/her) out in all situations.

2. I help my child with (his/her) school work if there is something (he/she) does'nt understand.

3. When I want my child to do something, I explain why.

Maternal Time Spent with Child (3 items, alpha= .64)

1. Overall, about how much time would you say you spend doing recreational things with your child? This would include going to movies or plays, sports activities, playing games, working on hobbies, and the like. (Do not include watching T.V.).

2. Overall, about how much time would you say you spend doing more serious things with your child? This would include helping with school work, doing household chores, engaging in religious activities, making and fixing things around the house, and the like.

3. Overall, about how much time would you say you spend just talking with your child? This would include sharing problems and experiences, discussiong current events, making family decisions, and the like. Include

in your response only those occasions when discussions last at least 15 minutes.

Availability (1 item)

1. I am always available when my child needs me.

CONFLICT

Child's Resistance to Maternal/Paternal Control (5 items, alpha=.88 and .91 respectively)

1. Does what (he/she) wants to instead of what you tell (him/her).

2. Often breaks rules.

3. Tries to see what (he/she) can get away with.

4. Seldom follows your orders unless you insist.

5. Seldom obeys you unless you keep after (him/her).

Maternal Satisfaction with Child (6 items reversed, alpha=.75)

I am satisfied with my child's...

1. Physical appearance (such as height, weight, facial features).

2. Intellectual ability.

3. Ability to relate to others.

4. Moral behavior.

5. Emotional behavior.

6. School achievement.

Maternal Consistency (3 items reversed, Alpha=.55)

1. I sometimes allow my child to do things that I say are wrong.

2. It sometimes depends upon my mood whether a rule is enforced or not.

3. I often change the rules my child is supposed to follow.

CONTROL

Maternal Possessiveness (4 items, alpha=.44)

1. I regret that my child is growing up and spending more time away from home.

2. I worry about my child when (he/she's) away.

3. I am very involved in my child's life.

4. I occasionally worry that my child can't take care of (him/herself) unless I am around.

Encouragement of Child's Ideas (3 items reversed, alpha=.52)

1. Your child is always free to tell you what (he/she) thinks.

2. You give your child a chance to make up (his/her) own mind about alot of things.

3. It's all right for your child to disagree with you.

Orientation to Parental Authority (4 items, alpha=.72)

1. Parents should teach their children to have unquestioning loyalty to them.

2. The child should be taught to honor his or her

parents above all other grown-ups.

3. Children should not question the authority of their parents.

4. Children should always do what their parents say no matter what.

Maternal Control through Guilt (5 items, alpha= .78)

1. I feel hurt when my child doesn't follow advice.

2. I tell my child of all the things I have done for (him/her).

3. I tell my child if (he/she) loved me (he/she'd) do what I want (him/her) to do.

4. I tell my child if (he/she) really cared for me (he/she) would not do things that cause me to worry.

5. I tell my child (he/she's) not grateful when (he/she) doesn't obey me.

INDEPENDENCE

Permissiveness (4 items, alpha=.57)

1. I allow my child to go out as often as (he/she) pleases.

2. I don't tell my child what time to be home

when (he/she) goes out.

3. I let my child dress in any way (he/she) pleases.

4. I allow my child to spend (his/her) money in any way (he/she) likes.

Maternal Discipline (5 items reversed, alpha=.58)

1. I act a little cold and unfriendly when my child does something I do not like.

2. I do not let my child do things with me when (he/she) does things I don't like.

3. I am very strict with my child when (he/she) doesn't do what is expected of (him/her).

4. If my child does something I do not approve of, I deprive (him/her) of some of (his/her) privileges.

5. I tell my child I will hit (him/her) or smack (him/her) if (he/she) does something I do not like.

Mother/Father as Role Model

Admiration (5 items, alpha=.78 and .81)

1. How much do you admire your mother (father) in her/his roles as parents?

2. How much do you admire your mother (father) in her/his roles as spouses?

3. How much do you admire your mother (father) in her/his professional careers: (If mother does not work, in her role as homemaker.)

4. How much do you admire your mother's (father's) moral character?

5. How much do you admire your mother (father) in her/his capacity to function under pressure? ?

Emulation (5 items. alpha= 82 and .84)

1. How much do you want to be like your mother (father) in your role as a parent?

2. How much do you want to be like your mother (father) in your role as a spouse?

3. How much do you want to be like your mother (father) in your professional career?

4. How much do you want to be like your mother (father) in your own moral character?

5. How much do you want to be like your mother (father) in your capacity to function under pressure?

Similarity (4 items, alpha=.82 and .81)

1. How similar do you think you actually are to your mother (father) in terms of personality?

2. How similar do you think you actually are to your mother (father) in terms of ideas about life in

general?

3. How similar do you think you actually are to your mother (father) in terms of moral character?

4. How similar do you think you actually are to your mother (father) in terms of your capacity to function under pressure?

TRANSIENT ADJUSTMENT

Which event was hardest for the child to adjust to? How long ago did this happen? (Less than 6 mos., 6 mos. to less than 1 yr. ago, 1 to 2 yrs. ago)

Did you feel yourself responsible (or to blame) for this?

Did you consider your reaction to be greater than one would usually expect?

How soon after this event did your reaction start? (Immediately, 3 mos. or less, More than 3 mos. later)

Did it bother you so much that you considered talking to someone about it, like a doctor, counsellor, or clergy?

Did you feel tearful, hopeless, or depressed most of the time? How long did this last?

Did you feel nervous or worried a great deal of time?

Did you feel unusually angry and as though you would easily blow up? How long did this last?

Did you have problems getting along with your friends during this time? How long did this last?

Did you get into trouble with the police or do things for which you would have been in trouble if you had been caught?

How long did this last?

Did you have trouble getting your school work done? [Or if not in school] Did you do less well on your job? How long did this last?

Did you not want to see anyone? How long did this last?

Did you drink more alcohol than usual? How long did this last?

Did you use more drugs than usual? How long did this last?

Did you have any other reactions I haven't mentioned? What was that? How long did this last?

MATERNAL PSYCHOPATHOLOGY

1. Maternal Depression
2. Maternal Anxiety
3. Maternal Interpersonal Difficulty
4. Maternal Obsessiveness

SUBSCALE ITEMS

Maternal Depression (5 items, alpha=.80)

1. Feeling low in energy or slowed down.
2. Feeling no interest in things.
3. Feeling lonely.
4. Feeling Blue.

5. Feeling hopeless about the future.

Maternal Anxiety (4 items, alpha= .74)

1. Difficulty in falling asleep or staying asleep.

2. Feeling fearful.

3. Feeling tense or keyed up.

4. Feeling nervous or shakey inside.

Maternal Interpersonal Difficulty (5 items, alpha=.71)

1. Feeling easily annoyed or irritated.

2. Temper outbursts you cannot control.

3. Feeling anxious, nervous, or tense inside.

4. Difficulty in feeling close to other people.

5. Feeling others are to blame for most of your troubles.

Maternal Obsessiveness (4 items, alpha=.73)

1. Worrying or stewing about things.

2. Trouble concentrating.

3. Difficulty making decisions.

4. Blaming yourself for things.

ONGOING SYMPTOMS DERIVED FROM THE CHILD BEHAVIOR CHECKLIST (see Achenbach & Edelbrook, 1981 for questionnaire)

Indicators of Externalizing Subscale

1. abrupt mood changes
2. age inappropriate behaviors
3. difficulty concentrating, maintaining attention
4. cruel to others
5. destructive of own belongings
6. disliked by other children
7. others are physically attacked by child
8. does poorly in school
9. uncoordinated
10 .disobeys at school
11 .disobeys in home
12. easy for child to get jealous
13. excessively needy or demanding of attention
14. has run away
15. screaming a lot of the time
16. has started fires
17 .has stolen in own home
18. has stolen outside the home
19. won't give in, broods
20. highly impulsive
21. hyperactive
22. lies or cheats
23. likes solitude

24. often fighting with others
25. sulking
26. excessively talkative
27. often teases others
28. throws tantrums, bad temper
29. threatens others
30. has insomnia
31. too loud
32. takes drugs or alcohol
33. destroys property, participates in vandalism

Indicators of Internalizing Subscale

1. obsessive
2. overly dependent
3. expresses feelings of loneiness
4. excessive crying
5. fearful
6. school phobic
7. perfectionistic
8. low self-esteem
9. hears things
10. tics, twitching movements
11. has nightmares

12. overanxious

13. complains of dizziness

14. often fatigued

15. physical symptoms such as headaches, rashes, without knowledge of medical cause

16. will not talk

17. excessively private or secretive

18. displays repetitive, compulsive behavior

19. hallucinates

20. embarrasses easily

21. sleeps little

22. escessive sleeping

23. faltering, timid

24. blankly stares

25. hoards unnecessary things

26. bizarre behaviors

27. bizarre ideas

28. suspects others of poor intent

29. suicidal ideation

30. difficulty sleeping

31. melancholy, depressive

32. worries alot

APPENDIX B

TABLE 1

CHARACTERISTICS OF SAMPLE

(N=776)

		Percentage
SEX:	Males	50
	Females	50
AGE:	9	4.5
	10	9.5
	11	9.5
	12	12.8
	13	14.0
	14	10.2
	15	10.4
	16	9.3
	17	8.2
	18	9.9
	19	1.4
	20	.1

X age=13.7

RACE:	White	91
	Black	8
	Other	1
RELIGION:	Protestant	37.3
	Catholic	55.8
	Jewish	1.6
	Other	1.8
	None	3.5
INCOME:	Less than $6000	5.4
	$6000-$7999	4.1
	$8000-$9999	3.9
	$10000-11999	4.9
	$12000-14999	7.2
	$15000-19999	10.3
	$20000-24999	13.0
	$25000-34999	22.7
	$35000-49999	14.7
	$50000 or more	9.3

Table B-2
Correlation Matrix of Hardiness (T3) and Subscales[a]

	I	II	III	IV	V
I. Goal directed	1.00				
II. Confident/empowered	.26**	1.00			
III. Internal control	.19**	.45**	1.00		
IV. Competence	.48**	.42**	.34**	1.00	
V. Hardiness (T3)	.68**	.81**	.58*	.76*	1.00

[a]. Subscales are the results of factor solutions provided by Dr. Patricia Cohen of N.Y.S. Psychiatric Institute.

**p < .01

Table B-3
Hierarchical Regression Analyses of Time 2 Competence/Perseverence Subscale on Time 3 Total CBCL Symptoms

Variable	Beta	
Age	-.06	
Sex	.002	
SES	-.06	
Time 2 Symptoms	.66**	
Competence/Perseverence	-.15*	
Events	-.44	
Events X Competence/Perseverence	.58*	Multiple R=.747

*p < .05 **p <.01

Table B-4
Hierarchical Regression Analyses of Time 2 Goaldirectednesss Subscale on Time 3 Total CBCL Symptoms

Variable	Beta	
Age	-.06	
Sex	-.003	
SES	-.07	
Time 2 Symptoms	.67**	
Goaldirectedness	-.13*	
Events	-.60**	
Events X Goaldirectedness	.74**	Multiple R=.750

*p < .05 **p <.01

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