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PERSONALITY CORRELATES OF
ADOLESCENT STRESS COPING RESPONSES

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PERSONALITY CORRELATES OF ADOLESCENT STRESS COPING RESPONSES

by

Dale Alan Snow

A DISSERTATION

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Psychology, and Special Education

1995

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ABSTRACT

PERSONALITY CORRELATES OF
ADOLESCENT STRESS COPING RESPONSES

By

Dale Alan Snow

In the stress resistance literature there is debate over the contribution of personality factors toward effective stress coping. Adolescents have also remained an understudied group in the stress coping paradigm.

This study was designed to explore personality differences between Better and Poorer late adolescent copers along the dimensions of trait anxiety, flexibility, hardiness, sense of coherence, and resilience. The interconstruct relatedness of these dimensions was explored to estimate both their independent and relative contributions to Better coping. Stress appraisal processes were examined for Better and Poorer copers, as well as the relative merits of objective versus subjective stressor identification methods. Data anayses included t-tests, correlation, multiple linear regression, logistic regression, and discriminant function analysis.

A screening sample of 791 urban high school students (385 male, 406 female) were identified across grades 10 through 12 as Better, Poorer, Fragile, and Latent copers. A research sample of 132 participants (53 male, 79 female) equated on high stressor experience were drawn from among the Better (N = 70) and Poorer (N = 62) copers. Better copers exceeded Poorer copers on hardiness, sense of coherence and resilience, but contrary to expectation were found to be less flexible than Poorer

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copers. Better copers did not differ from Poorer copers in levels of trait anxiety, nor in their appraisals of the stress inducing potential of hypothetical stressors, but 25% of the variance in stress appraisals was accounted for by a combination of sense of coherence, prior stressor ratings, prior stressor experience, and resilience. Evidence was found for the "steeling effect." Logistic and discriminant analyses suggested that all personality variables except trait anxiety made some independent contribution to Better coping, most prominently resilience, followed inversely by flexibility, then by aspects of sense of coherence and hardiness. Grade level and GPA were also directly related to Better coping. Females reported higher stressor experience, higher anxiety, and higher goal directedness than males. Ethnicity did not differentiate Better from Poorer copers, but African-American students reported higher hardiness and lower stress appraisals than their Caucasian counterparts. Other gender and ethnic differences were discussed, and a prototypical adolescent coping profile was developed.

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DALE ALAN SNOW

1995

DEDICATION

To my daughter,
Cheryl Lynne Snow,
whose youthful courage has
been beyond description.

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ACKNOWLEDGMENTS

If you seek proof that no man is an island, try getting your doctorate without the help of others. First and foremost, my utmost thanks and gratitude to my chairman, Don Hamachek, who graciously suffered my perfectionism and sporadic attacks of idealism, who unfailingly complimented my efforts, and without whose timely support, steadfast encouragement and eternal patience, I could not have completed this project. My heartfelt thanks to Ellen Strommen for her good humor, ready cheerfulness and knowledge of the stress resistance literature, and whose helpful suggestions and eminent good sense always saved my time and energy. Special thanks as well to Keith Anderson, who shares my love of history and appreciation of the King's English, and who is in my estimation the consummate scholar and gentleman. A particular note of thanks to Jim Kallman, mentor, friend and all-too-seldom golf partner, whose skills as a psychologist and parent I have long admired, and whose wit and world view are a constant delight.

I owe an additional debt of gratitude to the Battle Creek Public Schools for the support given my research. I am grateful to Mr. Mike Bitar, district Superintendent for his overarching encouragement of this project, to Mr. Todd Bingaman, Director of Special Education, for his timely suggestions and support, to Mr. George Wytko, Director of Pupil Personnel and Guidance, for his judicious review of the research

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protocol, and particularly to my friends and colleagues, the teachers at Battle Creek Central who saw the merits of this research and who promoted its value with their students. I especially wish to thank Mr. Bruce Barney, high school principal, who gave unselfishly of his time, and whose ideas and help with logistics were invaluable. Perhaps above all, my eternal gratitude to the students themselves. They were the ones who made it work.

On a personal level, I wish to acknowledge the assistance of several individuals whose influence has been larger than they probably know: Dr. Frank Cornish, III, M.D., who over a period of time bolstered my own resilience and taught me more than I would ever have known; and my parents, Ted and Betty Snow, whose lifetime of perseverance and competence have beaten the odds and have always been an inspiration to me. Finally, in undertakings of this nature, there is always one who endures the most and who waits the longest. My deepest appreciation, empathy, and love to Jane, who shared and endured it all on little more than faith in me, and who never asked me to choose. For her there is no medal large enough.

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CHAPTER I

THE PROBLEM

Introduction and Statement of Purpose

Author Robert Louis Stevenson, who endured the stress of chronic illness, was purported to have said: "Life is not a matter of holding good cards, but of playing a poor hand well" (in Garmezy, 1981, p. 249). The lore and literature of psychology are replete with accounts of individuals who were dealt life's poor hand and who succumbed physically or psychologically to its pressures. There have also existed persistent, but far less studied examples of persons for whom the effects of trying circumstances were not always negative, and whose outcomes were not inevitably pathological. Murphy (1962) observed:

> There are thousands of studies of maladjustment for each one that deals directly with the ways of managing life's problems with personal strength and adequacy. The language of problems, difficulties, inadequacies, or antisocial or delinquent conduct, or of ambivalence and anxiety is familiar. We know that there are devices for correcting, bypassing, or overcoming threat, but for the most part these have not been directly studied. (p. 3).

Even recently, Anthony and Cohler (1987) characterized the study of psychological competence as perhaps at best only "scattered disconnectedly" throughout the literature (p. x).

Since roughly 1980, this imbalance has been increasingly addressed, reflecting a heightened interest in and focus upon individuals who have remained not only unbowed by emotional storm and stress, but who are even seemingly enlarged by the experience. Such individuals have been variously described as resilient (Garmezy, 1983; Werner, 1984; Anthony,

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1987; Rutter, 1987), invulnerable (Anthony, 1974; Garmezy, 1981; Anthony & Cohler, 1987), invincible (Werner & Smith, 1982; Dahlin, Cederblad, Antonovsky & Hagnell 1990), stress-resistant (Antonovsky, 1974; Kobasa & Puccetti, 1982; Garmezy & Tellegen, 1984), hardy (Kobasa, 1979a; Kobasa, Maddi & Zola, 1983; Pollock, 1988), competent (Rutter, 1978; Garmezy 1987; Luthar & Zigler, 1991), and copers (Lazarus, 1966; Lazarus & Folkman, 1987). What serves to make them so? That issue is a broad focus of inquiry across the stress-resistance literature, but by whatever descriptor an individual's sturdiness under duress is captured, the purpose of this research is to examine specific personality attributes that may contribute to an adolescent's ability to cope effectively with stress, and to explore some related theoretical issues.

Purpose

The purposes of this study are both general and specific: (1) to determine whether personality variables identified as being stress protective with older and younger age groups serve stress mitigating functions during late adolescence as well, (2) to examine the relative influences of flexibility, hardiness, sense of coherence, and resilience in better versus poorer adolescent copers who are encountering stressful circumstances, (3) to ascertain which, if any, of the stress-resistance constructs of flexibility, hardiness, sense of coherence, or resilience exercises a superordinate stress-resistance function, and (4) to explore specific theoretical issues to determine whether better copers differ from poorer copers in their (a) levels of proactiveness, (b) levels of anxiety, and (c) evaluative perceptions of stressful circumstances.

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Statement of the Problem

In the growing body of stress-resistance and coping research, adolescents have received less attention than other groups (Zeidner & Hammer, 1990). It is widely accepted that many psychological phenomena vary across developmental period, and in the arena of stress and coping, Kagan (1983) made a not uncommom observation that any child's coping reactions to stressful circumstances will "depend in a special way on the child's level of development" (p. 196). Blanchard-Fields and Irion (1988) found, for instance, that adolescents tended to endorse emotion-focused coping strategies more than did mature adults, who gave preference to problem-focused strategies. Stern and Zevon (1990) noted that younger adolescents were more likely still to use emotionally based coping strategies than were older adolescents, who were at least beginning to prefer more reasoned approaches. Similarly, Brown, O'Keeffe, Sanders and Baker (1986) reported that the use of cognitive coping strategies, such as positive self-talk, increased between the ages of 8 and 18, accompanied by declines in "catastrophizing" (the tendency to focus on the negative aspects of stressful or painful situations) over the same span. Yet even with these and similarly demonstrated developmental trends, research with adolescent groups in the broad stress / coping paradigm has lagged comparatively, as illustrated below.

In 1973, Psychological Abstracts began to categorize the growing stress coping literature under the heading of "Coping Behavior," which until 1987 subsumed most related works on resilience, stress-resistance, hardiness, coping, competence, vulnerability/invulnerability, and

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well-being. Of 43 such entries in 1973, 14 studies employed adult participants, 8 utilized college students, 4 concentrated on children under age 13, and 2 focused on adolescents. The remaining 15 works were nonempirical or were not directed at any specific population. In 1980, "Coping Behavior" had grown to 193 entries, 82 of which targeted adult groups, 23 of which centered on children 12 or under, 19 of which focused on college students, and 14 of which studied adolescents. The remaining 55 articles were nonempirical or were not population specific. 254 entries appeared under "Coping Behavior" in 1985. 115 were adult studies, 22 were child directed, 14 focused on college students, and 9 utilized adolescent participants. The remaining 96 were nonempirical or otherwise nonspecific. By 1990, "Coping Behavior" identified 295 entries. 185 were adult studies, 28 focused on college students, 22 were child focused, and 29 utilized adolescent participants. The remaining 31 were nonempirical or were not population specific.

While the foregoing can be taken as only an indicative rather than a definitive account of the stress / coping research emphasis of the last 20 years, it suggests nonetheless that adult studies predominate. This was well captured by Murphy (1992) who described stress responses in adolescence as "understudied" (p. 44), and by Compas (1987a) who observed that "no systematic effort has been made to conceptualize coping during childhood and adolescence," adding that "the adult literature must be drawn on for this purpose" (p. 393).

A second, related research issue also needs to be addressed. An undercurrent flowing through the burgeoning literature on stress resistance has been the persistent, though somewhat informal observation

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that individual differences play a part in mitigating undesired stress related outcomes (e.g., Ferlemann, 1972; Uhlenhuth & Paykel, 1973; Sorosky, 1977; Chandler & Lundahl, 1983; Gray, 1987; Holahan & Moos, 1991). Rutter and his colleagues (1975a, 1975b) and Garmezy (1981, 1983, 1985) were among the first to include "positive personality dispositions" among a triad of "protective factors" which presumably minimized undesirable child and adolescent stress outcomes (Garmezy, 1983, p. 74). Murphy (1981), and Werner and Smith (1982) had similarly argued that personality dispositions in childhood and even infancy contributed to invulnerability to stress, and in this context, Garmezy (1981) had asked simply,

> Intellectual achievement, it has been said, favors the prepared mind. May not adaptational achievements favor equally well the prepared personality? (p. 249).

Even with such impetus for inquiry, only a relatively small portion of the stress / coping research has yet directly examined the contributions of personality attributes in successful stress resistance, and of these, adult studies are again preeminent. Of the empirical studies cataloged under "Coping Behavior" by Psychological Abstracts for the years 1973, 1980, 1985 and 1990, adult studies either directly or indirectly exploring the influence of personality factors in stress coping outcomes outnumber comparable college-aged studies by roughly 5 to 1, childhood studies by roughly 5 to 1, and adolescent studies by roughly 6 to 1. By most standards, the influence of personality variables in the stress / coping paradigm remains poorly understood (Tennant, Langeluddecke & Byrne, 1985).

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Importance of the Study

It has been argued that there is no "trait" of coping per se (Pearlin, Menaghan, Lieberman & Mullan, 1981; Lazarus & Folkman, 1984, 1987; Torestad, Olah & Magnusson, 1985), yet it remains reasonable to suggest that selected personality characteristics (i.e., traits) do indeed influence the effectiveness with which (or manner in which) individuals respond to various stressors. This relationship has been increasingly explored among adults yet is less understood among younger groups, even though few would argue that many personality features are not fairly well established by late adolescence. Accordingly, an effort is needed to extend personality research downward to this population within the stress / coping paradigm.

In addition, the information gathered here is potentially useful to professionals in a variety of settings who work with adolescents. Mental health and other helping professionals (e.g., therapists, counselors, school psychologists, social workers) are typically required to make judgments about the relative emotional durability of clients in their care, particularly when treatment plans are being developed, and more so when professional services must be allocated or even terminated. There is a need to explore methods for identifying clients whose stress coping abilities may enable them to function independent of such services.

In a related way, results of this study may also advance the broad goal of primary prevention. Tradition has it that prevention is worth far more than cure. Cowen and Work (1988) observed that

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> Information about the wellsprings of resilience (may) be used to shape preventive interventions to forestall the harmful psychological effects that chronic, profound stress has for so many children. (p. 594)

Segal (1983) also contended that children could be taught to cope with stress and suggested that sound educational programs for such could be designed, but he also cautioned that training materials extant for such undertakings were not generally research based, or were typically grounded in "idiosyncratic views" or "limited clinical experience" (p. 307). Identifying correlates of effective adolescent coping may help guide the early interventions of those who work with these and still younger children.

The present study is also useful because the information has the potential to probe several issues of theoretical importance. For instance, Lazarus and Folkman (1984) defined "psychological stress" as

> a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources (p.19)

and "coping" as

> constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. (p. 141)

It therefore seems reasonable to suggest that it is primarily poorer copers who will perceive various demands as "excessive," whereas better copers will perceive like demands as merely "taxing." Stated another way, the net difference between psychological resources and demands is likely to be larger for better copers (i.e., less taxing) and smaller for poorer copers (i.e., more taxing). Indeed, the net difference between resources and demands may well be negative (i.e., excessive) for poorer copers. Data collected in the study will probe this issue, for

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the size and direction of this difference may well influence whether individuals view demands as "threats," or more optimistically as "challenges" (cf. Lazarus, 1971; Lazarus & Launier, 1978; Hladsky, 1978; Kobasa, 1979b; Holroyd & Lazarus, 1982; Kobasa, Maddi & Kahn, 1982; Stiffman, Jung & Feldman, 1986).

Definitions of Terms

Late Adolescence -- The latter portion of the developmental transition period between childhood and adulthood. Late adolescence is operationally defined as the life frame of individuals enrolled in high school.
[derived from Sisson, Hersen & VanHasselt, 1987]

Stressors -- Events, circumstances, or conditions of life which are generally considered problematic, negative, or undesirable, and which are capable of posing threats to one's well-being. Stressors are operationally defined as items endorsed on a modified administration of the Survey of Adolescent Stress Issues (SASI).
[derived from Ilfeld, 1976; Honig, 1986; Terry, 1991]

Stress -- An organismic state which results when demands are appraised as potentially taxing or exceeding one's counter resources; theoretically expressed by the formulation: Stress = Demands - Ability.
[derived from Lazarus & Launier, 1978; Mikhail, 1981; Westman, 1990]

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Coping -- The process of employing purposeful behavioral or intrapsychic efforts to gain mastery over stress, irrespective of the success of such efforts; theoretically expressed as an ability to employ such efforts. Coping ability is operationally defined as a summary score on the COPE.
[derived from Lazarus & Launier, 1978; Garmezy, 1981; Folkman, 1984]

Anxiety -- An emotional state characterized by subjective feelings of tension, apprehension, nervousness or worry, and by activation or arousal of the autonomic nervous system.
[derived from Cattell & Scheier, 1961; Spielberger, 1983]

State Anxiety -- a relatively transitory anxiety response to immediate stressful circumstances, but whose intensity is influenced by an individual's underlying level of trait anxiety.
[from Spielberger, 1983]

Trait Anxiety -- a relatively stable level of anxiety proneness, or in the tendency to perceive stressful situations as dangerous or threatening, and to respond to such situations with elevations in state anxiety reactions. Trait anxiety is operationally defined as a score on Form Y-2 of the State-Trait Anxiety Inventory.
[from Spielberger, 1983]

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Flexibility -- A personality characteristic which engenders the willingness and ability to consider multiple or alternative responses to problem situations. Flexibility is operationally defined as a score on the Flexiblity concept scale of the California Psychological Inventory (Gough, 1987).
[adapted from Wheaton, 1985b; Gough, 1987]

Hardiness -- A tripartite personality characteristic that functions as a stress and illness resistance resource in the encounter with threats to well-being. Hardiness consists of the personal dispositions of commitment, control, and challenge, and is represented in adolescence by the qualities of task engagement, goal directedness, and positive self. Hardiness is operationally defined as a summary score on the Hardiness Scale for Adolescents - Revised (Collins, 1991).
[derived from Kobasa, 1979a; Kobasa, Maddi & Kahn, 1982; Wagnild & Young, 1991; Collins, 1991]

Sense of Coherence -- A global personality orientation that expresses the extent to which an individual has a pervasive and enduring, though dynamic feeling that life is comprehensible, manageable, and meaningful. Sense of coherence is operationally defined as a summary score on the Orientation to Life Questionnaire.
[derived from Antonovsky, 1987a, 1987b].

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Resilience -- A personality characteristic that engenders the capacity to withstand pathogenic pressure, to modify one's modal level of behavior to meet stressful circumstances, and the ability to recover quickly from the effects of stressors and resume normal functioning with little or no outside help. Resilience is operationally defined as a summary score on the Resiliency Belief System for Adolescents (Jew, 1991/1994).
[derived from Redl, 1969; Gjerde, Block & Block, 1986; Fine, 1991]

Appraisal -- The cognitive evaluative process that imbues a situation with meaning for the individual, either in terms of its significance to the person's well-being, or of the availability of coping resources and options; theoretically expressed by the formulation: Appraisal = Stressors - Stress. Appraisal is operationally defined as a summary score on the APES-B.
[derived from Lazarus, 1966; Lazarus & Launier, 1978; Holroyd & Lazarus, 1982]

Overview of the Study

This study will examine the relationships between the personality characteristics of flexibility, hardiness, sense of coherence, and resilience and better versus poorer coping among stressed late adolescents. It will also explore the utility of these personality characteristics as predictors of better versus poorer coping within this population. In addition, the study is designed to probe several questions of theoretical importance regarding (1) specific types of coping responses associated with better or poorer coping, (2) levels of

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Chapter I has provided an overview and rationale for the study. Chapter II reviews research germane to the current inquiry. Chapter III describes the participants and research setting, and discusses methods and procedures for data collection and analysis. Chapter IV presents results and analyses, and Chapter V summarizes and discusses major implications of the study.

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CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this chapter is to examine the concepts of stress and coping, and to explore what is known about the influence of selected personality structures on the process of coping with stress. Initial emphasis is given to the origins of the stress concept and the dual nature of stress research. Coping is addressed in a second section, with distinctions drawn between coping and defensive operations, and identification of selected limitations found in coping research. A third section examines personality factors that are thought to influence coping processes, with particular focus on the constructs of flexibility, hardiness, sense of coherence, and resilience. Theoretical issues that have remained largely unexamined for adolescents in the stress / coping literature are discussed in context and include the role of appraisal or perception in the stress experience, hypothetical balances between stress and coping resources, and proactive versus passive coping responses. In a final section, several research hypotheses and questions germane to adolescent coping are advanced.

Stress

Wertlieb, Weigel and Feldstein (1987) recently observed that,

> Any attempt to delineate the dynamics of coping confronts the significant parallel semantic, the conceptual and methodological complexities of the dynamics of stress (p. 548),

echoing Pearlin and Schooler's (1978) earlier contention the two concepts were becoming "inseparably bound" (p. 4).

In the stress research literature it has become customary, even obligatory to begin discussion with problems surrounding the terminology of the field. The tradition is more than mere ceremony. Vingerhoets and Marcelissen (1988) began their review of stress research by citing a disgruntled (and anonymous) researcher who observed that stress "in addition to being itself, and the result of itself, is also the cause of itself" (p. 279). Stress has been variously defined as a state, a response to a stimulus, and as a stimulus to a response. It has occasionally been described as a positive experience. Bernard (1968), Lipowski (1969) and others attempted to elucidate circumstances that were clearly stressful yet were deemed enhancing enough to be sought out, such as a new job. Following Bernard, Hans Selye, often seen as an originator of the concept of stress, tried for a time to highlight the potentially salutary effects of stress by employing the term "eustress," meaning literally "good" stress (Selye, 1973, 1976). Even further, Hoes (1986) argued from a homeostatic perspective that stress, as a physiological reaction provoked by some internal or external "strain", even had restorative properties. He concluded therefore that "the main point of any therapy should be to reduce strain and promote stress" (p. 36, emphasis added). Such approaches foundered, however, in the face of consistent evidence that it is negative experiences after all that people overwhelmingly regard as stressful (Dobson & Neufeld, 1979; Billings & Moos, 1982; McGrath & Burkhart, 1983; Swearingen & Cohen, 1985; Davis & Compas, 1986; Breslau & Davis, 1987; Pelletier & Herzing,

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1988). Such findings have echoed Garmezy's (1981) comment that "**stress** is not equivalent to **distress** but it has come to be viewed in that way" (p. 238, emphases original).

Reviews of stress research are further complicated by the de facto existence of two stress literatures, one physiologically and one psychologically based, a point that has occasionally been alluded to (Mason, 1975a; Ilfeld, 1976; Mikhail, 1981; Rutter, 1981) but rarely clarified. Selye (1936, 1950a, 1950b, 1956) is often credited with originating the concept of stress, but his conception was strictly physiologically as opposed to psychologically defined. In the laboratory he had observed that a wide variety of toxic extracts produced a consistent "triad" of responses at the physiologic level: (1) enlargement of the adrenal cortex, (2) shrinkage of the lymphatic structures, and (3) bleeding ulcers in the stomach and upper gastric tract. The consistency of this physiological **response** to wide ranging, biophysiologically noxious stimuli led Selye to refer to the triad as the General Adaptation Syndrome, and as the literal manifestation of stress.

> Adrenal enlargement, gastrointestinal ulcers, and thymicolymphatic shrinkage were the omnipresent signs of damage to the body when under disease attack. The three changes thus became the objective indexes of stress and the basis for the development of the entire stress concept (Selye, 1973, p. 694).

Selye characterized the triad as a generalized call-to-arms of the body's defenses, and as stress itself. As well, because it was non-specific in the sense that many noxious agents could produce it, he came to regard stress as "the non-specific response of the body to any demand made upon it" (Selye, 1973, p. 692). Hence stress was viewed as

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an internal state that resulted from agents he later termed "stressors" so as to distinguish effect from cause, and stress from that which induced it. But by inclusion of the phrase "any demand," Selye had implied that this tripartite stress response was somewhat universal, even invariant in the face of broad based stressors, pleasant or unpleasant. The universality and non-specificity of this stress response so defined has been both supported and attacked over the years.

Selye's conception of stress and the research it has prompted remains robust, but distinctly biophysiologically rooted, and closely linked to disease process models. Subsequent thinking and research within this paradigm has understandably been physiologically oriented and somewhat linked to medical research. From this orientation, even the psychological component has been researched from a physiological perspective, and has included attempts to show cause between psychological factors and the stress response (Elvidge, Challis, Robinson, Roper & Thorburn, 1976; Kidman, 1984), illness onset (Kobasa & Puccetti, 1983; Elliott & Peterson, 1987), disease and disease processes (Mechanic, 1976; Rahe, 1976; Pollock, 1986), postoperative recovery (Cohen & Lazarus, 1973), physical health outcomes (Silverman, 1979; Blake & Vandiver, 1988; Elliot & Gramling, 1990), neurotransmitter dynamics (Goldstein, 1990), neuroendocrine system functioning (Biondi & Brunetti, 1990), immune system functioning (Solomon, Amkraut & Kasper, 1974; Workman & la Via, 1987; Dorian & Garfinkel, 1987; Glaser & Kiecolt-Glaser, 1987; O'Leary, 1990; Irwin, Patterson, Smith, Caldwell et al., 1990), psychoneuroimmunology (Ader, 1981; Vollhardt, 1991), and the like.

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Of interest to psychologists, Selye had speculated (somewhat idly) in his early research that emotional, or "nervous", stimuli might be capable of inducing the stress response. Though he has in the main held fast to his physiological, internal-state view of stress, he also came to admit more clearly, in the face of his own and others' subsequent research, that psychological factors played a decisive role in eliciting and modifying a typical stress response (Selye, 1976). Mason (1971) had not only asserted that psychological stimuli could prompt a substantial pituitary-adrenal cortical response, but had also cited accumulating evidence that "psychological stimuli are among the **most potent** of all stimuli affecting the pituitary-adrenal cortical system" (p. 325, emphasis added). However, Mason (1975a) also later suggested, as had Lazarus (1966) before him, that there may in fact be few if any major links between the lines of stress research promulgated by Selye's formulations and those pursued by psychologists, though to the present day many writers in both camps continue to assume there are. It has led to lines of research that unabashedly mix psychological and physiological variables, with equally mixed and inconsistent results (e.g., Allred & Smith, 1989).

Selye's influence on stress research remains strong in the physiological realm, but Hinkle (1974) and others (e.g., Mason, 1971; Rahe, 1976; Mikhail, 1981) have pointed out that stress as psychologists understand it is probably more properly traced to the work of Richard Lazarus (1966) or perhaps indirectly to Walter Cannon (1914, 1928, 1935), who spoke of such things as "emotional stress" and "times of stress" in his efforts to describe homeostasis and "fight or flight" mechanisms.

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Historically, in the 17th century and before, stress was taken to mean an experience of "hardship, straits, adversity or affliction," or in essence the visitation of unpleasant and disruptive occurrences to one's life. An aphetic of "distress," over the next two hundred years the word further came to signify strain upon a "bodily organ or mental power" or "mental faculty" (Simpson & Weiner, 1989). Although the term was over the same period commandeered by physicists and engineers to denote forces applied to solid bodies, it is the earlier common notion of unpleasant experiences and their attendant impact that even today generally represents stress to the average person.

Implicit in this view is the modern understanding that stress is at least twofold. An untoward event occurs, and its impact is experienced at minimum on a psychological level. But how that event is experienced begins to depend in turn upon such factors as the individual's vulnerability (Zubin & Spring, 1977; Rutter, 1981; Rose, 1984; Garmezy & Masten, 1986; Adams & Deveau, 1987; Oei & Zwart, 1990), the individual's perceptions of the event (Magnusson & Ekehammer, 1975; Folkman & Lazarus, 1980; Cresswell, Corre & Zautra, 1981; Stern, McCants & Pettine, 1982; Werner, 1984; Gibbs, 1989), the coping resources at hand (Monat, 1976; Folkman & Lazarus, 1984; Vogel, 1985; Wheaton, 1985a; Boyce & Chesterman, 1990), the social supports available (Holohan & Moos, 1981; Cohen & Hoberman, 1983; Hetherington, 1984; Burt, Cohen & Bjorck, 1988; Dubow & Tisak, 1989; Pryor-Brown & Cowen, 1989; Holohan & Moos, 1991), and a variety of personal qualities such as internal locus of control (Garmezy, 1981; Werner, 1986; O'Grady & Metz, 1987), pessimism (Cantor & Norem, 1989), and resourcefulness (Rosenbaum, 1989).

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Lazarus (1966), and Folkman and Lazarus (1984) have argued that stress represents not simply a physiological response, but rather a much larger psychological **transaction** between the person and the environment that includes a host of cognitive judgments based on the "stimulus configuration" of the "threat," and on the individual's "psychological structure," or personality. Subsequent research within this paradigm has tended to examine the **meaning** or **significance** of stressful events in a person's life, whereas research within the physiological paradigm continues to examine the physical change or tissue harm that occurs as a result (Lazarus, 1966; Ciaranello, 1983). Yet despite efforts to establish direct correspondences between the psychological and the physiological aspects of stress, it has been largely concluded that events at one level do not consistently represent events at the other (Hinkle, 1974; Lazarus, 1978; Rutter, 1981; Gunnar, 1987; Evans, 1991). As such, predictions about the effects of "stress" depend largely on whether a physiological or a psychological stressor is used as a predictor, and whether a physical or a psychological effect is being predicted (cf. Schaefer, Coyne & Lazarus, 1981; Folkman, Lazarus, Gruen & DeLongis, 1986; Lazarus & Folkman, 1987; Smith, Patterson & Grant, 1990). In a sense, Burchfield (1979) had stated the psychological paradigm by contending that "it is the **psychological** concommitants of an event that make it stressful" (p. 662, emphasis added). The current paper accepts that premise and necessarily restricts itself to the psychological arena of stress coping.

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Coping

Steptoe (1989) noted that there must be "almost as many definitions of coping as there are of stress" (p. 260), and Garmezy (1986) had also characterized the formal study of coping, at least with respect to non-adults, as "something of a quagmire, marked by inadequate measures and limited conceptualization" (p. 391). Such judgments may be a bit harsh in that over a decade ago Cameron and Meichenbaum (1982) had identified the transactional model developed by Lazarus and his colleagues as the emerging framework for stress coping research in the psychological arena, but it has been lamented even recently that "most previous research has not reflected a transactional perspective" (Compas, Worsham & Ey, 1992, p. 12). Central to the relatively slow emergence of an agreed upon research model has been an evolving debate over the nature of coping.

Early conceptions of coping were somewhat shaped by psychoanalytic formulations which saw both coping and defense as unconscious responses to internal conflicts. Thus rooted in notions about psychological defenses, coping was initially only crudely distinguished from them, and from similarly reactive processes. Based on their early work at the Menninger clinic in the 1950's and 60's, Murphy and Moriarty (1976), for instance, wrote from an ego psychological model and defined coping "as a general term to include defense mechanisms ... and methods for handling stress that do not come under the heading of defense mechanisms" (p. 5). White (1959, 1974) subsumed coping (along with "mastery" and "defense") under "strategies of adaptation," and continued to maintain that coping simply referred to "adaptation under relatively difficult conditions"

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(White, 1985, p. 123). It was generally presumed in this early view that coping was a quality one did or did not possess, and research efforts accordingly reflected a tendency to attribute trait-like aspects to competent functioning. It was from this tradition that coping was often explored early on under such dichotomies as repression-sensitization (Byrne, 1964; Byrne, Steinberg & Schwartz, 1968), avoidant-vigilant (Janis, 1958; Cohen & Lazarus, 1973), and denial-intrusion (Horowitz, 1976).

Haan (1963, 1977) was among the first to make clear differentiations between the functions of psychological defense and coping, with the latter regarded as conscious, flexible, purposive, reality oriented, and forward reading (Garmezy, 1981). With time, coping also took on active connotations and came to be regarded as what one did, rather than what one had (Patterson & McCubbin, 1987). Dunkel-Schetter, Folkman and Lazarus (1987) stated the case by pointing out that coping had been shown to "vary substantially across situations" and as such suggested that coping was best conceptualized "not as a stable property of individuals but as a **process** that depends on characteristics of both the person and the situation" (p. 72, emphasis added). Most writers in this tradition have emphasized the broad, dynamic, action oriented, effortful, even striving qualities of coping. Lazarus (1966) was among the first to see coping processes as "the action tendencies aroused by threat" (p. 53). Adler (1972) described coping mechanisms as "mental mechanisms in the service of mastering the environment" (p. 337). Dimsdale (1974) and Roth and Cohen (1986) characterized coping as a "dynamic" process. Moriarty and Tousseing (1975) saw coping as "a term

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that emphasizes internal balance and lacks the aspects of concession implied by the term adjustment" (p. 395). Pearlin and Schooler (1978) saw "as the very heart of this concept ... the fundamental assumption that people are actively responsive to the forces that impinge upon them" (p. 2). Folkman and Lazarus (1980) deemed coping "a shifting process" (p. 221), and Folkman (1984) defined coping as "cognitive and behavioral efforts to master, reduce, or tolerate ... internal and/or external demands" (p. 843). Cameron and Meichenbaum (1982) stated that coping "subsumes a wide range of discrete coping strategies" (p. 698). Haan (1985) commented that "coping processes continue an open system," adding that "defenses produce particular closures of the system" (p. 144). Compas (1987a) referred to coping as "a subset of adaptational actions involving effort," and suggested further that "coping is not limited to successful efforts but includes all purposeful attempts to manage stress regardless of their effectiveness" (p. 394). Carver, Scheier and Weintraub (1989) indicated that coping also entails a certain quality of "urgency" (p. 280), and the description of coping by Rao, Subbakrishna and Prabhu (1989) can be taken as summary:

> All definitions imply that stressors are not passively received by the individual, but that he actively engages in certain thoughts and behaviours to mitigate and avoid their impact" (p. 128).

Yet despite a clear movement away from trait based conceptions of coping, a tendency remains to simplify coping into either-or dichotomies, such as approach versus avoidance (e.g., Holahan & Moos, 1985; Ebata & Moos, 1991,) or problem-focused versus emotion-focused (e.g., Folkman & Lazarus, 1980; Compas, Banez, Malcarne & Worsham, 1991). Such approaches, whether trait or process based, have created a

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pervasive research habit of defining and identifying "good" or "poor" coping by whether or not the individuals under study use particular coping strategies, rather than by any broader conceptualization of what makes an individual a better or a poorer coper. As well, despite the clearly proactive tincture ascribed to coping, research to date has not yet ascertained whether better copers are **characteristically** more inclined to engage the environment than are poorer copers.

There are arguments both for and against this position. Pearlin and Schooler (1978), and Fleishman (1984) have suggested that active responses are more effective in reducing stress. Holahan and Moos (1985) argued that individuals under stress utilize "high levels of approach coping, along with some avoidance coping," but that "avoidance coping plays a negative health role in its own right" (p. 745). Ebata and Moos (1991) further suggested that adolescents who use more approach and less avoidance are simply better adjusted. Others have taken more neutral or even contrary positions. Ferleman (1972), for instance, had observed that "active children seem to be better copers," but added, "However, passivity may be an excellent coping mechanism for some" (p. 18). Later, Murphy and Moriarty (1976) described two major approaches to coping, which they labeled Coping I and Coping II. Coping I referred to active problem-solving, and Coping II referred to internal efforts to maintain equilibrium and integration under stress, and no value judgments were advanced regarding the supremacy of either. Folkman and Lazarus (1980) found that both problem-focused and emotion-focused coping were used to some degree in virtually every stressful encounter, and Folkman (1982) later suggested that "no strategy is ... inherently

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better or worse than any other" (p. 99). Tolor and Fehon (1987) similarly argued that attempts to relate such dichotomies to better or poorer adjustment could not be supported, and offered the finding that "a wide range of strategies are typically employed by male high school students, and that none is clearly used by the majority of students" (p. 40). In general, though, the debate remains open. The current study will examine this issue from the perspective of coping proactivity.

Personality and Coping

Most current research on coping accepts an early premise by Lazarus (1966) that coping is influenced by the nature of the stressful situation and by the nature of the individual who copes. Lazarus virtually mandated a transactional coping model by noting that

> stress cannot be defined exclusively by situations because the capacity of any situation to produce stress reactions depends on characteristics of the individual. ... The important role of personality factors in producing stress reactions requires that we define stress in terms of transactions between individuals and situations, rather than of either one in isolation (1966, p. 5).

Coping is thus on one hand seen as a response to stressful life situations and is accordingly wedded to what has come to be called "life events" research (e.g., Dohrenwend & Dohrenwend, 1974; Chalmers, 1982; Johnson, 1986; Compas, 1987b; Puskar & Lamb, 1991). On the other hand, the individual differences reported in stress reactiveness and coping have fostered research into coping "styles" (e.g., Myers, 1982; Schill & Tata, 1988; Endler & Parker, 1990; Blount, Davis, Powers & Roberts, 1991; Petrosky & Birkimer, 1991), and have served to keep the trait versus process debate alive (cf. Lazarus, 1990; Ben-Porath & Tellegen, 1990). Interestingly, although Lazarus and his colleagues have long

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acknowledged the role of personality factors in the coping process, they have for the most part preferred to minimize it by contending that coping is primarily situation specific and context driven (cf. Folkman, Lazarus, Gruen & DeLongis, 1986). However, evidence suggests that both situations and personal resources contribute about equally and independently to coping effectiveness (Sarason, Smith & Diener, 1975; Zeidner & Hammer, 1990), and that there is in fact a tendency to underestimate to role of personality dispositions in the stress process (Krohne, 1990). Clark and Hovanitz (1989) have also commented that

> Without some expectation of constancy in coping that transcends the situational context, it is difficult to explain how coping strategies reportedly used in one specific (and usually trivial) stressful situation could mediate or moderate the stress/psychopathology relationship. One is almost required to ascribe a trait-like quality to the individual's coping choices in order to make sense (p. 29).

A resulting difficulty endemic to the stress / coping literature has been that because coping has now come to be associated with conscious, purposeful effort to overcome hardship, it has also come to be linked with and is often discussed interchangeably with such terms as competence, invulnerability, resilience, hardiness, and stress resistance. All of these are probably more properly conceived of as personal qualities which influence coping. [1] When Garmezy (1981), for instance, characterized competence as a quality that "implies action, the ability to change or to act upon the environment as opposed to simply adapting to it" (p. 226), he was effectively describing a relationship with coping. Similarly, Holahan and Moos (1990) explored the stable functioning of adults under high stressor conditions and concluded that "stress resistance is essentially a coping model"

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(p. 915). Such comments of course do not necessarily equate coping with competence or stress resistance, but merely suggest that the concepts are related in some meaningful way. A tenet of this paper is that qualities such as flexibility, hardiness, sense of coherence, and resilience are personality characteristics that contribute to better coping. Coping is therefore not seen as a trait per se, but it is presumed to be influenced by such traits, as Lazarus originally contended. A simple test would be to see if these selected (and for adolescents, largely unexamined) traits are positively related to better and perhaps negatively related to poorer coping. A brief discussion of these concepts is in order, along with a review of research issues germane to each, including what is known of their relationship to adolescent coping.

Flexibility

Surprisingly, there has been almost no research on flexibility within the stress / coping paradigm to date. In the literature it has been casually assumed, almost presumed, that psychological flexibility facilitates effective stress coping, and the notion has worn many guises. Block and Block (1980) commented that ego-resilient children tended to be more "resourceful", Murphy (1981) indicated that coping implied a degree of "elasticity" of response, and Knapp, Stark, Kurkjian and Spirito (1991) speculated that coping virtually required the use of a "variety of strategies." Haan (1977, 1985) spoke of purpose, choice and "flexible shift" as endemic to coping, Roth and Cohen (1986) surmised that effective coping would likely involve a "flexible orchestration" of both approach and avoidance, Compas (1987a) offered

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the opinion that effective coping would be "likely" to be characterized by "flexibility and change", and Ray, Lindop and Gibson (1982) observed in their review that successful coping "may require" the ability to "maintain flexibility." Even so, such observations have remained largely conjectural.

Adult studies.

A recent computer search revealed only 18 research articles since 1970 addressing flexibility or adaptability from the perspective of stress and coping, and over half of these were theoretical in nature or discussed flexibility only in passing. None of the empirical studies conducted in the United States focused on adolescents. Wheaton (1982, 1983, 1985b) has been one of the few systematic researchers in this area, yet his work has relied heavily on data from a single study of Anglo-American and Mexican-American adults (mean ages = 39.8, 35.1 respectively), and he has also viewed flexibility as "the obverse of cognitive rigidity" (1985, p. 143). In effect, the lack of inflexibility implied flexibility. To measure inflexibility, Wheaton presented participants with four descriptors of hypothetical individuals (e.g., Has rigid standards s(he) feels s(he) should stick to; Gets upset if his/her home or place where s(he) works is not neat and clean) and asked them to rate themselves as being like or unlike those described. Reverse coding of responses ostensibly yielded an index of flexibility. Wheaton concluded that flexibility moderated the relationship between stress and depression, and between stress and symptoms of schizophrenia, but the limited number of scale items and the conceptualization of constructs make the conclusions tenuous at best.

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There have been a smattering of other attempts to examine the influence of flexibility more directly, but all with older populations. Vinson (1974) included an estimate of flexibility in her exploration of factors which influenced successful maturation among the elderly (median age 77). Flexibility and three other variables of interest were measured by specifically designed questionnaires and two-hour interviews. Vinson concluded that flexibility was one of the causal factors in the successful maturation of autonomous older persons. Solvesson-Lane (1980) examined the roles of self-concept, flexibility, and locus of control as moderator variables in the relationship between stress and successful-versus-unsuccessful coping among adult participants subjected to comparable levels of stress. Participants were college graduates who ranged in ages from 25 to 40. Flexibility was measured by the Gough-Sanford Flexibility Scale of the California Psychological Inventory (Gough, 1957), and results suggested that flexibility buffered the effects of life stress whereas rigidity did not. Dyer (1990) compared levels of stress, coping resources and adaptability between dual-career married couples who work together versus couples who work separately, and reported differences in levels of flexibility by sex and by group, but relationships between flexibility and stress and coping were not directly examined. Charner and Schlossberg (1986) interviewed adult clerical workers (ages 27 and above) to determine coping methods used in "life transition". They found that effective copers tended to rely on one outlook (being a fighter), but also on a variety of specific strategies, some of which were aimed at managing stress and others of which were directed at modifying the external situation. They concluded that "there seems to

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Adolescent studies.

Only two empirical studies, conducted overseas, included adolescents. In Denmark, Montgomery, Krogh, Jacobsen and Lukman (1992) completed case studies on 11 children (ages 5 to 13), at least one of whose parents were torture victims. Interview and projective testing (Draw-a-tree, Rorschach) of the children suggested that the severe challenges to the families had resulted in a relative lack of flexibility in the children's coping strategies. In essence, low coping flexibility was taken as an outcome of pronounced stress. In a study completed in Czechoslovakia, Senka and Cecer (1989) rated high school students (113 male, 129 female) on productivity, activity level, and flexibility as three components of self control. All three dimensions were found to be related to successful stress coping in both school and non-school circumstances. No sex differences were reported. Descriptions of methods and measures are not available in English translation.

Summary.

In general, some support exists to suggest that flexibility is a personality characteristic which enhances stress coping, but direct examination of this relationship with American adolescents has not been undertaken.

Hardiness

Hardiness is a personality construct originated by Kobasa (1977, 1979a) and rooted in existential theories of the authentic personality, which contend that the authentic person must seek a meaningful life style as

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defined by his or her own ascribed values and attitudes. The hardy personality is circumscribed in part by such attitudes. "The hardy image is of an active optimist organizing his or her ever-changing social context" (Orr & Westman, 1990, p. 66), and as originally defined, hardiness was effectively seen as "the antithesis of existential neurosis" (Wagnild & Young, 1991, p. 257). Of particular import as postulated by Kobasa, the hardy person is one who is disposed to experience stimuli in particular ways, to ascribe particular meanings to them, and to act on them by "energizing" particular response patterns. Such dispositions, it was argued, ought to exert a health oriented counterforce in the face of stress such that the individual could "remain healthy while experiencing events that would be debilitating for others without those dispositions" (Kobasa, Maddi & Kahn, 1982, p. 169). The personality dispositions of hardiness were identified by Kobasa as commitment, control, and challenge.

A sense of commitment refers to a belief in the value of oneself and the tendency to be involved in (rather than alienated from) one's endeavors. Control refers to the tendency to consider oneself influential (rather than helpless) in the face of life's tribulations. The sense of challenge manifests itself in the belief that change (rather than complete stability) is to be expected from life, and is of inherent interest and to be welcomed for its growth potential. Thus engendered in these dispositions are the existential admonitions to live life with a sense of caring and courage.

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Adult studies.

Early research on hardiness focused primarily on its presumed deterrent effects on physical illness, and only later and to much lesser degrees on its mitigating effects on psychological dysfunction. As well, hardiness research even at present has almost exclusively restricted itself to adults, and most typically to adults in positions of higher than average responsibility or exposure to stress. Kobasa's original research explored relationships between hardiness and incidence of physical illness among male middle and upper management personnel who experienced high levels of stress in their positions with a major Chicago utility firm. Results indicated that managers rated high on the dimensions defined as hardy reported a lower illness incidence than those rated low on the hardiness variables (Kobasa, 1979a). Subsequent concurrent and prospective tests of the model have shown that hardiness appears to exert illness buffering and stress insulating effects in varying degree among business executives (Kobasa, Maddi & Courington, 1981), lawyers (Kobasa, 1982), nurses (Rich & Rich, 1987; McCranie, Lambert & Lambert, 1987), sales, technical, clerical and production workers (Manning, Williams & Wolfe, 1988), young mothers (Dillon & Totten, 1989), officer cadets (Westman, 1990), the elderly (Magnani, 1990), and college students (Hannah, 1988; Wiebe, 1991; Williams, Wiebe & Smith, 1992). Findings have been somewhat less robust for women than men (Rhodewalt & Zone, 1989; Nakano, 1990; Wiebe, 1991), and the challenge component has been less consistently supported (Manning, Williams & Wolfe, 1988; Witherington, 1991; see Wiebe & Williams, 1992 for a brief review), but the model in its essential form appears to hold. Hardiness has also been shown to exert illness buffering effects

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independent of such influences as constitutional predispositions (Kobasa, Maddi & Courington, 1981), social support (Orr & Westman, 1990), Type A personality (Kobasa, Maddi & Zola, 1983; Contrada, 1989), and exercise (Kobasa, Maddi & Puccetti & Zola, 1985).

The influence of hardiness on psychological outcomes has been less extensively researched, but the results have tended to parallel those for physical outcomes. Pollock, Christian, and Sands (1990), for instance, studied physiological and psychological adaptation in three groups of chronically ill patients (hypertension, rheumatoid arthritis, multiple sclerosis) along the dimensions of stress tolerance, hardiness, and involvement in health promotion and patient education programs. Of particular interest, they found that patients' physiological and psychological adaptation did not correlate with each other, but that hardiness predicted **both** physiological and psychological adaptation and was the only major variable to do so. Other efforts to link hardiness with psychological variables have also indicated that hardiness correlates positively with happiness among the elderly (McNeil, Kozma, Stones & Hannah, 1986), with better perceptions of mental and social health in rural adults (Lee, 1991), and with the tendency to make stable, internal attributions for positive events among undergraduates (Hull, Van Treuren & Propsom, 1988). It has also been shown to correlate negatively with burnout among nurses (Rich & Rich, 1987), with psychological "symptoms" in licensure examinees (Sullivan, 1987), and with psychological distress in adult children of alcoholics (Kashubek & Christensen, 1992).

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Adolescent studies.

Despite these generally favorable research findings, there are as yet only a handful of adolescent hardiness studies, and two particular difficulties have characterized them. There has been a virtual failure to control for appraisal processes in the stressor-outcome relationships of interest (a typical omission in adult studies as well), and they have generally been limited by inadequate measures of the construct. Each issue will be discussed in turn, and noted in context in an overview of adolescent hardiness findings.

Appraisal.

Coping theory suggests that the experience and outcomes of stress are somewhat contingent upon an individual's perceptions of the stressor s/he faces (primary appraisal), and upon the resources s/he believes s/he can bring to bear on it (secondary appraisal). The more careful researchers working with hardy and nonhardy adult subjects have recently begun to include measures for assessing these individuals' appraisals / perceptions of their stress-related experiences, and have found differences in the ways they view such situations. Kobasa (1985) was among the first to include a perception-of-stress variable in her work, finding a small but significant difference between high stress / low illness subjects and high stress / high illness subjects.

Since then, it has begun to be demonstrated that hardy adults tend to rate the same objective stressors as less threatening than do nonhardy adults (Rhodewalt & Augustdottir, 1986; Wiebe, 1991; Wiebe & Williams, 1992), or are at least less likely to perceive life events as undesirable and uncontrollable (Banks & Gannon, 1988). This has not

harmed the overall model. Rhodewalt and Zone (1989) reported that even with such appraisal controls in place, hardiness "has stress-buffering properties beyond appraisal processes" (p. 86). Even so, examination of objective versus subjective assessments of stress has emerged as an important requirement in hardiness research (see Westman, 1990), as well as in the broader explorations of stress and coping. Adolescent hardiness researchers have been less careful with this concern.

In one of only five identified adolescent hardiness studies undertaken since 1980, Sheppard and Kashani (1991) explored the relationships between hardiness and physical and psychological symptoms in 75 male and 75 female Massachusetts high school students (ages 14 - 16). Estimates of psychosocial stress level were also obtained for all participants. Hardiness was measured by a 20-item short form for adults developed by Kobasa and Maddi (1982), and no alterations in scale items were reported. Physical symptoms were assessed by a 34-item scale of the Diagnostic Interview for Children and Adolescents (DICA; Herjanic, Herjanic, Brown & Wheatt, 1975; Herjanic & Reich, 1982), and stress level by a 14-item DICA scale. Psychological symptoms were measured by a DICA structured interview scale based on symptom lists for anxiety disorder (32 items), eating disorder (12 items), psychotic disorder (13 items), and delusional disorder (16 items) noted in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R). All DICA scales ostensibly produced objective estimates of their respective targets in that subjects were to respond "yes" or "no" to indicate whether they had or had not experienced various physical problems (e.g., Do you have headaches?), various stressors (e.g., Does someone from your home have

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The authors found several main and interaction effects for hardiness components, primarily commitment and control, for both physical and selected psychological symptoms. However, it can be noted that the relationships found for psychological symptoms, though reportedly significant for gender, were compromised due to the extremely low number of clinical symptoms reported by the majority of the students. The authors were forced to abandon their original desire to relate hardiness to DSM-III-R clinical categories inasmuch as almost no students manifested diagnosable disorder by those standards. Analyses were based instead on the number of symptoms reported, which were so small across all categories as to make even slight differences between groups statistically significant. Females were for instance deemed more "delusional" than males even though the mean difference in number of symptoms endorsed was less than one, and the mean number of symptoms endorsed by both groups was less than two of a possible sixteen (Male delusional symptom mean = .64; Female delusional symptom mean = 1.39). The authors nonetheless concluded that "the females in our sample were more maladjusted than the males" (p. 765). Such conclusions from the data base are somewhat overextended, and at best obscure the dynamics of hardiness mechanisms with this adolescent population.

Of additional relevance to the current paper is that Sheppard and Kashani reported several significant interactions involving the hardiness components, gender, and stress level for both physical and

psychological symptoms. Particularly for stress level, due to the presumably objective yes/no identification format adopted in this study for the identification of stressors, it could ostensibly be concluded that the mere occurrence of untoward events in the students' lives was influential irrespective of their views of them. Or stated another way, the students' appraisals of the stressing events in their lives might be considered unimportant compared to their mere occurrence. Such a conclusion would be contrary to existing stress coping theory. The authors had noted, however, that "7 of the 14 items from our measure of stress assess whether or not the adolescent worries about a family problem or event" (p. 765), (e.g., Does someone drink a lot and cause disturbances at home which worry you?; Is someone in the family seriously ill, handicapped, or crippled so that you worry about it?). In effect, half the items on the stress level scale introduced a subjective (perhaps even projective) appraisal element such that it would be difficult to determine whether the stress related interactions found in the study were based on objective or subjective stress reports.

To examine properly the role of stress in such studies, it is necessary to gather two pieces of information, (1) a report of the occurrence of stressors in an individual's life (the objective measure), and (2) a separate report by the individual of the appraised impact of such events (the subjective measure). Only then can it be determined whether it is the simple occurence of events or the psychological experience of events that is the contributor in stress related outcomes. This has not been done with adolescents.

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With respect to measurement, Ouellette (1993) [2] commented that as researchers apply hardiness concepts to less studied groups, it will be "critical that they note the extent to which current hardiness conceptualization and measurement may need to be altered to fit the group under study" (p. 82). Citing adolescent hardiness research by way of example, Ouellette described the work as "essentially atheoretical" and noted that future researchers "may find themselves working with constructs quite unlike commitment, challenge, and control as they have been defined to date" (p. 83). Only one hardiness study thus far (Collins, 1991) has undertaken any such conceptual attempt with adolescents. By and large, adolescent researchers have superimposed adult measures on their participants and have "made the assumption that by age twelve one can observe what is recognized as adult hardiness" (Ouellette, 1993, p. 83).

Morrissey and Hannah (1987), and Hannah and Morrissey (1987) undertook two adolescent hardiness analyses. In the first, they attempted to establish the use of Kobasa and Maddi's 20-item short form hardiness scale with adolescents. Subjects were 160 male and 157 female students enrolled in grades 7 through 12 in six parochial schools throughout Newfoundland, Canada. Adaptation of the hardiness scale was accomplished by replacing "work" references with "school" references in all affected items, and convergent validity was established by correlation with the Memorial University of Newfoundland Scale of Happiness (MUNSH; Kozma & Stones, 1980) on the assumption that hardy individuals should have a greater sense of well-being. The authors reported that 13 scale items were suitable for analysis, and factor

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analysis produced a four-factor solution supporting the control, challenge, and commitment model of hardiness. It was noted that the commitment variable separated into two components, commitment to school and commitment to self. The established correlation between hardiness and well-being so defined was .24. In the second analysis utilizing the same data set, Hannah and Morrissey attempted to articulate some of the correlates of adolescent hardiness so as to indicate its possible developmental antecedents. They concluded that hardiness appeared to follow a developmental trend, correlating positively with increasing age and grade level "except for those who were "age inappropriate" for their grade" (p. 342). They also found and concluded that Protestant females had the highest happiness ratings "and hence were the most hardy psychologically" (p. 343). The authors then wondered whether the Protestant religions perhaps instilled "a greater sense of personal responsibility and individual commitment than Catholicism and hence produce people who are happier and higher in psychological hardiness" (p. 343). Aside from the more speculative aspects of these studies, it can be wondered whether a 13-item adapted hardiness scale without formal validity work is robust enough to support a four factor model with a new population, and whether happiness is a suitable criterion measure for a construct philosophically and empirically grounded in illness resistance.

There have been two separate efforts to construct and validate a hardiness scale for adolescents. Wendt (1982) explored the influence of hardiness on the relationships between stress and physical illness, and between stress and moodiness by developing and applying an adolescent

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hardiness measure. Working from Kobasa and Maddi's (1982) 20-item adult hardiness scale and Kobasa's (1979) original 71-item scale, Wendt derived a 55-item prototype hardiness scale for adolescents, which included 19 new items deemed acceptable for use with high school students. A validation study was conducted with 149 nonrandomly selected 9th through 12th grade students drawn from two northern California high schools. Students were predominantly Caucasian (77%) and Hispanic (14%). Stress ratings for life events were obtained by a predetermined weighting method taken from Coddington (1972a, 1972b), and by the researcher's judgment for the 19 new items. Internal reliability and external validity checks of the prototype scale yielded only 18 scale items which reflected the original three-factor hardiness model of commitment, control, and challenge. Even so, subsequent analyses indicated that hardiness correlations with self-reported illness, illness symptoms, total health, and mood changes were in the predicted direction. In addition, consistent with prior research and as predicted, hardiness was found to have mediated the effects of stress on these outcome measures. Wendt noted, however, that the overall internal reliability and consistency of the scale was "somewhat lacking," due at least in part to "inequities in the number of items in each of the categories" (pp. 108-109).

Collins (1991) developed a Hardiness Scale for Adolescents that departed somewhat from the traditional measures of commitment, control, and challenge, yet which remained grounded in hardiness theory. Collins drew from the Eriksonian developmental model (Erikson, 1959, 1968) and from an existential perspective on growth and personality development

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articulated by Maddi (1981), both of which articulated the belief that crises or stressful experiences are inevitable and growth promoting, and should be valued accordingly. Collins adapted for use with adolescents the 45-item Personal Views Survey developed by Bartone (1984) at the University of Chicago's Hardiness Institute, an instrument described by Maddi (1990) as a third generation hardiness measure. Two preliminary studies and the final research study were conducted with adolescents in the New York City schools, and yielded a 23-item, three factor scale suitable for analysis. These factors were identified as Task Engagement, Goal Directedness, and Positive Self, and may be considered in keeping with but not necessarily equivalent to commitment, control, and challenge. Internal consistency for the scale was deemed satisfactory ($r = .73$), and convergent validity was established by correlation with a measure of self esteem ($r = .60$; reduced to .19 by controlling for social desirability). With respect to the outcome variables of interest, hardiness was found to act as a protective factor by suppressing the influences of stress on drug use, and as a stress resistance resource for depression and family discord, aberrant behavior, and psychosomatic strain.

Summary.

Hardiness appears to be a fairly well researched personality construct, but the research has been almost exclusively restricted to explorations of its deterrent influence on physical illness or psychological dysfunction rather than upon its potential contribution to more positive functioning. Existing research has also focused almost exclusively on adults. The few hardiness studies undertaken with adolescents have the virtue of being among the first attempts to expand the research base to

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a new population, but they suffer from the limitations attendant with such efforts. It is evident that more can be derived from the perspective of coping, a construct which has at its roots a more positive, proactive connotation.

Sense of Coherence

Sense of coherence (SOC) is a stress resistance construct first formally articulated by Antonovsky (1974, 1979), and which originated from his studies of World War II concentration camp survivors. Antonovsky, Maoz, Dowty and Wijsenbeek (1971) conducted interviews with 77 middle aged survivors and found, as predicted by pathogenic models, that they were more poorly adjusted than controls. However, it also noted that a "considerable number" of these individuals were found to be well adjusted despite their histories of extreme traumae. The authors speculated that these stress resistors were beneficiaries of their own initial underlying strengths and of some presumed "hardening" processes that had contributed to their ultimate endurance. The interviewers also noted that these sturdy few had been able to reestablish lives considered satisfying and "meaningful," and it was this latter element that became a central tenet in Antonovsky's later thinking.

Antonovsky eventually formulated and articulated what he termed a "salutogenic model" of health emphasizing inquiry into the origins of salutary or health promoting factors in the human experience (Antonovsky, 1979, 1987a, 1987b, 1992). The model views human functioning as falling along a "breakdown" continuum (see Antonovsky, 1972, 1973) between the extremes of "ease" and "dis-ease", and asks why

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and how people remain well / healthy / functional (i.e., remain or move toward the "ease" end of the continuum) in the presence of stressors. The model contends among other things that notions of illness and wellness are somewhat arbitrarily dichotomized by traditional, pathogenically oriented health models, and that given the ubiquitousness of stressors in the human experience, humans tend to remain almost remarkably functional. Antonovsky captured the focus of his thinking regarding the "mystery of salutogenesis" by the question, "How can it be explained that a given individual, in this miserable world of ours, has not broken down?" (1979, p. 56).

Antonovsky has postulated that resistance to breakdown can be attributed to the existence of "generalized resistance resources" (GRRs), and he included among eight hypothesized categories of resistance resources such factors as constitutional advantage (physical GRR), knowledge and intelligence (cognitive GRR), and coping styles (valuative-attitudinal GRR). Of significance here is that Antonovsky saw as a common thread running through all generalized resistance resources what he came to call the "sense of coherence," noting that "GRRs are defined as **potential** resources, which the person with a strong SOC can mobilize" (Antonovsky, 1990, p. 32). Originally defined in 1979, the sense of coherence concept has subsequently been refined and is now seen as

> a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (a) stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable (comprehensibility); (b) the resources are available to one to meet the demands posed by these stimuli (manageability); and (c) these demands are challenges, worthy of investment and engagement (meaningfulness) (Antonovsky, 1990, p. 33).

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Antonovsky has stopped short of calling the sense of coherence a personality trait, describing it instead as a "dispositional orientation" (1990, p. 37), but he has freely characterized it "unequivocally as a generalized way of seeing the world and one's life in it," as "a crucial element in the basic personality structure of an individual" (1979, p. 124), and as "a property, a characteristic of the person" (1992, p. 37). Antonovsky has taken pains to argue the differences between a disposition and a trait vis-a-vis the sense of coherence, but others have typically blurred the distinction by simply calling it a "personality characteristic" (H. Antonovsky & Sagy, 1986, p. 214), a "generalized personality disposition" (Flannery & Flannery, 1990, p. 415), and even a "generalized perceptual disposition" (Flannery & Flannery, 1990, p. 415). In practical terms, the distinctions are probably minimal.

In a fashion similar to Kobasa's characterization of hardiness, Antonovsky presents sense of coherence as a global, overarching construct, and as one consisting of three components, in this case comprehensibility, manageability, and meaningfulness. Comprehensibility refers to the extent to which one perceives impinging stimuli as "making cognitive sense," and as consistent and clear rather than chaotic or inexplicable. Manageability can be seen as the extent to which one sees the resources at one's disposal as adequate to meet demands. Meaningfulness, bearing some resemblance to the challenge component of hardiness, "refers to the extent to which one feels that life makes sense emotionally," and particularly to a belief that "at least some of the problems and demands posed by living ... are challenges that are

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welcome rather than burdens that one would much rather do without" (Antonovsky, 1987, p. 18). All three elements are considered necessary for an understanding of the construct, but they are viewed as being of "unequal centrality." Meaningfulness, in Antonovsky's opinion, is "the most crucial factor involved in the mobilization of resources" (1990, p. 42), but he suggests that "successful coping depends on the SOC as a whole" (1990, p. 34). Of some interest, Antonovsky has further argued that the sense of coherence is a somewhat universal salutogenic asset that is both cross-situational and cross-cultural:

> It does not refer to a specific type of coping strategy, but to factors which, in all cultures, always are the basis for successful coping with stressors (1993, p. 726).

Despite Antonovsky's fairly extensive theoretical writings on the subject of sense of coherence, direct empirical explorations of the construct and its presumed relationship to physical and psychological health have only recently begun, following the development in the early 1980s of a suitable sense of coherence measure, the Orientation to Life Questionnaire (OLQ) (Antonovsky, 1983, 1987b), an inventory inspired by a pilot study of 51 individuals (30 male, 21 female) who met two criteria: (1) the experience of "major trauma with inescapable major consequence," and (2) the judgment by an impartial referee that they were "functioning remarkably well" (1987b, p. 64). Four teenagers were included among the subjects, who otherwise ranged in ages from 21 to 91. Scale development was based on a facet theory model described in Antonovsky (1987b, 1991). Nascent use of the instrument with various populations in 14 languages is reportedly favorable, with Cronbach alpha estimates of internal consistency ranging from .82 to .95. One- and

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two-year test-retest reliabilities are approximately .55, with 6-month test-retest reliability's being slightly greater than .80 (Antonovsky, 1993).

Similar to the early hardiness research efforts now further along, empirical inquiries into the stress ameliorating and health promoting properties of sense of coherence have tended to focus on adult populations. Of the 38 published research articles catalogued in Antonovsky (1993), only three have studied or included adolescents, although a few more have examined the construct in their near counterparts, college undergraduates. The nonadolescent sense of coherence studies reviewed below are merely representative of the growing body of research.

Adult studies.

Antonovsky himself has conducted comparatively little direct research with the sense of coherence construct, but he is currently undertaking a longitudinal comparison study of the influence of sense of coherence on 805 age-appropriate but nonvoluntary retirees, and 205 similar-aged nonretirees. Variables of interest include their levels of sense of coherence (often characterized in the research as "strong" or "weak"), adjustment to retirement, and overall health. Preliminary results show a negative correlation between SOC scores and perceptions of "loss" due to involuntary retirement. Frenz (1990) conducted a reliability and validity study of Antonovsky's OLQ utilizing non-patient and patient subjects, finding satisfactory internal consistency and test-retest reliability, as well as acceptable convergent, discriminant, and known-groups validity. Nonpatient subjects comprised undergraduate and

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graduate students, and adult social service employees. Patient groups consisted of brief psychotherapy clients, open-ended psychotherapy patients, and chronic patients. High SOC levels correlated negatively with indicators of perceived stress, trait anxiety, and depression, and nonpatient groups earned higher SOC scores than did patient groups. Factor analysis patterns suggested that sense of coherence, consistent with Antonovsky's contention, is a unidimensional construct. Flannery and Flannery (1990) examined the stress mitigating influence of sense of coherence in 24 male and 71 female adult evening college students (mean age = 27) and obtained similar results. Sense of coherence as measured by the OLQ again correlated negatively with estimates of daily life stress, anxiety and depression, and factor analysis supported a unidimensional model as the most parsimonious interpretation of SOC. No sex differences were reported. Dahlin, Cederblad, Antonovsky and Hagnell (1990) undertook a retrospective examination of 221 adults whose childhoods were significant for three or more psychiatric risk factors. Forty-seven percent of the individuals were deemed to have achieved "reasonable success and health," and overall results indicated that SOC scores correlated negatively with symptoms of distress, and positively with health status, quality of life, and internal locus of control. Carmel, Anson, Levenson, Bonneh and Maoz (1991) explored the influences of stressful recent life events (RLE) and sense of coherence (SOC) on the health of 230 adult men and women in two Israeli kibbutzim. Health status was determined by self report and included estimates of psychological and physical well-being as well as functional ability. Consistent with sense of coherence theory, results showed that high RLE levels correlated with poorer health, whereas high SOC levels correlated

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with better health. Gender differences were noted in that RLEs negatively affected women's health status, with no countering positive influence exerted by SOC. In men, health status was positively influenced by high SOC, but was unaffected by RLEs. Other adult studies of interest as reviewed in Antonovsky (1993) have demonstrated that high SOC correlates positively with self esteem in homeless minority women (Nyamathi, 1991), global health and life satisfaction among retirees (Sagy, Antonovsky & Adler, 1990), problem-focused coping among factory supervisors (Larsson & Setterlind, 1990), and mental health morale in military veterans (Coe, Romeis, Tang & Wolinsky, 1990). Negative correlations are noted for such variables as trait anxiety in undergraduate students (Hart, Hittner & Paras, 1991), perceived stress in medical students (Carmel & Bernstein, 1990) and university faculty (Ryland & Greenfeld, 1991), high-risk behaviors in minority women (Nyamathi, 1991), and distress in pain clinic patients (Petrie & Azariah, 1990).

Adolescent studies.

Sense of coherence research with adolescents is virtually nonexistent, and to some extent the omission is theory driven. Antonovsky (1987) argued that the sense of coherence is generally developed in the individual by roughly age 30. As such, early research efforts have tended to focus on age groups in which the construct is presumed to exist in full form. To date there have been only three programmatic inquiries into the dynamics of the construct with teenage groups.

In a study undertaken in the politically contested Sinai region bordering Israel, H. Antonovsky and Sagy (1986) followed a developmental

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approach by arguing that, as with other adolescent attributes, sense of coherence "may be more labile in adolescence than adulthood, ... yet one might assume that adolescents, too, may be characterized as having a stronger or weaker SOC" (p. 214). Research subjects consisted of 9th through 12th grade students (N = 78; male-female ratio not given) facing a mandated evacuation of their homes. Comparison groups consisted of 340 like students in nearby regions within Israel's borders who were not facing evacuation. The researchers explored two sets of hypotheses regarding the development of SOC, and the impact of SOC on the stress situation. All subjects completed measures of SOC, trait and state anxiety (stress level), and a set of parent-adolescent relationship questions developed by H. Antonovsky (1980). Developmentally, it was postulated that SOC would be stronger in older adolescents, and among those reporting closer emotional ties and more open communication with their parents. Conversely, weaker SOC was presumed to exist among adolescents living in the less stable communities. Data collected supported all but the hypothesis regarding open communication. It was also noted that neither the emotional closeness nor the open communication variables contributed significantly to the multiple regression analysis, but it was suggested that the operational measures of these two variables were "not adequate." Unpredicted sex differences were noted in that boys had higher SOC scores than did girls, and unlike boys, whose SOC levels increased with age, girls' SOC levels did not. Regarding the impact of SOC under stressor conditions, it was postulated that stronger SOC would be inversely related to both trait and state anxiety. The first hypothesis was supported ($r = -.621$), the second with qualification. It was noted that the students' state anxiety was

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not significantly correlated with SOC when measured prior to the evacuation (-.062), but was when measured six weeks following evacuation (-.310). The latter data collection also corresponded to the end of school semester for all students, and the authors speculated that students' state anxiety levels may have been influenced by their more immediate concerns at that juncture. The researchers did note, however, that the study demonstrated the viability of the sense of coherence construct with adolescents, and as well its viability in exploring areas of well-being other than physical health.

In the first of an ongoing series of studies of sense of coherence and trait anxiety in 6-year medical school students in Negev, Israel, Bernstein and Carmel (1987) hypothesized that sense of coherence would correlate inversely with trait anxiety in first-year medical students. The 36 students (29 male, 17 female) ranged in ages from 17 to 28 (mean age = 21.6).[3] Participants completed the OLQ and the State-Trait Anxiety Inventory, and data strongly supported the prediction ($r = -.77$, $p = .001$), but the strength of the relationship raised the possibility that the two constructs may be measuring the same phenomenon. Gender differences were not found for mean scores on either the sense of coherence or anxiety measures in this study, but the authors have noted such differences in other facets of the research program (e.g., Bernstein & Carmel, 1991).

In a study of 742 (371 male, 371 female) younger adolescents (ages 12 to 16), Margalit and Eysenck (1990) examined sense of coherence and gender, personality, social skills and family climate. Subjects completed the OLQ, the Family Environment Scale, the Eysenck Personality Questionnaire

(Junior), and a social skills checklist. Participants were members of families which either did or did not include disabled members. Gender differences were not found for sense of coherence levels, but correlations were observed between SOC and extraversion (.23), positive family relationships (.26), social skills (.27), and indices of psychoticism (-.17) and neuroticism (-.36).

Theoretical issues.

Of some theoretical interest for the current study, there have been two research efforts from the nursing field comparing the effects of hardiness and sense of coherence in high stress circumstances. Sullivan (1987) examined relationships among hardiness, sense of coherence, and self-reports of physical and psychological symptoms in a study of 157 graduate nurses undergoing national licensure exams. As predicted, hardiness and sense of coherence were correlated with each other, and both correlated negatively with psychological symptoms. Negative trends were reported for both constructs with physical symptoms, but no arguments were advanced regarding the preeminence of either. Williams (1988, 1990) explored the relative influence of sense of coherence and hardiness to mediate the stress-illness relationship in 162 critical care nurses. Results supported the hypothesis that sense of coherence would have greater direct effects on illness than would hardiness. Path analysis also suggested that "global stress" had greater indirect effects on illness through sense of coherence than through hardiness, but the author noted validity problems with the hardiness measure that may have contributed to the reported outcomes.

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Both Antonovsky and Kobasa have maintained that their respective concepts are somewhat overarching in influence, and each has suggested that theirs may to some degree incorporate elements of the other. Kobasa has noted that

> In general outline, hardiness bears a resemblance both to authenticity ... and to Antonovsky's (1979) sense of coherence, though it is more specifically related to dealing with stressful events than the former and perhaps broader in scope than the latter (Kobasa, Maddi & Courington, 1981, p. 368).

Antonovsky (1993) characterized hardiness as "the construct which perhaps has greatest affinity with the SOC" but described reported correlations of .50 between them (Williams, 1990) as "striking" (p. 730). Orr and Westman (1990) similarly reported correlations in yet unpublished studies of 0.52 between hardiness and sense of coherence, and of 0.34 between hardiness and resourcefulness, but they characterized empirical findings about the relationships between hardiness and other constructs as "scarce." Lambert and Lambert (1987) commented in a related way that "no has yet determined how hardiness develops or what its relationship is to other stress-resistance resources" (p. 94). Flannery and Flannery (1990) have also called for empirical comparisons. The present study may be able to add to an understanding of the dynamics of the two concepts.

Summary.

Sense of coherence appears to be a theoretically well grounded construct which offers explanatory power in stress-illness, stress-coping paradigms. Although originally grounded in a model concerned primarily with mitigation of physical illness, the construct has also shown relationship with various aspects of psychological and emotional well-being. Research efforts to date with sense of coherence have

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focused largely on adult populations, and its viability with adolescent groups, though promising, has only begun to be explored. As with other similar constructs such as hardiness, research with sense of coherence has focused on its solitary impact on the "illness" outcome of interest under stressor conditions. There have been almost no inquiries undertaken offering opportunities for cross construct comparisons of influence, even within the larger body of adult research. The present study allows for such analyses with an understudied group, adolescents.

Resilience

In principle, the concept of psychological resilience shares features with the three preceding constructs. Like hardiness and sense of coherence, resilience has been seen across the research front as a generalized stress-resistance quality, and like flexibility, it is often described in ways that engender or at least suggest "good adaptation" (e.g., Grossman, Beinashowitz, Anderson, Sakurai, Finnin & Flaherty, 1992). Resilience has occasionally been treated as a process (Cohler, 1987; Laurenzano, 1989; Fine, 1991), and even more rarely as tantamount to coping (Rutter, 1985), but it is most typically viewed as a quality one possesses in the endeavor to resist the impact of stressors and stress. However, unlike the preceding constructs, resilience has been only broadly, even loosely defined, so much so that the research base for the concept could with some justification be characterized as atheoretical, and perhaps at best as eclectic. In addition, research into resilience has been decidedly developmental in that studies have tended to search for **antecedents** of resilience (often dubbed "protective factors") in those so defined, however defined, rather than for **outcomes**

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of resilience in encounters with stressors that typifies the bulk of the stress resistance literature. Thus, unlike other areas of stress resistance and coping, resilience research inquiries have often focused on young children rather than adults, and several of the vanguard studies have been longitudinal rather than cross-sectional in nature (e.g., Murphy & Moriarty, 1976; Block & Block, 1980; Werner & Smith, 1982; Garmezy & Devine, 1985; O'Grady & Metz, 1987; Cowen, Wyman, Work & Parker, 1990). Even so, few if any studies have explored the influence of resilience, once established, in the face of de novo stress, and as with the other constructs under discussion, adolescent populations have tended to be overlooked. Grossman et al. (1992) commented that "although the major studies of risk and resilience have followed children from infancy into adolescence and beyond, only a few have focused on adolescence per se" (p. 531).

Conceptualizations.

In the hard sciences and in general parlance, resilience typically refers to recovery from impact or the ability to bounce back. In engineering terms, a physical structure or solid body is delivered a blow, and the resilience / elasticity / integrity of the structure or body is measured by its ability to rebound or recoil to its original shape. In a related but secondary way, resilience is also thought of as an expression of a structure's resistance to distortion. Again, in engineering it is common to define "stress" by the amount of "load" on the system (resulting in internal "strain"), and the ability of that system to tolerate or resist such potentially deforming effects as its "resilience" or load bearing capacity. It is this secondary definition of resilience that most closely resembles its meaning in the social

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The parallels for the human functioning are both intriguing and appealing. In the human stress resistance literature, a stressor is tantamount to the externally imposed load on the organism, stress is the internal strain that is experienced, and resilience is the broad ability of the organism to resist potentially distorting effects, psychologically, emotionally or even physically. In the 1800s, resilience "of persons" came to refer to one's capacity to "rise readily again after being depressed" and connoted qualities of cheerfulness, buoyancy, exuberance, and even a certain stoutheartedness (Simpson & Weiner, 1989, p. 714). In the human arena, thus, one's resilience (much like one's coping skill) was and is seen as a positive and fluid quality, yet in the modern research literature resilience has been so fluidly defined as to allow still for only the broadest characterizations of the construct.

In general, resilience is deemed to exist in individuals who "do well despite adversity" (Hauser, Vierya, Jacobson & Wertlieb, 1985), and virtually any expression of that has been taken as evidence of it. Even within the more serious research programs, resilience has tended to be only broadly characterized and loosely operationalized. Garmezy (1976) described resilient children as those who can "work well, play well, love well, and expect well" (in Pines, 1979, p. 54) as manifested by "competence" in the social, school and cognitive arenas (Garmezy, 1983, 1987, 1992).[4] Rutter (1979) has seen it as evidenced in individuals who "overcome adversity, who survive stress, and who rise above

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disadvantage" (p. 3), later describing it as "the positive pole of individual differences in people's response to stress and adversity" (1987, p. 316), and he operationalized it in children as "positive experiences at school," academic or otherwise (in Pines, 1984, p. 62). Werner and Smith (1982) defined it as "the capacity to cope effectively with the internal stress of one's vulnerabilities ... and external stresses" (p. 4), and saw it exemplified in later life by such things as physical health despite early high risk histories, staying out of legal trouble, and in **not** having contacted community mental health agencies. Cowen et al. (1990) characterized resilience as "coping and adapting well in the face of major, enduring life stress" (p. 193) based on parent and teacher ratings of children's adjustment. Block and Block (1980) considered it to be "the dynamic capacity of an individual to modify his/her modal level of ego-control ... as a function of the demand characteristics of the environment" (p. 48) [5] and operationalized it as "integrated performance under conditions of frustration and stress" (J. Block, 1981, p. 126), giving their explorations a laboratory tincture.

Outside these mainstream research efforts, notions of resilience have been far less orderly. Portman (1989), for instance, examined adjustment in adolescent and young adult burn victims, finding predictive effects for scores on the Culture Fair Test (of intelligence), one factor of the 16 Personality Factor Questionnaire, the nature of thoughts while hospitalized, and responses to adverse reactions by strangers, variables which she described as "collectively named resilience" (p. 999-B). Rosenbluth (1986) explored relationships

between resilience and self esteem, locus of control, and the ability to "elicit positive responses from the environment." Resilience was defined as "meeting criteria of vulnerability and doing honors level academic work" (p. 3190-A). Falcone (1990) operationalized resilience in adults females traumatized as children by high ratings on measures of education, verbal skills, occupational status, and psychotherapy experience (p. 3156-B). Hinz (1990) conducted a study of college aged adult children of alcoholics (ACOAs) and found that they did not differ from non-ACOAs on "concern" about academic skills, which she interpreted as evidence of ACOA's psychological resilience. Aspromonte (1991) utilized longitudinal data from the Oakland Growth Study to examine sociability, physical expressiveness, and initiative in 23 adult offspring of alcoholics who were originally selected for study in 1932. Current resilience was deemed to be represented by scores on a psychological health inventory and by variables associated with marital history, problem drinking, and marriage to a problem drinker. Aspromonte reported results "contrary to expectations," but suggested that behavioral indices of resilience were perhaps more suitable than "internal" indicators (p. 5523-B).

What can be said is that resilience has been defined at least in spirit with the tenets of stress resistance, but nonetheless inconsistently, and Beardslee and Podorefsky (1988) fairly accurately pointed to "the lack of standardized and validated measures of resiliency" (p. 63). As such, resilience has almost universally been determined by elaborate parent or teacher rating systems, by interview, by professional judgment, or by combinations thereof. Thus despite the now considerable

emphasis on stress resistance research and the equally considerable appeal of resilience as a psychological endurance variable for study, the concept has yet to be tightly defined, and should probably yet be treated as a promising, general construct for exploration.

Childhood studies.

The influence of resilience on other aspects of human functioning has scarcely been studied (or has perhaps been assumed), but research to date has produced a body of information about factors which appear to be antecedent to one's ability to "do well despite adversity." An overview of major works is in order before proceeding.

In the Menninger Coping Project, Murphy and Moriarty (1976) treated resilience somewhat indirectly and as a quality that resulted, in effect, from a stress innoculation process. Over time, they argued, one may become desensitized to (almost literally vaccinated against) adversity by being (deliberately or inadvertently) exposed to manageable stress. In effect, one gets used to it, knows what to do about it, and subsequently throws it off more easily. Although never focusing entirely on the issue of resilience in their case study work, Murphy and Moriarty noted that such children seemed to have drives toward mastery and integration and were particularly good at clarifying reality. They were also persistent under stressful circumstances, seemed to maintain a positive self image in so doing, and had the capacity to seek help when needed. As well, they typically cared for others, and tended to choose other resilient companions.

In the Minnesota based Project Competence, Garmezy and colleagues have sought to identify protective factors which reduce vulnerability in

children at risk for psychopathology. Taking competence as the indicator of ability to maintain functioning in the face of stress, early findings suggested that stress resistant children in school settings tended to be less disruptive and more "engaged," in that they were more cooperative, showed greater leadership and classroom initiative, and were more accepted by peers (Garmezy & Masten, 1986). Achievement motivation also tended to be higher than among less resistant classmates, and more enduring in the face of high stress levels. However, it was also found that the stress-competence relationship "may vary as a function of child characteristics and family background characteristics, and according to the criterion of competence itself," and the researchers commented that "the same factor may be "protective" in regard to one criterion but may function as a "vulnerability" factor for another" (Masten, Garmezy, Tellegen, Pellegrini, Larkin & Larsen, 1988, p. 759), underscoring the need for further inquiry.

In the Kauai Longitudinal Study, Werner (1984, 1986, 1989, 1993), and Werner and Smith (1982) have for nearly forty years followed a cohort of 698 children born on the island of Kauai, Hawaii in 1955. Roughly one third of this group was deemed to have been at risk for unfavorable outcomes because

> they had experienced moderate to severe degrees of perinatal stress, were born into poverty, were reared by mothers with little formal education, and lived in a family environment troubled by discord, desertion, or divorce, or marred by parental alcoholism or mental illness (Werner, 1989, p. 73).

By approximately age 18 two of every three of these at-risk individuals had indeed come to difficulty, as exemplified in such things as learning

or behavior problems, delinquency, mental health disorders, and teenage pregnancies. Equally significantly, however, is that by age 32, the remaining one third (N = 72) of this at-risk cohort had "developed instead into competent, confident, and caring young adults" (1989, p. 73). Even at age 18 they were characterized by Werner (1984) as having four common core characteristics, (1) a proactive approach to life's problems, (2) an inclination to perceive even negative experiences constructively, (3) the ability early on to elicit the favorable attention of others, and (4) the ability to maintain a "positive vision of a meaningful life" (1984, p. 69). As teenagers they acted autonomously, and were socially oriented and helpful, often caring for younger siblings or managing the household when the parents were unable. Werner also observed that these resilient children

> were not unusually talented, but they displayed a healthy androgyny in their interests and engaged in hobbies that were not narrowly sex-typed. Such activities ... gave them a reason to feel proud. Their hobbies, and their lively sense of humor, became a solace when things fell apart in their lives (1984, p. 69).

Werner further identified a "central component" in their lives as being "a feeling of confidence or faith that things **will work out** as well as can be reasonably expected, and that the odds **can** be surmounted" (1984, p. 71). In an adjunct comparison of a subgroup of resilient (N = 29) and non-resilient (N = 20) 18-year-olds of alcoholic parents from the Kauai cohort, Werner (1986) found that the resilient offspring of alcoholics were typically achievement oriented and of at least average intelligence, were possessed of satisfactory communication skills, were responsible and caring, and had positive self concepts, a more internal locus of control, and a belief in self-help. A similar follow-up of

resilient (N = 22) and non-resilient (N = 22) Kauai learning disabled youngsters at age 32 indicated a successful adaptation to life for the resilient members. Employment, marriage, and divorce rates were similar to the overall cohort (N = 698). Antecedents for these positive outcomes included temperaments that elicited positive reactions from others, high self-efficacy and self-esteem, association with supportive adults, and "second chance" opportunities (Werner, 1993).

Now in their thirties, the resilient Kauai high-risk cohort members are described by Werner (1989) as highly achievement oriented, educated, and with few exceptions fully employed and typically satisfied with their work. Though not necessarily married, they value permanency and security in relationships. Not without worries (e.g., health), their concerns tend to focus on others rather than upon themselves (e.g., their children's aspirations, parents' health, siblings' divorces), and they overwhelmingly believe their own "personal competence and determination to be their most effective resources in coping with stressful life events" (1989, p. 77).

In the Rochester Child Resilience Project, Cowen and colleagues identified resilient 4th through 6th grade students via teacher ratings, parent ratings, and parent interview. Once identified as stress-resilient (SR) or stress-affected (SA) by methods described in Cowen et al. (1990), students also later rated themselves across 11 variables for comparative purposes. As reported in Wyman, Cowen, Work and Parker (1991) and Cowen, Work and Wyman (1992a), parents of SR youngsters had seen their children even in infancy and early childhood as having an easy temperament and being relatively easy to discipline,

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and parents were generally optimistic about their child's future, both in general and in selected areas such as schooling, personal relationships, and future employment. SR children's self-ratings were consistent with parent and teacher information, in that they saw themselves as better adjusted, more empathic, higher in scholastic and social competence, self-esteem and self-worth, and generally better behaved. They also typically reported coping styles and social problem-solving strategies that are commonly seen as effective, and they made more realistic judgments about controllable versus uncontrollable life circumstances. Subsequent analyses of SR versus SA parent-child dyads also showed that SR dyads had more congruent views of their relationship than did SA dyads (Gribble, Cowen, Wyman, Work, Wannon & Raoof, 1993). Of interest, however, SR children did not differ from their SA counterparts in locus of control, or on measures of self-rated anxiety or depression (see Cowen et al. (1990, 1992a); Parker, Cowen, Work & Wyman (1990); Cowen, Work, Wyman, Parker, Wannon & Gribble (1992b) for more complete information).[6 7]

In the school arena, Rutter and collegues (Rutter, Maughan, Mortimore, Ouston & Smith, 1979; Rutter, 1985) identified school-related factors that were associated with child and adolescent resilience, most generally those described as positive experiences at school. Rutter later emphasized that such positive experiences were not necessarily academic, and also included

> success in sports, achievement in music, getting positions of responsibility in the school or developing a good relationship with a teacher. Sometimes it was just social success, even being the class clown (in Pines, 1984, p. 62).

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This last was a point in keeping with Mrazek and Mrazek's (1987) observation that the antecedents of resilience are not necessarily entirely socially desirable qualities.

> Protective factors may be either personal characteristics, qualities, or skills of the individual who is at risk, or life circumstances. Often not well recognized is the fact that personal characteristics do not have to be pleasant or desirable as ordinarily conceived for them to improve survival. Nor do life circumstances necessarily have to be positive or beneficial in order for them to be protective (p. 359).

The idea was also echoed by Dugan (1989), who referred to the "adaptive capacity of being able to act in relationship to others, even when such behavior results in provocation or annoyance" (p. 58), and he argued that "the capacity to be active or to "act up" (can) provide evidence of preserved ego functioning, rather than solely ego weakness" (p. 158).

Adolescent studies.

As with the resilence work discussed above, explorations of the construct with adolescents have been rather broadly based, have been operationally defined in a variety of ways (e.g., competence, social success), and have again tended to focus on antecedents of resilience. The net effects or outcomes of resilience among adolescents have also typically been merely implied or have been rather broadly assumed (i.e., that the characteristics engendering resilience will extrapolate to favorable results in later life). Like the larger body of research, adolescent inquiries are predominantly case studies, but the work is typically less programatic, and subject selection methods have seldom allowed for generalization of findings.

Silber, Hamburg, Coehlo, Murphy, Rosenberg and Pearlin (1961) undertook one of the first explorations of "effective adolescents" in their case

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studies of 6 male and 9 female high school seniors who made the transition through their first year of college. By teachers' personality ratings and by researchers' interviews, these 15 students were identified as "competent" by their demonstrated success in three arenas: (1) academic work, (2) the ability to make and maintain friendships with a peer, and (3) the ability to participate in social groups. Follow-up interviews near the end of the freshman year yielded a composite picture of the processes used by these individuals to approach their school transition, a transition taken as successful by the authors but not formally tested as such. Identified among the students' personality traits were positive attitudes toward newness, the tendency to be active and self-directed in meeting the needs of their transition, and the ability to derive pleasure from mastery, which Silber et al. likened to White's (1959) concept of "effectance motivation." The students also maintained a self-image as an adequate person by such strategies as drawing upon their analagous past experiences (e.g., their previous successful transitions from junior high to high school), by expanding their view of themselves (e.g., beginning to identify themselves more with college students even before high school graduation), by learning about their new situation (i.e., college life) in advance by reading or asking questions, and by selectively perceiving encouraging aspects of the new situation (i.e., looking for and identifying signs of helpfulness from the institution itself). The students were also able to manage their occasions of distress. The researchers were impressed that the students were "able to experience anxiety and contain it within manageable limits, so that it never became overwhelming to them" (p. 362). Silber et al. also

noted that the students were able to use what was termed "useful worry." In effect, the students' apprehensiveness about novel situations did cause them some worry, but the feeling pushed them to anticipate problematic circumstances, and further, to plan how to meet them.

As an adjunct component of the Berkeley ego-resilience studies begun in the 1970s, Gjerde, Block and Block (1986) examined the relationship between ego-resiliency, defined as the capacity to modify one's modal behavior in the face of changing environmental demands, and egocentrism as formulated by Piaget and Inhelder (1956) in 58 female and 53 female 14-year-olds from the cohort of 130 subjects originally assessed at age 3, and subsequently at ages 4, 7 and 11. Ego-resiliency was measured as a personality characteristic of the 14-year-olds by use of the California Child Q-Set (Block & Block, 1980b), an adjective descriptor sorting method described in Block and Block (1980a). Level 1 and Level 2 egocentrism was assessed by variants of the perspective-taking tasks discussed in Flavell et al. (1968, 1981). Data analyses suggested that current Level 1 egocentrism was consistently inversely related to boys' ego-resiliency as measured at ages 3 through 14. Level 1 and Level 2 egocentrism was inversely related to girls' ego-resiliency as measured at age 3, but no long term pattern was discernible. Level 2 egocentrism was unrelated to ego-resiliency over time for either sex. Despite the failure of all predicted patterns to emerge, the authors noted that ego-resiliency was a personality characteristic that showed useful predictive properties in the cognitive developmental arena.

In two studies following a research outline described by Hauser et al. (1985), Schwartz, Jacobson, Hauser and Doornbush (1989) and Hauser,

Borman, Jacobson, Powers and Noam (1991) examined the relationships between and among ego development, family process, resilience, and coping in adolescents with insulin dependent diabetes mellitus (IDDM). Resilience was "defined in terms of good control of the illness" (Schwartz et al., p. 136), which also included psychological adaptation to the managerial requirements of the illness, and was assessed by semi-structured clinical interviews. Ego development followed Loevinger's (1976) model and was measured by the Washington University Sentence Completion Test (Loevinger & Wessler, 1970). In the first study, Schwartz et al. highlighted 3 of 54 case studies to illustrate findings which suggested that ego development level was "a reliable correlate of psychosocial maturity, in general, and of resilience, in particular" (p. 154). The most resilient adolescent functioned at a higher level of ego development, utilized many resources in coping with the illness, and also saw family members as valuing the drive toward autonomy and independent functioning, adolescent issues that would be at hand even without the illness. The least resilient individual tended to exhibited a much lower level of ego development and was deemed to be at odds with family members. Of interest, the researchers wondered whether ego development should be "conceptualized as a marker of resilient outcome or as a protective factor promoting resilient outcome" (p. 154), a question that pervades the resilience literature generally. In the second study, Hauser et al. (1991) explored parental ego development level and its relationship to the coping patterns of 65 adolescent diabetic patients and a comparison group of 68 high school students. Parents' ego development levels were assessed as described above, and adolescents' coping styles were measured by semi-structured interview,

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which were transcribed and scored as "differentiating / engaging" or "constricting / detaching" [8] using a Q-sort procedure based on Haan's (1977) characterization of coping versus defending behaviors. Data sets were coded blindly. Results suggested that adolescents with parents at advanced levels of ego development "were more likely to use differentiating / engaging coping, and less likely to cope through constricting / detaching strategies" (Hauser et al., 1991, p. 110). In addition, although many adolescents in the patient group were deemed to be coping well with their illness, they nonetheless tended to show lower levels of differentiating / engaging coping and higher levels of constricting / detaching coping than high school controls.

In a short term longitudinal study, Beardslee and Podorefsky (1988) examined relationships between adaptive functioning and self-understanding via case studies of 18 resilient adolescents of chronic affective-disordered parents. Resilience was determined by an overall rating of "adaptive functioning" derived from a direct structured interview utilizing the Garmezy Child Interview (Finkelman & Garmezy, 1979) and from an adaptive behavior rating by the adolescents' mothers on the Rochester Adaptive Behavior Inventory (Jones, 1977; Garmezy, 1979). Follow-up assessments occurred approximately 30 months later and included additional ratings of adaptive functioning, an assessment of the adolescents' awareness, experience and understanding of the parents' disorder, and estimates of self-understanding as reflected in their awareness of the parents' illness, their responses to it, and their own capacity to "observe and reflect" on it. With respect to subsequent adaptive functioning at Time 2, 15 of 18 subjects

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continued to function at high levels, suggesting that earlier resilience predicted later adaptiveness. Among the qualities observed in these individuals were the valuing of close relationships as a central facet of their lives, extensive and committed involvement in their academic pursuits, a commitment to their jobs and work quality, and pleasurable involvement in non-work activities. They were further described by the researchers as "doers and problem solvers" (p. 67). The adolescents' understanding of their parents' illness and of themselves showed in their ability to identify changes in themselves and in their parents' behavior over time, in their ability to distinguish their own prospects from those of their parents, and in their ability to separate themselves from their parents' "illness system."

> In all cases, the young people who functioned well had noticed that there was something wrong with their parents and had concluded that they were not the cause of their parents' illness. ... This understanding of what was happening in the life of the parent and that they were not to blame was markedly absent in the three young people who were not functioning well at the second assessment (Beardslee & Podorefsky, 1988 p. 66).

Beardslee and Podorefsky concluded by offering a component definition of qualities found in those who were functioning well: (1) accurate appraisal of the nature of the stressor, (2) realistic expectations of one's capacity for action and the likely consequences, and (3) actions that are consistent with one's understanding of the circumstances.

In another case study exploration, but one of only a handful with any population to examine ethnic factors, Looney and Lewis (1983) endeavored to compare competent adolescents across ethnic and socioeconomic lines. Participants were 11 White adolescents (mean age 15.0) from middle and upper-middle class families, and 11 Black adolescents (mean age 15.8)

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from working class families, all of whom were judged to be functioning at "good or superior levels" from interviews by experienced clinicians. All subjects came from intact families, and neither group was considered to be at risk nor to be experiencing unusual levels of stress. Data collections from the two groups occurred 12 years apart (late 1960s versus early 1980s). The broad focus of the interviews was to evaluate the adolescents' "capacity for work, play, and love" (p. 65) by exploring such arenas as the individuals' school involvement, outside employment, use of leisure time, and relationships with friends and family. Comparisons across 11 areas of functioning indicated that the two groups were "much more alike than different" (p. 70), suggesting, as later found by Luthar (1991) that sociodemographic variables did not necessarily predict competence or incompetence. Common qualities included warmth and openness, personal insight, an active orientation, higher than average academic achievement and aspiration, wide ranging involvement in extracurricular activities, wide circles of friendships, positive feelings toward parents (whom they universally saw as more strict than others' parents), an optimistic future orientation, and the lack of significant conflicts with authority. Some differences were noted. Black adolescents were described as having greater difficulty separating their own desires from those of their parents, but they looked with considerable focus upon school as the pathway out of lower economic status. The White adolescents, while doing well in school, looked upon it with somewhat less intensity and were inclined to "take for granted that they were headed for college" (p. 68). The White adolescents in this study tended to see "work" in terms of chores around the house, whereas the Black adolescents typically had fewer such

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duties, but far more typically held paid part-time jobs. Heterosexual interest and activity typically occurred earlier among the Black teenagers in this sample.

Although ethnic groupings have been conspicuously overlooked in studies of resilience, and of stress resistance generally, the limitations of the Looney and Lewis study are evident, most notably the widely separate data collections. The two adolescent groups were clearly from different cohorts, even arguably from different generations, and ethnic representation was unbalanced in both groups. Interrater reliabilities reported for the coding of the two interview data sets were also relatively poor (.48, .49 to .64). The work should probably be considered informative, even indicative, but non-definitive.

In a far more rigorous undertaking which included three ethnic groups (43% African American, 30% Hispanic, 27% Caucasian), Luthar (1991) examined the extent to which internal locus of control, intelligence, ego development, social skills, and positive life events served as moderator variables (i.e., protective factors) against stress in 62 male and 82 female inner-city 9th graders (mean age 15.3) who were randomly selected from 10 classrooms across five curriculum levels in a Connecticut school system. Stress levels in the 144 youth were assessed by a Life Events Checklist (Johnson & McCutcheon, 1980), and by demographic indicators often correlated with high risk (e.g., parents' education, ethnicity, household composition). Resilience was operationalized by a "competence" model (Garmezy, Masten & Tellegen, 1984), and was determined by a convergence formulation based on teacher and peer ratings, and school grades. Major findings suggested that the

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competence and moderator variables were inversely correlated with stress as measured by the occurrence of "negative life events" in the adolescents' lives, but were **not** related to the demographic variables, an unexpected finding attributed to restriction of range in the sample. Subsequent analyses indicated that internal locus of control and social expressiveness served as protective factors against stress, ego development served as a robust compensatory factor, and positive life events and intelligence functioned as vulnerability factors. [9]

Also under exploration in Luthar's research was whether a subset of resilient youth from this sample would differ from their non-resilient counterparts on the "internalizing symptoms" of anxiety and depression. Four cells were defined along the dimensions of high stress / high competence (resilient, N = 9), high stress / low competence (non-resilient, N = 12), low stress / high competence (N = 11), and low stress / low competence (N = 2) by selecting students whose scores on the stress and competence measures were one standard deviation above and/or below their group means along the desired dimensions. The low stress / low competence cell was excluded from anaysis due to insufficient numbers. Results indicated that resilient and non-resilient adolescents did **not** differ on levels of anxiety or depression experienced under conditions of high stress, a finding similar to those of Parker et al. (1990) and Cowen et al. (1992b). Of additional interest, Luthar found that the resilient individuals had **higher** anxiety and depression levels than did those adolescents who were deemed equally competent, but under low stress conditions. Again, the internal states of apprehensiveness or dysphoria did not necessarily

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identify one as incompetent or non-resilient, but the number of subjects available for analysis was small.

Grossman et al. (1992) explored the potential protective roles of family cohesion, parent-adolescent communication, locus of control, and relationships with significant non-parent adults in fostering "good adaptation" in 74 male and 105 female 14-year-old Massachusetts ninth graders. Subjects were predominantly Caucasian. Resilience was taken as an outcome equated to satisfactory current adaptation, as measured by recent semester grades, and responses on three formal inventories reflecting Distressed Mood (Moos, Cronkite, Billings & Finney, 1982), Deviancy (Dornbusch et al., 1982), and Self-Esteem (Rosenberg, 1965). Results showed that the protective factors under investigation operated more consistently for girls than for boys when risk level was controlled. Family cohesion and mother-adolescent communication, for instance, predicted all four indicators of adaptation for girls, but only two (deviance, self-esteem) for boys. Similarly, locus of control was also found to be a predictor of mood, grades, and self-esteem for girls, but of mood and deviance only for boys. Of greater significance from a theoretical perspective, the researchers noted that, contrary to most risk-resilience studies, there were no interaction effects to emerge between the risk status of the adolescents and the protective variables. In essence, all protective factors were deemed to be influencing adaptation independent of risk status. The authors commented, though, that this could only be construed as suggestive in that the Risk Scale used to determine risk status was still an "exploratory" instrument.

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Clearly evident at this juncture is that resilience remains a construct that has admitted of loose construction. Although a broad consensus exists that it represents an ability to function well under conditions of stress or risk, it has largely been operationalized by measures of convenience, most typically ratings or interviews both by and with those who know the target individual well, or by and with the individual directly. Thus far there have been only two efforts to develop specific, structured measures of resilience suitable for use with adolescents.

Hunter (1983) developed a brief Resilience Inventory for use with college students that has seen limited use, primarily by graduate students under his supervision. The instrument remains unpublished, but consists of 24 pairs of items designed to measure two dimensions: (1) Eustress - Distress, and (2) Flexile - Rigid. As presented in Kornegay (1986), the first dimension is "an anxiety scale that recognize(s) that anxiety can be either facilitative or debilitative" (p. 10). Eustress is interpreted as a "positive anxiety factor" that helps motivate one's action toward the accomplishment of a goal. Conversely, Distress is considered a negative anxiety manifestation that serves to "impede" such action and accomplishment. The second dimension is thought of as "a structure scale which recognize(s) that (psychological) structure can be either facilitative or debilitative" (p. 10). The quality of being Flexile may be taken as somewhat akin to flexibility and is viewed as a "predictability factor" that helps one "maintain equilibrium within a changing environment" (p. 14). The quality of being Rigid is an

opposing factor that is inclined to "restrict" one's ability to maintain such equilibrium in a changing environment. Each pair of items on the inventory is assigned a total of 5 points based on the rater's agreement with the statements. The 5 total points per pair may be assigned in any fashion (e.g., 5-0, 2-3), and they produce a relative weighting of the rater's views along each dimension. However, despite intuitive support in the literature for the idea that flexibility / flexility may assist with stress resistance (and presumably resilience), the notion remains largely untested. Similarly, recent research also tends to show that anxiety does not clearly differentiate those who are resilient from those who are not (e.g., Parker et al. 1990). Although the concept of "good stress" (i.e., eustress) is appealing as a potential motivating force, research does not support its utility in stress resistance paradigms (see pp. 17-18, this document). As such, use of this inventory is likely to remain limited.

Defining resilience as "psychological endurance skills and abilities" (p. 11), Jew (1991) developed and validated a Resiliency Questionnaire with adolescents based on a theoretical resilience model outlined by Mrazek and Mrazek (1987). In their article, Mrazek and Mrazek had identified 19 possible variables with the potential to function as protective / resilience factors in maltreated children. Seven of these were essentially external support structures that have indeed been validated in various forms throughout the stress resistance research (e.g., middle to upper class status, educated parents, access to health and social services, absence of family psychopathology). The remaining 12 variables were thought of as resilience characteristics, qualities or

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skills that could reside in the individual (e.g., rapid responsivity to danger, precocious maturity, information seeking, decisive risk taking, altruism, optimism and hope). Jew initially attempted to create a resilience inventory that would capture Mrazek and Mrazek's 12 hypothesized qualities in discrete form. Initial factor analysis yielded a 19 factor solution accounting for 67.3% of the variance, but accompanied by a large number of uninterpretable factors. Ultimately a more readily interpretable 4 factor solution was produced that accounted for 33.5% of the variance in response patterns. Jew identified these four resilience attributes as Optimistic Orientation, Independence, Future Orientation, and Other-Person Awareness.

Scale development and validation for the Resiliency Questionnaire was completed utilizing an initial pool of 408 ninth grade students in a suburban Westminster, Colorado high school, and a subsequent group of 30 comparably aged students in a residential child and adolescent psychiatric facility. Internal consistency coefficients of the final version of the questionnaire ranged from .66 to .85 for the four factors, and was .89 for the total scale. Test-retest reliabilities for the individual factors ranged from .57 to .70 for separate administrations of the scale given 23 weeks apart, and full scale test-retest reliability was .72. Subsequent validity of the instrument was reflected in its ability to differentiate residential students from mainstream students along the dimensions of optimistic and future orientations, and additional support for the integrity of the instrument came from its significant correlations with separate measures of adequate functioning (grade point average, Iowa Test of Basic Skills, Cognitive Abilities Test, internal locus of control, Self-Perception

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Profile for Adolescents (Harter, 1988)) in a systematic sample of 50 students from the original suburban school sample. In all, the questionnaire appears to represent a viable approach to standardized measurement of resilience.

Summary.

In the stress resistance research arena, resilience remains an important concept, and stands perhaps as the original descriptor of the ability to withstand the effects of stressors as formulated from a psychological perspective. The idea of resilience has wide appeal but it has been equally widely defined, thus unfortunately adding to the lack of precision surrounding the construct and to the identification of its carriers. Only recently have there been efforts to standardize measurement of the construct, which has heretofore relied on tedious rating and interview procedures, and on professional judgment. Even so, the search for the origins of resilience has promulgated extensive and important research, primarily with children, and has helped shift thinking away from easy assumptions about stress - psychopathology relationships, but the research community has focused such extraordinary attention upon how resilience develops that it has perhaps inadvertently minimized equally important questions. What does it lead to? What influence does it exert on other important stress resistance functions, such as coping? How, if at all, does it differ from other generalized stress resistance constructs? Answers are not readily apparent from the existing research base, and the current study may be able to address some of these unexplored issues.

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Summary

Considerable evidence has accumulated to suggest that personality factors exert influence on stress related outcomes, psychologically, emotionally, and to some degree physically. The personality characteristics of hardiness and sense of coherence have been reliably linked to favorable physical and psychological health outcomes in adults, but their functioning in adolescents is largely unknown and has been little explored. Research with resilience too has tended to overlook adolescents, but it is nonetheless a personal quality which shares a common research paradigm with other stress resistance constructs. However, unlike the others, most research efforts with resilience have been devoted to its origins rather than to what it predicts, and perhaps as such, there have been very few attempts to link resilience with the specific types of physical or psychological health outcomes (e.g., illness rates, well being, effective coping) that characterize research with other stress resistance constructs. Some common ground may be reached in the current study. Flexibility, though lacking the research status of the aforementioned constructs, has been widely assumed to foster beneficial stress resistance outcomes, yet little formal work has been done within the stress coping model with any population.

From a theoretical perspective, it would be of considerable interest to know the extent to which the constructs discussed above represent discrete entities, and as such function independently in their stress ameliorating roles, or the extent to which their influences overlap enough to suggest that they are all measuring aspects of the same, or of

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an as yet uncaptured, central construct. Some arguments have been advanced to suggest that one or another might function as an overriding stress resistance variable, with the others necessarily subserving it. No definitive information has emerged in this regard.

There are also theoretical concerns. Stress coping theory clearly suggests that appraisal processes influence the experience of stress, yet appraisal processes have at best been only poorly accounted for in the stress resistance research, and in the adolescent stress resistance research even less so. In addition, a considerable portion of the stress resistance research has failed to handle properly the issue of an individual's apprehensiveness or anxiety under stressful circumstances. Some researchers have taken the presence or absence of anxiety as the hallmark of a person's stress resistant status. Others have taken anxiety as a confounding factor in stress research, and have treated it as a proxy for other constructs such as neuroticism (Allred & Smith, 1989) or negative affectivity (Watson & Clark, 1984). Still others more recently have argued that anxiety simply does not differentiate stress-resistant from non-stress-resistant individuals (Luthar, 1991). The issue unresolved, but makes it clear that accountings of anxiety must be an essential part of stress resistance and stress coping research. Finally, a debate continues about whether particular coping responses are associated with better or poorer coping. Some have argued that active responses are necessarily more effective and desirable than less active, internally focused responses, whereas others give relatively equal weight to both. The current study will explore these issues.

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Hypotheses and Questions

Seven research hypotheses and three research questions are drawn from information presented in the preceding review, and are stated in general form as follows:

Hypotheses --

(1) Better copers employ more proactive responses to stressors than Poorer copers.

(2) Better copers are not less anxious than poorer copers.

(3) Better copers are more intellectually flexible than Poorer copers.

(4) Better copers are more hardy than Poorer copers.

(5) Better copers have a greater sense of coherence than Poorer copers.

(6) Better copers are more resilient than Poorer copers.

(7) Better copers appraise stressors as less stressful than do Poorer copers.

Questions:

(8) To what extent do Flexibility, Hardiness, Sense of Coherence, and Resilience contribute independently to coping?

(9) Does Flexibility, Hardiness, Sense of Coherence, or Resilience exert the greatest influence on coping?

(10) Which combination of factors under study most effectively identifies Better and Poorer copers?

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CHAPTER III

RESEARCH METHODOLOGY AND DESIGN

Introduction

The purpose of this chapter is to present the overall methods and procedures of this study along with supportive rationale. Discussion includes descriptions of the research population, measures used, data collection procedures, research participant sample selection, research hypotheses, and data analysis methods.

Research population

This study was conducted in Battle Creek, Michigan, with participants drawn from the student body of Battle Creek Central High School, the largest enrolling high school in the city proper, and the largest in Calhoun County. Census figures from 1990 show the city of Battle Creek itself comprising 53,540 residents, with approximately 91,000 (39% of the county's population) living in the metropolitan area. 80% of the City's residents are Caucasian, 16% are African American, and Hispanic Americans and Asian Americans make up most of the remaining 4% of the City's residents. The community is in general parlance a working class community, with median family income's being $31,115, roughly $6,000 below the median income for the state. Eighteen percent of Battle Creek's residents sustain incomes below the poverty level, 28% of the community's children are considered "poor," and 14% of the populace receive some form of public assistance. Overall, 14% of all residents

are 65 or older, and 27% are 18 or younger. Minority children make up one fourth of the community's youngsters, and averaged across all ethnic groups, one child in every three is being raised by a single parent.

With respect to schooling, in 1990, 10,728 children were reportedly enrolled in preprimary through high school curricula, 90% of whom were in the public schools. Over one third of the public school enrollees participated in free lunch programs. On October 7, 1994 (fourth Friday) the Battle Creek Public Schools enrolled 4,916 elementary, 2,154 junior high, and 1,322 high school students. Of the high school students enrolled on fourth Friday, 59.0% were Caucasian, 37.0% were African American, 2.4% were Hispanic, 0.9% were Asian American, and 0.7% were Native American.

Participants in this research project ranged in ages from 14 through 20 (Mean = 16.25) in the Part I Screening Survey, (Table 3.1) and from 15 through 19 (Mean = 16.11) in the Part II Research Survey (Tables 3.2). Part I participation by gender was as expected (51.3% female, 48.7% male), but a higher than average percentage of females (59.8%) participated in the research survey. High school enrollment at the time of the current study's Parts I and II data collections consisted of 1,277 and 1,202 students, respectively. High school seniors, primarily 18 year olds, were slighly underrepresented in both survey samples due to course scheduling practices which made approximately 110 seniors unavailable for the screening survey. Ethnic percentages in both data collection phases generally mirrored those reported on fourth Friday (Table 3.3).

| Age | | |

Table 3.1
Demographics of Screening Sample
Age x Gender x Ethnicity

Age	Male (N = 385)						Female (N = 406)						Total
	CS	AA	HS	OR	NA	NS	CS	AA	HS	OR	NA	NS	
14	1	0	1	0	0	0	1	0	0	0	0	0	3
15	52	38	1	0	0	0	70	44	4	2	1	0	212
16	76	35	1	0	2	2	84	40	9	3	0	2	254
17	75	38	4	2	0	3	67	43	2	2	0	2	238
18	26	17	3	0	0	4	17	7	1	0	0	2	77
19	2	1	0	0	0	0	2	0	0	0	0	0	5
20	0	0	1	0	0	0	1	0	0	0	0	0	2
Tot	232	129	11	2	2	9	242	134	16	7	1	6	791

Key: CS = Caucasian
AA = African American
HS = Hispanic
OR = Oriental
NA = Native American
NS = Not Specified

Table 3.2
Demographics of Research Sample
Age x Gender x Ethnicity

Age	Male (N = 53)						Female (N = 79)						Total
	CS	AA	HS	OR	NA	NS	CS	AA	HS	OR	NA	NS	
15	8	5	0	0	0	0	13	8	1	0	0	0	35
16	17	5	0	0	1	0	22	9	1	0	0	0	55
17	7	6	0	1	0	0	14	7	0	0	0	0	35
18	2	0	0	0	0	0	3	1	0	0	0	0	6
19	1	0	0	0	0	0	0	0	0	0	0	0	1
Tot	35	16	0	1	1	0	52	25	2	0	0	0	132

Key: CS = Caucasian
AA = African American
HS = Hispanic
OR = Oriental
NA = Native American
NS = Not Specified

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Table 3.3
Description of District Population and Research Samples
Ethnicity x Percentage

	CS	AA	HS	OR	NA	NS	Total
System	62.6	33.1	2.8	0.5	1.0	0.0	100.0
High School	59.0	37.0	2.4	0.9	0.7	0.0	100.0
Screening	59.9	33.3	3.4	1.1	0.4	1.9	100.0
Research	65.9	31.0	1.5	0.8	0.8	0.0	100.0

Key: CS = Caucasian
AA = African American
HS = Hispanic
OR = Oriental
NA = Native American
NS = Not Specified

Measures

Eight measures were used in this study: (1) the COPE (Carver, Scheier & Weintraub, 1989), (2) the Survey of Adolescent Stress Issues (SASI) (Gatins, 1988), (3) the State-Trait Anxiety Inventory, Form Y-2 (STAI) (Spielberger, 1989), (4) the Flexibility concept scale from the California Psychological Inventory (Fx) (Gough, 1987), (5) the Hardiness Scale for Adolescents - Revised (HSA) (Collins, 1991), (6) the Orientation to Life Questionnaire (OLQ) (Antonovsky, 1987b), (7) the Resiliency Belief System for Adolescents questionnaire (RBS) (Jew, 1991/1994), and (8) the Adolescent Perceived Events Scale - Form B (APES-B) (Compas, 1994). The instruments were utilized to assess, in turn, the number and extent of coping strategies typically employed by respondents under stressor conditions, the stressor events recently experienced by respondents, the modal level of respondents' trait anxiety, flexibility, hardiness, sense of coherence, and resilience, and respondents' cognitive appraisals of hypothetical stressors.

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(1) COPE

The COPE is a 60-item instrument designed to measure the coping strategies individuals employ when confronting stressful life events, and the extent to which they employ them. The inventory utilizes what the authors term a "dispositional coping" response format in that respondents are asked to report what they "usually" do when they are "under a lot of stress." [10] The COPE has also been validated utilizing a "situational coping" format, in which respondents can also be asked to report what they do when faced with specific stressors. The COPE is appropriate for use with older adolescent and younger adult populations.

The COPE is an instrument theoretically derived from a model of behavioral self-regulation (Carver & Scheier, 1981), and empirical validation has supported its theoretical underpinnings in a series of studies reported in Carver, Scheier and Weintraub (1989). The COPE has subsequently been updated and expanded (Carver, personal communication) and now consists of 15 conceptually distinct scales which reflect specific theoretical "arguments" about the functional characteristics of coping strategies. Some of the scales reflect activities that are thought to (or have been shown to) promote adaptive coping, and others reflect activities that may impede adaptive coping. The scales are labeled in turn: (1) Active Coping, (2) Planning, (3) Seeking Instrumental Social Support, (4) Seeking Emotional Social Support, (5) Suppression of Competing Activities, (6) Religion, (7) Positive Reinterpretation & Growth, (8) Restraint Coping, (9) Acceptance, (10) Focus on & Venting of Emotions, (11) Denial, (12) Mental Disengagement, (13) Behavioral Disengagement, (14) Alcohol/Drug Use, and (15) Humor.

Scales 14 and 15 are still considered exploratory. Each scale consists of four items that are typically endorsed on a 4-point Likert format. A short form of the COPE consisting of 24 items also exists but is yet to be validated.

Standardization.

The COPE was developed over a period of approximately four years at the University of Miami, Florida during which time scale items were analyzed and revised. The final version of the COPE was given to 978 undergraduates at the university. The gender and ethnic composition of the sample was not given, but gender differences emerged in the reported use of various coping strategies. Women were more likely than men to focus on and vent emotion, and to seek out both instrumental and emotional support. Men were more likely than women to resort to alcohol or drugs as a coping method. A later study comparing the performance of the COPE utilizing dispositional versus situational coping instructions employed 45 males and 72 females, and the differences noted above were comparable for the situational format, except that seeking instrumental social support no longer differed by sex.

Reliability.

Carver et al. (1989) reported three reliability studies. Cronbach alpha coefficients of internal consistency for 12 of the 13 original COPE scales ranged from .62 to .92 and were deemed acceptably high. The alpha coefficient for Mental Disengagement was .45, a lower but theoretically predictable value. Two subsequent test-retest reliability studies at eight and six week intervals (N = 89, 116 respectively) yielded acceptable correlations for the 14 scales ranging from .46 to .86 (8 weeks) and .46 to .89 (6 weeks), values interpreted as "stable"

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but not in general so stable as personality traits, a desirable finding for this type of instrument.

Validity.

Several studies were undertaken to support the validity of the COPE. In the first of these, factor analyses of responses by the 978 participants in the original study yielded a 12-factor structure strongly supporting the theoretical model, but which also led to the combining of two sets of scales. Active Coping, and Planning loaded together, as did Seeking Social Support, for both Instrumental and Emotional Reasons. One item, the alcohol-drug related item, had originally been proposed as an aspect of Mental Disengagement, but it emerged as a separate entity, loading on no other factor, and it was included for exploratory purposes in all subsequent studies. In further analyses, an intercorrelation matrix of all COPE scales showed that they were not strongly intercorrelated, suggesting that each was measuring discrete facets of coping, but some scales did cluster in conceptually related ways. A second order factor analysis yielded a four factor solution capturing in essence (a) activity, planning and concentration, (b) social and emotional focus, (c) denial and disengagement, and (d) acceptance, restraint and positive reinterpretation. The analyses generally suggested that the COPE scales were robust, discrete and amenable to separate study. A later study utilizing the dispositional instruction format demonstrated convergent validity for the COPE's ability to measure general coping tendencies, as reflected in correlations between COPE subscales and various personality dimensions such as optimism ($r = .32$ with Active Coping), anxiety ($r = .35$ with Denial), Type A behavior ($r = -.28$ with Behavioral Disengagement), and Hardiness ($r = .23$ with Positive Reinterpretation &

Growth). The COPE's authors also suggest that discriminant validity is demonstrated by significant but "not overly strong" correlations with the personality variables, serving to show that coping styles and personality characteristics are not entirely equivalent. As well, none of the COPE scales have correlated with a measure of social desirability, an indication that the instrument does not inadvertently lure respondents into superficial response patterns.

Technical work completed with the COPE strongly suggests that it functions as a robust measure of an individual's coping **ability**. Its factor structure has been theoretically derived and empirically supported as a stable, valid instrument. Of particular interest for the current study, the subscale structure of the COPE is such that it has demonstrated an ability to capture the influence of personality variables in the coping process without sacrificing the separate nature of coping itself.

(2) Survey of Adolescent Stress Issues (SASI)

The SASI is a 62-item instrument designed to measure the occurrence and impact of stressful life events, and is intended for use with individuals from ages 12 through 20. 60 items list specific stressors known to be relevant to adolescents, and 2 blank lines provide space for students to identify and rate stressors they have experienced, but which are not itemized. The SASI consists of seven scales which tap (a) concerns over current and future responsibilites, (b) home difficulties and the quality of parent relations, (c) the quality of relations with siblings, (d) concerns about academics and poor performance in school,

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(e) difficulties with peers and peer pressure, (f) concerns about personal appearance and identity issues, and (g) concerns about romantic involvements and potential pitfalls. SASI scale items cover a gamut of adolescent concerns ranging from troublesome but common occurrences (e.g., being compared to siblings; fighting with parents) to fairly serious life impactors (e.g., death of a loved one; abortion), and reflect research indicating that both major life events and "daily hassles" constitute meaningful stressors in one's life (e.g., DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982; Compas, Davis, Forsythe & Wagner, 1987; Cohen, 1988; Chamberlain & Zika, 1990). Scale items are typically endorsed on a 7-point Likert format but are suitable for others.

Standardization.

The SASI was developed over a four year span utilizing 7th through 12th grade students in Miami, Florida (N = 162), and was subsequently refined and validated with 7th through 12th grade students in Poughkeepsie, New York (N = 255), and 11th and 12th grade students from a separate high school in Poughkeepsie (N = 108). A subsequent principle study was completed utilizing approximately an equal number of 10th through 12th grade students from a Mt. Vernon, New York high school and from one of the Poughkeepsie high schools (Total N = 101), and from three clinical facilities in Hawthorne, New York (N= 70). Ethnic composition of the principle study was roughly 60% Caucasian, 25% African American, 9% Hispanic, and 6% Other. The ethnic balances of prior studies were not given. A total of 265 males and 361 females comprised the high school sample across all studies. 37 males and 33 females comprised the clinical sample for the principle study.

Reliability.

Reliability data were generated by analyzing the response patterns of students across standardization studies III and IV (the principle study) conducted approximately one year apart. Two independent samples of like individuals endorsed and rated SASI items in a consistent manner, and no SASI items were left unendorsed across the samples. In addition, analysis of stressors considered to be "the most distressing items" (e.g., death of a loved one; seeing parents fight) demonstrated nearly identical "combined negative stress" scoring patterns across studies III and IV (72.2% and 68.4% respectively). Similarly, a cluster of stressors deemed the least stressful (e.g., getting chores done; taking a test) were given consistently low impact ratings across studies III and IV (39.8% and 43.3% respectively). Test-retest stability of the instrument was deemed satisfactory.

Validity.

The validity of the SASI was established in studies III and IV by analyzing students' and in-patients' SASI global and subscale stressor impact scores along with their responses on the Expressed Concerns scales of the Millon Adolescent Personality Inventory (MAPI) (Millon, Green & Meagher, 1982), and by comparing 70 in-patients' own SASI stress level ratings with clinician's ratings of the same individuals' stress levels on a Clinician's Rating Scale specifically devised to parallel the SASI's seven subscales.

In the first series of analyses, students who reported high versus low levels of stress on the SASI also differed in the expected directions on the MAPI Expressed Concerns subscales of Self-Concept, Personal Esteem,

and Academic Confidence, and trends were reported in the expected directions on the MAPI subscales of Family Rapport ($p = .06$) and Peer Security ($p = .097$). Individuals determined to be Anxious-Moody by their MAPI responses also reported significantly higher stress scores on the SASI than did those determined to be Friendly-Agreeable by their MAPI responses. In addition, in a correlation matrix analysis of the seven SASI subscales and the eight MAPI Expressed Concerns subscales, four of five "targeted" SASI subscales (Parents, Academics, Peers, Appearance/Identity, Romance) correlated significantly with their near counterparts on the MAPI (Family Rapport, Academic Confidence, Peer Security, and Personal Esteem). The matrix correlation between SASI Romance and MAPI Sexual Acceptance was non-significant.

In the second series of analyses, members of a clinical sample reported significantly higher global levels of stress on the SASI than did the normal student sample, particularly on those subscales reflecting interpersonal difficulties (e.g., Parents, Peers, Romance). In addition, when clinical workers used the CRS to rate their in-patient clients' stress levels on a seven point scale (e.g., 1 - Subject feels very good about this area; 7 - Subject feels very bad about this area) for each of the seven subscale dimensions of the SASI, global CRS ratings correlated with in-patients' global SASI scores ($r = .4487$, $p < .0001$). Although clinicians' individual subscale ratings of the in-patients' stress did not precisely correspond to the in-patients' own subscale ratings via the SASI, the correspondence between the two sets of ratings was also taken as further evidence of the SASI's reliability (i.e., parallel form).

Of particular interest for the current research, Gatins observed that across all studies, adolescents aged 15 through 17 consistently reported slightly higher stress levels than reported at the other age levels spanned by the SASI, suggesting that a high school population does indeed experience life stress. Of greater import, however, the author reported in the principle study that pre-existing MAPI personality styles did not affect SASI responses within the normal student population, but rather only within the clinical sample, in effect, only among those whose personality style had "reached clinical proportions" (p. 137). This is desirable in the current study, for it is important that personality characteristics not unusually influence students' identifications or ratings of stressors.

With respect to demographic variables, Gatins reported multiple regression results which suggested that sex and race did make statistically significant contributions to SASI response patterns. But even though females reported slightly greater levels of stress than did males, and Caucasian subjects reported slightly greater stress levels than did non-Caucasians, the total amounts of variance accounted for by these variables were in practical terms negligible (4% and 2% respectively).

For use in the current study, the item content of the SASI was modified slightly. Two items from the standard instrument were modified following a project review by school and community advisors. Item 7: "Seeing my parents fight (arguing or physically fighting)," was revised to "Seeing your parents argue." Item 40: "Seeing my mother or father drunk," was revised to "Seeing your parents upset." Item 60: "Abortion

(Male: girlfriend or any friend; Female: self or friend)," was eliminated. Added by the researcher were 4 items (60 through 63) pertaining to physical duress, and 2 additional items (64 through 65) relating to problems surrounding reading and task completion. Two final items (66 through 67) were retained as write-in items. All survey items were reviewed by the researcher and rephrased as needed for grammatic consistency, although item content remained unchanged.

(3) State-Trait Anxiety Inventory - Form Y (STAI)

The STAI Form Y is a 40-item inventory designed to assess an individual's immediate level of anxiety (State Anxiety), as well as his or her underlying proclivitiy to perceive situations as threatening and to react to them with elevated feelings of apprehensiveness or worry (Trait Anxiety). The State Anxiety scale (Form Y-1) requires that individuals respond to a series of 20 statements based on how they feel "right now" or "at this moment." Scale items employ a 4-point Likert format for rating the intensity of feelings, and include an approximately equal number of anxiety-present (e.g. I am jittery) and anxiety-absent (e.g., I feel at ease) statements. The Trait Anxiety scale (Form Y-2) requires individuals to respond to a series of 20 statements based on how they "generally" feel. Scale items also employ a 4-point Likert format and include an approximately equal number of anxiety-present (e.g. I feel nervous and restless) and anxiety-absent (e.g., I feel secure) statements. Raw scores for each scale range from a low of 20 to a high of 80, and may be converted to standard scores (T-scores) or percentile ranks. When given in tandem, the State Anxiety scale is typically given first, although both scales have been utilized

singly in various research programs. The STAI Form Y is suitable for high school through adult populations, or essentially for those aged 14 and above.

Standardization.

Normative data for Form Y of the STAI are provided for college students, high school students, military recruits, and working adults in three age brackets. Additional norms for a preceding form of the STAI (Form X) are also given in the Manual, but discussion here will focus on the high school data. The high school normative sample consisted of "424 tenth grade students tested during regular class periods" (Spielberger, 1983, p. 16). Complete demographic information regarding the composition of this sample was not given, but an approximately equal number of males (N = 202) and females (N = 222) were represented. T-Anxiety and S-Anxiety scores for the high school sample did not differ by sex. The author reported that the norms provided were "not based on representative or stratified samples," but further noted that STAI scores derived from similar populations by other researchers were "comparable" (p. 15).

Reliability.

Reliability data for the STAI are reported for stability and internal consistency. Approximately 350 to 375 high school students were tested on both scales of the STAI at 30- and 60-day intervals. T-Anxiety test-retest correlations for males and females at 30 days were .71 and .75 respectively, and .68 and .65 respectively at 60 days. S-Anxiety test-retest correlations for males and females at 30 days were .62 and .34 respectively, and .51 and .36 respectively at 60 days. The lower S-Anxiety stability coefficients were expected due to the presumed transitory nature of state anxiety over intervals of this length.

Internal consistency reliability estimates were deemed more suitable for the STAI, and were given for the high school sample as .90 for both males and females for T-Anxiety, and .86 and .94 respectively for S-Anxiety. Item remainder correlation estimates of internal consistency were also computed for all normative samples, and were deemed to fall within acceptable ranges.

Validity.

The STAI Manual reports several sources of evidence for the concurrent, convergent, divergent, and construct validity of the STAI. The construct validity of the Trait Anxiety scale was demonstrated by comparing T-Anxiety scores of the normative samples with groups of "psychiatric patients for whom anxiety is a major symptom" (p. 36). All but one of these groups had higher T-Anxiety levels than the normal subjects. Construct validity of the State Anxiety scale was supported by comparing the T-Anxiety and S-Anxiety scores of military recruits with those of the comparably aged student samples who were tested under "nonstressful conditions." Under nonstressful conditions, the student groups' T-Anxiety and S-Anxiety scores were relatively similar, whereas the military recruits' S-Anxiety scores were considerably elevated over their own typical T-Anxiety levels. In other studies, S-Anxiety scores were also observed to fluctuate with stressful versus relaxing conditions while T-Anxiety scores remained stable for the same individuals.

Concurrent validity for Trait Anxiety has been shown by substantial correlations with other reputable measures of anxiety (e.g., Taylor Manifest Anxiety Scale) in male and female college students and

neuropsychiatric patients. Convergent and divergent validity has been demonstrated by the finding of higher correlations between STAI scores and other measures of anxiety-related emotional disturbance and pathology (e.g., MMPI Hs, Pt and Sc clinical scales), and of lower or non-significant correlations with theoretically unrelated constructs (e.g., Army Beta intelligence test; high school GPA; College Entrance Examination Board exams).

Factor analytic studies of the STAI have also generally shown the existence of four robust factors for both males and females. Analysis of the high school standardization sample showed a clear four-factor solution for scale items representing State Anxiety Present, State Anxiety Absent, Trait Anxiety Present, and Trait Anxiety Absent. An equally robust two-factor solution captured items tapping State Anxiety and Trait Anxiety. Only one scale item loaded comparably on both scales.

By 1989 over 3300 studies had been conducted with the STAI in its various forms, and it has been cited in Buros (1978) as the most extensively utilized anxiety measure in psychological research.

(4) Flexibility (Fx)

The Flexibility concept scale of the California Psychological Inventory (CPI) (Gough, 1957, 1987) is one of 20 such scales comprising the larger instrument, which has been in wide use for over 30 years. The inventory is suitable for individuals of ages 14 to adult, and can be administered individually or in groups. In 1987 the inventory was updated and revised, at which time the Flexibility scale was expanded for increased

reliability, and it now consists of 28-items that are scored on a continuum. High scores are typically interpreted as reflecting an individual's willingness to accept change and variety, but with tendencies toward norm-doubting, and some impatience with routine. Low scores on the scale are commonly associated with resistance to change, stubbornness, even rigidity, but also preferences for organization. The Flexibility scale and others CPI scales have often been used independently in research (e.g., Dicken, 1963; Baucom, 1980; Buss & Craik, 1980; Solvesson-Lane, 1980). Raw scores for all scales are often converted to standard scores having an established mean of 50, and a standard deviation of 10.

The CPI subscales have been designed to appraise "folk concepts," namely "to assess the kind of everyday variables that ordinary people use in their daily lives to understand, classify, and predict their own behavior and that of others" (Gough, 1987, p. 1). The goal of each scale is purely instrumental and has the stated aim "to identify individuals who will be evaluated and described in particular and interpersonally significant ways" (p. 4). The various CPI scales measure such things as social qualities (e.g., Dominance, Social Presence), internal values (e.g., Responsibility), and "broadly stylistic variables related to different functional modes (e.g., Flexibility)" (p. 5).

Standardization.

The 1987 revision of the CPI was normed on an archival sample of 1000 male and 1000 female CPI protocols taken from research files in such a way as to "approach the general population in regard to age, education, status, and other parameters" (Gough, 1987, p. 5). Included in the

sample were 500 high school students, fully 25% of the sample, which also included representatives of prison inmates, psychiatric patients, juvenile delinquents, clerical workers, teachers, college students, business executives, and engineers. As reported in the Manual, factor analyses of the CPI (e.g., Lorr & Burger, 1981) have typically yielded five factor clusters that have come to be termed "structural scales" by the author, and for our purposes here it can be noted that correlations between Flexibility scores and the five structural scales reported in the Manual differed for males and females only on the structural scale reflecting a "person orientation," with females' CPI responses correlating more strongly than males' (.24 vs .10). The ethnic composition of the sample was not given.

Reliability.

The CPI Manual reports reliability coefficients for internal consistency, parallel form, and test-retest. Internal consistency alpha coefficients were computed on an archival sample of 200 male and 200 female college students, and on the combined group across all CPI scales and three factor clusters. Alpha coefficients for the combined college sample ranged from .52 to .85 (Flexibility = .70). Parallel form reliability was addressed by comparing English and French language versions of the inventory with 85 male and 38 female New England high school students. Reliability coefficients ranged from .50 to .83 for males (Flexibility = .66), and from .42 to .83 for females (Flexibility = .42). Test-retest reliability was established with 102 male and 112 female high school juniors who completed the CPI one year later as seniors. Reliability coefficients ranged from .43 to .76 for males (Flexibility = .56), and from .58 to .79 for females (Flexibility =

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.64). Sex differences for Flexibility emerged only in the parallel form study.

Validity.

In general, construct, convergent and discriminant validity of the CPI concept scales has been demonstrated by a series of studies establishing "relationships between scores on the scale ... and nontest descriptions or evaluations given by observers" (Gough, 1987, p. 43). In brief, CPI scores from nearly 10,000 respondents representing roughly 50 walks of life were compared with various observational ratings of those same individuals by others. Six methods included: (1) completion of a 99-item Interviewer's Check List (ICL) by the University of California Institute of Personality Assessment and Research (IPAR) staff on whether given characteristics were present or absent in the individual, (2,3,4) the completion by peers, spouses and IPAR staff of a 300-item Adjective Check List (ACL) (Gough & Heilbrun, 1983), rating various descriptors as being like or unlike the individual, and (5,6) completion by spouses and IPAR staff of the 100-item California Q-Set (Block, 1981), in which statements about the individual are sorted as being descriptive or non-descriptive of them. The CPI Manual reports descriptors generating the highest positive and highest negative correlations from each of the six rating systems for each concept scale. Illustrative descriptors correlating positively with individuals scoring high on the Flexibility concept scale included: Uses a wide and varied vocabulary; Has a talent for creative and original thinking; Has a wide range of interests; Foresighted; insightful; clear-thinking. Illustrative descriptors correlating negatively with individuals scoring high on the Flexibility concept scale included: Has strong religious beliefs; Wedded to routine;

Is uncomfortable with uncertainty or complexities; unstable; intolerant; conventional.

In addition, correlational studies have matched CPI concept scales and factors with 9 different intellectual measures (e.g., Scholastic Aptitude Test, Wechsler Adult Intelligence Scale), 2 Esthetic tests, 4 Moral development indicators, 16 Personality tests and inventories (e.g., 16 PF, MMPI) consisting of a total of 137 separate trait subscales, and at least 5 other construct tests (e.g., Rotter Locus of Control, Bem Sex Role Inventory). In all, 143 empirical studies of the CPI are reported in the 1987 Manual, including a minimum of 11 factor analyses. A factor analysis of the normative sample yielded four factors identified as Extraversion, Control, Flexibility, and Consensuality. The Flexibility scale loaded with the Tolerance, Achievement via Independence, Intellectual Efficiency, and Psychological Mindedness concept scales on the factor identified by Gough as "Flexibility."

In all, the CPI has been widely used throughout the United States and internationally for over thirty years. It is testimony that the instrument and the folk concepts it seeks to measure are esteemed and have endured well.

5) Hardiness Scale for Adolescents - Revised (HSA)

The Hardiness Scale for Adolescents - Revised (Collins, 1991) is a 23 item scale designed to measure adolescent hardiness in accordance with a model of stress resistance originally developed by Kobasa (1979a). The scale was adapted and validated from the Personal Views Survey (Bartone,

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1984), an adult measure of the same construct. The HSA taps an adolescent's Task Engagement, Goal Directedness, and Positive Self, factors that are deemed developmentally appropriate to adolescents yet consistent with adult hardiness theory. Scale items are scored on a 6-point Likert format and produce scores weighted to indicate those who possess high or low relative hardiness. Although the factor scales show independent integrity, the HSA is recommended for use as a global measure of hardiness.

Standardization.

The HSA was developed and standardized on three separate samples of adolescents, ranging in the first instance from ages 10 to 21, in the second instance from ages 10 to 16, and in the final instance from ages 11 to 16 representing grades 6 through 11. Students were drawn primarily from the New York City Public Schools, but approximately 20% were drawn from parochial and private schools. The final analytical sample consisted of 93 male and 130 female respondents and "mirrored the ethnic distribution of the New York City Public Schools" (Collins, 1991, p. 59): 31.8% African American, 35.9% Hispanic, 10.8% Caucasian, and 4.9% Other. 14.8% identified themselves as multiethnic, and 1.8% listed no affiliation. Slightly more than half (57%) were members of two-adult families. The author reported that HSA response patterns were not influenced by age, sex, or SES.

Reliability.

Data analyses from the final HSA development study are reported in Collins (1991), and give an internal consistency reliability estimate of .73 for the global HSA scale. Alpha internal consistency estimates are also reported for the three HSA factor subscales (Task Engagement r =

.71; Goal Directedness r = .63; Positive Self r = .52), but values were such that data analyses by global score are recommended by the author.

Validity.

Validity of the HSA was demonstrated in several ways. Factor analysis of the scale supported construct validity by yielding a viable three-factor solution representing adolescent manifestations of the adult hardiness constructs. Intercorrelations of the three HSA subscales with total hardiness were within acceptable limits and were fairly high (.74, .76, .53 with total hardiness for Task Engagement, Goal Directedness, and Positive Self respectively). Intercorrelations of the subscales with each other were also significant but relatively low (range = .12 to .27), suggesting that the subcales measure discrete entities, and that each relates to total hardiness. Convergent validity of the HSA was demonstrated by correlation with a measure of self-esteem (.19, corrected for social desirability response sets), and by correlation with other factors known to be positively or negatively associated with favorable human outcomes. HSA scores correlated negatively with indicators of depression, family discord, deviant attitude, somatic complaints, aberrant behavior, drug use, and school absence. They also correlated positively with health promoting habits, self-image, and self-esteem.

(6) Orientation to Life Questionnaire (OLQ)

The Orientation to Life Questionnaire, also commonly referred to as the Sense of Coherence (SOC) Scale, or SOC-29, is a 29-item semantic differential scale designed to measure one's "sense of coherence," a construct formulated by Antonovsky (1974, 1979) to capture an

individual's belief that life is comprehensible, manageable, and meaningful. A short form of the scale (SOC-13) also exists. The OLQ was constructed on a facet theory model by Guttman described in Shye (1978; see also Antonovsky 1987b), and each scale item engenders five facets, four of which describe a stimulus and one of which is always an aspect of SOC.[11] In all there are 11 comprehensibility, 10 manageability, and 8 meaningfulness items in the questionnaire, although subscales are rarely scored separately inasmuch as sense of coherence is theoretically viewed and empirically supported as a unidimensional construct. The OLQ has been designed for use with adults, but it has also been employed in research with young adults and adolescents (e.g., Margalit & Eysenck, 1990). Some reverse scoring is required to produce a global SOC rating.

Standardization.

The OLQ was originally developed from extensive interviews with a sample of 51 individuals (30 male, 21 female) who were deemed to have experienced major trauma, yet who were nonetheless functioning well. As described in Antonovsky (1993), the scale was pretested and revised "after the usual procedures," then field tested with a national sample of Israeli adults (N = 297) as described in Antonovsky (1983, 1987b). Adolescents and young adults were represented in both the pilot studies and the national sample. Between 1983 and 1985, the instrument was also given for normative purposes to New York State production workers, U.S. college undergraduates (three studies), Israeli army officer trainees (three studies), and health workers (three studies). The OLQ yielded similar statistical profiles within each sample cluster, supporting both its reliability and divergent validity. Reports of gender differences

in response pattern have varied across all populations studied with the OLQ. With respect to adolescent groups, H. Antonovsky and Sagy (1986) found that high school aged boys reported slightly higher SOC levels than girls (total N = 418). However, Margalit and Eysenck (1990) reported no sex difference on SOC levels in a group of 12 to 16 year olds (total N = 742).

Reliability.

At this juncture there have been dozens of studies attesting to the reliability of the OLQ, most recently summarized in Antonovsky (1993). Internal consistency estimates across 26 published and unpublished studies in 14 countries have averaged .886 (range .82 - .95). Internal consistencies of a short form of the OLQ (the SOC-13) across 16 studies have averaged .80 (range .74 - .91). Test-retest reliability data are fewer in number but averaged .54 for two samples of retirees over one- and two-year test intervals (Sagy & Antonovsky, 1990). Coe, Romeis, Tang and Wolinsky (1990) reported a 6 month test-retest coefficient of .80 with a sample of U.S. veterans clinic patients. In a study which included adolescents, Carmel and Berstein (1989) reported stability coefficients for medical students of .76 and .41 at one- and two-year intervals respectively. Other estimates have ranged from .86 to .97 with various groups over shorter intervals.

Validity.

Antonovsky (1993) reports evidence for the content, construct, criterion and known groups validity of the OLQ. Scale construction promoted content validity by virtue of the inclusion of only one of a possible four stimulus "facets" in each scale item, and each scale item was designed to represent a distinct facet profile. Construct (convergent)

validity was demonstrated by high correlation (.64) between SOC-29 scores and a separately designed 22-item measure of sense of coherence in a study of U.S. undergraduates (Rumbaut, unpublished). Dana, Hoffman, Armstrong and Wilson (1985) obtained similar results (r = .72) utilizing these scales with another undergraduate sample. To date there have been no studies addressing the question of the OLQ's discriminant validity. The criterion vailidity of the OLQ is indicated by roughly two dozen studies that have found sense of coherence to be related to such things as positive perceptions of self and environment, health and well-being, and prosocial attitudes and behavior. It has also been found to correlate negatively with such things as anxiety, perceived work load, blood pressure and physical symptoms, and high risk behavior tendencies. The OLQ has also yielded consistent SOC values within known groups, and consistently different SOC values across groups.

Despite the conceptual view that sense of coherence engenders the qualities of comprehensibility, manageability, and meaningfulness, the OLQ was never designed to, and has never pretended to yield component scores. Factor analyses in both published and unpublished studies have generally supported this unidimensional view of the construct (Coe et al., 1990; Flannery & Flannery, 1990). Pottie (1990, in Antonovsky, 1993), however, noted that although the OLQ is an internally consistent measure of a global construct, certain "accents" may be discerned.

(7) Resiliency Belief System for Adolescents (RBS)

The Resiliency Belief System for Adolescents (RBS) is a 50-item scale representing a revision of a 37-item Resiliency Questionnaire originally

developed by Jew (1991) as one of the first, if not the first standardized inventory of resilience. Technical data reported here refer primarily to the original 37-item scale, although Jew (1994, personal communication) reports improved internal consistency and validity with the 50-item scale. Developed from a 65-item pilot questionnaire based on a theoretical model by Mrazek and Mrazek (1987), the original inventory comprised four subscales measuring attributes of resilience identified by the author as Optimistic Orientation, Independence, Future Orientation, and Other-Person Awareness. Scale items were determined through factor analysis, item analysis, and a Rasch analysis model, and consisted of statements scored on a 5-point Likert format ranging from "strongly disagree" to "strongly agree," with some reverse scoring required. The 50-item scale utilizes a 6-point Likert format with no reverse scoring, and is the version utilized in this study. The instrument yields global scores, and subscale scores of sufficient integrity for analysis. The Resiliency Belief System Questionnaire is intended for use with adolescents.

Standardization.

The original Resiliency Questionnaire was developed between 1989 and 1990 utilizing 9th grade students (N = 408) from the Westminster, Colorado public schools, a suburban district near Denver, and a separate sample of comparably aged students in a residential facility (N = 30). Males and females were nearly equally represented in the school sample (49% male, 51% female), and students were predominantly from middle to lower SES families. The facility sample consisted of 55% male and 45% female residents (Mean age = 15.7). A second systematic sample of the public school students (N = 47) was also drawn for further reliablity

and validity studies. The ethnic compositions of the school and residential samples were not given.

Reliability.

Reliability data for the Resiliency Questionnaire are reported for stability and internal consistency. From the original school sample of 408 participants, 47 completed the questionnaire again 23 weeks later. Test-retest reliability coefficients for the four factor subscales ranged from .57 (Future Orientation) to .70 (Independence), and was .72 for the full scale. Internal consistency estimates were also generated for both administrations of the questionnaire. Alpha coefficients for the first administration ranged from .66 (Independence, Other Person Awareness) to .82 (Optimistic Orientation), and from .67 (Independence) to .85 (Optimistic Orientation) for the second. Total scale internal consistency coefficients were given as .88 and .89 for the first and second testings respectively, suggesting that the instrument possesses satisfactory stability and structure.

Validity.

Support for the validity of the Resiliency Questionnaire appears in several aspects of the three development studies. Construct validity of the inventory was supported by factor analysis of the original standardization sample of 408 students, which produced a readily interpretable 4 factor solution accounting for 33.5% of the variance in the students' response patterns. Convergent validity was indicated in this first study by positive correlations between indicators of school success (e.g., grade point average, standardized test scores) and RQ total, and with RQ subscale scores. In a second study, RQ scores were also shown to converge on indicators of personal competence (e.g., job

competence, friendship) on the Self Perception Profile for Adolescents (Harter, 1988). RQ scores were inversely related to external locus of control. In a final study, RQ scores for competent school students were higher than those generated by comparably aged students in a residential child and adolescent care psychiatric facility, offering support for the divergent validity of the instrument.

(8) Adolescent Perceived Events Scale - Form B (APES-B)

The Adolescent Perceived Events Scale is a stressor inventory system developed with and designed for use with three ages groups: early adolescents (junior high; ages 12 - 14), middle adolescents (high school; ages 15 - 17), and older adolescents (18 - 20). The respective scales list 164, 200, and 210 stressors representing both major life events and daily hassles, and 157 core items appear on the three principal versions of the scale.

Standard instructions on the APES ask respondents to identify those life events they have experienced within a recent time frame. The scales were standardized utilizing a 6 month response frame, but others have been used, namely, 3 months, 4 months, and "during the school year." Once the events are identified, respondents are also additionally asked to furnish desirability, impact, and frequency ratings for the endorsed items. On a scale ranging from -4 to +4, they are to tell how desirable the event was when it happened. On a scale of 1 to 9, they are then to indicate how much impact the event had, and finally to tell on a scale of 1 to 9 how often the event has occurred in their lives. Major life events are ideographically defined as those earning frequency ratings of

4 or below, but which are given impact ratings of 6 or higher. Daily hassles are those given frequency ratings greater than or equal to 5 regardless of impact. Efforts are currently underway to develop norms for items most commonly identified as major events or daily hassles, but are only yet developed for the the early adolescent version.

A short form of the APES exists, Form B, which represents a 100 item distillation of other versions. Compas (1994, personal communication) has indicated that discarded items were primarily those typically endorsed at "such high or low base rates that they were not useful in predicting other variables of interest." Due to the research parameters of this study, a randomly selected list of 40 items was employed from Form B of the APES in the stress appraisal component of this research. The rating system was altered to employ a 7-point Likert scale ranging from 0 (not stressful at all) to 6 (highly stressful).

Standardization.

APES scale items were developed from lists of "significant events" generated by 658 Vermont public school adolescents (411 female, 247 male) across the three described age groups. A particular feature of the APES' development was its reliance on actual adolescent reports to determine the original item pools. In subsequent studies described in Compas et al. (1987), multidimensional scaling analysis verified the APES' tripartite rating system for the middle and older adolescent versions. The junior high version was deemed a unidimensional instrument, and now asks respondents to give endorsed events only a desirability rating.

Reliability.

In a test-retest study, 95 adolescents (ages 12 - 20) completed age-appropriate versions of the APES at two-week intervals. Based on event endorsement, and total event weighting (Desirability x Impact) consistencies, test-retest reliabilities for the middle adolescent version were .84 for number of events endorsed, .89 for total negative event weightings, and .81 for positive event weightings. Other research with the APES (e.g., Wagner, Compas & Howell, 1988) has tended to reiterate reliability data reported in the development study. However, in a study of the effects of gender, instrumentality, and expressivity as moderators of stress / symptom relationships, Wagner and Compas (1990) reported KR-20 item response reliability coefficients of .79 for the middle adolescent scale.

Validity.

Early validity studies of the APES have focused on the older adolescent version. College roommates completed double blind APES ratings for themselves and their roommates. Interrater agreement is reported for event occurrence (82%), desirability (87%), impact (90%) and frequency (91%).

Data Collection Procedures

Overview

Preliminary approval for this research was obtained through the office of the Superintendent for the Battle Creek Public Schools and was further reviewed by the Directors of Secondary Curriculum, Special Education, Pupil Personnel and Guidance, the School Consultant

(attorney), and the high school principal. Authority for final approval was given to and granted by the high school principal following subsequent review by administrative advisors, selected faculty and students, and an ad hoc community advisory group (Appendix A). Pending satisfactory arrangement with teachers of all potentially affected classes, it was agreed that the equivalent of one class period of instructional time would be made available for the Part I Screening Survey to facilitate data collection and to allow for maximum student participation. Data collection for the Part II Research Survey was carried out on-site at the high school, but after school hours.

Data collections occurred primarily in the winter and spring of the 1994-1995 school year. Part I data collection began in February shortly after the start of the second semester of classes and spanned three weeks. Part II data collection occurred in March and included eight after-school sessions spanning slightly over three weeks. A final Part II make-up session was completed in early April.

Part I Screening Survey

To coordinate the Part I Screening Survey, a descriptive letter was sent to parents of all high school students along with a consent form (Appendix B). Stamped return envelopes were also provided. Of note, the Battle Creek Public Schools had recently adopted a Five Year School Improvement Plan, and community awareness of the plan at the time of this research was fairly extensive. Over the preceding months, virtually all parents in the school district had received communiques' through school-based publications and via the local newspaper regarding

the plan, and its development and goals. Following suggestions from school administration, the researcher's project was affiliated with the district's Improvement Plan to promote participation. Overall response to the project was favorable, and roughly two-thirds of all students at the high school were ultimately allowed to complete the screening surveys.

In preparation for the survey sessions, the researcher met with all teachers of required classes at grades 10 (Sophomore English), 11 (U.S. History), and 12 (Government / Economics) to review the intents and purposes of the research. Contacting students in required classes was desired in order to promote maximum participation, to minimize the potential for overlapping data sets, and to simplify issues centering around student movement and management. All teachers, sixteen in all, permitted the use of class time for the project. A teacher consultant for the learning disabled also assisted in selected classes wherein students were known to have reading difficulties. Alternate activities were arranged for non-participating students, and included passes on request to the school's computer lab, enrichment lab, or media center. The vast majority of non-participants simply chose to remain in their classes to work independently on routine schoolwork. On average, 3 to 4 non-participants per class period were accomodated in these ways. A total of 52 classes were surveyed and 880 eligible students were present for the initial screening.

Survey sessions.

All students completed the screening surveys in their regular classrooms. Participants had been pre-identified by class list, and non-participants were offered alternative activities. Students were then given an introduction to the project and to the surveys themselves. The student cover letter (Appendix C) was read aloud in each class, and instructions for both the COPE and SASI (Appendix C) were reviewed and discussed. In brief, completion of the COPE required students to read 60 statements and rate, on a 4-point Likert scale ranging from "not at all" to "a lot," the extent to which they "usually" employed that behavior when facing (non-specified) "difficult or stressful events." Completion of the SASI required two responses. First, students were to read 65 statements and simply endorse, by circling YES or NO, whether they had "experienced" the stated events in the past year. Second, for those items experienced, and only those, students were to rate, on a 7-point Likert scale ranging from "really bad" (7) to "really good" (1), how that experience made them feel when it occurred. The Yes / No endorsements represented an objective measure of stressors experienced, and the ratings represented a subjective / affective measure of the same events. Two write-in options were also available. Of all potential survey candidates, 9 chose of their own volition not to complete them, leaving 871 respondents. On average, students completed both the COPE and SASI in roughly 35 to 45 minutes. Only two students were unable to complete the surveys within the allotted time, and one did so during a later study period.

Because absenteeism at Battle Creek Central averaged approximately 8 to 10 percent of the student body per day, the original data collection protocol called for the noting of absentees, and for make-up screening sessions. However, time constraints ruled against this procedure, and it must accordingly be assumed that non-respondents' patterns on the COPE and SASI would not have differed from those of actual respondents.

Preliminary Analyses

To prepare for the selection of all Part II research participants, the Part I screening data were inspected and analyzed along five dimensions. The data sets were first reviewed for face validity or other immediate evidence of non-typical response sets, then inspected psychometrically for distributional properties and identification of outliers. Third, the objective and subjective components of the SASI responses were explored, then the overall performance of the COPE subscales were analyzed. Finally, the COPE and SASI distributions were examined in tandem for combined discriminant power.

Validity.

Upon completion of the Part I survey, all data sets were scored and inspected. Preliminary inspection of the 871 survey sets yielded 804 deemed suitable for analysis. 67 data sets were deemed unsuitable, primarily due to incomplete response sets. Of these, 61 students had typically left several pages in the survey packets blank, in some instances most of them, or had obviously failed to follow directions. One additional data set was excluded by virtue of the individual's being a foreign exchange student. Another 5 survey sets were also questioned

and later eliminated due to unusual response patterns (e.g., indicating that all stressor experiences made the respondent feel "really good"). Follow-up on these respondents revealed that one student was in a program for intellectually limited individuals, a second was receiving both school and community based counseling for emotional disturbance, a third was known to have received closed head injuries due to an automobile accident in the past year, a fourth was described by special education staff as a virtual non-reader, and the fifth was characterized by counseling staff as an "extremist." Three additional data sets were exempted from consideration as described below.

Of the 804 remaining survey sets, 144 contained an occasional missing response on either the COPE (N = 116), SASI (N = 72), or Both (N = 48). These missing responses were prorated based on the respondents' remaining scoring patterns on the affected subscales, or based on overall scoring patterns, but only if the total number of missing responses did not exceed 5% of all responses (6 items). Of these, only one contained 6 missing responses. Three data sets exceeded this 5% rule (Mean = 10.3), even though the respondents had ostensibly completed the surveys. The average number of prorated responses for the affected COPE, SASI and Both protocols were 1.4 (2.3%), 1.5 (2.5%) and 3.2 (1.9%), respectively, and collectively represented less than 0.3% of the more than 100,000 total item responses.

Psychometric properties.

The remaining 801 response sets were then examined for psychometric properties. Of particular concern were the distributional characteristics of the total COPE and SASI scores, as these were to be

used to select subsequent research participants. It was expected that the distribution of scores on the SASI would be to some degree skewed by virtue of the instrument's design, namely its menu of predominantly negative experiences. Of greater concern, however, was that the distribution of COPE scores approximate the normal, inasmuch as the research hypotheses of interest centered around the properties and correlates of coping, rather than stressor experiences per se. Initial distributional characteristics of both instruments are summarized in Table 3.4.

Table 3.4
Properties of COPE and SASI Distributions
Standard Summative Scoring

	N	Mean	S.D.	Median	Skew	Kurtosis
COPE	801	138.42	19.54	139.00	-.2361	.2443
SASI	801	34.15	10.33	35.00	-.2557	-.1104

Subsequent statistical analyses of the 801 data sets identified 15 outliers, 8 by SASI scores and 7 by COPE scores. Of the 8 SASI outliers, one was identified as having an unusually high score, and 7 were identified as having unusually low scores. In that high stressor scores were a potential selection variable, the high scorer remained in the data bank, and attention was focused on the low scorers. Of the remaining 7 individuals, 5 endorsed so few stressor items (Range = 2 to 5 of a possible 67), that their protocols were trimmed from the data pool since they would not have been chosen for further research by any of the selection standards under consideration. They had also failed to endorse items that reflect virtually universal experiences for high

schoolers (e.g., Report card day; Taking any kind of test), further suggesting that their response patterns were questionable. The final 2 SASI outliers had earned unusually low stressor scores (5, 6), but their response sets were left in the data pool by virtue of their COPE scores' (154, 103) being neither unusually high nor low, and because their SASI endorsement patterns were deemed plausible.

With respect to the 7 COPE outliers, one of whom was an unusually high scorer (163) and 6 of whom were unusually low scorers (Range = 60 to 79), the issue was slightly different. Both extremely high and extremely low COPE scorers were of potential research interest, but the respondents' combinations of COPE and SASI scores also precluded their later selection by any standard under consideration. All 7 had below-the-median SASI scores (Range = 12 to 29), and the lowest 5 COPE scorers were accordingly removed from the data pool. This left a total of 791 intact data sets for further analyses and selection purposes. Table 3.5 summarizes the changes in the scales' psychometric properties as a result of these removals, and is based on summative scoring of all COPE and SASI subscales.

Table 3.5
Properties of COPE and SASI Distributions
Standard Summative Scoring

	N	Mean	S.D.	Median	Skew	Kurtosis
COPE	801	138.42	19.54	139.00	-.2361	.2443
SASI	801	34.15	10.33	35.00	-.2557	-.1104
COPE	791	139.07	18.68	140.00	-.0275	-.2741
SASI	791	34.43	10.03	35.00	-.1603	-.2968

Table 3.6 summarizes similar changes in psychometric properties based on the scoring standard ultimately adopted for selection of research subjects, namely summative scoring for all subscales of both instruments except one, COPE subscale 14 (Alcohol - Drug Use), for which a reversed scoring format was employed, for reasons noted in later context. The same outliers were identified by either COPE scoring method, and in general, their removal improved the characteristics of both distributions. Demographic characteristics of the 10 excluded participants are given in Table 3.7

Table 3.6
Properties of COPE and SASI Distributions
Reversed Scoring for COPE Subscale 14

	N	Mean	S.D.	Median	Skew	Kurtosis
COPE	801	147.19	19.71	148.00	-.1999	.1499
SASI	801	34.15	10.33	35.00	-.2557	-.1104
COPE	791	147.82	18.94	148.00	-.0320	-.2073
SASI	791	34.43	10.03	35.00	-.1603	-.2968

Table 3.7
Demographics of Excluded Participants
Age x Gender x Ethnicity

Age	Male (N = 5)						Female (N = 5)						Total
	CS	AA	HS	OR	NA	NS	CS	AA	HS	OR	NA	NS	
15	0	0	0	0	0	0	1	0	0	0	0	0	1
16	1	1	0	0	0	1	0	2	0	0	0	0	5
17	2	0	0	0	0	0	1	0	0	0	0	0	3
18	0	0	0	0	0	0	1	0	0	0	0	0	1
Tot	3	1	0	0	0	1	3	2	0	0	0	0	10

Key: CS = Caucasian
AA = African American
HS = Hispanic
OR = Oriental
NA = Native American
NS = Not Specified

Objective versus subjective SASI scores.

There has been some debate over the most efficacious way to identify stressor experiences. Many researchers include and tend to rely on subjective measures to estimate the impact of stressors in their rating systems. Tolor (e.g., Tolor & Murphy, 1985; Tolor & Fehon, 1987), for instance, typically assesses both the incidence and "intensity" of experiences in his use of the High School Readjustment Rating Scale. Similarly, in their work with the Adolescent Perceived Events Scale, Compas and colleagues (e.g., Compas et al., 1987; Wagner, Compas & Howell, 1988) ask for respondents' estimates of both the desirability and impact of various stressors, along with their mere occurrence. Others favor less complex rating systems and rely on simpler counts of stressor experiences. Cohen & Park (1992), for instance, contend that the practical distinctions between objective and subjective stressor ratings are essentially "trivial," and maintain that independent (i.e., objective) and subjective assessment strategies yield "highly comparable life stress scores that are equally predictive" (p. 26).

The SASI rating system employed in this research allowed both options. As such, two distributions were examined, the first based on a mere count of stressors items endorsed in the screening survey (number of items circled Yes), and the second based on students' ratings of the endorsed items. Properties of both distributions are given in Table 3.8. With the exception of skew values, the distributions are virtually identical. The differences in skew do suggest, however, that simple counts of life events may underestimate the stressfulness of negative events slightly, and may overestimate the pleasantness of positive ones as well.

Table 3.8
Properties of SASI Distributions
Stressor Counts vs. Stressor Ratings

	Mean	S.D.	Median	Skew	SE sk	Kurtosis	SE ku
Count	34.43	10.03	35	-.1603	.0869	-.2968	.1736
Rating	166.21	57.97	166	.0772	.0869	-.2865	.1736

To explore this a bit further, SASI item **endorsement** percentages were calculated and averaged. For all survey protocols, each endorsed item (i.e. circled YES as having been experienced in the past year) was categorized by whether it had been rated "negatively" (given a rating of either 5, 6 or 7). "neutrally" (given a rating of 4), or "positively" (given a rating of either 3, 2 or 1). The number of resulting items in each category were then divided by the total number of items endorsed for the given protocol, yielding a percentage of item responses that fell in each category. These were then compared to respondents' average subjective **ratings** percentages for the same items by category. Ratings percentages were calculated by summing the actual subjective ratings for each of the negative, neutral, and positive categories, then dividing by the total rating for the protocol. Average ratings were also calculated for each category based on the average number of items endorsed in each category, divided by the average ratings for the items. Results are summarized in Table 3.9.

Although no further formal analyses were undertaken, what seems clear is that the average subjective ratings for each category correspond almost exactly to what intuition perhaps tells us, namely that "negative" life

Table 3.9
SASI Endorsements Means
Count Percentages, Rating Percentages, Sums of Ratings,
Number of Ratings, and Average Rating x Category

	MEANS				
	Count %	Rtgs. %	Sum Rtgs.	N of Rtgs.	Avg. Rtg.
Negative	.5507	.6658	116.37	19.52	5.96
Neutral	.2965	.2631	39.80	9.95	4.00
Positive	.1528	.0711	10.04	4.96	2.02
Total	1.0000	1.0000	166.21	34.43	4.83

events are on the average experienced as "bad" (i.e., given an average rating of "6" [5.96]), that "positive" events are on the average experienced as "good" (i.e., given an average rating of "2" [2.02]), and that "neutral" life events by definition are literally experienced as those that do not make us feel "particularly good or bad" (i.e., given a rating of "4"). As might be expected, the more negative life events you experience, the worse you feel (i.e., earning you a weighted stressor rating of 4.83 on the Likert scale of life).

A bit more formally, as Cohen and Park (1992) suggest, the practical differences between objective counts and subjective ratings of stressors are indeed perhaps trivial, or are at least small, as borne out by the data in Tables 3.8 and 3.9. Perhaps of greater import, the patterns observed here suggest that the sheer numbers of negative events in one's recent experience probably tell us about as much, at least on average, as how those events are experienced. As such, both measurement approaches appear equally viable. Accordingly, the approach utilized in

this research is an objective measure of stressor experiences, namely a simple count of the number of stressors endorsed by respondents on the SASI. The psychometric result is that the COPE and SASI distributions have greater similarity for selection purposes, and an objective selection of the stressor component permits a clearer test of appraisal processes in the Part II research.

COPE subscale analysis.

A working assumption of this study has been that a priori value judgments cannot be attached to specific coping strategies. This is consistent with positions taken by Folkman and Lazarus (1980) who found, for instance, that both problem-focused and emotion-focused coping strategies were employed in over 98% of all stressful encounters, and that specific strategies such as planful problem-solving, confrontation, or emotional distancing were neither **inherently** adaptive nor maladaptive (Folkman & Lazarus, 1988). Hauser et al. (1991), similarly argued that the adaptive or dysfunctional potential of specific coping processes cannot be defined in advance, and that an entire array of coping processes may be viable.

Procedurally, this suggested that in lieu of compelling evidence to the contrary, Better and Poorer copers could be differentiated on the basis of high versus low summary scores on the COPE, particularly given its "dispositional" standardization format. Accordingly, summary scores on the COPE and SASI were tabulated and respondents were initially assigned to four cells based on above- and below-the-median scores on both instruments. As depicted in Figure 3.1, participants earning below-the-median (low) COPE scores and above-the-median (high) SASI

scores were assigned to Cell 1 and were termed Poorer copers. Those earning high COPE scores and high SASI scores were assigned to Cell 2 and were termed Better copers. Those earning low COPE and low SASI scores, and high COPE and low SASI scores were assigned to Cells 3 and 4, and were termed Fragile and Latent copers, respectively. Poorer copers were assumed to be those who were experiencing high stressor levels, and whose coping skills were defined as less sufficient to manage them. Better copers in turn were those who were also experiencing comparably high stressor levels, but whose coping skills were deemed more sufficient to manage them.

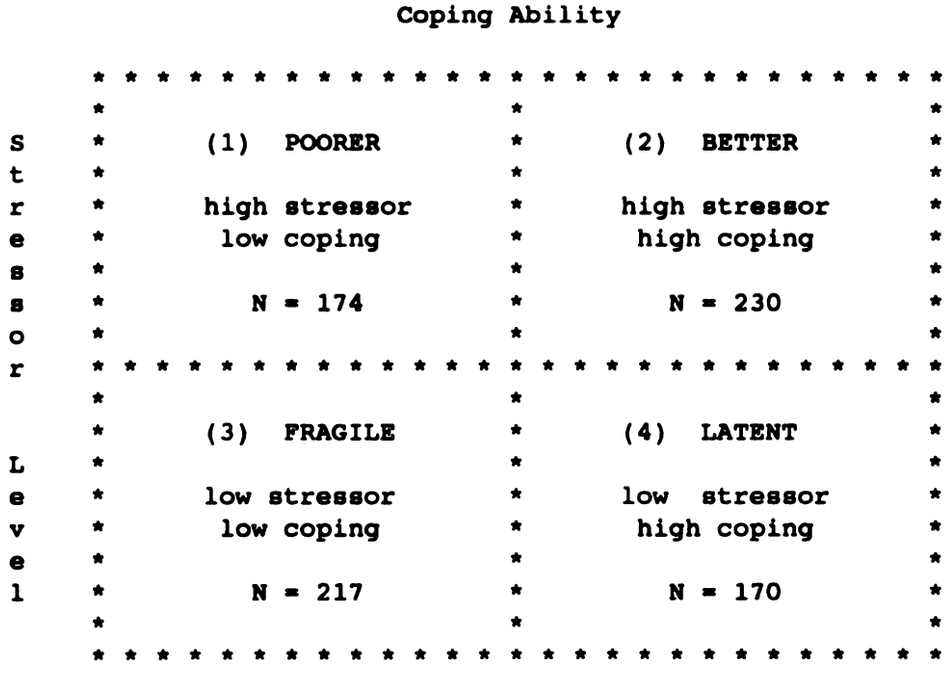


Figure 3.1 --- Coping Categories: Scale 14 Summative Scoring

Although participants in Cells 3 and 4 were not of immediate research interest in this study, their descriptors were nonetheless given meaning. In theoretical terms a Fragile coper is one ostensibly possessed of low coping ability, but one who might function reasonably

well so long as stressor levels remain low. In the face of elevated stressor levels, the Fragile coper is presumably quickly overwhelmed. Conversely, the Latent coper can be thought of as one possessed of high coping ability, but whose skills are yet to be tested simply because the stressors extant in his or her life happen to be relatively low. Facing elevated stressors, the Latent coper is theoretically able to tap dormant resources to good effect, and thus is not quickly or easily overwhelmed.

Having made these preliminary distinctions, COPE subscale scores were computed for each group, and T-tests were performed for the Better and Poorer coping cells for each subscale to verify the selection properties of the COPE. Given that Better and Poorer copers were defined by high and low COPE scores, it was presumed that all T-tests would show significant differences for each subscale favoring the Better copers. In general, the expected data patterns emerged. Better and Latent copers' scores resembled each other on the COPE, as did those of Poorer and Fragile copers. As well, Latent and Fragile copers' stressor scores on the SASI were similarly low, as were Better and Poorer copers' scores similarly high, a desired result. Of some interest, COPE subscales 13 (Behavioral Disengagement) and 14 (Alcohol - Drug Use) did not distinguish Better and Poorer copers. Results are summarized in Tables 3.10 and 3.11. SASI scores are included for didactic purposes.

The distributional patterns of all subscales were examined further and are summarized in Table 3.12. For the most part, COPE subscale distributions were platykurtic, the most severe of these being subscale 6 (Religion), which was essentially rectangular. Of greater

Table 3.10
COPE Means and Standard Deviations
Subscale x Cell

		LATENT (N = 170)		FRAGILE (N = 217)		BETTER (N = 230)		POORER (N = 174)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
C	1	11.36	2.07	9.29	2.21	11.27	2.02	9.30	2.16
O	2	11.99	2.23	9.32	2.50	11.90	2.56	8.98	2.49
P	3	11.62	2.28	8.25	2.43	11.86	2.56	8.21	2.37
E	4	11.05	3.03	7.48	2.81	11.43	3.31	7.55	2.74
	5	10.20	2.16	8.29	2.05	10.21	2.07	8.28	2.19
	6	11.26	3.33	8.30	3.85	10.70	3.53	8.34	3.53
S	7	12.53	2.32	10.26	2.41	12.60	2.20	9.53	2.39
u	8	10.68	2.05	8.64	2.19	10.59	2.11	8.64	2.24
b	9	11.96	2.34	10.01	2.63	11.79	2.42	10.17	2.56
s	10	10.82	2.84	8.81	2.92	11.39	2.72	9.51	3.05
c	11	7.69	2.80	6.16	2.13	7.57	2.87	6.51	2.52
a	12	10.38	2.54	9.24	2.39	10.79	2.20	9.92	2.33
l	13	7.18	2.29	6.40	2.24	7.30	2.41	6.94	2.39
e	14	5.33	2.75	5.01	2.27	6.15	3.38	5.97	3.25
s	15	9.27	3.34	7.59	2.91	8.99	3.35	7.01	2.77
COPE TOTAL		153.32	10.34	123.05	12.20	154.54	11.08	124.86	9.90
SASI TOTAL		26.51	5.73	25.77	6.51	42.83	5.63	41.89	5.19

Table 3.11
Significance Tests
Better vs. Poorer Copers x COPE Subscale

		BETTER (N = 230)		POOREER (N = 174)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	11.27	2.02	9.30	2.16	1.97	9.39	.000
O	2	11.90	2.56	8.98	2.49	2.92	11.48	.000
P	3	11.86	2.56	8.21	2.37	3.65	14.63	.000
E	4	11.43	3.31	7.55	2.74	3.88	12.56	.000
	5	10.21	2.07	8.28	2.19	1.93	9.07	.000
	6	10.70	3.53	8.34	3.53	2.36	6.63	.000
S	7	12.60	2.20	9.53	2.39	3.07	13.39	.000
u	8	10.59	2.11	8.64	2.24	1.95	8.97	.000
b	9	11.79	2.42	10.17	2.56	1.62	6.49	.000
s	10	11.39	2.72	9.51	3.05	1.88	6.53	.000
c	11	7.57	2.87	6.51	2.52	1.06	3.85	.000
a	12	10.79	2.20	9.92	2.33	.87	3.84	.000
l	13	7.30	2.41	6.94	2.39	.36	1.46	.144
e	14	6.15	3.38	5.97	3.25	.18	.56	.576
s	15	8.99	3.35	7.01	2.77	1.98	6.31	.000
COPE TOTAL		154.51	11.08	124.79	9.90	29.72	27.94	.000
SASI TOTAL		42.83	5.63	41.89	5.19	.94	1.74	.083

Table 3.12
Properties of COPE Subscale Distributions
for Combined Coping Categories
Standard Summative Scoring

N = 791		Mean	S.D.	Median	Kurtosis	Skew
C	1	10.3135	2.3391	10.0	- .1550	- .0216
O	2	10.5689	2.8222	11.0	- .5922	- .0363
P	3	10.0139	2.9985	10.0	- .6098	.0284
E	4	9.4109	3.5378	9.0	- .9974	.1425
	5	9.2541	2.3150	9.0	- .0590	.0948
	6	9.6422	3.8090	10.0	-1.1456	.0538
S	7	11.2680	2.6826	11.0	- .4606	- .2039
u	8	9.6448	2.3630	10.0	- .0930	.0361
b	9	10.9810	2.6474	11.0	- .5129	- .1859
s	10	10.1466	3.0599	10.0	- .7110	.0884
c	11	6.9747	2.6709	7.0	.0606	.7881
a	12	10.0860	2.4303	10.0	- .3750	.0884
l	13	6.9469	2.3578	7.0	.1752	.7677
e	14	5.6207	2.9789	4.0	3.2248	2.0033
s	15	8.2314	3.2376	8.0	- .5889	.4990

significance was the pattern associated with subscale 14 (Alcohol - Drug Use). Skew, kurtosis, and item responses patterns were severe and potentially confounded the selection process for research subjects. All COPE subscales scores range from a lowest possible score of 4, indicating that the respondent usually does not engage in the described behavior "at all," to a maximum possible score of 16, indicating that the respondent typically engages in the described behavior "a lot." Of the 791 participants, 524 students earned the lowest (and median) score of 4 on subscale 14, and 575 (72.7%) earned scores below the mean on this scale. Therefore, 266 respondents earned higher than average scores, and 90 earned scores in the top 10% of endorsements. In that Better copers were to be selected by high total scores on the COPE, and Poorer copers by low total scores, the response characteristics of

subscale 14 could, more than any other, hypothetically and fairly substantially contribute to a respondent's being deemed a Better or Poorer coper in a somewhat counter-intuitive manner. High scores on subscale 14, indicating fairly extensive alcohol or drug use, would contribute to being designated a Better coper, and low scores, indicating very little drug or alcohol use, would contribute to being designated a Poorer coper.

Even so, however beckoning the value judgment, in keeping with the caveat that no given behavior is necessarily non-adaptive without proof, even extensive drug or alcohol use, a correlation matrix (Table 3.13) was generated for all COPE subscales and total coping in order to examine the performance of subscale 14 in the instrument as a whole. This revealed that subscale 14 was significantly negatively correlated with more subscales (1, 2, 3, 4, 6, 7 and 9) than any other subscale, and was non-significantly related to five others (Subscales 5, 8, 9, 10 and 12), exceeded only by subscale 13 (Behavioral Disengagement) with six. Subscale 14 also made the smallest contribution of any subscale to total coping ($r = .1154$, $p = .001$), and was smaller still when the Latent and Fragile coping groups were factored out ($r = .0978$, $p = .049$).

Carver (1994, personal communication) has indicated that COPE subscales 14 and 15 are still thought of as exploratory. Therefore, consideration was given both to eliminating subscale 14 from the selection process, and alternatively, to the use of a reversed scoring format for that subscale. Along these lines, participants' scores from the screening survey were recategorized into the four coping category cells based on

Table 3.13
COPE Subscale Correlations for
Combined Coping Categories
(N = 791)

COPE Scales	01	02	03	04	05	06	07	08
01	1.000	.595	.355	.254	.387	.132	.439	.319
	1.000	.000	.000	.000	.000	.000	.000	.000
02		1.000	.445	.308	.463	.210	.574	.398
		1.000	.000	.000	.000	.000	.000	.000
03			1.000	.742	.290	.295	.469	.260
			1.000	.000	.000	.000	.000	.000
04				1.000	.183	.244	.329	.159
				1.000	.000	.000	.000	.000
05					1.000	.128	.317	.397
					1.000	.000	.000	.000
06						1.000	.276	.136
						1.000	.000	.000
07							1.000	.404
	KEY						1.000	.000
08	01) Active Coping							1.000
	02) Planning							1.000
	03) Seeking Instrumental Social Support							
09	04) Seeking Emotional Social Support							
	05) Suppression of Competing Activities							
10	06) Religion							
	07) Positive Reinterpretation & Growth							
11	08) Restraint Coping							
	09) Acceptance							
12	10) Focus on and Venting of Emotions							
	11) Denial							
13	12) Mental Disengagement							
	13) Behavioral Disengagement							
14	14) Alcohol - Drug Use							
	15) Humor							
15	--) Total Coping							
Total Coping								

Table 3.13 (cont'd)

COPE Scales	09	10	11	12	13	14	15	COPE Total
01	.256	.184	-.118	-.018	-.241	-.101	.102	.5165
	.000	.000	.001	.607	.000	.004	.004	.000
02	.282	.149	-.107	-.017	-.237	-.118	.104	.6030
	.000	.000	.003	.635	.000	.001	.003	.000
03	.170	.339	-.025	.042	-.072	-.101	.083	.6787
	.000	.000	.476	.238	.042	.005	.020	.000
04	.129	.458	.006	.105	-.021	-.097	.069	.6288
	.000	.000	.877	.003	.563	.006	.053	.000
05	.224	.117	.113	.112	.026	.018	.101	.5496
	.000	.001	.001	.002	.467	.616	.005	.000
06	.058	.096	.061	.049	-.011	-.167	-.082	.4145
	.103	.007	.086	.169	.763	.000	.021	.000
07	.407	.047	-.081	-.003	-.191	-.195	.148	.5932
	.000	.189	.023	.938	.000	.000	.000	.000
08	.311	.017	.131	.117	.036	-.032	.135	.5372
	.000	.636	.000	.001	.313	.375	.000	.000
09	1.000	.044	-.046	.038	-.001	-.066	.184	.4322
	1.000	.215	.201	.285	.987	.065	.000	.000
10		1.000	.065	.111	.082	.054	-.049	.4344
		1.000	.066	.002	.021	.132	.170	.000
11			1.000	.238	.395	.216	.124	.2816
			1.000	.000	.000	.000	.000	.000
12				1.000	.200	.050	.121	.3018
				1.000	.000	.162	.001	.000
13					1.000	.237	.048	.1658
					1.000	.000	.182	.000
14						1.000	.097	.1154
						1.000	.006	.001
15							1.000	.3353
							1.000	.000
Total Coping								1.0000
								1.0000

the two adapted scoring strategies. As a result, the numbers of copers in each category changed as depicted in Table 3.14.

Table 3.14
Latent, Fragile, Better and Poorer Copers
by COPE Subscale 14 Scoring Strategy

	N = 791			
Subscale 14 Scoring Method	Latent	Fragile	Better	Poorer
Summed	170	217	230	174
Eliminated	193	221	208	169
Reversed	186	201	226	178

T-tests were also recomputed to examine the discriminant power of the COPE in keeping with the assumption that Better and Poorer coping should be reflected in higher and lower total scores. Although all three scoring methods essentially produced that pattern, the reversed scoring pattern for subscale 14 appeared to be the most sound. Under the standard summative method, subscale 14 did not discriminate Better from Poorer copers, but under the reversed scoring format it did, presumably due to the slightly altered composition of the Better and Poorer coping groups that resulted (see Tables 3.15, 3.16). Of additional note, in none of the three categorization procedures did subscale 13 reach statistical significance in its ability to differentiate Better from Poorer copers. Of perhaps greater import, under the reversed subscale 14 scoring format, the Better and Poorer coping cells were arguably more equated on the stressor selection variable than by any other method (SASI mean difference = .84, p = .124). This comparability on stressor levels also maintained its parity

Table 3.15
Significance Tests
Better vs. Poorer Copers x COPE Subscale
COPE Subscale 14 Eliminated

		BETTER (N = 208)		POORER (N = 169)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	11.31	2.04	9.34	2.21	1.97	9.00	.000
O	2	11.99	2.54	9.04	2.45	2.95	11.40	.000
P	3	11.84	2.55	8.27	2.40	3.57	13.89	.000
E	4	11.42	3.36	7.64	2.81	3.78	11.68	.000
	5	10.32	2.03	8.30	2.21	2.02	9.23	.000
	6	10.72	3.52	8.33	3.50	2.39	6.56	.000
S	7	12.62	2.20	9.63	2.36	2.99	12.71	.000
u	8	10.61	2.08	8.62	2.19	1.99	9.01	.000
b	9	11.77	2.46	10.21	2.56	1.56	5.99	.000
s	10	11.38	2.68	9.65	3.13	1.73	5.81	.000
c	11	7.64	2.89	6.60	2.55	1.04	3.64	.000
a	12	10.83	2.17	9.90	2.35	.93	3.97	.000
l	13	7.30	2.43	7.01	2.44	.29	1.12	.266
e	14							
s	15	8.93	3.30	7.02	2.82	1.91	5.94	.000
COPE TOTAL		148.68	10.89	119.56	10.06	29.12	26.73	.000
SASI TOTAL		43.51	5.39	42.23	5.03	1.28	2.27	.024

Table 3.16
Significance Tests
Better vs. Poorer Copers x COPE Subscale
COPE Subscale 14 Reversed

		BETTER (N = 226)		POORER (N = 178)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	11.33	2.05	9.26	2.07	2.07	10.00	.000
O	2	12.04	2.51	8.87	2.37	3.17	12.90	.000
P	3	11.86	2.61	8.29	2.36	3.57	14.22	.000
E	4	11.50	3.28	7.55	2.75	3.95	12.88	.000
	5	10.21	2.08	8.32	2.19	1.89	8.85	.000
	6	10.84	3.50	8.21	3.46	2.63	7.54	.000
S	7	12.62	2.20	9.57	2.40	3.05	13.29	.000
u	8	10.56	2.10	8.71	2.29	1.85	8.44	.000
b	9	11.86	2.45	10.11	2.48	1.75	7.12	.000
s	10	11.34	2.65	9.62	3.17	1.72	5.92	.000
c	11	7.43	2.86	6.71	2.60	.72	2.62	.000
a	12	10.72	2.20	10.03	2.37	.69	2.99	.000
l	13	7.18	2.43	7.10	2.38	.08	.36	.722
e	R14	14.43	2.82	13.29	3.78	1.14	3.46	.001
s	15	8.93	3.35	7.13	2.86	1.80	5.71	.000
COPE TOTAL		162.85	11.15	132.77	11.30	30.08	26.79	.000
SASI TOTAL		42.80	5.70	41.96	5.11	.84	1.54	.124

when potential research participants were examined by upper and lower quartile membership as depicted in Table 3.17. This pattern suggests

Table 3.17
SASI Summary Score Significance Tests
Upper vs. Lower Quartile Membership for Better and Poorer Copers x Subscale 14 Scoring Method

COPE Scoring Method	N B / P	SASI Mean BETTER	SASI Mean POORER	Mean Diff.	t	p
Summed	114 / 80	44.19	42.03	2.16	2.83	.005
Eliminated	105 / 77	44.02	42.22	1.80	2.33	.021
Reversed	112 / 88	42.77	41.95	.82	1.05	.294

that participants' response dynamics on subscale 14 may also have been captured in some way on the stressor inventory, given the slight but persistent differences observed in SASI scoring patterns when copers were identified by the other scoring methods. Accordingly, reversed scoring for COPE subscale 14 was adopted, and further references to COPE scoring assume this format unless otherwise specified. Figure 3.2 expresses the final categorization of screening survey participants into coping cells based on COPE summary scores utilizing the reversed scoring format for scale 14.

COPE and SASI discriminant power.

To undertake the statistical analyses planned, a minimum of 60 participants were needed from each of the Better and Poorer coping cells, suggesting that approximately 100 selectees per cell would have to be identified, given the anticipated participation rate. Selection began with inspection and analysis of the overall and categorical

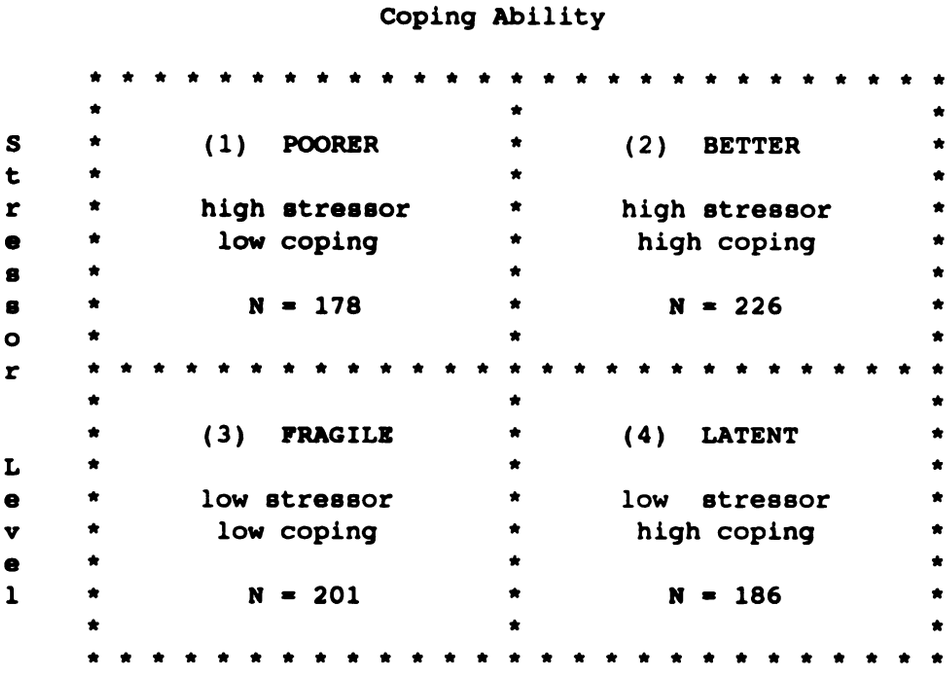


Figure 3.2 --- COPE Categories: Scale 14 Reversed Scoring

distributions of the COPE and SASI from the screening sample (Table 3.18). Mean COPE scores for Better and Poorer copers differed by roughly 30 points, but the properties of the parent distribution suggested that random selection of participants would yield a relatively high percentage of Better and Poorer selectees who would have quite similar score patterns despite their oppositely defined status. Examination of COPE score frequencies indicated that 40% of all potential selectees would have total COPE scores within one standard deviation of each other irrespective of coping category. Accordingly, participants were selected for the research survey if their SASI scores were at or above the median, but only if their accompanying COPE scores fell in the upper or lower quartiles of all COPE scores. Hence, Better copers were operationally defined as those Part I respondents whose SASI scores were greater than or equal to 35, and whose COPE scores were

greater than or equal to 161. Poorer copers were similarly operationally defined as those Part I respondents whose SASI scores were greater than or equal to 35, and whose COPE scores were less than or equal to 134. In practical terms this meant that only those Better and Poorer copers who scored approximately above and below their respective groups' averages were considered potential research participants.

Table 3.18
Descriptive Statistics for COPE and SASI Distributions
COPE and SASI x Coping Category

		COPE		SASI	
	N	Mean	S.D.	Mean	S.D.
Poorer	178	132.7191	11.3012	41.9551	5.1088
Better	226	162.8319	11.1454	42.7965	5.7002
Fragile	201	131.2886	11.4484	25.8706	6.3877
Latent	186	161.9140	11.1759	26.3280	5.9661
All	791	147.8243	18.9361	34.4336	10.0322

To give additional meaning to this, both Better and Poorer copers so defined had indicated via the SASI that they had experienced at least 35 identifiable stressors in the previous 12 months (Mean = 42.41), yet in dealing with these, Poorer copers on average employed the 15 coping strategies measured by the COPE only "a little bit" (COPE mean item score = 2.06), whereas Better copers employed the same strategies closer to "a medium amount" (COPE mean item score = 2.86). Fragile and Latent copers as described earlier were comparably defined. For descriptive convenience, a residual coping category was also created and termed

Average, representing all those whose COPE scores fell within the interquartile range, irrespective of SASI score (Table 3.19).

At this juncture, there was a final inspection of COPE subscales, total coping and SASI responses based on participant selection outside the interquartile range. T-tests were computed for all scales and are given in Table 3.20. As noted in earlier context, subscale 13 never statistically differentiated Better from Poorer copers, but its overall performance in the COPE appeared benign. SASI scores were also equated with the outer quartile selection method. No further explorations were deemed necessary.

By the methods described above, 112 and 88 screening survey participants in all were identified as Better and Poorer copers, respectively, representing the upper and lower quartiles of all COPE respondents whose objectively based SASI scores were above the median.

Table 3.19
Descriptive Statistics for Coping Categories
Coping Category x Interquartile Range

	COPE					SASI	
	N	Mdn	IQR Cut	Mean	S.D.	Mean	S.D.
All	791	148	-----	147.84	18.91	35.51	9.94
Poorer	88	126	< 135	123.67	9.24	41.95	5.48
Better	112	169	> 161	171.63	9.13	42.77	5.38
Fragile	104	124	< 135	122.23	8.00	25.17	6.00
Latent	86	168	> 161	171.45	9.23	26.94	5.30
Average	401	148	135-161	148.08	7.38	34.56	9.95

Table 3.20
Significance Tests
Better vs. Poorer Copers (Outer Quartiles)
COPE Subscales, COPE Total, and SASI Total

		BETTER (N = 112)		POOREER (N = 88)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	11.86	1.91	8.65	2.18	3.21	11.09	.000
O	2	12.78	2.14	7.97	2.09	4.81	15.93	.000
P	3	12.79	2.38	7.38	2.24	5.41	16.39	.000
E	4	12.66	2.85	6.76	2.53	5.90	15.26	.000
	5	10.61	2.09	7.88	2.23	2.73	8.94	.000
	6	11.82	3.32	7.65	3.28	4.17	8.87	.000
S	7	13.48	1.88	8.36	2.16	5.12	17.92	.000
u	8	11.19	1.83	8.18	2.20	3.01	10.54	.000
b	9	12.37	2.36	9.19	2.41	3.18	9.35	.000
s	10	11.83	2.40	8.75	3.08	3.08	7.95	.000
c	11	7.63	2.87	6.58	2.60	1.05	2.69	.008
a	12	10.92	2.29	9.69	2.49	1.23	3.62	.000
l	13	7.34	2.41	7.11	2.67	.23	.63	.532
e	R14	14.79	2.61	12.70	3.97	2.09	4.47	.000
s	15	9.54	3.38	6.82	2.65	2.72	6.26	.000
COPE TOTAL		171.61	9.13	123.67	9.24	47.94	36.69	.000
SASI TOTAL		42.77	5.38	41.95	5.49	.82	1.05	.294

Part II Research Survey

To organize the Part II Research Survey, a descriptive letter was sent to parents of all 200 identified students along with a consent form (Appendix D), a notice of survey location, date and time, a student identifier / admittance form, and a stamped return envelope. Mailings were phased to allow approximately 7 to 10 days for parents to return consent forms. To encourage participation, all potential respondents were offered a cash stipend of 15 dollars for their participation. Refreshments were also provided at each research session. For those households in the district maintaining phones (approximately 80%), numbers were obtained from school records, and all available parents were called by the researcher one to two days immediately prior to their sons' or daughters' scheduled survey session. This allowed parents the direct opportunity to ask questions or to request special accommodation, and it allowed the researcher opportunity to encourage participation beyond the mailer format. In addition, 19 of the selected students were sons or daughters of school district employees, and as a professional courtesy, these parents were contacted personally to allow similar opportunity to ask questions or express concerns.

In preparation for the survey, eight data collection sessions were arranged over a three week period, with 25 students per session tentatively scheduled to participate in each. Six of these sessions were scheduled in a small 150-seat kiva in the high school's McQuiston Learning Center, and two were scheduled in the school cafeteria. Roughly 90% of the data collections were completed between 3:00pm and 4:00pm after school at these sites. The remaining 10% were completed by

individual arrangement with students who had expressed a willingness to take part, but who could not attend the after school sessions due to such things as athletic schedules, part time jobs, illness, prior commitments, transportation difficulties, or other conflicts. Two of the participants had transferred to neighboring school districts between the times of the screening and research surveys. One was contacted at the new school and completed the survey there. The other, who maintained a part time job in the city, agreed to join one of the scheduled sessions in order to take part.

As with the earlier screening surveys, all survey packets were assigned an identifying code to ensure student response confidentiality. In this instance, however, all codes were preassigned and were a variant of those assigned to students during the screening survey. The codes also appeared surreptitiously on the parental consent forms and the student admittance forms to minimize the chance for mismatched data sets between Parts I and II of this project. When students arrived at the research sessions, they were given their survey packets (Appendix E), pencils as needed, and were asked to read the cover sheet, provide brief demographic information, and to begin the surveys. All questionnaires were presented in the order in which they appear in Appendix E. Questions were answered in progress. Upon completing the surveys, students received a stipend check that also noted their participation codes. No student attending the research sessions declined to complete the questionnaires, although one (a Poorer coper) apparently tired of the process, circling all "1s" on the last five pages of questionnaire packet. The data set was excluded from further analysis.

Immediately upon completion of the last scheduled data collection session, a make-up session was scheduled, and a final mailer constituting a second participation request was prepared and sent to parents of all non-participating students (Appendix F). Follow up calls were also made where deemed appropriate. The last research session was held in the Learning Center during the week following the students' return from spring vacation.

Ultimately, 142 of the 200 possible candidates were allowed to take part in the research, of whom 133 did (70 Better, 63 Poorer). In all, 132 acceptable data sets were collected and scored for analysis.

Design and Analyses

The overall format of this study was that of a descriptive post hoc study of intact groups, its purpose being to explore the relationships between selected personality dimensions and coping responses in Better and Poorer copers under equated stressor/risk experience. Analytical techniques used to test the hypotheses and questions of interest included t-tests, correlation, analysis of variance, stepwise logistic regression, multiple linear regression, and discriminant function analysis.

Research Hypotheses

The research hypotheses and questions of interest were presented in general form in Chapter II, and are given in data form below. Research Hypotheses 1 through 7 relate to postulated differences between Better

and Poorer copers. Hypothesis 1 engenders an exploration of the COPE's subscale performance, and is based on data gathered during the Part I Screening Survey as well as during the Part II Research Survey. As such, for purposes of this hypothesis test only, Better and Poorer copers are first defined by above- and below-the-median summary scores on the COPE accompanied by above-the-median scores on the SASI, then are defined by above- and below-the-interquartile scores on the COPE accompanied by above-the-median scores on the SASI. Tests of Hypotheses 2 through 7 rely on data gathered during the Part II Research Survey. Thus, for the remaining hypotheses tests, Better and Poorer copers are respectively defined by above- and below-the-interquartile summary scores on the COPE in company with above-the-median scores on the SASI.

Hypothesis 1: Better copers employ more proactive responses to stressors than Poorer copers.

Better copers will obtain higher relative scores on COPE subscales 1, 2, 3, 4, 5, 7 and 8 than Poorer copers. Poorer copers will obtain higher relative scores on COPE subscales 10, 11, 12 and 13 than Better copers. 12 13

Hypothesis 2: Better copers are not less anxious than Poorer copers.

Better and Poorer copers' scores on the State-Trait Anxiety Inventory, Form Y-2 will not differ.

Hypothesis 3: Better copers are more intellectually flexible than Poorer copers.

Better copers will obtain higher scores than Poorer copers on the Flexibility concept scale of the California Personality Inventory.

Hypothesis 4: Better copers are more hardy than Poorer copers.

Better copers will obtain higher scores than Poorer copers on the Hardiness Scale for Adolescents - Revised.

Hypothesis 5: Better copers have a greater sense of coherence than Poorer copers.

Better copers will obtain higher scores than Poorer copers on the Orientation to Life Questionnaire.

Hypothesis 6: Better copers are more resilient than Poorer copers.

Better copers will obtain higher scores than Poorer copers on the Resiliency Belief System for Adolescents.

Hypothesis 7: Better copers appraise stressors as being less stressful than do Poorer copers.

Better copers will earn lower scores than Poorer copers on the Adolescent Perceived Events Scale - Form B when administered using a hypothetical response format.

Research Questions

Research questions 8 and 9 explore the interconstruct relatedness of Flexibility, Hardiness, Sense of Coherence, and Resilience, along with their independent contributions to and preeminence of influence with Better and Poorer coping. Independence of influence implies that relationships exist between these qualities and coping ability, but that the qualities are relatively separate entities. Preeminence of influence implies that one construct contributes more strongly than others to coping membership.

Question 8: To what extent do Flexibility, Hardiness, Sense of Coherence, and Resilience demonstrate independent relatedness to coping?

Quantitatively, analysis will examine (a) the relatedness of scores on the respective measures of these constructs and COPE scores (tests of significance of the correlation coefficients), and (b) the separate contributions of each of these construct scores to coping group membership, holding the intercorrelation effects of the others constant (stepwise logistic regression analysis).

Question 9: Does Flexibility, Hardiness, Sense of Coherence, or Resilience exert the greatest influence on coping?

Quantitatively, the analysis involves examining the relative strengths of the partial correlations between the variable of interest and coping group membership, when the influence of other variables is held constant (stepwise logistic regression).

Research question 10 explores the potential utility of Flexibility, Hardiness, Sense of Coherence, Resilience, and other variables in predicting Better or Poorer coping. Analysis will examine the combined predictiveness of these factors for coping group membership.

Question 10: Which combination of factors under study most effectively identifies Better and Poorer copers?

Quantitatively, the examination involves creating a linear equation to express the relatedness observed between Better and Poorer copers scores on the construct measures and their respective group membership, then using that equation to predict an individual's group membership (discriminant function analysis).

CHAPTER IV

RESULTS

Introduction

Chapter IV presents analytical results for the major research hypotheses and questions of interest. Each hypothesis and question is restated and addressed in turn, accompanied by descriptions of the analytical procedures, supportive rationale, and a summary of findings.

Research Hypotheses and Findings

Hypothesis 1: Better copers employ more proactive responses to stressors than Poorer copers.

Better and Poorer copers in this study were defined by high versus low scores on the COPE. Therefore, as presented in Chapter III, in order to facilitate the selection of research participants it was expected, even desired that Better copers score consistently higher on all COPE subscales. Because of this, statistical tests could not rely on mere score differences on the COPE. Use of relative scores was required.

Relative scores essentially use respondents' own score patterns as a within group reference by determining the proportion or percentage of protocol responses that fall in each category of interest, in this instance, each COPE subscale. The distribution patterns of the relative scores were then examined between groups to determine differences in response patterns. In the current study, relative scores for each respondent were calculated as follows: For all respondents, each of the

15 COPE subscale scores were divided by the total COPE score for that respondent, yielding in effect a percentage / proportion of the total COPE score accounted for by that subscale. It then became possible to determine, by comparing group averages, which subscales accounted for the larger proportions of the Better and Poorer copers' overall COPE scores. Thus, even though Poorer copers scored lower on all but one subscale by virtue of the participant selection process, they might nonetheless score **relatively** higher than Better copers on some. T-tests were performed on both the Screening and Research Survey data to test these relative differences. Results appear in Table 4.1.

By definition in this study, Better copers use all but one of the 15 COPE strategies to a greater extent than Poorer copers (Table 3.16). Data from the screening sample in Table 4.1 suggest further that a higher proportion of their coping efforts are devoted to Planning (subscale 2), Seeking both Instrumental and Emotional Social Support (subscales 3 and 4), and to Reinterpreting stressful experiences in positive and Growth promoting ways (subscale 7). Conversely, Poorer copers, in addition to employing 14 of the 15 COPE strategies to a lesser degree, seem to devote a higher proportion of their coping efforts to Acceptance of their situation (subscale 9), Denial (subscale 11), to both Mental and Behavioral Disengagement (subscales 12 and 13), and to Alcohol or Drug Use (subscale 14). [14] Better and Poorer copers do not appear to differ in the proportion of their efforts devoted to Active Coping (subscale 1), Suppression of Competing Activities (subscale 5), Religion (subscale 6), Restraint (subscale 8), the Venting of Emotion (subscale 10), or to seeing the Humor in situations

Table 4.1
Relative Scores -- Screening Sample
Better vs. Poorer Copers x COPE Subscale

		BETTER (N = 226)		POOREER (N = 178)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	.0696	.012	.0698	.015	-.0002	- .11	.909
O	2	.0739	.015	.0666	.016	.0073	4.77	.000
P	3	.0726	.015	.0622	.016	.0105	6.83	.000
E	4	.0703	.019	.0567	.019	.0136	7.14	.000
	5	.0628	.012	.0627	.016	.0001	.04	.970
	6	.0664	.021	.0619	.026	.0055	1.93	.055
S	7	.0774	.012	.0717	.015	.0058	4.08	.000
u	8	.0648	.012	.0656	.016	-.0007	- .51	.608
b	9	.0729	.014	.0761	.018	-.0033	-2.00	.047
s	10	.0697	.016	.0725	.023	-.0028	-1.37	.171
c	11	.0457	.018	.0509	.020	-.0052	-2.75	.006
a	12	.0659	.013	.0758	.018	-.0099	-6.10	.000
l	13	.0442	.015	.0540	.019	-.0098	-5.58	.000
e	FS14	.0359	.017	.0527	.027	-.0168	-7.04	.000
s	15	.0548	.020	.0538	.021	.0010	.46	.643

FS = Forward Scoring

(subscale 15). What is not clear, however, is the exact nature of such efforts, and whether Better and Poorer copers still might differ in ways untapped by the COPE. As well, even though Better and Poorer copers did not differ in the proportion of their coping efforts devoted to Religion (subscale 6), a fairly strong trend was noted (p = .055), suggesting that Better copers may be inclined to have some belief system available to them (but see Table 4.2).

Table 4.2
Relative Scores -- Research Sample
Better vs. Poorer Copers x COPE Subscale

		BETTER (N = 70)		POORER (N = 62)				
		Mean	S.D.	Mean	S.D.	Mean Diff	t	p
C	1	.0691	.011	.0698	.017	-.0007	- .27	.784
O	2	.0749	.013	.0646	.016	.0103	4.17	.000
P	3	.0766	.013	.0603	.017	.0163	6.11	.000
E	4	.0741	.015	.0574	.020	.0167	5.30	.000
	5	.0601	.013	.0662	.019	-.0061	-2.15	.029
	6	.0699	.019	.0654	.027	.0045	1.08	.280
S	7	.0795	.010	.0661	.016	.0134	5.79	.000
u	8	.0653	.011	.0659	.016	-.0006	- .25	.801
b	9	.0719	.013	.0733	.020	-.0014	- .45	.655
s	10	.0696	.015	.0704	.025	-.0008	- .23	.818
c	11	.0421	.016	.0518	.021	-.0097	-2.93	.004
a	12	.0629	.013	.0778	.020	-.0149	-4.93	.000
l	13	.0426	.014	.0579	.023	-.0153	-4.53	.000
e	FS14	.0294	.010	.0600	.031	-.0306	-7.47	.000
s	15	.0524	.020	.0505	.017	.0019	.57	.566

FS = Forward Scoring

Table 4.2 summarizes relative score data for participants in the research sample. Again, these individuals represent Better and Poorer copers from the upper and lower quartiles of the sample represented in Table 4.1. The relative score patterns are similar to those depicted in Table 4.1, except Better and Poorer copers are no longer distinguished by

the proportion of their coping efforts devoted to Acceptance (subscale 9), the trend noted above for Religion (subscale 6) is largely absent, and Suppression (subscale 5) receives greater relative effort by Poorer copers. This suggests that slightly different factors may be operative in individuals who represent the best and poorest copers of their respective groups.

Hypotheses 2 through 6:

Hypotheses 2 through 6 related to postulated differences between Better and Poorer copers on the major personality variables of interest and can be treated collectively. Each is restated in general form, and results are summarized in Table 4.3. Subscale results for the hardiness and sense of coherence measures are presented for subsequent reference.

Hypothesis 2: Better copers are not less anxious than poorer copers.

Hypothesis 3: Better copers are more intellectually flexible than Poorer copers.

Hypothesis 4: Better copers are more hardy than Poorer copers.

Hypothesis 5: Better copers have a greater sense of coherence than Poorer copers.

Hypothesis 6: Better copers are more resilient than Poorer copers.

Table 4.3
Significance Tests
Better vs. Poorer Copers x Research Variable

Research Variable	BETTER (N = 70) Mean	S.D.	POORER (N = 62) Mean	S.D.	Mean Diff.	t	p
TRA	42.19	10.64	45.16	11.58	-2.97	-1.54	.126
FLX	12.40	3.98	15.02	4.36	-2.62	-3.60	.000
HRD	80.59	12.99	74.87	14.40	5.72	2.40	.009*
TE	37.09	4.77	33.16	6.77	3.93	3.88	.000*
GD	26.00	7.16	26.63	6.80	- .63	- .52	.304*
PS	17.36	4.10	15.40	5.01	1.96	2.46	.008*
SOC	128.49	24.48	116.69	22.44	11.80	2.87	.003*
Comp	40.20	9.33	38.98	8.11	1.22	.79	.214*
Mngb	46.81	9.43	41.76	8.32	5.05	3.25	.000*
Mngf	41.54	8.69	35.58	8.69	5.96	3.93	.000*
RES	247.73	26.04	221.69	34.25	25.04	4.95	.000*
APP	129.73	33.29	132.16	33.89	- 2.43	- .42	.339*

* One-tailed tests of significance

KEY:

TRA = Trait Anxiety
FLX = Flexibility
HRD = Hardiness
TE = Task Engagement
GD = Goal Directedness
PS = Positive Self
SOC = Sense of Coherence
Comp = Comprehensibility
Mngb = Manageability
Mngf = Meaningfulness
RES = Resilience
APP = Stress Appraisal

From Table 4.3, as postulated, Better and Poorer copers do not appear to differ in their levels of anxiety. As well, Better copers exceed Poorer copers in Hardiness, Sense of Coherence, and Resilience, and in four of the six qualities measured by the subscales of the hardiness and sense of coherence measures, namely Task Engagement and Positive Self, and Manageability and Meaningfulness. Of interest, Better copers do not appear to differ from Poorer copers in their appraisals of the "stressfulness" of various negative events (but see below).

Contrary to expectations, Better copers ostensibly appear to be <u>less</u> flexible than Poorer copers. A subsequent correlational analysis by COPE subscale also showed that Flexibility was significantly negatively correlated with Active Coping (-.240, p = .005), Planning (-.2237, p = .010), Suppression of Competing Activities (-.310, p = .000), Religion (-.298, .001), and Restraint (-.248, .004), and positively correlated with Alcohol-Drug Use (forward scoring) (.191, p = .028) Non-significant relationships were observed between Flexibility and Seeking both Instrumental and Emotional Social Support, Positive Reinterpretation and Growth, Venting Emotion, both Mental and Behavioral Disengagement, and Humor. The correlation between Flexibility and Denial was nonsignificant, but negative (-.1634) and fairly strong (p = .061). Closer examination of the Flexibility measure suggests the instrument may be functioning as a high versus low "responsibility" scale for this sample, or is at least capturing some of the less passive, less orderly aspects of coping. This issue will be addressed in a later context.

Intercorrelations.

For reasons presented in Chapter II, the constructs of hardiness, sense of coherence, and resilience bear strong theoretical and practical resemblance to each other. Data in Table 4.3 suggest that higher levels of these qualities are related to better coping, but it is also to be anticipated that scores on the three measures would be related to each other, thus likely obscuring their separate influences.

To begin to examine the strength of these interrelationships, a correlation matrix was generated for all research variables and total COPE scores. Data are summarized in Table 4.4. By inspection, Hardiness, Sense of Coherence and Resilience correlated positively with total coping, with Resilience showing the strongest relationship ($r = .409$), followed in turn by Sense of Coherence ($r = .264$) and Hardiness ($r = .208$). Resilience correlated less strongly with Hardiness (.580) and Sense of Coherence (.558) than Hardiness and Sense of Coherence did with each other (.722). As would be expected, the Hardiness subscales of Task Engagement, Goal Directedness, and Positive Self correlated quite highly with the parent variable (.775, .799, .740, respectively), as did Sense of Coherence with its subscales, Comprehensibility (.857), Manageability (.929), and Meaningfulness (.869). By definition, Stressor Experience did not (and should not) correlate with coping inasmuch as research participants were equated on the stressor variable for selection purposes.

Table 4.4
Research Variable Intercorrelations
Better and Poorer Copers (N = 132)

Research Variables	SRS Exp.	SRS Rtg.	TRA	FLX	HRD	TE	GD	PS
SRS Exp.	1.000	.794	.256	.209	-.062	.007	.067	-.182
	1.000	.000	.003	.016	.481	.941	.443	.037
SRS Rtg.		1.000	.418	.180	-.197	-.102	-.000	-.375
		1.000	.000	.039	.024	.246	.997	.000
TRA			1.000	.062	-.582	-.425	-.347	-.663
			1.000	.479	.000	.000	.000	.000
FLX				1.000	-.089	-.264	.213	-.191
				1.000	.309	.002	.014	.028
HRD					1.000	.775	.799	.740
					1.000	.000	.000	.000
TE						1.000	.382	.465
						1.000	.000	.000
GD							1.000	.396
							1.000	.000
PS								1.000
								1.000

SOC

Comp

Mngb

Mngf

RES

APP

COPE Total

KEY:

SRS Exp. = Stressor experience
SRS Rtg. = Stressor rating
TRA = Trait Anxiety
FLX = Flexibility
HRD = Hardiness
TE = Task Engagement
GD = Goal Directedness
PS = Positive Self
SOC = Sense of Coherence
Comp = Comprehensibility
Mngb = Manageability
Mngf = Meaningfulness
RES = Resilience
APP = Stress Appraisal

Table 4.4 (cont'd)

Research Variables	SOC	Comp	Mngb	Mngf	RES	APP	COPE Total
SRS	-.145	-.109	-.166	-.128	.033	.081	.0557
Exp.	.097	.213	.057	.142	.712	.353	.526
SRS	-.364	-.346	-.365	-.260	-.102	.319	.0841
Rtg.	.000	.000	.000	.003	.244	.000	.338
TRA	-.702	-.582	-.674	-.605	-.431	.333	-.1550
	.000	.000	.000	.000	.000	.000	.076
FLX	-.153	-.184	-.117	-.131	-.164	-.017	-.2538
	.080	.035	.181	.136	.060	.847	.003
HRD	.722	.534	.662	.723	.580	-.312	.2082
	.000	.000	.000	.000	.000	.000	.017
TE	.574	.386	.537	.609	.586	-.221	.2909
	.000	.000	.000	.000	.000	.011	.001
GD	.432	.335	.362	.451	.288	-.197	-.0248
	.000	.000	.000	.000	.001	.024	.778
PS	.760	.613	.707	.695	.527	-.346	.2290
	.000	.000	.000	.000	.000	.000	.011
SOC	1.000	.857	.929	.869	.558	-.403	.2641
	1.000	.000	.000	.000	.000	.000	.002
Comp		1.000	.698	.596	.380	-.361	.0897
		1.000	.000	.000	.000	.000	.306
Mngb			1.000	.755	.527	-.374	.2982
			1.000	.000	.000	.000	.001
Mngf				1.000	.573	-.312	.3364
				1.000	.000	.000	.000
RES					1.000	-.324	.4089
					1.000	.000	.000
APP						1.000	-.0490
						1.000	.577
Total Coping							1.0000
							1.0000

Hypothesis 7: Better copers appraise stressors as less stressful than do Poorer copers.

Hypothesis 7 postulated that Better copers would appraise stressors as being less stressful than Poorer copers would. Although this prediction did not hold (Table 4.3), patterns observed in the correlation matrix (Table 4.4) suggested Stress Appraisal might be accounted for, even if coping per se was not a prominent factor.

As shown in Table 4.4, the Stress Appraisal variable did not correlate with Total Coping, but it correlated with its near counterpart from the screening survey, Stressor Rating (.319). Of additional interest, Stress Appraisal correlated negatively with all research variables except Flexibility (-.017, NS), and Trait Anxiety, with which it was positively correlated (.333). This suggested that a regression analysis with Stress Appraisal as the dependent variable might reveal the dynamics of this construct.

A stepwise multiple linear regression analysis was completed using Age, Ethnicity, Gender, Grade level, Trait Anxiety, Flexibility, Hardiness, Sense of Coherence, Resilience, Stressor Experience, and Stressor Ratings as independent predictors of Stress Appraisal. Only Sense of Coherence, Stressor Ratings, and Stressor Experience entered the stepwise predictive equation for Stress Appraisal. Results are given in Table 4.5.

Repeating the analysis with the subscales of Hardiness and Sense of Coherence included among the predictors brought no change in results, and similarly, eliminating all variables from the predictor list except Sense of Coherence, Stressor Experience, and Stressor Ratings also

Table 4.5
Stress Appraisal
Stepwise Regression Analysis
Variables in the Equation

Variable	B	Beta	p	Mult. R	R^2	R^2 Change
SOC	- .3746	-.2707	.0019	.4026	.1621	.1621
SRS Rtg.	.4119	.5051	.0004	.4431	.1964	.0343
SRS Exp.	-2.1713	-.3588	.0070	.4908	.2409	.0445
Constant	182.8496		.0000			

yielded identical results. The regression analysis was also completed using a stepwise elimination process in which all variables were entered into the predictive equation, then eliminated sequentially if their contribution to the regression equation was evaluated as inconsequential. Results essentially paralleled those appearing in Table 4.5, except that Resilience made an additional contribution to the regression equation (Table 4.6).

Table 4.6
Stress Appraisal
Stepwise Elimination Regression Analysis
Variables in the Equation

Variable	B	Beta	p	Mult. R	R^2	R^2 Change
All				.5277	.2784	.2784
SOC	- .2411	-.1750	.0851			
SRS Rtg.	.4184	.5132	.0003			
SRS Exp.	- 2.0938	-.3460	.0088			
RES	- .1666	-.1632	.0817	.5088	.2589	-.0195
Constant	201.1208		.0000			

These Analyses suggested that if respondents had originally rated their stressor experiences on the SASI as being quite unpleasant, they were also inclined to rate other hypothetically troublesome events as potentially highly stress producing. Similarly, respondents with a lower Sense of Coherence (and/or Resilience) were also likely to appraise hypothetical events as potentially more stressful. Of perhaps greater significance, repondents whose Stressor Experience was low tended to give **higher** stress ratings to potentially troublesome life events. Stated another way, the more actual experience the respondents had had with stressor events, the **lower** were their stress appraisals of other potentially troublesome events. This offers evidence for the "steeling effect" that is often postulated in the stress resilience literature (e.g., Anthony, 1974; Werner, 1984; Rutter, 1985, 1987; Cohen & Park, 1992), but which is rarely, if ever, quantified. [15]

Research Questions and Findings

Question 8: To what extent do Flexibility, Hardiness, Sense of Coherence, and Resilience exert independent influences on coping?

Question 9: Does Flexibility, Hardiness, Sense of Coherence, or Resilience exert the greatest influence on coping?

Question 10: Which combination of factors under study most effectively identifies Better and Poorer copers?

The research questions posed above all require separating the influences of the respective variables from each other, and from others with which they may be correlated, so that their relationship to Better and Poorer coping (and only that) can be estimated. Each represents a

separate inquiry, but data from the analytical models tended to bear on all questions simultaneously. As such, discourse here is also somewhat integrated.

The primary analytical procedure employed in the following analyses is that of stepwise logistic regression. The model is particularly suited to research paradigms that involve predicting dichotomous dependent variables, in this case Better versus Poorer coping membership. The method is also well suited to identifying the separate influences of predictor variables by identifying the average effects of each when the effects of other predictors are held constant. Discriminant function analysis was also employed in the explorations in a somewhat confirmatory manner, and to identify clusters of variables that predict coping membership where separate component analyses were not essential.

Demographic Variables

In preparation for the regression and classification analyses, the dynamics between coping and several non-research variables were examined for possible inclusion in the regression models. Of particular interest were the demographic variables of Age, Gender and Ethnicity, and the school function variables of Grade and grade-point-average (GPA). For convenience, all will be referred to as demographic variables.

For each of the demographic variables, t-tests and ANOVAs (where appropriate) were performed to examine their potential relatedness to coping on the assumption that they, too, would have to be accounted for in any predictive model. In order to explore differences that might exist between copers in the larger subject pool and those selected as

the more extreme exemplars in their category, each of these variables was tested against total COPE scores generated in both the Screening and Research samples (N = 404, 132 respectively). Results are compiled in Table 4.7.

Age and Grade appeared to be related to COPE scores. In the larger sample, seniors typically earned higher COPE scores than juniors and sophomores, whose scores did not differ. In the research sample, seniors and juniors scored similarly, and both tended to earn higher COPE scores than sophomores. Neither GPA nor Gender related to COPE scores in the screening sample. In the research sample, GPA was significant, and the trend was strong enough for Gender that it was initially included in all subsequent regression analyses. Ethnicity did not distinguish COPE scores in either sample.

Logistic Regression Analysis

To examine the influence of individual independent variables on coping, several stepwise logistic regression analyses were performed using Better versus Poorer coping membership as the dependent variable. Age, Gender, Ethnicity, Grade level, GPA, Trait Anxiety, Flexibility, Hardiness, Sense of Coherence, Resilience, Stressor Experience, and Stressor Ratings were examined as independent predictors of coping membership, along with the subscales of Hardiness and Sense of Coherence. Gender, Grade level, and Ethnicity were established as categorical variables to examine any specific subgroup effects. Due to the large number of predictors under initial consideration, the analytical program specifications were modified, requiring each variable

Table 4.7
Significance Tests
Demographic Variables x COPE Total Score

Demographic Variable	N	Dependent Variable	Outcome	t	F	p
Age (14-19)	404	COPE total	Signif.		3.264	.007
(15-19)	132	COPE total	Signif.		2.813	.028
Gender	404	COPE total	F = M	1.31		.190
	132	COPE total	F = M	1.90		.060
Ethnicity	404	COPE total	NA = CS = HS = AA = OR = NS		.927	.448
	132	COPE total	NA = CS = HS = AA = OR		1.696	.188
Grade	404	COPE total			6.184	.002
			12 > 11	2.39		.018
			12 > 10	3.53		.000
			11 = 10	1.01		.315
	132	COPE total	12 = 11	1.56		.125
			12 > 10	3.79		.000
			11 > 10	2.23		.028
GPA	404	(COPE total,	B = P	.12		.901
	132	B vs. P)	B = P	2.04		.043

to meet more stringent standards for inclusion in the regression equation. [16] Procedural steps to the logistic analysis are described below and summarized in Tables 4.8 and 4.9.

First, all variables noted above were entered into a forward stepwise regression analysis. Eight variables (Resilience, Flexibility, GPA, Comprehensibility, Meaningfulness, Goal Directedness, Stressor Ratings, Grade level) sequentially entered the regression model, and collectively predicted Better versus Poorer coping group membership with a 78.03% percent accuracy. Second, the analysis was repeated utilizing a stepwise elimination format as described earlier. Whereas the second analytical procedure also prominently identified seven of these variables (Resilience, Flexibility, GPA, Meaningfulness, Goal Directedness, Stressor Ratings, Grade level) in the predictive model, it also selected Sense of Coherence over its subscale, Comprehensibility, as a viable predictor of coping membership. Collectively, the variables from the elimination analysis predicted Better versus Poorer coping membership with an accuracy of 77.27%.

As a third step, an effort was undertaken to determine whether extraneous variables could be eliminated from the analyses without diminishing overall results. If this were possible, it would imply that the cluster of predictors identified above were discrete, and not subject to covert (i.e. correlated) influence by non-identified predictors. As such, variables were progressively eliminated from the entry menu if (a) they had never been shown to be significantly correlated with Better versus Poorer coping (from Tables 4.3 and 4.4), or (b) if they had not entered the regression equations in steps one or

two above. Accordingly, in two blocks, Age, Ethnicity and Gender, and Trait Anxiety, Stress Appraisal, and Stressor Experience were excluded from subsequent consideration. Following that, the forward and elimination stepwise analyses were repeated, and the results noted above were duplicated.

Subsequent exploration also determined that despite their significant correlations with Better versus Poorer coping, Hardiness and its subscales of Task Engagement and Positive Self could also be eliminated from consideration in the equation building with no loss of classification power, but this was only true when Sense of Coherence and its subscales were present. In their absence, Hardiness generated an odds ratio of 1.14 in the elimination regression model. [17] It was also determined that if the statistically significant Manageability subscale of Sense of Coherence were eliminated from the menu of predictor variables, Sense of Coherence itself dropped from the predictor equation generated by the stepwise elimination method, and the subscale of Comprehensibility took its place, yielding the results generated by the forward stepwise regression procedure (78.03% classification accuracy). This is perhaps not surprising given that Manageability correlated .929 with its parent variable, Sense of Coherence. In all, only ten predictor variables from the data base were required to build the regression models for predicting Better versus Poorer coping group membership: In approximate order by entry, Resilience, Flexibility, GPA, Comprehensibility, Meaningfulness, Goal Directedness, Stressor Ratings, and Grade. Sense of Coherence and Manageability could not be ranked. The logistic regression results are summarized in Tables 4.8 and 4.9

Table 4.8
Stepwise Logistic Regression Analysis
Variables in the Equation

Variable	R	Improvm. Chi Sq.	p	Model Chi Sq.	p	Correct Classif.
None						53.03%
RES	.2105	24.371	.000	24.371	.000	66.67
FLX	-.1693	9.111	.003	33.482	.000	69.70
GPA	.1870	6.667	.010	40.148	.000	69.70
Comp	-.1786	5.198	.023	45.346	.000	67.42
Mngf	.2144	5.456	.020	50.802	.000	73.48
GD	-.1505	5.045	.025	55.848	.000	75.00
SRS Rtg.	.1487	5.578	.018	61.426	.000	75.76
Grade	.1254	5.532	.023	68.958	.000	78.03
10	-.1604					
11	.0000					
12	.1604					

	Beta	S.E.Beta	(Wald) Chi Sq.	p	Exp. Beta Odds Ratio
RES	.0378	.0119	10.084	.0015	1.0385
FLX	-.1670	.0621	7.228	.0072	.8462
GPA	1.0862	.3752	8.383	.0038	2.9630
Comp	-.1085	.0388	7.822	.0052	.8972
Mngf	.1574	.0488	10.387	.0013	1.1705
GD	-.1260	.0509	6.134	.0133	.8816
SRS Rtg.	.0165	.0067	6.035	.0140	1.0167
Grade					
10	-.8850	.3420	6.698	.0097	.4127
11	.1099	.3329	.109	.7413	1.1162
12	.7751				2.1708
Constant	-11.3152	3.4963	6.928	.0085	

Table 4.9
Stepwise Elimination Logistic Regression Analysis
Variables in the Equation

Variable	R	Improvm. Chi Sq.	p	Model Chi Sq.	p	Correct Classif.
All		76.794	.000	76.794	.000	81.82%
RES	.2222					
FLX	-.1592					
GPA	.1941					
SOC	-.1412					
Mngf	.2033					
GD	-.1510					
SRS Rtg.	.1300					
Grade	.1199					
10	-.1513					
11	.0000					
12	.1513					
		-3.322	.068	66.339	.000	77.27%

	Beta	S.E.Beta	(Wald) Chi Sq.	p	Exp. Beta Odds Ratio
RES	.0391	.0118	11.010	.0009	1.0399
FLX	-.1574	.0612	6.624	.0101	.8544
GPA	1.1514	.3864	6.623	.0029	3.1627
SOC	-.0583	.0246	5.639	.0176	.9433
Mngf	.2231	.0722	9.541	.0020	1.2500
GD	-.1231	.0496	6.159	.0131	.8842
SRS Rtg.	.0148	.0066	5.086	.0241	1.0149
Grade			6.623	.0365	
10	-.8171	.3288	6.177	.0129	.4417
11	.0035	.3300	.000	.9916	1.0035
12	.8136				2.2560
Constant	-11.4026	3.3908	11.309	.0008	

Both regression methods yielded essentially the same results, indicating that the combinations of predictor variables were not artifacts of the statistical procedures used. In all forward regression analyses, Resilience emerged as the single largest predictor of coping membership, predicting roughly 67% of of all participants' status (a 17% improvement beyond chance). The remaining cluster of variables contributed approximately an additional 11% of classification power. Resilience as measured in this study appears to be the most prominent predictor of Better coping, but it can be said that all the personality variables under study contributed in some way to identifying Better and Poorer copers. Comprehensibility, for instance, superficially appeared to work against accurate coping classification (Table 4.8), but its presence in the model caused it to function as an enabling variable for Goal Directedness, Meaningfulness, and Grade level, the last of which appears to be a relatively strong predictor of coping membership. Based on R values, Meaningfulness and GPA in turn appear to be approximately equal predictors of Better coping.

The remaining data in Tables 4.8 and 4.9 must be interpreted with caution. Because the logistic regression model is most fundamentally a logarithmically based classification system, the data represent changes in the **odds** of a person's predicted membership in a given group. In this instance, all odds ratios are in the direction of predicting one's being a Better coper. Beta is the logarithm of the odds ratio of having a coping outcome (i.e., Better coping) associated with a unit increase in a given independent variable, holding all others constant. For ease of interpretation, the **odds ratio** is typically the unit of reference.

It represents the **likelihood** that a unit increase in an independent variable increases the odds/chances of a unit increase in the dependent variable, in this case "increasing" in status from group 1 (Poorer coper) to group 2 (Better coper). For instance, examining GPA and its associated odds ratio from Table 4.8, a one unit increase in GPA makes it 2.96 times as likely for a student to be classified as a Better coper. Similarly, a one unit increase in Resilience makes one roughly 1.04 times as likely to be classified as a Better coper. However, it is worth noting that GPA can only vary from 0 to 4, whereas Resilience can vary from 50 to 350 on its scale. Consider Sense of Coherence (Table 4.9) with its beta coefficient of -.0583 and odds ratio of .9433. A one unit <u>increase</u> in SOC means the person is roughly .94 times as likely to be identified as a Better coper, or stated another way, is roughly 6% **less likely** to be identified as a Better coper. The signs of the coefficients indicate the direction of departure from unity. However, Sense of Coherence has been identifed elsewhere (Table 4.3) as having a direct correlation with Better coping, even though it has a negative beta coefficient and R value in the logistic model.

The R values in Tables 4.8 and 4.9 can be taken as estimates of the strengths of the partial correlations of each independent variable with the dependent variable, coping membership, thus giving some indication of the level and direction of the separate influence of each independent variable. However, the influence of some must be inferred by their absence in the model. Hardiness, Task Engagement, and Positive Self, for instance, all correlate positively with Better coping (Table 4.3). Goal Directedness does not. Therefore, if a high Hardiness score is

earned by virtue of a high score on the non-significant Goal Directedness subscale, it decreases the odds of being classified a Better coper. Figure 4.1 summarizes the classification results of the logistic analyses.

Discriminant Function Analysis

As a final exploration of issues raised by research questions 8 through 10, a discriminant function analysis was performed to confirm or disconfirm the results obtained by logistic regression. The assumptions underlying the discriminant function model are more stringent than those required in logistic regression, most prominently that each classification group (here Better and Poorer copers) must be a sample from a multivariate normal population with equal covariances. Box's M-test was performed to rule out violations of these assumption, and results indicated the data set was acceptable ($M = 18.6957$, $F = 1.1947$, $p = .2669$). Unlike the logistic regression model, discriminant function analysis does not specifically test the contributions of individual variables in the classification equation, but it nonetheless allows for some estimation of an independent variable's strength in the model.

Following procedures similar to those utilized in the logistic analysis, all potential predictor variables were considered in the analysis, and the statistical standards for any variable's inclusion in the model were increased. The analysis identified a cluster of variables comparable to those identified by logistic regression as being viable classifiers of Better and Poorer copers, namely Resilience, Flexibility, Grade, GPA, and Stressor Ratings. Classification outcomes given in Figure 4.2 parallel earlier regression results.

		NONE		FORWARD STEPWISE LOGISTIC	
		Predicted		Predicted	
Observed		Poorer Better	Percent Correct	Poorer Better	Percent Correct
	Poorer	0 62	00.00	47 15	75.81
	Better	0 70	100.00	14 56	80.00
		Overall:	53.03	Overall:	78.03

		ALL		STEPWISE ELIMINATION LOGISTIC	
		Predicted		Predicted	
Observed		Poorer Better	Percent Correct	Poorer Better	Percent Correct
	Poorer	50 12	80.65	46 16	74.19
	Better	12 58	82.86	14 56	80.00
		Overall:	81.82	Overall:	77.27

Figure 4.1 -- Logistic Regression Classification Results: Better vs. Poorer Copers x Classification Method

		Predicted		
Observed		Poorer	Better	Percent Correct
	Poorer	41	21	66.10
	Better	15	55	78.60
		Overall:		72.73

Figure 4.2 -- Discriminant Function Classification Results: Better vs. Poorer Copers

Summary data for variables in the discriminant function are given in Table 4.10, and can be highlighted briefly. The variables are presented in the order in which they were selected into the discriminant equation, an approximate ranking of their discriminant strength. Lambda coefficients represent the proportion of the total variance in the discriminant scores not explained by differences between groups, or in effect the remaining proportion of the total variance yet unaccounted for after the "discriminating" variable entered the function. In this case, after the entry of Stressor Ratings into the discriminant function, 68.65% of the variance in the discriminant function remained unexplained. The canonical correlation (.5599) is the converse expression of the same data. It is a measure of the degree of association between the score patterns of the groups under investigation (now the independent variable) and the discriminant scores (the dependent variable). Its square represents the variance in the discriminant equation explained by the differences between groups (31.35%). The variable-by-function correlations represent the

Table 4.10
Discriminant Function Analysis
Summary Data by Variable

Variable		Wilks' Lambda	p	Pooled Within-Grp. Correlations Var x Fcn Values	DFA Coefficients Stdzd.	Unstdzd.
1	RES	.84156	.000	.64213	.62517	.02072
2	FLX	.78433	.000	-.46783	-.56467	-.13568
3	Grade	.74090	.000	.47469	.42069	.57140
4	GPA	.71464	.000	.26518	.36903	.48424
5	S Rtg.	.68654	.000	.09994	-.36852	-.00896
Constant						-12.43492

Canonical correlation = .5599 Function Eigenvalue = .4566

correlation between the actual values of the variables and the values of the discriminant equations, or in effect, between the participants' earned scores on the variable of interest, and their predicted group membership (Better vs. Poorer) based on the discriminant function derived from all participants' scores on that variable. In general, the larger the correlation, the more predictive is that variable in discriminating members of the two groups of interest. Standardized DFA coefficients are weighted coefficients roughly comparable to the Beta values appearing in the logistic regression analysis (Tables 4.8, 4.9). They offer some crude insight into variable strengths but are also influenced by the units of measure associated with each variable. Unstandardized DFA coefficients are raw score coefficients for calculating participants' discriminant function scores and are presented for illustration. They are not suitable for estimating variable strengths. A function's eigenvalue, in ANOVA terms, represents the ratio of between-groups sums of squares to within-groups sums of

squares. Thus high eigenvalues typically reflect more powerful discriminant functions, and the value reported here (.4566) would be considered moderate.

By inspection from Table 4.10, it appears that Resilience is again a preeminent predictor of Better versus Poorer coping membership, followed in approximately equal absolute value by Grade and Flexibility, then GPA, and finally Stressor Ratings. Of interest, as noted in earlier analyses, Flexibility as measured again appears to contraindicate Better coping. Stressor Ratings also seem to bear a small inverse relationship with Better coping.

Additional Findings

In this study there were no formal hypotheses advanced for the influences of gender or ethnicity on Better or Poorer coping. Even so, data collected from the research sample permitted some exploration of these patterns, and results are compiled in Tables 4.11 and 4.12.

Gender Patterns

Female students reported more Stressor Experience than males by roughly two additional such experiences per year, and females tended to rate their experiences overall as slightly more upsetting than males (Female mean Stressor Rating = 5.06; Male mean Stressor Rating = 4.74). Females did not technically differ from males on coping ability, favorable impressions of themselves, or on Sense of Coherence, but trends were noted in favor of slightly higher female COPE scores ($p = .06$), and slightly lower scores on Positive Self ($p = .094$) and Sense of Coherence

Table 4.11
Significance Tests
Male vs. Female Copers x Research Variable

	MALE (N = 53)		FEMALE (N = 79)				
Variable	Mean	S.D.	Mean	S.D.	Mean Diff.	t	p
SRS Exp.	41.45	5.58	43.38	5.40	-1.93	-1.98	.049
SRS Rtg.	196.28	39.45	219.62	39.63	-23.34	-3.32	.001
COPE	144.25	24.02	152.73	26.00	-8.48	-1.90	.060
GPA	2.76	.84	2.88	.72	- .12	- .88	.398
TRA	41.13	11.51	45.23	10.66	-4.10	-2.10	.038
FLX	13.57	4.20	13.67	4.47	- .10	- .14	.893
HRD	77.15	15.20	78.41	13.06	-1.27	- .51	.614
TE	35.23	6.60	35.25	5.78	- .02	- .02	.980
GD	24.66	6.55	27.39	7.07	-2.73	-2.24	.027
PS	17.26	4.51	15.89	4.67	1.37	1.68	.094
SOC	127.53	24.36	119.87	23.73	7.66	1.80	.075
Comp	41.72	9.19	38.23	8.23	3.49	2.28	.024
Mngb	45.74	8.78	43.57	9.50	2.17	1.32	.188
Mngf	39.64	9.60	38.14	8.86	1.50	.92	.358
RES	232.53	36.08	237.49	30.42	-4.96	- .85	.395
APP	125.42	32.98	134.53	33.50	- 9.11	-1.54	.125

Two-tailed tests of significance

KEY:

SRS Exp = Stressor Experience
SRS Rtg = Stressor Ratings
COPE = COPE Total
GPA = Grade Point Average
TRA = Trait Anxiety
FLX = Flexibility
HRD = Hardiness
TE = Task Engagement
GD = Goal Directedness
PS = Positive Self
SOC = Sense of Coherence
Comp = Comprehensibility
Mngb = Manageability
Mngf = Meaningfulness
RES = Resilience
APP = Stress Appraisal

Table 4.12
Significance Tests
Caucasian vs. African-American Copers x Research Variable

	Caucasian (N = 87)		African-American (N = 41)				
Variable	Mean	S.D.	Mean	S.D.	Mean Diff.	t	p
SRS Exp.	42.64	6.03	42.76	4.41	- .12	- .11	.906
SRS Rtg.	214.71	44.19	202.61	32.68	12.10	1.56	.085
COPE	146.91	25.82	152.78	24.15	-5.87	-1.23	.223
GPA	2.93	.67	2.57	.90	.36	2.28	.026
TRA	45.07	11.67	40.95	9.88	4.12	1.95	.053
FLX	13.92	4.59	13.22	3.91	.70	.84	.401
HRD	74.76	13.42	83.90	13.19	-9.14	-3.62	.000
TE	34.11	6.38	37.27	5.00	-3.16	-2.79	.006
GD	25.21	6.74	28.46	7.15	-3.25	-2.50	.014
PS	15.55	4.63	18.17	4.27	-2.62	-3.06	.003
SOC	119.79	23.95	128.02	24.57	-8.23	-1.80	.074
Comp	38.97	8.63	40.66	9.32	-1.69	-1.01	.315
Mngb	43.52	9.41	45.98	9.12	-2.46	-1.39	.166
Mngf	37.31	8.64	40.95	9.80	-3.64	-2.13	.035
RES	231.92	32.70	241.73	33.56	-9.81	-1.57	.119
APP	135.48	32.42	121.78	34.25	13.70	2.19	.030

Two-tailed tests of significance

KEY:

SRS Exp = Stressor Experience
SRS Rtg = Stressor Ratings
COPE = COPE Total
GPA = Grade Point Average
TRA = Trait Anxiety
FLX = Flexibility
HRD = Hardiness
TE = Task Engagement
GD = Goal Directedness
PS = Positive Self
SOC = Sense of Coherence
Comp = Comprehensibility
Mngb = Manageability
Mngf = Meaningfulness
RES = Resilience
APP = Stress Appraisal

(p = .075), in the last instance due primarily to significantly lower Comprehensibility scores. This is generally consistent with other findings in the sense of coherence literature in that females have tended to earn lower SOC scores. Males and females did not differ on Flexibility, Hardiness, or Resilience, nor were their Stress Appraisal patterns different, but females reported slightly higher Trait Anxiety than males.

Ethnicity Patterns

Although all major ethnic groups were proportionately represented in this study's research sample, only Caucasian and African-American students participated in sufficient numbers for meaningful analysis. Accordingly, analyses of ethnic patterns are confined only to those two groups.

Caucasian and African-American students did not differ on coping ability, Stressor Experience or Stressor Rating, but there was a trend for Caucasians to rate stressors as being slightly more upsetting (p = .085). Similarly, although Better and Poorer copers did not differ on Stress Appraisal (the cognitive aspect of an experience's stress producing potential), Caucasians and African-American did differ in their general assessments of hypothetical stressors, with African-American students' seeing potential stressors as less threatening than Caucasian students (p = .030). There was also a strong trend in the direction of greater anxiety among Caucasian students (p = .053). Coupled with the observation that African-American students in this study earned higher Hardiness and hardiness subscale scores than

Caucasian students, some additional indirect evidence appears to exist for a steeling effect among the minority participants in this sample. Caucasian and African-American participants did not differ on Flexibility, Resilience, or Sense of Coherence, although a trend is noted with the last favoring African-Americans ($p = .074$), primarily due to the higher Meaningfulness scores earned by African-American participants ($p = .035$).

Summary of Findings

A series of 7 research hypotheses and 3 research questions framed the methods and analyses of this study. Results are presented in sum below.

Research Hypotheses

Hypothesis 1 postulated that Better copers would employ more proactive responses to stressors than Poorer copers, as reflected in higher relative scores on COPE subscales 1 (Active Coping), 2 (Planning), 3 (Seeking Instrumental Social Support), 4 (Seeking Emotional Social Support), 5 (Suppression), 7 (Positive Reinterpretation & Growth) and 8 (Restraint). It was further postulated that Poorer copers would obtain higher relative scores on COPE subscales 10 (Venting Emotion), 11 (Denial), 12 (Mental Disengagement) and 13 (Behavioral Disengagement). Separate analyses were undertaken with data collected in the Screening Survey ($N = 404$) and the Research Survey ($N = 132$).

In the Screening Survey analysis, the hypotheses for Better copers were supported for Planning, Seeking Instrumental Social Support, Seeking Emotional Social Support, and Positive Reinterpretation and Growth.

Better copers did not differ from Poorer copers on the dimensions of Active Coping, Suppression, or Restraint. With respect to hypotheses for Poorer copers, as predicted, Poorer copers earned higher relative scores on Denial, Mental Disengagement, and Behavioral Disengagement. They did not differ from Better copers with respect to Venting Emotion. Other findings included higher relative scores for Poorer copers along the dimension of Alcohol - Drug Use (forward scoring), but no significant differences between Better and Poorer copers on Religion, Acceptance or Humor.

In the Research Survey analysis, the hypotheses for Better copers were again supported for Planning, Seeking Instrumental Social Support, Emotional Social Support, and Positive Reinterpretation and Growth. As well, they again did not differ from Poorer copers on the dimensions of Active Coping or Restraint. However, unlike the Screening Survey pattern, Better copers earned lower relative scores than Poorer copers on Suppression. Predicted patterns for Poorer copers duplicated those in the Screening Survey. Poorer copers earned higher relative scores on Denial, Mental Disengagement, and Behavioral Disengagement. They did not differ from Better copers on Venting Emotion. Other findings again included higher relative scores for Poorer copers with respect to Alcohol - Drug Use, and no differences between Better and Poorer copers on Religion or Humor. However, whereas Poorer copers previously earned higher relative scores for Acceptance on the Screening Survey, no differences were found in the Research Survey.

Hypotheses 2 through 6 pertained to postulates regarding Better and Poorer copers' personality characteristics along the dimensions of Trait Anxiety, Flexibility, Hardiness, Sense of Coherence, and Resilience.

Hypothesis 2 predicted that Better and Poorer copers would not differ in their characteristic levels of trait anxiety, and the hypothesis was confirmed.

Hypothesis 3 predicted that Better copers would be more flexible than Poorer copers. The hypothesis was not supported. Better copers in fact earned significantly lower Flexibility scores than Poorer copers.

Hypothesis 4 predicted that Better copers would be more hardy than Poorer copers, and the postulate was supported.

Hypothesis 5 speculated that Better copers would typically have a stronger Sense of Coherence than Poorer copers. The hypothesis was confirmed.

Hypothesis 6 suggested that Better copers would be more Resilient than Poorer copers. This hypothesis was also confirmed.

Hypothesis 7 predicted that Better copers would appraise hypothetical stressors as potentially less stress producing than would Poorer copers. The hypothesis was not confirmed. However, subsequent multiple linear regression analysis showed that roughly 24% of the variance in Stress Appraisal ratings could could by explained by a combination of Sense of Coherence, prior Stressor Ratings, objective Stressor Experience, and (depending upon the analytical procedure) Resilience. Both Resilience and Sense of Coherence showed inverse relationships with Stress

Appraisal, with Sense of Coherence's being the stronger of the two. The finding that objective Stressor Experience was inversely related to Stress Appraisal offered support for the "steeling effect." Some evidence for the role of Manageability also emerged in this context.

Research Questions

Research questions 8 through 10 addressed the separate and collective contributions of specific variables to coping patterns. Although no single, definitive finding emerged, several patterns were discernible.

Research Question 8 asked the extent to which Flexibility, Hardiness, Sense of Coherence and Resilience exhibited distinct or independent relationships with coping. In all logistic and discriminant analyses, Resilience and Flexibility consistently emerged as separate and significant predictors of Better versus Poorer coping group membership, although Flexibility was typically a negative indicator of Better coping. The effects for Hardiness and Sense of Coherence were significant, but less distinct. Hardiness as an overarching construct correlated directly with Better coping, but it did not enter into any of the classification functions with Sense of Coherence and Comprehensibility present. The Hardiness subscale of Goal Directedness consistently emerged as a contributing but negative identifier of coping group membership. Sense of Coherence emerged as a moderate and slightly negative classifier of Better coping in the stepwise elimination model, but its subscale of Meaningfulness consistently bore positively on accurate classification, at times equalling the partial correlation values of Resilience. Comprehensibility also contributed to the

classification of Better and Poorer copers in the forward stepwise procedure, although its influence appeared to be that of an activator variable. The influence of Manageability appeared to be similarly indirect. The demographic variables of Grade level and GPA correlated directly with the coping classification function.

Research Question 9 inquired after the preeminence of the research variables under investigation. Does Flexibility, Hardiness, Sense of Coherence, or Resilience exert the strongest influence on coping? The design of this study necessarily precludes causal inferences, but information gathered suggests that the strongest relationships with Better coping were most consistently demonstrated by Resilience, generally followed in associational strength by Flexibility, albeit as a contraindicator of Better coping. Sense of Coherence and Hardiness were both correlationally associated with Better versus Poorer coping, but they less frequently emerged in discrete form in the classification functions. The Sense of Coherence subscale of Meaningfulness most closely resembled the Resilience variable in function, direction and strength of association, and contribution to classification of Better and Poorer copers. The influence of Comprehensibility was indirect, and that of Manageability covert. Sense of Coherence appeared strongly linked to appraisal processes. Hardiness variables tended to be less prominent in the classification analyses than the others under consideration, although its direct correlation with coping was significant. With Sense of Coherence absent from consideration, Hardiness did emerge prominently in one regression model.

Research question 10 explored the potential utility of Flexibility, Hardiness, Sense of Coherence, Resilience, and other variables in combination to predict Better or Poorer coping. The use of all the variables under study was supported. Data collected suggest that all the personality variables have some utility in identifying Better versus Poorer copers. The stepwise and stepwise elimination logistic regression procedures generated highly comparable equations for identifying coping membership, both of which achieved approximately a 78% classification rate. The forward logistic regression model identified Resilience, Flexibility, GPA, Comprehensibility, Meaningfulness, Goal Directedness, Stressor Rating, and Grade as bearing on coping membership (accuracy rate 78.03%). The stepwise elimination logistic model identified Resilience, Flexibility, GPA, Sense of Coherence, Meaningfulness, Goal Directedness, Stressor Rating, and Grade as being collective predictors of coping membership (accuracy rate 77.24%). Discriminant function analysis identified a smaller but similar collection of variables for predicting Better versus Poorer coping, namely, Resilience, Flexibility, Grade, GPA, and Stressor Rating (accuracy rate 72.23%).

CHAPTER V

DISCUSSION AND CONCLUSION

Overview

Chapter V presents summary information from this research along with interpretive comment. Discourse parallels the main text and organization of the Chapter IV, and includes a preliminary summary, discussion of major research findings and implications in context with the hypotheses and research questions of this study, a review and discussion of other major findings, and presentation of a hypothetical coping profile, along with limitations and suggestions for future research.

Summary of Findings

This study was an exploration of the premise that there are personal qualities which help people cope, endure, manage, or persevere in the face of life's less fortunate events. The inquiry was fundamentally rooted in a transactional model of stress coping, which postulates that any response to stressful circumstances reflects both the nature of the person and of the situation. The focus of investigation here has been on the person, particularly the young person, adolescents whose recent life experience has been stress filled. A prominent purpose has been to determine the extent to which these young people engender specific stress resistance qualities, and the extent to which those qualities are at work in the coping endeavor. Inquiry also addressed theoretical

issues pertaining to proactiveness, and to appraisal processes in the stress coping paradigm. Although stress resistance qualities and resources develop with time and experience, this exploration is not developmental in nature, but rather has presumed a level of personality development amenable to investigation.

This study has in principle been a descriptive investigation of late adolescents, high school students, who ranged in ages from 14 to 20 across grades 10 through 12 in an urban school district. From the available school population of 1,277 students, a screening sample of 791 individuals was drawn by having them complete the Survey of Adolescent Stress Issues, a measure of recent stressor experiences, and the COPE, a measure of the use of 15 specific coping strategies. A subsequent research sample was determined from among these participants, 132 of whom in turn completed six surveys designed to measure their characteristics along the research dimensions of interest, namely trait anxiety, flexibility, hardiness, sense of coherence, resilience, and stress appraisal. Demographic information was also compiled for analytical purposes, and included age, gender, ethnicity, grade level, and grade point average.

Seven research hypotheses and three research questions framed the inquiry. Hypotheses pertained to postulated differences between Better and Poorer copers on the research variables, particularly those defined as personality variables, and questions centered around ascertaining the individual contributions of those variables in the coping process, and around determining which combinations of those variables might best identify Better and Poorer copers.

Five of the seven major hypotheses were supported. In the main, Better copers appear to take a more proactive approach to stressful situations than Poorer copers, although some qualification is required. The hypotheses that Better copers would exceed Poorer copers along the dimensions of hardiness, sense of coherence, and resilience were also supported. As well, it was postulated that Better and Poorer copers would not differ on levels of trait anxiety, and the postulate was supported. Lacking in support was the hypothesis that Better copers' appraisals of potentially stress producing events would be lower than those of Poorer copers. Stress appraisals were found rather to be influenced by sense of coherence, prior affective stressor ratings, prior stressor experience, and to some degree resilience. Contrary to prediction, Better copers were found to be less flexible than Poorer copers, although the nature of that construct as measured requires comment.

With respect to the research questions, regression analyses suggested that resilience, flexibility, and sense of coherence, and various aspects of hardiness and sense of coherence, all made separate and distinct contributions to the identification of Better and Poorer copers, but flexibility most consistently contraindicated Better coping. Of the constructs in question, resilience emerged as the preeminent indicator of Better coping, but it was also shown that flexibility, grade level, GPA, affective stressor ratings, and aspects of both sense of coherence and hardiness could all contribute meaningfully to that classification process.

Discussion of Hypotheses and Findings

Hypothesis 1: Proactivity and Coping

What constitutes proactiveness in stress coping? In general it implies some self-initiated problem-solving outreach, and tends to connote action rather than inaction in the face of threat. Also perhaps implied is the notion of choice, of choosing to do something as opposed to doing nothing. Thus it is altogether common and convenient for researchers to dichotomize coping activity under rubrics such as effortful versus noneffortful (Compas, 1987a), active versus passive (Wayment & Zetlin, 1989), problem-focused versus emotion focused (Pollock, 1989), or approach versus avoidance (Ebata & Moos, 1991). Nonetheless, it is easy to imagine situations in which the best, active, problem-focused, effortful choice may be to do nothing, and this paradox of sorts has been freely highlighted by Lazarus and Folkman (1987). What is inescapable, therefore, in such discussions is the element of value judgment often implied by the undertaking. Thus to the extent possible, discussion of proactivity here should not necessarily be taken as inferring prosocial activity, and neither "good" nor "bad" coping, but rather perhaps merely signifying "more" versus "less" activity in coping. Information gathered in this study tapped only the coping proclivities of the person, and only indirectly through the medium of the SASI, the nature of the situation in the adolescents' coping transactions. No information available in this study speaks to what decision making processes might have caused the adolescents to give preference to the coping activities they choose, or choose to emphasize.

Better and Poorer copers in this study were defined for convenience by high versus low total scores on the COPE and selected for further research accordingly. Consistent with proactivity hypotheses for Better copers, analysis of the relative score patterns of both groups indicated that Better copers did generally put more of their coping effort into strategies that may be characterized as an active "engaging" of the environment or situation (Planning, Seeking of Instrumental Social Support, Seeking of Emotional Support), and with at least some suggestion of accompanying mental proactivity (Positive Reinterpretation and Growth), but conspicuously absent from the findings for Better copers was Active Coping as a differentiator of Better versus Poorer copers ($p = .784$, NS). Carver et al. (1989) indicated that the COPE subscale of Active Coping did not differentiate well in their standardization work, and that it tended to collapse on a single factor with Planning. Two forces may be at work in the similar pattern observed in the current study. Subscale inspection suggests the potential for multiple interpretation or misinterpretation of some of the subscale items: e.g., (47) I take direct action to get around the problem. As well, Better and Poorer copers may well differ in the actual nature of their active coping, but their self-reports of the **level** of those actions may nonetheless be the same. The latter issue may be true for all the COPE subscales on which Better and Poorer copers did not differ (see below).

Consistent with hypotheses for Poorer copers, relative score patterns showed that Poorer copers appeared to give more of their already lower utilization of coping stratgies to those reflective of greater

"disengagement" or negation of the environment (Denial, Mental Disengagement, Behavioral Disengagement, Alcohol - Drug Use). Contrary to expectation, Poorer copers did not give relatively greater coping energy than Better copers to Venting of Emotion ($p = .818$, NS). Also contrary to expectation, in the research sample, Poorer copers gave significantly more coping effort to Suppression of Competing Activities, a strategy hypothesized to be more favored by Better copers. The possibility exists that Poorer copers suppress competing activities because their overall resources are more limited. They may perceive themselves as overloaded, and hence as less able to deal effectively with many things at one time. Better copers, who presumably have more resources at their disposal, may not have to devote all of them to the immediate situation at hand. In theory, it would seem, Better copers would be able to handle more than one problem at a time, and would thus be less in need of suppression.

Nonsignificant relative score differences between Better and Poorer copers were generated for Active Coping, Religion, Restraint, Acceptance, Venting Emotion, and Humor. What remains unanswered for all of these is whether there are yet qualitative differences in the nature of Better and Poorer copers' responses along these dimensions. If emotion is "vented," for instance, is it with some considered, problem-solving intent, or is it of the nature of a volatile, counter-productive tantrum? Is a problem situation "accepted" because reality dictates the response, or is the situation merely met with an unrequired sense of resignation and acquiescence? Lazarus and Folkman (1987) proposed that functional versus dysfunctional coping might hinge

upon the "goodness of fit" between the person's appraisal of what is happening and what is actually happening, a view which they equate to "the traditional concept of reality testing" (p. 159). In this light, proactiveness, or any other characterization of coping, might ultimately be determined by how realistic the coping action, even non-action, is in the given context. Even so, the element of judgment, in this case about reality, is again implied and is again inescapable. In this study, COPE endorsement patterns generally favored Better copers on subscales commonly judged to be associated with sensibly active, constructive coping.

Hypotheses 2 through 6: Personality and Coping

With the exception of the intended null hypothesis about trait anxiety, all hypotheses pertaining to the defined personality constructs of flexibility, hardiness, sense of coherence, and resilience were in the direction of Better coping. All were confirmed except that for flexibility, which proved to be significantly higher for Poorer rather than Better copers. Each construct is addressed briefly in turn.

Trait Anxiety.

Although anxiety has periodically been identified as a factor in earlier research on stress coping, recent work has suggested that anxiety levels do not differentiate better or poorer adolescent copers (e.g., Luthar, 1991). The current study also postulated that Better and Poorer copers would not differ on Trait Anxiety and that view was supported, although a reasonable argument could be made for a trend in the direction of higher Poorer coper anxiety (Better - Poorer mean difference = -2.97, $p = .126$, NS). However, Trait Anxiety scores were initially included in

all subsequent regression analyses, and on no occasion did it enter the regression models despite its strong negative correlations with virtually all other variables under consideration except Stress Appraisal. Under regression, with the effects of other variables were held constant, Trait Anxiety remained a non-factor in identifying Better or Poorer copers, and a non-factor in the Stress Appraisal investigation. This does not entirely suggest that other research yielding anxiety related outcomes should be reexamined, but it indicates that anxiety did not appear to influence the dynamics of any of the variables under study in this research, and that other research should continue to approach the issue of anxiety's role with some caution.

Flexibility.

One of the unexpected results of this study has been the finding that Better copers appear to be less rather than more flexible than Poorer copers, and that the effect was quite strong ($p < .001$). In addition, Flexibility entered all logistic regression analyses behind Resilience as a fairly prominent, though negative predictor of Better coping. In the discriminant analysis, Flexibility also correlated negatively with the discriminant function, and it occupied the same position of influence in classifying coping membership. Thus despite the contention that flexibility would be directly linked to Better coping, no evidence supported it.

Compared to the other constructs under investigation in this study, flexibility has received less research attention, and measures of the construct have generally been questionable. However, the Flexibility concept scale of the California Psychological Inventory was chosen in

the current study as the best available measure of the construct, and the instrument is well established. Despite the Flexibility scale's more modest reliability compared to other CPI scales, the opinion here is that the difficulty rests not with the measurement instrument, but with the interpretation of results regarding coping group membership. It is possible that for the high school sample under investigation, the Flexibility scale may have measured aspects of responsibility, preferences for orderliness and impulse control, and mainstream functioning, with low scores' being indicative of these characteristics, and higher scores' perhaps indicating the reverse.

Better copers in this study earned a mean Flexibility score of 12.40 (male 12.17; female 12.51), with Poorer copers' earning a mean score of 15.02 (male 14.63; female 15.38). Standardization data from the CPI manual show mean scores for all high school students of 12.78 (male, N = 4,162) and 12.58 (female, N = 4,493). They additionally show mean scores for students Nominated as Leaders (male 12.34; female 13.02), Nominated as Best Citizens (male 12.89; female 12.54), and Nominated as Disciplinary Problems (male 13.54; female 13.22), suggesting that higher Flexibility scores may indicate tendencies toward less responsible behavior. In addition, for both males and females the Flexibility scale correlates negatively with the CPI scales of Socialization (So), Self-Control (Sc), Good Impression (Gi), Communality (Cm), and Achievement via Conformance (Ac). Low Flexibility scores would therefore be associated with high scores on those scales, and descriptors of high scorers include, "Comfortably accepts ordinary rules and regulations" (So), "Tries to control emotions and temper" (Sc),

"Wants to make a good impression" (Gi), "Fits in easily; sees self as a quite average person" (Cm), and "Has strong drive to do well; likes to work in settings where tasks and expectations are clearly defined" (Ac). Conversely, high Flexibility scores would be associated with low scores on those scales, and descriptors of low scorers include, "Resists rules and regulations; finds it hard to conform" (So), "Has strong feelings and emotions, and makes little attempt to hide them" (Sc), "Insists on being himself or herself, even if this causes friction or problems" (Gi), "Sees self as quite different from others; does not have the same ideas" (Cm), and "Has difficulty in doing best work in situations with strict rules and expectations" (Ac). Several Flexibility scale items scored in the direction of greater flexibility would seem to support this interpretation: (77) When I get bored I like to stir up some excitement (True); (331) I often start things I never finish (True); (328) I find that a well-ordered way of life with regular hours is suitable to my temperament (False); (380) I am known as a hard and steady worker (False).

As such, the low Flexibility scores associated with Better copers in the current research may have captured those individuals' preferences for orderliness rather than rigidity, tendencies toward higher self-control rather than lower, and a willingness to work toward achievement within a rules structure (such as those imposed by school) rather than a resistance to doing so. Alternately, the high Flexibility scores associated with Poorer coping in this study may have captured such qualities as lower impulse control, lower task persistence, lower willingness to work within a rules structure, and lower concern for

community. As noted in an earlier context, high Flexibility scores in this research were also associated with low scores on such COPE subscales as Active Coping, Planning, Suppression of Competing Activities, and Restraint, and with high scores on Alcohol - Drug Use (forward scoring).

In sum, this analysis suggests that flexibility is indeed being accurately measured by the CPI's Flexibility concept scale as defined in that system, but as well that in the context of coping it may not be measuring flexibility as it is probably intuitively understood, or as it was defined in this research. The fact that Better copers in this study earned Flexibility scores quite similar to the mean of the standardization sample, and the fact that that Poorer copers earned scores well above, suggests that an average level of flexibility may be best. Flexibility scores near the norm may be better indicators of Better coping than extreme scores in either direction, although this lower extreme remains untested. In logistic regression terms, a 1-unit <u>decrease</u> in the Flexibility score appears to increase the odds of being deemed a Better coper by roughly 15%.

<u>Hardiness</u>.

As with Sense of Coherence and Resilience in this study, t-testing showed that Better copers scored higher on Hardiness than Poorer copers, and scored higher on the Hardiness subscales of Task Engagement and Positive Self. As such, Better and Poorer copers appear to differ in their levels of the constructs represented by these scales. However, with Sense of Coherence and Comprehensibility present, neither Hardiness as a global construct, nor its subscales of Task Engagement or Positive

Self directly entered any of the regression models for predicting Better coping. This seems to indicate that the effects of Hardiness in this study were in some measure occulted by other variables. The Hardiness subscale of Goal Directedness offered consistent partial correlation with Better coping, and consistently enhanced the classification of coping group membership by both regression procedures, but the relationship was negative. By inference from the dynamics of logistic regression, the influence of Hardiness, Task Engagement and Positive Self are positive.

Hardiness became a predictor of Better coping in the stepwise elimination regression model when Sense of Coherence and its Comprehensibility subscale were removed from the menu of regression variables. In their absence, Hardiness then contributed substantially to the equation, generating an odds ratio of 1.14, but the overall classification accuracy of this model diminished by 3%. However, this is a relatively small amount, suggesting that although Sense of Coherence was predictively stronger than Hardiness in classifying copers in this study, its preeminence is rather small, and of interest, its direction is slightly negative whereas that for Hardiness is positive.

What may be inferred from this is that although Better and Poorer copers differ in their levels of hardiness, that mere difference may not be definitive. Better copers may well be more hardy, task engaged, and positive about themselves, but what is required is a larger combination of factors which collectively identify coping group membership. However, the choice of combination may alter the overall profile slightly unless the individual predictors are quite robust.

Sense of Coherence.

As with hardiness, Better and Poorer copers differed on their levels of sense of coherence as a global construct. Better copers also typically scored higher on the Sense of Coherence subscales of Manageability and Meaningfulness. Sense of Coherence also contributed to identification of Better copers in one regression model. Perhaps of greater significance, its subscale of Meaningfulness figured prominently in the correct classification of Better copers, contributing more than a unitary increase in predictive strength in both regression procedures (1.17, 1.25). Significantly, Meaningfulness has all along been a central feature of sense of coherence theory. The Comprehensibility subscale also entered both regression models, and even though its individual inclusion diminished the accurate classification of Better and Poorer copers slightly (-2.28%), it also appeared to act as an activator variable for the influence of Meaningfulness, Goal Directedness, and Grade, which collectively added 9.85% to the classification accuracy of the forward regression model. In essence this is the visible representation of an interaction effect, whereby the influence of a variable is dependent upon the presence of another.

Of theoretical interest, Antonovsky has maintained that sense of coherence is a unidimensional construct, although he reports recent studies in Antonovsky (1993) which hint that some subscale function is discernible on its measure, the Orientation to Life Questionnaire. The current study supports the viability of examining the OLQ subscales for separate influence and function. Meaningfulness, for instance, seemed to resemble Resilience in function and performance in the regression

models in this research. Manageability also appeared to exert covert influence in one coping predictor model, and as well in the linear regression examination of Stress Appraisal. Comprehensibility, as noted, seemed to function as an enabling variable for others.

Resilience.

Like its counterparts, the construct of resilience is seen as a global stress resistance quality, even entity. Results of this study suggest that its influence as measured was indeed fairly broad, and fairly clearly related to competent functioning in the arena of adolescent stress coping. Of the constructs under consideration in this research, Resilience appeared to be superordinate. It correlated most strongly with total coping, and most separately from its like counterparts, Hardiness and Sense of Coherence. Its direction of influence in the logistic regression and discriminant function analyses was unequivocally positive and strong. The Resilience variable entered all multiple analyses of coping membership first, and also accounted for a small percent of the variance in one of the Stress Appraisal examinations. Its influence was always in the expected direction, correlating directly with identification of Better copers, and inversely with stress appraisals. In all coping analyses, Resilience accounted for the largest portion of the variance in outcome. In the forward logistic regression analysis, it accounted for nearly a 14% improvement in the correct classification of Better and Poorer copers, more than the improvement percentage for the remaining variables combined (10.4%). Resilience would therefore probably be the single most likely predictor of Better coping among participants in this research.

As indicated in the literature review of this document, the measurement of resilience in the stress resistance field has been somewhat erratically conceived and inconsistently carried out. The Resiliency Belief System for Adolescents appears to represent a considerable improvement in this measurement arena.

Hypothesis 7: Appraisal and Coping

In this research it was originally postulated that appraisal processes would be correlated with coping. Specifically, it was expected that Better and Poorer copers would differ in the severity of their appraisals of potentially threatening stressors. From the APES-B, research participants were given a randomly selected list of forty stressors common to adolescents, and asked to evaluate how "stressful" they thought each experience might be if it were to happen to them. Instructions were tailored to emphasize the cognitive aspect of this evaluation, particularly to distinguish it from the Stressor Ratings completed earlier on the SASI, which had asked for an affective response to the respondents' own stressor experience. The supposition was that in keeping with coping theory, respondents who had more coping resources at their disposal (i.e., Better copers) would rate the hypothetical stressors as being less problematic, and would thus produce lower stress appraisals. The opposite was expected for Poorer copers. This pattern did not emerge, and only the weakest trend was observed (Better - Poorer mean difference = - 2.43, $p = .339$). It is possible that the effect could have been captured with a larger research sample or more scale items to increase reliability, but it is also likely that even with sufficient N and more items, the strength of the effect would have been

quite small in any case.

The possibility exists that this lack of effect was due in some measure to imprecise directions for the appraisal questionnaire. It is also feasible that respondents had difficulty distinguishing between affective ratings and cognitive, intellectually grounded appraisals of potentially troublesome events. Stress itself as an internal state is generally experienced on both psychological and physical levels, and the ability to distinguish between what one feels and what one thinks can be elusive.

Despite the lack of hypothesis confirmation, multiple linear regression analysis revealed that roughly 24% to 26% of the variance in Stress Appraisal could be accounted for by a combination of Sense of Coherence, Stressor Rating, and Stressor Experience, and depending on analytical method, Resilience (Tables 4.6, 4.7). Stressor Rating correlated positively with Stress Appraisal indicating that participants tended to appraise hypothetical stressors in somewhat the same light as they had previously rated their own prior experiences. Sense of Coherence correlated negatively with Stress Appraisal, showing that as sense of coherence goes up, there is a tendency to rate hypothetical stressors as less threatening. This is quite consistent with conceptualizations of sense of coherence which present the construct almost as an expression of one's world view. Based on the appraisal patterns shown here, it would seem that the larger one's world view, the smaller place in it stressors occupy. Sense of coherence seems to play a part in how events are appraised. Further, how those events are experienced and managed probably help build one's view, and hence one's appraisal tendencies.

Of particular interest, Stress Appraisal also correlated negatively with Stressor Experience. This indicated that if participants' actual past experience with stressors was low, their appraisals of other potentially threatening stressors were apt to be high. Conversely, if their actual experience with prior stressors was high, their appraisals of other potentially threatening events was apt to be low. This pattern is especially revealing in that the resilience literature has for years offered anecdotal evidence for what is termed the "steeling effect," the phenomenon of becoming stronger or, as it is sometimes said, "hardened" by virtue of having experienced and endured misfortune. The pattern demonstrated here offers quantitative evidence for that effect.

Discussions of the steeling effect in the resilience literature have also postulated that for stressor experiences to have the desired growth producing effect, they must be considered manageable. This implies both an appraisal process, and an estimate that the potential threat will not tax or exceed one's coping resources, a major tenet of coping theory. In some respects, this represents a unification point between the two literatures. In this context, when the linear regression analysis was repeated with Sense of Coherence removed from consideration, its subscale, Manageability supplanted it as the preeminent variable in the equation. However, this effect was produced only in the forward regression model, and only after excluding the data set of one identified outlier. Hence this pattern was produced only by a degree of manipulation, but its existence is nonetheless thought provoking.

It is not possible in this study to ascertain Better and Poorer copers' larger histories of stressor experience, or of the pacing of those

experiences. Data produced here, however, show that Better copers do seem to see their experiences as more manageable and in the context of a larger, more durable world view, hinting that whatever their unique stressor background, it has not overwhelmed them.

Discussion of Questions and Findings

Research Questions 8 through 10: Contributions of Variables

All the personality constructs under investigation in this study, with the expected exception of trait anxiety, were related to and contributed in some way to the identification of Better and Poorer copers. Resilience, sense of coherence, and hardiness bore the most conceptual similarity to each other, with flexibility's being a somewhat separately defined construct. All of these qualities proved to be in some degree independently related to coping, and all contributed in some way to the accurate classification of Better and Poorer copers, although the influence of hardiness was somewhat obscured by aspects of sense of coherence. In practical terms, Hardiness and Sense of Coherence appeared to be approximately equal global predictors of coping membership, although aspects of each as represented in the subscales of their respective measures occasionally emerged as preferential.

Despite the similarities of the constructs, it was possible to estimate, at least approximately, the relative strengths of these variables with respect to coping. In absolute value, correlations between the variables and total coping score gave preference to Resilience (.4089), Sense of Coherence (.2641), Flexibility (-.2538), and Hardiness (.2082).

Hypothesis tests of differences between Better and Poorer coper were strong for all variables, and probability differences were scant: Resilience t = 4.95, p <.001; Flexibility t = -3.60, p <.001; Sense of Coherence t = 2.87, p = .003; Hardiness t = 2.40, p = .009. In the regression and discriminant analyses, with intercorrelation effects controlled, Resilience (R = .2105, Lambda = .84156) and Flexibility (R = -.1693, Lambda = .78433) figured prominently in all models, although Flexibility, as noted in earlier contexts, was a negative predictor of Better coping. Aspects of Sense of Coherence (Comprehensibility, R = -.1786; Meaningfulness, R = .2144) assisted in classifying Better and Poorer copers, as did aspects of Hardiness (Goal Directedness, R = -.1505), but the unavailability of subscale information about the Resilience measure precluded its examination along such lines. Rarely did either Sense of Coherence or Hardiness enter the regression models as global constructs. Available information suggested that for this research sample, Sense of Coherence was slightly more discriminating, but the true differences were probably small, as noted below.

As outlined earlier in this document, there has been some debate over the preeminence of sense of coherence or hardiness in terms of their general salutary effects. In this research, both appeared to be related to the better aspects of stress coping. Sense of Coherence and aspects of it emerged more visibly and across more fronts than Hardiness, but when Sense of Coherence was exclude from the logistic regression analyses, Hardiness emerged in its place with comparatively little loss of predictive power (3%). These findings may shed some light on larger issues. It can also be said that the measure of hardiness utilized in

this study, the Hardiness Scale for Adolescents, like the Resiliency Belief System for Adolescents, is the first, and as of this writing, the only instrument of its type extant. Its continued use should be revealing.

Discussion of Supplemental Findings

Demographic Variables and Coping

Although the main research variables of interest in this study were those considered personality variables, a few demographic variables emerged as significant in the examination of the Better and Poorer copers in this study. Others did not.

When mean differences were compared for Better and Poorer copers on the parameters of GPA, no differences were found in the screening sample, but differences were found in favor of Better copers in the research sample. GPA also entered all regression and discriminant analyses as a positive predictor of Better coping. Grade level and Age differed in value favoring Better copers in both samples, and Grade entered all classification analyses as a positive predictor of Better coping. In effect, the higher the grade level attained, the more likely was the participant to be a Better coper. Age did not enter the analyses, but would be likely to be a satisfactory proxy, given its correlation in this sample with Grade (.784). Partial correlations for GPA (R = .1870) in the regression analyses fell approximately in the midrange of values for other predictors (see Tables 4.8, 4.9). The partial correlation for Grade was low (R =.1254), but positive, indicating a growth trend for Better coping.

Under hypothesis testing parameters in the screening and research samples, Better and Poorer copers differed neither by ethnicity nor by gender, although a strong trend emerged for gender in the research sample ($p = .06$). Ethnicity and gender did not contribute at any time to the classification of copers in the primary regression or discriminant analyses, and were noninfluential factors with respect to coping group membership in this research, but some ethnic and gender patterns did emerge.

Objective versus Subjective Measures of Stressors

As part of the research participant selection process in this study, both objective and subjective estimates of participants' stressor experiences were collected. Inspection of the score distributions indicated that for this research sample, the distribution by objective score was negatively skewed (-.16), but the distribution by subjective score was non-significantly positively skewed (.07, S.E. skew = .08). Both distributions were equally platykurtic (Objective = -.297, Subjective = -.287). A comparison of mean subjective ratings and mean objective endorsements classified as negative, neutral or positive showed that although both methods allow satisfactory selection, objective stressor counts may tend to underemphasize the impact of negative events, and to overemphasize the influence of positive events. Even so, the profile of both negative and positive stressor events in this study based on average subjective ratings were virtually identical to the profile obtained by simple objective counts of endorsed stressors. It can only be concluded that both methods are viable and approximately equally effective, and that the selection method of

preference would likely depend on the demands of the research at hand. However, these relationships may hold only if the stressor inventory consists of a roster of predominantly negative events.

Gender and Ethnicity

Gender and ethnic patterns were not under immediate exploration in this study. However, consistent with other reports, it appears that adolescent females report higher stressor levels and greater anxiety than males, but with with accompanying tendencies toward slightly greater coping capacity. In the current sample, females also seemed to have greater goal directedness than males, a reflection perhaps of a greater sense of determination in their current life arenas. However, females also tended to see their life situations as less "comprehensible" than males, accompanied by a slightly "weaker" sense of coherence / world view, an indication perhaps of a continuing need for greater instructional clarity regarding females' roles, options, and expectations in the world at large.

With respect to ethnicity, Caucasian and African-American students did not differ on stressor levels or on coping ability, but African-American participants tended to rate and appraise stressors as less problematic than Caucasian participants, from both a hypothetical perspective and from actual experience. The minority students also tended to earn higher Hardiness scores and saw life as equally meaningful, if not more so, than majority students. In a related way, the minority students did not seem to see life as less comprehensible or less manageable than majority students. Consistent with conjecture about the steeling

effect, these patterns suggest too that "hardship," at least in some measure, does not necessarily undermine "hardiness," and may even constitute a part of its development.

Adolescent Coping Profile

What follows is a suggested profile of the Better adolescent coper based on information learned from this study. It is intended merely to be indicative, rather than definitive.

The Better late adolescent coper is probably a high school upper classperson, probably at least a junior, but more likely a senior, and is probably at least 16 years of age. S/he is unlikely to be a sophomore. There is better than 50/50 chance that the person is female, but the odds are not overwhelming. The person is equally likely to be Native-American, Caucasian, African-American, Oriental, or Multiracial. Academically, this person probably carries close to a B average and places some value on achievement, preferring a reasonably structured environment in school and probably elsewhere. The person is inclined to be responsible and orderly but is probably not overly fastidious. S/he is not likely to be considered a maverick, and probably sees himself or herself as about average, although in reality he or she may be slightly above by most societal value systems. The person could be a candidate for leadership, but is at least likely to be considered a good citizen.

This Better coper has been exposed to at least 35 troublesome situations in the previous year, and more likely 42, ranging from common school stressors such as concern about school grades or balancing a busy

schedule, and to at least two more serious experiences such as the end of a close relationship, or family strife. At least 20 of these potentially upsetting experiences, roughly 55%, were clearly experienced on an emotional level as bad. Roughly another 5 or 6, 7% to 15%, were somewhat tension filled, but ultimately resolved favorably, and considered a good experience. These might include going through a driver education program and earning a license, trying to find a job and finally landing one, or feeling successful in a personal relationship with all its perils. Despite these events, the person is not overly anxious, but would typically admit to being apprehensive "sometimes."

When faced with a problem, this person generally does not act impulsively, but is as likely as the next person to show some emotion, and ultimately to accept the situation or even joke about it. The individual's personal coping resources are better than average, and s/he frequently has more than one option available, but s/he is most likely to plan a problem-solving approach, and to seek out the good advice and emotional support of others, which may include adults or peers. The individual is not likely to deny the existence of the problem, nor is s/he likely to withdraw from its challenges either mentally or behaviorally, and s/he is highly unlikely to drink or use drugs to deal with it. Neither is this individual likely to drop everything else to try to solve the problem, but will probably be able to carry on reasonably well in other arenas despite the demands of the situation. As well, if s/he has had some reasonable exposure to stressful situations in the past, and it has seemed manageable, s/he will probably view the next tough situation that comes along as less daunting. Should

it be a recurring problem and the person happens to be a sophomore, s/he will probably handle it better in the next couple years. And if all else fails, this person will probably at least try to learn from the experience, and to see the good in it.

With respect to personal qualities, this Better coper generally exceeds his or her less skillful counterpart in having more psychological endurance and persistence, and probably a slightly larger and perhaps more formulated world view with an accompanying sense of community. This individual also tends to have a more positive sense of himself or herself, and to be capable of greater task engagement. This person's goal directedness is not necessarily higher than his or her peers', and in fact, all things' being equal (i.e., in the absence of other skills), the commitment to a goal may even be slightly detrimental at times. For the most part this person sees his or her life as reasonably meaningful, and would give it about a 6 on a scale of 1 to 10. The individual also likely thinks of life as a bit more manageable than others, but this is still a tough one, and s/he would rate it about 4 and 1/2 on that scale, but at least it is better than it is for some of his or her struggling friends, who only give it a 4. Life may not be more comprehensible for this individual, but if it is, it will probably activate some of the other qualities and skills available.

Above all this individual is generally fairly stress resistant, even resilient. This in fact might even be the hallmark of the person's competence. Consistent with this person's generally positive self image, if s/he were given a list of 50 statements across a broad range of beliefs reflecting a sense of optimism, independence, future

orientation, awareness of others, and general outlook, this individual would at least "moderately agree" that it describes them. Given the same task, this person's Poorer coping companions would be inclined only to "slightly agree" to it's being a self description.

Implications

What is suggested from this research is that young people can and do surmount stressful life circumstances, and that they do it with some dignity. Particularly in light of the evidence found here in support of the steeling effect, attempts to protect youngsters from all difficult circumstances, however well intended, may not always be entirely necessary or even desirable. This is by no means to say that all stress constitutes "eustress," for that position can quickly degenerate into mere rationalization for neglect, improper child care, and outright mismanagement. But it does suggest that stressful experiences are indeed a common enough part of life that efforts to eliminate them completely from developmental experience are perhaps at worst futile, and perhaps at best misguided. Carl Rogers once noted that in order to teach young people to think, they must be given something real and meaningful to think about. To teach growing youngsters how to cope with difficult circumstances, they must in some measure be exposed, not in callous, unjust or contrived ways, to such very circumstances. It is not clear whether a formal "coping curriculum" could or even should incorporate such exposure, but it might be well for responsible adults to be alert to capitalize on life's own curriculum in the care and instruction of youth. It does seem clear from this study that Better

copers do tend to employ certain problem-solving strategies (e.g., Planning) and not others (e.g., Denial). It would seem, therefore, that such patterns could be explored further, and taught to those whose coping skills are less productive.

Emerging from the demographic data gathered in this research is the encouraging finding that effective stress coping also appears to follow a growth trend. Both age and grade level correlated directly with better coping, indicating that adolescent coping skills do tend to expand with age and experience, and one presumes, with education. Although stress coping research of necessity isolates key variables for inspection, reality is such that stressor experiences arrive at their own schedule, and coping skills are perhaps acquired at their own halting rhythm. In the face of that, what may serve young people well is a greater awareness of the larger context which says that time and experience are generally on their side, and perhaps that tough situations and what to do about them are part and parcel of growth itself.

Limitations

Sampling

One of the more prominent limitations of this work stems from the decision not to employ a random sample of Better and Poorer copers in the research study. The generalization of findings is accordingly more limited. It would appear, however, that the samples obtained were nonetheless representative of both the school population, and the

community population from which it was drawn, namely a working class community of 80,000 people. Participating students in this research closely resembled the parent community by ethnic percentages. The ages and grade ranges of students were typical and acceptable for a high school sample, but seniors and thus 18-year-olds were slightly underrepresented, although probably not extraordinarily so.

Measurement Issues

The decision to sample only Better and Poorer copers in the upper and lower quartiles was also prompted to some extent by the use in this study of a fairly high number of relatively untried research instruments. The Resiliency Belief System for Adolescents has been used by its developer a few times since its inception, but to this researcher's knowledge, neither the Survey of Adolescent Stress Issues nor the Hardiness Scale for Adolescents have been employed in any follow up research since their development. The COPE as well has not been used with individuals below college age, and the sense of coherence measure, the Orientation to Life Questionnaire, though used frequently, has rarely been employed with adolescents. Only the trait anxiety measure (STAI-Y2) and the Flexibility scale of the California Psychological Inventory have been used extensively with the target populations similar to this study. Fairly extensive research has been conducted with the Adolescent Perceived Events Scale, but not with Form B, from which this study's stress appraisal measure was drawn.

In restrospect, however, all the research instruments utilized in this study performed exceptionally well, and their continued use with

adolescents should be encouraged. They proved especially suitable for use within the parameters of a public school research setting.

Research Directions

Replication

Given that adolescent stress resistance research still occupies a rather small portion of the research community's attention, virtually every aspect of this study could bear replication. To the writer's knowledge, this is the only study extant to compare the three major major constructs of resilence, hardiness, and sense of coherence directly. A few have examined hardiness and sense of coherence in tandem, but only a few. Additional studies to cross compare these similar constructs are clearly in order, particularly now that viable instruments for their measure have been developed. It would be useful as well to continue to explore the subscale performance of these instruments, given that some did not consistently identify Better and Poorer copers in the expected directions (e.g., Goal Directedness, Comprehensibility).

More research on flexibility in the arena of stress coping is also indicated, given that the construct seemed to be a negative indicator of better coping. The CPI Flexibility scale was clearly, consistently, and convincingly measuring something related to coping skills, but its nature seems open to interpretation.

Research Model

This research was based on an an implicit interaction model, not in terms of the examination of individual research variables, but in terms of overall design. By studying the coping skills of only students whose recent stressor experiences were high, it can only be speculated that the variables discovered to be operative are operative only in the presence of stress. A test of a main effects model would require comparable research with individuals who similarly rank high and low on coping skills, but who are not operating in the presence of high stress. In effect, replication of this study with those students earlier identified as Fragile and Latent copers would give insight into the operative dynamics of this study's research variables in the absence of stress. It might be useful to know how the constructs of anxiety, flexibility, hardiness, sense of coherence, resilience, and appraisal operate when individuals are not under pressure. Comparisons might then reveal whether these construct are continuously operative, or whether they are perhaps only activated when circumstances require them.

Conclusion

This study has been an attempt to document what is good about kids. The students in this research have all experienced an above average number of difficult situations with which they have had to contend. Most have handled them admirably, and even those with the fewest resources available presented as honorable, conscientious participants in this effort to identify those qualities of personal durability and toughness that help sustain us all.

In this research, there has been a concerted effort by the investigator not to speak in absolutes. The better and poorer copers among the participants were neither the very best nor the very worst of their member. The better copers among them were shown to be possessed of personal stress resistance qualities that are heretofore seldom documented for their age or stage in life, but even the poorer among them possess these qualities in some measure. Comparatively, they remain at risk, yet an underpinning belief in this study has been that if the qualities of personal durability can be identified, they can be taught. The findings of this study may further that effort.

APPENDICES

APPENDIX A

PROJECT APPROVAL LETTERS

APPENDIX A

PROJECT APPROVAL LETTERS

Battle Creek Public Schools

Michael J. Bitar
Superintendent of Schools

3 West Van Buren Street
Battle Creek, Michigan 49017-3079
(616) 965-9500

MEMORANDUM

TO: Dale Snow

FROM: Michael J. Bitar

DATE: October 26, 1994

SUBJECT: Research Project

Dale, I have reviewed your proposal and feel it has merit. The only concern that has been raised is utilizing instructional time to complete the survey. I suggest you meet/communicate with Gerry Mann and Bruce Barney to address this concern. Final approval will need to come from Bruce.

MJB/sll

cc: Bruce Barney
Gerry Mann

Battle Creek Public Schools
3 W. VAN BUREN STREET
Battle Creek, Michigan
49017-3079

DIRECTOR
PUPIL PERSONNEL

AREA CODE 616
965-9500

November 15, 1994

Dale Snow
Miller-Stone Building
Battle Creek Public Schools

Dear Dale:

Thank you for including me in the review of the research project you are requesting to conduct at Battle Creek Central High School.

After reviewing your design and the various surveys, I feel comfortable with the project and give my support for you to proceed with your plans. I believe the results of this project could be of great benefit as our district continues to develop and implement its improvement plans.

Best wishes for success in your endeavor.

Sincerely,

George Wytko
Director of Pupil Personnel and Guidance

cc B. Barney, Central High School

SNOW.let

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

November 17, 1994

Mr. Dale Snow
Calhoun Intermediate School District
Marshall, MI 49068

Dear Mr. Snow,

I am writing this letter in support of your research survey project to gather information about adolescents' stress concerns and coping responses. Your efforts to study the degree to which positive personality qualities influence adolescent responses needs understanding as they cope with stress in their lives. Members of the staff and I have discussed this project. We see great potential for helping our young people as they learn and use coping skills in their life.

Any effort which can better enable us to help our young people is greatly appreciated. Upon completion of your research we hope the student profile, and subsequent inferences can be used to help classroom instruction, policy development, and improve school climate. We feel the research will be helpful in the Battle Creek Public School District's five-year plan.

I am looking forward to working with you in the successful completion of your research project.

If we can be of any further assistance please call 965-9526.

Sincerely,

Bruce Z. Barney

Bruce Z. Barney
Principal

BZB/lgl

APPENDIX B *

PART I COVER LETTER AND CONSENT FORM

* All cover letters and other communiques' appearing in the appendices contain compressed gender identifiers for convenience. Actual letters to parents contained only the gender references appropriate to their child.

APPENDIX B

PART I COVER LETTER AND CONSENT FORM

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

----- Date -----

Dear Bearcat Parent,

Later this school year, the Battle Creek Public Schools will be surveying its high school students in an effort to gather information to help with the district's 5-year school improvement goals. The purpose of the survey is to learn about students' coping abilities, and about the stressful experiences commonly faced by this age group. The information gathered will assist the Battle Creek Schools with curriculum planning, preparation of graduates, and development of student services.

As part of the survey, students will be asked to complete two brief questionnaires during one regular class period in the school day. All information provided will remain confidential, and will be used only for research purposes. The survey project will be overseen by the project coordinator, Mr. Dale Snow, who will be availiable at the high school between the hours of 8:00 am and 9:00 am, and from 4:00 pm to 6:00 pm through the duration of the survey project to answer any questions you may have. He may also be reached for additional information at the numbers given below.

We consider this project to be one of several important components in the effort to help the Battle Creek Schools prepare its graduates for success in the years ahead. However, participation in this project is voluntary. If you are willing to allow your son or daughter to participate in this survey, there is an enclosed consent form that should be returned to Mr. Snow not later than -- [Date] -- in the stamped envelope provided. Alternate activities (e.g., Computer lab; Enrichment Center) will be arranged for non-participating students during the survey period.

Thank you for your help with this.

Sincerely,

Dale Snow, Coordinator
Miller-Stone School Services
77 Capital Ave., N.E.
Battle Creek MI 49017
965-9450 789-2483

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

School Improvement Survey Project Consent Form

If you are willing to have your son's or daughter's input included in the Battle Creek School Improvement Survey Project, please sign this form where indicated and return it by --- [Date] --- to the project coordinator. The form may be returned by mail in the stamped envelope provided, or your son or daughter may return it in person to the high school office.

I give permission for my child to participate in the School Improvement Survey Project. I understand that all information provided will remain confidential and will be used only for research purposes.

_____ _____

Student's name Parent's signature

_____

Date



APPENDIX C

PART I SCREENING QUESTIONNAIRES

APPENDIX C

PART I SCREENING QUESTIONNAIRES

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

TO THE STUDENT:
Please read the following carefully.

Today you are being asked to complete two surveys as part of the Battle Creek Public Schools' 5-year school improvement efforts. The information gathered will help the district with future curriculum planning, preparation of graduates, and development of student services. The immediate purpose of these questionnaires is to learn about students' coping abilities, and about the stressful experiences commonly faced by high school students.

As with all surveys of this type, the information provided will remain confidential, and will be used only for research purposes. There are no right or wrong answers to any of the questionnaire items, and your responses will not affect your school grades or school standing in any way. As well, completion of these questionnaires is voluntary, and you may choose not to complete them if you wish. However, we hope you will, because the information will be used to help later students at this school. You indicate your voluntary agreement to participate by completing and returning these questionnaires.

Please do not write your name on any of the questionnaire pages. We do ask that you provide the information requested on the demographic sheet on the next page. Write your student number on the tear-away strip in the upper left hand corner of this packet. Before the end of the hour, your questionnaire packet will be assigned a dummy code, and the tear-away strip will be removed to assure confidentiality.

Code number: _____

DEMOGRAPHIC SHEET

Please complete the following and then turn the page to begin rating the questionnaire items.

Sex: Male _____ Female _____

Current age: _____

Grade: _____

Questionnaire #1 (CPG)

DIRECTIONS: We are interested in how people respond when they are facing difficult or stressful events in their lives. There are many ways to try to deal with stress. This questionnaire asks you to indicate what YOU generally do and feel, when YOU experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you usually do when you are under a lot of stress.

Then respond to each of the following items by circling just one number on your answer sheet for each statement. Please try to respond to each item **separately in your mind from each other item.** Choose your answers thoughtfully, and make your answers as true for you as you can. Please answer every item. There are no right or wrong answers, so choose the most accurate answer for you -- not just what you think "most people" would say or do. Indicate what you usually do when you experience a stressful event.

Use the following scale to record your response:

1 -- I usually don't do this at all.
2 -- I usually do this a little bit.
3 -- I usually do this a medium amount.
4 -- I usually do this a lot.

1.	I try to grow as a person as a result of the experience.	1	2	3	4
2.	I turn to work or other substitute activities to activities to take my mind off things.	1	2	3	4
3.	I get upset and let my emotions out.	1	2	3	4
4.	I try to get advice from someone about what to do.	1	2	3	4
5.	I concentrate my efforts on doing something about it.	1	2	3	4
6.	I say to myself, "This isn't real."	1	2	3	4
7.	I put my trust in God.	1	2	3	4
8.	I laugh about the situation.	1	2	3	4
9.	I admit to myself that I can't deal with it and quit trying.	1	2	3	4
10.	I restrain myself from doing anything too quickly.	1	2	3	4

Use the following scale to record your response:

1 -- I usually don't do this at all.
2 -- I usually do this a little bit.
3 -- I usually do this a medium amount.
4 -- I usually do this a lot.

11.	I discuss my feelings with someone.	1	2	3	4
12.	I use alcohol or drugs to make myself feel better.	1	2	3	4
13.	I get used to the idea that it happened.	1	2	3	4
14.	I talk to someone to find out more about the situation.	1	2	3	4
15.	I keep myself from getting distracted by other thoughts or activities.	1	2	3	4
16.	I daydream about things other than this.	1	2	3	4
17.	I get upset, and am really aware of it.	1	2	3	4
18.	I seek God's help.	1	2	3	4
19.	I make a plan of action.	1	2	3	4
20.	I make jokes about it.	1	2	3	4
21.	I accept that this has happened and that it can't be changed.	1	2	3	4
22.	I hold off doing anything about it until the situation permits.	1	2	3	4
23.	I try to get emotional support from friends or relatives.	1	2	3	4
24.	I just give up trying to reach my goal.	1	2	3	4
25.	I take additional action to try to get rid of the problem.	1	2	3	4
26.	I try to lose myself for a while by drinking alcohol or taking drugs.	1	2	3	4
27.	I refuse to believe that it has happened	1	2	3	4

Use the following scale to record your response:

1 -- I usually don't do this at all.
2 -- I usually do this a little bit.
3 -- I usually do this a medium amount.
4 -- I usually do this a lot.

28.	I let my feelings out.	1	2	3	4
29.	I try to see it in a different light, to make it seem more positive.	1	2	3	4
30.	I talk to someone who could do something concrete about the problem.	1	2	3	4
31.	I sleep more than usual.	1	2	3	4
32.	I try to come up with a strategy about what to do.	1	2	3	4
33.	I focus on dealing with this problem, and if necessary let other things slide a little.	1	2	3	4
34.	I get sympathy and understanding from someone.	1	2	3	4
35.	I drink alcohol or take drugs, in order to think about it less.	1	2	3	4
36.	I kid around about it.	1	2	3	4
37.	I give up the attempt to get what I want.	1	2	3	4
38.	I look for something good in what is happening.	1	2	3	4
39.	I think about how I might best handle the problem.	1	2	3	4
40.	I pretend that it hasn't really happened.	1	2	3	4
41.	I make sure not to make matters worse by not acting too soon.	1	2	3	4
42.	I try hard to prevent other things from interfering with my efforts at dealing with this.	1	2	3	4
43.	I go to the movies or watch TV, to think about it less.	1	2	3	4

Use the following scale to record your response:

1 -- I usually don't do this at all.
2 -- I usually do this a little bit.
3 -- I usually do this a medium amount.
4 -- I usually do this a lot.

44.	I accept the reality of the fact that it happened.	1	2	3	4
45.	I ask people who have had similar experiences what they did.	1	2	3	4
46.	I feel a lot of emotional distress and find myself expressing those feelings a lot.	1	2	3	4
47.	I take direct action to get around the problem.	1	2	3	4
48.	I try to find comfort in my religion.	1	2	3	4
49.	I force myself to wait for the right time to do something.	1	2	3	4
50.	I make fun of the situation.	1	2	3	4
51.	I reduce the amount of effort I'm putting into solving the problem.	1	2	3	4
52.	I talk to someone about how I feel.	1	2	3	4
53.	I use alcohol or drugs to help me get through it.	1	2	3	4
54.	I learn to live with it.	1	2	3	4
55.	I put aside other activities in order to concentrate on this.	1	2	3	4
56.	I think hard about what steps to take.	1	2	3	4
57.	I act as though it hasn't even happened.	1	2	3	4
58.	I do what has to be done, one step at a time.	1	2	3	4
59.	I learn something from the experience.	1	2	3	4
60.	I pray more than usual.	1	2	3	4

Questionnaire #2 (SRS)

Instructions:

PART I: This questionnaire lists several things that may have happened to you, or that you may have had to deal with. For each item on the questionnaire, please indicate if this has happened to you WITHIN THE PAST YEAR by circling "YES" next to the item number. If the item has NOT happened to you (or happened more than a year ago), circle "NO".

PART II: For each item that has happened to you WITHIN THE PAST YEAR, rate each one to describe how it made you feel when it happened. Listed below and at the top of each page you will find an explanation of the rating system. Please rate each item that you circled "YES" even if it seems difficult to make a choice. It is better to rate an item than to leave it blank. Again, rate only the items that you indicated have happened to you WITHIN THE PAST YEAR.

Here is the rating system and some examples of how it might work.

7 -- really bad	4 -- didn't make me	3 -- sort of good
6 -- bad	feel particularly	2 -- good
5 -- sort of bad	good or bad	1 -- really good

EXAMPLES:

HAPPENED IN PAST YEAR?			MADE YOU FEEL						
YES	NO	A. Having your sister/brother yell at you	7	6	5	4	3	2	1
YES	NO	B. Having a boyfriend / girlfriend	7	6	5	4	3	2	1
YES	NO	C. Divorce or separation of your parents	7	6	5	4	3	2	1
YES	NO	D. Someone close to you died	7	6	5	4	3	2	1
YES	NO	E. Filling out college applications	7	6	5	4	3	2	1

Please rate each item that is circled YES. If there are some things that have happened to you that were not included on this survey, you will find two blanks at the end where you can write them in and then rate them.

7 --
6 --
5 --

HAPPENED IN
PAST YEAR?

YES NO 1

YES NO 2

YES NO 3

YES NO 4

YES NO 5

YES NO

YES NO

YES NO

YES NO

YES NO 1

YES NO 1

YES NO 1

YES NO 1

YES NO 14

7 -- really bad
6 -- bad
5 -- sort of bad
4 -- didn't make me feel particularly good or bad
3 -- sort of good
2 -- good
1 -- really good

HAPPENED IN PAST YEAR?			MADE YOU FEEL						
YES	NO	1. Being compared to your brothers or sisters	7	6	5	4	3	2	1
YES	NO	2. The divorce or separation of your parents	7	6	5	4	3	2	1
YES	NO	3. Changing schools (e.g., changing districts, or changing buildings within a district)	7	6	5	4	3	2	1
YES	NO	4. Wondering about what you're going to do when you get older	7	6	5	4	3	2	1
YES	NO	5. Breaking up with a boyfriend / girlfriend	7	6	5	4	3	2	1
YES	NO	6. Someone close to you died	7	6	5	4	3	2	1
YES	NO	7. Seeing your parents argue	7	6	5	4	3	2	1
YES	NO	8. Not understanding what the teacher is saying or how to do the homework	7	6	5	4	3	2	1
YES	NO	9. Trying to deal with friends who use a lot of drugs or alcohol	7	6	5	4	3	2	1
YES	NO	10. Thinking about world politics and what the world will be like in 20 years	7	6	5	4	3	2	1
YES	NO	11. Going to the doctor	7	6	5	4	3	2	1
YES	NO	12. Flunking a class, or the possibility of flunking a class	7	6	5	4	3	2	1
YES	NO	13. Deciding whether or not you want to to get involved with drugs or alcohol	7	6	5	4	3	2	1
YES	NO	14. Not being able to spend as much time as you'd like with your boyfriend / girlfriend	7	6	5	4	3	2	1

7 -- r
6 -- b
5 -- s

HAPPENED IN
PAST YEAR?

YES NO 15.

YES NO 16.

YES NO 17.

YES NO 18.

YES NO 19

YES NO 20

YES NO 21

YES NO 2

YES NO 2

YES NO

YES NO

YES NO

YES NO

YES NO

YES NO

YES NO

YES NO

7 -- really bad
6 -- bad
5 -- sort of bad
4 -- didn't make me feel particularly good or bad
3 -- sort of good
2 -- good
1 -- really good

HAPPENED IN PAST YEAR?			MADE YOU FEEL						
YES	NO	15. Financial / money problems at home	7	6	5	4	3	2	1
YES	NO	16. Coming to class without having done the homework	7	6	5	4	3	2	1
YES	NO	17. Fighting with a close friend	7	6	5	4	3	2	1
YES	NO	18. Asking someone to go out with you	7	6	5	4	3	2	1
YES	NO	19. Having to pay your own bills	7	6	5	4	3	2	1
YES	NO	20. Going to the dentist	7	6	5	4	3	2	1
YES	NO	21. Getting punished by your mother or father or guardian	7	6	5	4	3	2	1
YES	NO	22. Thinking about how your grades are going to affect your college applications	7	6	5	4	3	2	1
YES	NO	23. Dealing with any of these: overweight, underweight, too tall, too short, wearing glasses or braces	7	6	5	4	3	2	1
YES	NO	24. Telling someone that you don't want to go out with them	7	6	5	4	3	2	1
YES	NO	25. Someone at home or someone very close to you being sick	7	6	5	4	3	2	1
YES	NO	26. Trying to communicate with your parents. They don't seem to understand your point of view	7	6	5	4	3	2	1
YES	NO	27. Report card day	7	6	5	4	3	2	1
YES	NO	28. Wanting to be in, or stay in the best crowd at school	7	6	5	4	3	2	1
YES	NO	29. Boyfriend / girlfriend moves away	7	6	5	4	3	2	1
YES	NO	30. Not getting enough rest	7	6	5	4	3	2	1

7 -- r
6 -- b
5 -- s

HAPPENED IN
PAST YEAR?

YES NO 31.

YES NO 32.

YES NO 33.

YES NO 34.

YES NO 35.

YES NO 36.

YES NO 37

YES NO 38

YES NO 39

YES NO 4

YES NO 4

YES NO 4

YES NO 4

YES NO 4

YES NO 4

7 -- really bad
6 -- bad
5 -- sort of bad
4 -- didn't make me feel particularly good or bad
3 -- sort of good
2 -- good
1 -- really good

HAPPENED IN PAST YEAR?			MADE YOU FEEL						
YES	NO	31. Fighting with your parents	7	6	5	4	3	2	1
YES	NO	32. Having a personality conflict with a teacher, or not getting along with a particular teacher	7	6	5	4	3	2	1
YES	NO	33. Having pimples	7	6	5	4	3	2	1
YES	NO	34. Dealing with sex	7	6	5	4	3	2	1
YES	NO	35. Not getting your chores done at home	7	6	5	4	3	2	1
YES	NO	36. Being seen at the store or someplace with your parents	7	6	5	4	3	2	1
YES	NO	37. Trying to get your schoolwork done while keeping a part time or full time job	7	6	5	4	3	2	1
YES	NO	38. Hearing somebody say something bad about you to the other kids	7	6	5	4	3	2	1
YES	NO	39. Pregnancy (Male: getting girlfriend girlfriend pregnant. Female: getting pregnant)	7	6	5	4	3	2	1
YES	NO	40. Seeing your mother or father upset	7	6	5	4	3	2	1
YES	NO	41. Wondering how you will pay for college	7	6	5	4	3	2	1
YES	NO	42. Being disorganized in just about everything you do	7	6	5	4	3	2	1
YES	NO	43. Fighting with your brothers or sisters	7	6	5	4	3	2	1
YES	NO	44. Doing all the things you need to do to apply for college (e.g., taking ACTs, getting applications, interviews, etc.)	7	6	5	4	3	2	1
YES	NO	45. Trying to divide your time among friends, family, school, sports, clubs, etc.	7	6	5	4	3	2	1

7 --
6 --
5 --

HAPPENED IN
PAST YEAR?

YES NO 46.

YES NO 47.

YES NO 48.

YES NO 49.

YES NO 50.

YES NO 51.

YES NO 52.

YES NO 53

YES NO 54

YES NO 55

YES NO 56

YES NO 57

YES NO 58

YES NO 59

7 -- really bad
6 -- bad
5 -- sort of bad
4 -- didn't make me feel particularly good or bad
3 -- sort of good
2 -- good
1 -- really good

HAPPENED IN PAST YEAR?			MADE YOU FEEL						
YES	NO	46. Trying to decide whether to go to college, get a job, join the military, etc.	7	6	5	4	3	2	1
YES	NO	47. Brother or sister leaving home to get married, or to go away to school	7	6	5	4	3	2	1
YES	NO	48. Taking any kind of test	7	6	5	4	3	2	1
YES	NO	49. Having no friends, or having friends friends but feeling lonely anyway	7	6	5	4	3	2	1
YES	NO	50. Learning to control yourself: Trying not to say things or do things without thinking that you will end up regretting later	7	6	5	4	3	2	1
YES	NO	51. Sitting in class while the teacher is yelling at us	7	6	5	4	3	2	1
YES	NO	52. Trying to get everything done	7	6	5	4	3	2	1
YES	NO	53. Deciding whether to go along with your friends or to listen to your parents	7	6	5	4	3	2	1
YES	NO	54. Living up to what others expect of you	7	6	5	4	3	2	1
YES	NO	55. Looking for a job	7	6	5	4	3	2	1
YES	NO	56. Losing a close friend	7	6	5	4	3	2	1
YES	NO	57. Not having enough freedom, and wanting independence	7	6	5	4	3	2	1
YES	NO	58. Trying to decide what is right and what is wrong	7	6	5	4	3	2	1
YES	NO	59. Getting into trouble with teachers, principals, or other school officials	7	6	5	4	3	2	1

7 --
6 --
5 --

HAPPENED IN
PAST YEAR?

YES NO 60

YES NO 61

YES NO 62

YES NO 63

YES NO 64

YES NO 6

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YES NO 6

YES NO 6

7 -- really bad
6 -- bad
5 -- sort of bad
4 -- didn't make me feel particularly good or bad
3 -- sort of good
2 -- good
1 -- really good

HAPPENED IN PAST YEAR?				MADE YOU FEEL						
YES	NO	60.	Having a physical injury such as a broken arm or leg	7	6	5	4	3	2	1
YES	NO	61.	Having a chronic illness or other medical condition	7	6	5	4	3	2	1
YES	NO	62.	Feeling sick but not being able to get the rest you need	7	6	5	4	3	2	1
YES	NO	63.	Being assaulted, or being fearful that you would be	7	6	5	4	3	2	1
YES	NO	64.	Having reading problems	7	6	5	4	3	2	1
YES	NO	65.	Having trouble finishing things you start to do	7	6	5	4	3	2	1

The above are just some of the things that can happen to people. But everyone is different. So if you have had to deal with other things in the past year that have been upsetting, write them in the spaces below and indicate how you felt about them.

YES	NO	66.	_____ _	7	6	5	4	3	2	1
YES	NO	67.	_____	7	6	5	4	3	2	1

APPENDIX D

PART II COVER LETTER AND CONSENT FORM

Battle C

Dear M

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APPENDIX D

PART II COVER LETTER AND CONSENT FORM

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

----- Date -----

Dear M

Your son/daughter, (Name), has been selected as a possible participant in a follow-up school improvement study being undertaken by the Battle Creek Public Schools. The purpose of the study is to explore and understand the qualities that help students cope effectively with stress, and the information gained will help the school system develop ways to enhance all students' coping skills. I would like to have permission for your son/daughter to be included in this study.

Students who take part in this project will be asked to complete a series of brief questionnaires, and the time required is approximately one hour. All questionnaires would be completed under my supervision at Central High right after school, or at a preferred time and location that is agreeable. As with all studies of this type, the information provided will be used only for research purposes, and participants' names and survey responses will remain confidential. All participating students will be paid a small stipend of fifteen dollars for their time and effort after completing the questionnaires. I hope you will let your son/daughter take part in this study. The information gathered will help the school district with its five year School Improvement Plan, and I believe (Name) will find his/her involvement worthwhile. Directions and scheduling details appear on the back of this letter, and should be kept for reference.

Enclosed are a student admittance form, and a consent form that more fully describes the study and your son's/daughter's part in it. If s/he is willing to take part in this study, and you agree to her involvement, please sign the permission form where indicated and return it to me in the enclosed stamped envelope. Again, permission and participation are completely voluntary. I will contact you as needed within the next few days to review this request, and to answer any questions you may have. However, should you have any immediate questions, please feel free to call me at either of the numbers given below.

Thank you for your help with this.

Sincerely,

Dale Snow, M.A., Ed.S.
Project Coordinator
Battle Creek Public Schools
965-9450 789-2483

General pr

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1)

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School Improvement Survey Project

General procedures --

If you are willing to allow your son/daughter to participate in this School Improvement Survey Project --

1) Please sign and return the consent form in the enclosed stamped envelope.

2) Keep this letter for reference. The scheduled time for your son's/daughter's survey session is:

   3:00 PM ---- Day ----
   ---- Date ----
   McQuiston Learning Center - Pod 1 (LC1)

3) Students are to bring the admittance form to the survey session as a student identifier and stipend claim.

4) If for some reason the time scheduled above is not workable, please contact me and I will make an arrangement to fit your needs.

5) If you have any general questions or concerns, please contact me.

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Name

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

School Improvement Project Consent Form

In contemporary society, high school students often face circumstances or events they consider stressful or difficult to handle. Mr. Dale Snow is coordinating a project in cooperation with the Battle Creek Public Schools to help identify factors that help students manage such events more successfully. The information gained will help the school system develop new ways to enhance students' management skills, and may suggest directions for curriculum improvement.

I understand that students who participate will complete six brief questionnaires dealing with various problem solving methods, approaches, and general perspectives. This will require roughly one hour of my son's/daughter's time. The questionnaires are to be completed at the high school (or other suitable location) under Mr. Snow's supervision. The study described is strictly a research survey and does not involve any known risks to the participants. Upon the conclusion of the study, a summary of the results will be made available to me on request. If questions arise at any time regarding any aspect of the study, I may contact Mr. Snow weekdays at 965-9450, 781-5141, or 789-2483 between 8:00 a.m. and 5:00 p.m., and he will answer my questions.

My son/daughter has been asked to participate in the study described above, we have discussed it jointly, and by signing this form I consent to his/her participation. I do so with the understanding that his/her name and questionnaire responses will be kept confidential, and that no identifiers will appear in any reports or summaries of results. Further, (Student) and I both understand that such participation is voluntary, and may be withdrawn at any time. S/he will receive a stipend of fifteen (15) dollars at the completion of his/her work on this project.

_____ _____

Name of participant Parent / Guardian signature

_____

Date

Battl

To

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

SCHOOL IMPROVEMENT PROJECT --- Admittance Form

To the Student:

1) Please bring this form with you to the survey site. It identifies you as an authorized participant and serves as a stipend claim when you have completed your work.

2) Your scheduled survey session is:

Location: McQuiston Learning Center -- Pod 1 (LC1)

Time: 3:00 PM --- Day ---

Date: ---- Date ----

APPENDIX E

PART II RESEARCH QUESTIONNAIRES

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APPENDIX E

PART II RESEARCH QUESTIONNAIRES

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

TO THE STUDENT:
Please read the following carefully.

Today you are being asked to complete a few surveys as part of the Battle Creek Public Schools' recently adopted 5-year school improvement plan. The information gathered will help the district with future curriculum planning, preparation of graduates, and development of student services. The immediate purpose of these questionnaires is to have you tell us your view of things. There are six questionnaires in all, and although the instructions for each are similar, they are not identical so please read the directions for each questionnaire carefully when you come to it. Please pay close attention to the directions for Questionnaire #6 (APP). If you have questions at any time, please let me know.

The information you provide in these questionnaires will remain confidential, and will be used only for research purposes. As always, there are no right or wrong answers to any of the questionnaire items, so please rate each questionnaire item based on your personal viewpoint. Completion of these questionnaires is voluntary, and you indicate your willingness to do so simply by completing and returning these questionnaires. When you are finished, double check your work to be sure that you have responded to every item in the packet.

Please do not write your name on any of the questionnaire pages. We ask only that you provide the information requested below. Complete the following and then turn the page to begin rating the questionnaire items.

Sex: Male: _____ **Female** _____

Birthdate: _____

Grade: _____

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Questionnaire #3 (TRA)

DIRECTIONS: Given below are a number of statements which people have used to describe themselves. Read each statement and then circle the number to the right of the statement that indicates how you **GENERALLY** feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

1 = Not at all
2 = Somewhat
3 = Moderately so
4 = Very much so

21.	I feel pleasant	1	2	3	4
22.	I feel nervous and restless	1	2	3	4
23.	I feel satisfied with myself	1	2	3	4
24.	I wish I could be as happy as others seem to be	1	2	3	4
25.	I feel like a failure	1	2	3	4
26.	I feel rested	1	2	3	4
27.	I am "calm, cool, and collected"	1	2	3	4
28.	I feel that difficulties are piling up so much that I cannot overcome them	1	2	3	4
29.	I worry too much over something that really doesn't matter	1	2	3	4
30.	I am happy	1	2	3	4
31.	I have disturbing thoughts	1	2	3	4
32.	I lack self-confidence	1	2	3	4

R/S2(code)

33. I feel

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35. I feel

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mind a

38. I take
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39. I am

40. I get
think

1 = Not at all
2 = Somewhat
3 = Moderately so
4 = Very much so

33.	I feel secure	1	2	3	4
34.	I make decisions easily	1	2	3	4
35.	I feel inadequate	1	2	3	4
36.	I am content	1	2	3	4
37.	Some unimportant thought runs through my mind and bothers me	1	2	3	4
38.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39.	I am a steady person	1	2	3	4
40.	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

DIRECTIONS
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R/S2(

Questionnaire #4 (FLX)

DIRECTIONS: The next two pages contain a series of 28 statements. Read each one and decide how you feel about it. If you agree with the statement, or feel that it is true about you, circle T. If you disagree with the statement, or feel that it is not true about you, circle F. Be sure to circle **either T or F** (not both) for every statement, even if some choices may be difficult to make.

5.	Our thinking would be a lot better off if we would just forget about words like "probably," "approximately," and "perhaps."	T	F
24.	I always like to keep my things neat and tidy and in good order.	T	F
41.	For most questions there is just one right answer, once a person is able to get all the facts.	T	F
59.	The trouble with many people is that they don't take things seriously enough.	T	F
63.	It is always a good thing to be frank.	T	F
77.	When I get bored I like to stir up some excitement	T	F
86.	Most of the arguments or quarrels I get into are over matters of principle.	T	F
112.	I set a high standard for myself and I feel others should do the same.	T	F
116.	It is annoying to listen to people who cannot cannot to make up their mind as to what they really believe.	T	F
120.	I do not always tell the truth.	T	F
123.	I think I am stricter about right and wrong than most people.	T	F
156.	I hardly ever get excited or thrilled.	T	F
174.	I never make judgments about people until I am sure of the facts.	T	F

R/S2(code)

If you agree w
circle T. If
true about you

305. I often w

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458. People
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R/S2(code)

If you agree with the statement, or feel that it is true about you, circle T. If you disagree with the statement, or feel that it is not true about you, circle F.

305. I often wish people would be more definite about things.	T	F
328. I find that a well-ordered way of life with regular hours is suitable to my temperament.	T	F
329. It is hard for me to sympathize with someone who is always doubting and unsure about things.	T	F
331. I often start things I never finish.	T	F
346. I must admit I am a pretty fair talker.	T	F
354. A strong person will be able to make up his or her mind even on the most difficult questions.	T	F
361. I like to have a place for everything and everything in its place.	T	F
363. I don't like to work on a problem unless there is the possibility of coming out with a clear-cut and definite answer.	T	F
364. It bothers me when something unexpected interrupts my daily routine.	T	F
380. I am known as a hard and steady worker.	T	F
387. I don't like things to be uncertain and unpredictable	T	F
397. Once I have my mind made up I seldom change it.	T	F
404. I am in favor of very strict enforcement of all laws, no matter what the consequences.	T	F
408. I always see to it that my work is carefully planned and organized.	T	F
458. People who seem unsure and uncertain about things make me feel uncomfortable.	T	F

Questionnaire #5 (HRD)

DIRECTIONS: On the next two pages are some additional items you may agree or disagree with. Please indicate how you feel about each one by circling a number from 0 to 5 to the right of each statement. Circling zero indicates that you feel the item is not at all true; circling 5 means that you feel the item is completely true.

0 = not at all true
1 = not true for the most part
2 = slightly not true
3 = slightly true
4 = true for the most part
5 = completely true

1.	I feel I have to study hard because because school matters a lot.	0	1	2	3	4	5
2.	When my teachers tell me to behave, they usually have a good reason.	0	1	2	3	4	5
3.	Working hard at a job gives me a feeling of satisfaction.	0	1	2	3	4	5
4.	I really look forward to school.	0	1	2	3	4	5
5.	I like having school subjects that I have never had before.	0	1	2	3	4	5
6.	Problems don't just work themselves out. You have to think about them and decide what you are going to do about them.	0	1	2	3	4	5
7.	I believe the people who tell me that the work I do at school is of value in the real world.	0	1	2	3	4	5
8.	I often think of dropping out of school.	0	1	2	3	4	5
9.	I believe that most athletes have to work hard to be good at sports.	0	1	2	3	4	5
10.	Ordinary school work is just too boring to be worth doing.	0	1	2	3	4	5

0 = not at all true
1 = not true for the most part
2 = slightly not true
3 = slightly true
4 = true for the most part
5 = completely true

11.	No one will ever catch me in the library if I have something else to do.	0	1	2	3	4	5
12.	Most people who go to school are just manipulated by their teachers.	0	1	2	3	4	5
13.	I think people believe in individuality only to impress others.	0	1	2	3	4	5
14.	When you select a major field of study, you lose your freedom to study anything you want.	0	1	2	3	4	5
15.	I find it difficult to imagine getting excited about school.	0	1	2	3	4	5
16.	When other people get angry at me, it's usually for no reason at all.	0	1	2	3	4	5
17.	It bothers me when something unexpected interrupts my daily routine.	0	1	2	3	4	5
18.	I find it's usually very hard to change a friend's mind about something.	0	1	2	3	4	5
19.	When I make a mistake, I feel I can almost always do something to make things right again.	0	1	2	3	4	5
20.	In general, I feel confident about the work I do and the decisions I make.	0	1	2	3	4	5
21.	No matter what you do, nothing ever turns out the way you want it to.	0	1	2	3	4	5
22.	Most days, life isn't very exciting for me.	0	1	2	3	4	5
23.	Lots of times I don't really know my own mind. my own mind.	0	1	2	3	4	5

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R/S2(code)

Questionnaire #6 (SOC)

DIRECTIONS: Here is a series of questions and statements relating to various aspects of our lives. Each one has seven possible responses. Please mark the number which expresses your response, with numbers 1 and 7 representing endpoints. If the words under number 1 are right for you, circle 1; if the words under number 7 are right for you, circle 7. If you feel differently, circle the number in between which best expresses your feeling. Please circle only one number for each item.

1. When you talk to people, do you have the feeling that they don't understand you?

1	2	3	4	5	6	7
never have this feeling						always have this feeling

2. In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:

1	2	3	4	5	6	7
surely wouldn't get done						surely would get done

3. Think of the people with whom you come into contact daily (aside from the ones to whom you feel closest). How well do you know most of them?

1	2	3	4	5	6	7
you feel that they're strangers						you know them very well

4. Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
very seldom or never						very often

5. Has it happened in the past that you were surprised by the behavior of people whom you thought you knew very well?

1	2	3	4	5	6	7
never happened						always happened

6. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
never happened						always happened

7. Life is:

1	2	3	4	5	6	7
full of interest						completely routine

8. Until now your life has had:

1	2	3	4	5	6	7
no clear goals or purpose at all						very clear goals and purpose

9. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
very often						very seldom or never

10. In the past two years your life has been:

1	2	3	4	5	6	7
full of changes without your knowing what will happen next						completely consistent and clear

11. Most of the things you do in the future will probably be:

1	2	3	4	5	6	7
completely fascinating						deadly boring

R/S2(code)

12. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5	6	7
very often						very seldom or never

13. What best describes how you see life?

1	2	3	4	5	6	7
one can always find a solution to painful things in life						there is no solution to painful things in life

14. When you think about your life, you very often:

1	2	3	4	5	6	7
feel how good it is to be alive						ask yourself why you exist at all

15. When you face a difficult problem, the choice of a solution is:

1	2	3	4	5	6	7
always confusing and hard to find						always completely clear

16. Doing the things you do every day is:

1	2	3	4	5	6	7
a source of deep pleasure and satisfaction						a source of pain and boredom

17. Your life in the future will probably be:

1	2	3	4	5	6	7
full of changes without knowing what will happen next						completely consistent and clear

R/S2(code)

18. When something unpleasant happened in the past, your tendency was:

1	2	3	4	5	6	7
to "eat yourself up" about it						to say, "OK, that's that. I have to live with it," and go on

19. Do you have very mixed up feelings and ideas?

1	2	3	4	5	6	7
very often						very seldom or never

20. When you do something that gives you a good feeling:

1	2	3	4	5	6	7
it's certain that you'll go on feeling good						it's certain that something will happen to spoil the feeling

21. Does it happen that you have feelings inside you that you would rather not feel?

1	2	3	4	5	6	7
very often						very seldom or never

22. You anticipate that your personal life in the future will be:

1	2	3	4	5	6	7
totally without meaning or purpose						full of meaning and purpose

23. Do you think that there will ALWAYS be people whom you'll be able to count on in the future?

1	2	3	4	5	6	7
always						never

24. Does it happen that you have the feeling that you don't know exactly what's about to happen?

1	2	3	4	5	6	7
very often						very seldom or never

25. Many people (even those with a strong character) sometimes feel like losers in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
never						very often

26. When something happened, have you generally found that:

1	2	3	4	5	6	7
you overestimated or underestimated its importance						you saw things in the right proportion

27. When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:

1	2	3	4	5	6	7
you will always succeed in over-coming the difficulties						you won't succeed in over-coming the difficulties

28. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
very often						very seldom or never

29. How often do you have the feeling that you're not sure you can keep under control?

1	2	3	4	5	6	7
very often						very seldom or never

Questionnaire #7 (RES)

DIRECTIONS: Read each item below carefully, and then rate yourself as to whether you agree or disagree with the statement. Please rate each statement.

Use the rating scale given below and circle one number for each statement:

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1.	If I have to, I can respond quickly to dangerous situations.	1	2	3	4	5	6
2.	I learn as much about new experiences as possible before they happen.	1	2	3	4	5	6
3.	I concentrate on the future.	1	2	3	4	5	6
4.	I can tell when others are upset.	1	2	3	4	5	6
5.	Someone, other than a member of my own family, loves me.	1	2	3	4	5	6
6.	I have a lot of hope.	1	2	3	4	5	6
7.	I get a lot of pleasure out of giving to others.	1	2	3	4	5	6
8.	I am always aware of how other feel	1	2	3	4	5	6
9.	Life is good.	1	2	3	4	5	6
10.	I know that next year things will be much better for me.	1	2	3	4	5	6
11.	I have a good attitude about life.	1	2	3	4	5	6
12.	I can feel what other people are feeling.	1	2	3	4	5	6

Circle one number for each statement:

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

13.	In my life, there is someone who has helped me a lot.	1	2	3	4	5	6
14.	Someday, I will be able to use what I have learned to help others	1	2	3	4	5	6
15.	When I do not know something, I ask questions.	1	2	3	4	5	6
16.	I am able to make my friends feel better when they are sad.	1	2	3	4	5	6
17.	I know that in ten years, things will be much better.	1	2	3	4	5	6
18.	If I have to, I can make a lot of decisions quickly	1	2	3	4	5	6
19.	I can usually recognize when situations might be dangerous.	1	2	3	4	5	6
20.	I read all about things so that I am prepared for anything.	1	2	3	4	5	6
21.	I like to make others laugh.	1	2	3	4	5	6
22.	When I need to talk to someone, I call my friends.	1	2	3	4	5	6
23.	People's feelings are important to me.	1	2	3	4	5	6
24.	I believe, sometimes, that good things come out of bad experiences.	1	2	3	4	5	6
25.	There is hope for the future.	1	2	3	4	5	6
26.	I would make a good counselor.	1	2	3	4	5	6
27.	When I grow up, I'll be able to do the things I want.	1	2	3	4	5	6

R/S2(code)

Circle one number for each statement:

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

28.	If I have to, I can take risks to make things better.	1	2	3	4	5	6
29.	Some people live in the past, but I live for today.	1	2	3	4	5	6
30.	When my friends need someone to talk to, they call me.	1	2	3	4	5	6
31.	I am able to make my dreams come true.	1	2	3	4	5	6
32.	I always help others who cannot help themselves.	1	2	3	4	5	6
33.	I am happy with my life.	1	2	3	4	5	6
34.	Things are not all bad.	1	2	3	4	5	6
35.	If I wait long enough, the answer will come.	1	2	3	4	5	6
36.	If I have to, I can protect others who cannot defend themselves.	1	2	3	4	5	6
37.	No matter what happens in my life, I know that I will make it.	1	2	3	4	5	6
38.	When something bad happens, I talk to my friends about it.	1	2	3	4	5	6
39.	My life is OK.	1	2	3	4	5	6
40.	I may not be able to control all of the things that happen to me in my life, but I can control how they will affect me.	1	2	3	4	5	6
41.	I believe everything works out for the best	1	2	3	4	5	6

Circle one number for each statement:

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

42.	I have friends that I can count on most of the time.	1	2	3	4	5	6
43.	I have specific goals.	1	2	3	4	5	6
44.	My future is important to me.	1	2	3	4	5	6
45.	I believe that I will have a husband / wife who will love me very much.	1	2	3	4	5	6
46.	Sometimes, it is worth it to take risks that I shouldn't.	1	2	3	4	5	6
47.	I believe that it is better to take a risk no matter what the consequences.	1	2	3	4	5	6
48.	Tomorrow will be better than today.	1	2	3	4	5	6
49.	I can do many things.	1	2	3	4	5	6
50.	If I have to, I take a lot of risks.	1	2	3	4	5	6

Questionnaire #8 (APP)

DIRECTIONS: This questionnaire lists several things that can happen to people, or that they could have to deal with. For each of the items listed below, rate each one based on how "threatening" you think (or believe) the experience would be IF you had to deal with it. Please note, you are not being asked to tell how the experience might make you FEEL (good, bad, angry, etc.), but rather to appraise in your judgment how much stress you think the experience might produce.

For each item, think of the following statement:

IF I had this experience, it would be ---

0 -- not stressful at all
1 -- somewhat stressful, but not much
2 -- stressful, but less than average
3 -- stressful
4 -- stressful, and more so than average
5 -- quite stressful
6 -- highly stressful

1.	Engaging in hobbies or leisure activities	0	1	2	3	4	5	6
4.	Getting married or becoming engaged	0	1	2	3	4	5	6
5.	Dating or doing things with people of the opposite sex	0	1	2	3	4	5	6
7.	Family members, relatives, or step-parents moving in or out of the house	0	1	2	3	4	5	6
9.	Fights with, or problems with a friend	0	1	2	3	4	5	6
10.	Restrictions at home (having to be in at a certain time, etc.)	0	1	2	3	4	5	6
11.	Death of a family member	0	1	2	3	4	5	6
12.	Family member becoming pregnant or having a child	0	1	2	3	4	5	6
14.	Hospitalization of a family member or loved one	0	1	2	3	4	5	6
18.	Talking or sharing feelings with friends	0	1	2	3	4	5	6

R/S2(code)

IF I had this experience, it would be ---

0 -- not stressful at all
1 -- somewhat stressful, but not much
2 -- stressful, but less than average
3 -- stressful
4 -- stressful, and more so than average
5 -- quite stressful
6 -- highly stressful

20.	The arrest of a family member	0	1	2	3	4	5	6
21.	Getting in trouble or being suspended from school	0	1	2	3	4	5	6
23.	Financial troubles or money worries	0	1	2	3	4	5	6
24.	Getting bad grades or progress reports	0	1	2	3	4	5	6
27.	Going to church	0	1	2	3	4	5	6
28.	Meeting new people	0	1	2	3	4	5	6
29.	Parent getting remarried	0	1	2	3	4	5	6
31.	Friend getting separated or divorced	0	1	2	3	4	5	6
32.	Having few or no friends	0	1	2	3	4	5	6
33.	Arguments or fights between parents	0	1	2	3	4	5	6
34.	Getting good grades or progress reports	0	1	2	3	4	5	6
41.	Pressures or expectations by parents	0	1	2	3	4	5	6
43.	Having plans fall through	0	1	2	3	4	5	6
50.	Obligations at home	0	1	2	3	4	5	6
53.	Friend or family member recovering from illness or injury	0	1	2	3	4	5	6
56.	Changes in privileges or responsibilities at home	0	1	2	3	4	5	6
60.	Parents discover something you didn't want them to know	0	1	2	3	4	5	6
65.	School or career change of family member (e.g., dropped out of school, changed or lost a job)	0	1	2	3	4	5	6

R/S2(code)

IF I had this experience, it would be ---

0 -- not stressful at all
1 -- somewhat stressful, but not much
2 -- stressful, but less than average
3 -- stressful
4 -- stressful, and more so than average
5 -- quite stressful
6 -- highly stressful

66.	Advancing a year in school	0	1	2	3	4	5	6
70.	Homework or studying	0	1	2	3	4	5	6
71.	Having to take care of younger brothers or sisters	0	1	2	3	4	5	6
73.	Problems or arguments with parents, siblings, or other family members	0	1	2	3	4	5	6
74.	Problems or arguments with teachers or principal	0	1	2	3	4	5	6
79.	Negative feelings about, or worries about appearance	0	1	2	3	4	5	6
81.	Doing household chores	0	1	2	3	4	5	6
84.	Breaking up with, or being rejected by boyfriend / girlfriend	0	1	2	3	4	5	6
88.	Parent loses job	0	1	2	3	4	5	6
90.	Returning to school after time off	0	1	2	3	4	5	6
97.	Being in love or having a relationship	0	1	2	3	4	5	6
100.	Friend becoming pregnant or having a child	0	1	2	3	4	5	6

FINISHED! Please take a moment to double check your survey responses. Make sure you have responded to every item and have not skipped any. When you are done, please turn in this packet and your admittance form to receive your honorarium.

Thank you (again) for your help with this project! A preliminary summary of findings will be available later this spring for those of you would like to know the results. Contact Mr. Snow's office at the Miller-Stone School Services Building after May 15th for a summary, or to discuss any aspect of this study.

R/S2(code)

APPENDIX F

PART II COVER LETTER - SECOND REQUEST

APPENDIX F

PART II COVER LETTER - SECOND REQUEST

Battle Creek Central High School

100 WEST VAN BUREN
BATTLE CREEK, MICHIGAN 49017

BRUCE Z. BARNEY - 965-9526
PRINCIPAL

GARY GARLAND- 965-9526
ASSISTANT TO THE PRINCIPAL

----- Date -----

Dear M

Within the past few weeks, you probably received a letter from me describing a research survey project in which your son/daughter, (Name), was invited to take part. I may have spoken with you by phone as well. The project has been designed as an adjunct to the Battle Creek Public Schools' 5-year School Improvement Plan, and your son's/daughter's input represents an important aspect of that undertaking. As one of 200 selected members of the larger student body, s/he has the opportunity to express his/her views through the medium of this project, and in so doing to speak for others too. The purpose of the study is to explore and understand the qualities that help high school students cope effectively with stress, and the information gained can help the school system develop ways to enhance all students' coping skills. A final survey session is being scheduled for this project, and if you permit, I would still like to have your son's/daughter's views included.

Students taking part in this project are asked to complete a series of brief questionnaires, and the time required has been less than one hour. To date, all questionnaires have been completed under my supervision at Central High right after school, or at other preferred times or locations by arrangement. As with all studies of this type, the information provided is used only for research purposes, and participants' names and survey responses are held confidential. All participating students are paid a small stipend of fifteen dollars for their time and effort upon completion of the questionnaires. Although (Name)'s participation in this project is by no means required, I believe s/he would find his/her involvement worthwhile, and I hope you will let him/her take part in it. Directions and scheduling details for the final survey session appear on the back of this letter, and should be kept for reference.

Enclosed are a student admittance form, and a parent permission form that briefly summarizes the study and your son's/daughter's part in it. If s/he is willing to participate in this study, and you agree to his/her involvement, please sign the form where indicated and return it to me in the enclosed stamped envelope. Or if you prefer, (Name) may simply bring the permission form with him/her to the survey session, as

(over)

a few other students have done. I will contact you as needed within the next few days to review this request, and to answer any questions you may have. However, should you have any immediate questions, please feel free to call me at any of the numbers given below.

Thank you for your help with this.

Sincerely,

Dale Snow, M.A., Ed.S.
Project Coordinator
Battle Creek Public Schools
965-9450 789-2483

School Improvement Survey Project

General procedures --

If you are willing to allow your son/daughter to participate in this School Improvement Survey Project --

1) Please sign and return the consent form in the enclosed stamped envelope.

2) Please keep this letter for reference. The scheduled time for the final survey session is:

   3:00 PM Wednesday
   April 12, 1995
   McQuiston Learning Center -- LC 1 (Pod 1)

3) Students are to bring the admittance form to the survey session as a student identifier and stipend claim.

4) If the time scheduled above is not workable for some reason, please contact me and I will make an arrangement to fit your needs.

5) If you have any general questions or concerns, please contact me.

REFERENCES

REFERENCE NOTES

[1] Such qualities might equally be seen as outcomes of coping, particularly in research efforts with the very young, wherein coping processes can be viewed as independent variables, with qualities such as competence, mastery, or stress resistance taken as dependent, developmental outcome variables. Most of the resilience literature takes this approach.

[2] Suzanne C. Ouellete, Suzanne C. Ouellette Kobasa, and Suzanne C. Kobasa are the same individual, the originator of the hardiness construct. The first is the preferred name.

[3] In Israel, individuals as young as 17 may be admitted to medical school, and individuals in their early twenties are still often characterized as adolescents.

[4] Garmezy noted in Garmezy and Masten (1986) that roughly twenty years earlier the research decision was made to bypass "coping" as a target variable inasmuch as "competence" was then considered a more reliable concept to measure, "the assumption being that a manifestly competent child was a good coper" (p. 512).

[5] Research by Block and Block on ego-resiliency is typically included in mainstream discussions of resilience, but perhaps erroneously so. Unlike most other works, their research is psychoanalytically founded and focuses on ego structures. They note, for instance, that it is "this common denominator of the various specific ego structures -- degree of impulse control and modulation -- that we mean by **the construct of ego-control**" (1980, p. 41), and they view ego-resiliency as one's companion ability "to modify his/her modal level of ego-control" (1980, p. 48), further likening it to a "property of (ego) boundaries posited by Lewin, the property of elasticity" (1980, p. 47). In short, ego-resiliency may simply represent intellectual flexibility, although Gjerde, Block and Block (1986) did later alter the original definition of ego-resiliency slightly to "an individual's dynamic capacity to modify his/her modal <u>behavior</u> in the face of changing environmental demand characteristics" (p. 424, emphasis added), perhaps to bring their work more into the mainstream of resilience research.

[6] There are some inconsistencies in the reports of findings for the Rochester Child Resilience Project. Parker et al. (1990) found that SRs did not differ from SAs on self-ratings of locus of control, anxiety, or depression. These results were reiterated in Cowen, Wyman, Work and Parker (1990), and replicated in Cowen, Work, Wyman, Parker, Wannon and Gribble (1992b). However, in another summary article, Cowen, Work and

Wyman (1992a) reported that self-ratings indicated a more internal locus of control and less depression for SRs than for SAs. This last should probably be regarded as a questionable report in that data from the summarized studies were not corroborative. Internal locus of control has been found to be a correlate of resilience in other studies (e.g., Luthar, 1991).

[7] The existence or absence of anxiety or depression in resilient children is not altogether insignificant. Luthar and Zigler (1991) commented that "the shift toward focusing on competence rather than on maladjustment is laudable, ... (but it) does not allow for the fact that, despite competence on behavioral indices, individuals may have a variety of other psychological difficulties, such as depression or anxiety. Various theoretical arguments indicate this possibility, and there is some empirical evidence in its support" (p. 12). In separate research, Luthar (1991) showed that anxiety and depression did not distinguish resilient from non-resilent inner-city 9th graders. In fact, Luthar found statistically comparable depression and anxiety levels in both resilient (high stress / high competence) and non-resilent subjects (high stress / low competence). As well, data indicated that the resilient subjects were actually significantly more depressed and anxious than were those also rated high on competence but from low stress backgrounds. In short, a resilient individual is not one who lacks anxiety, but one who functions well in spite of it. Not for nothing do we admire grace under pressure.

Of additional import here is that a fair number of stress resistance studies have identified subjects as resilient, competent, effective copers, etc. by whether or not they experience anxiety or depression under high stress conditions (e.g., Schill, Ramanaiah & O'Laughlin, 1984; Childrey, 1989). Recent research calls such approaches into question, and perhaps negates some of the findings.

Of related interest is that a portion of the hardiness literature has come under criticism from the claim that the construct is merely measuring "neuroticism" (see Funk, 1992, for review). It is well to point out, however, that "neuroticism" has most typically been measured by administering an anxiety inventory as the indicator of neuroticism. It is at least possible that "hardy" individuals also do not necessarily differ from "non-hardy" individuals on levels of anxiety under high stress conditions. Perhaps they just handle it better, making "neuroticism" a factor that does not actually jeopardize the model but merely a variable in need of control. Anxiety should probably simply be treated as anxiety, rather than as a proxy for other constructs.

[8] As presented in Hauser et al. (1985) and Schwartz et al. (1989), the coping styles of "differentiating / engaging" and "constricting / detaching" were based on a characterization of parental dynamics toward their adolescents described as "enabling" versus "constraining." These in turn were drawn from Blos' (1967) theory that a primary task of adolescence involved a "second individuation process" requiring differentiation from the parent in the drive toward autonomy, and a reconsolidation of one's self as an individual with separate values. In

the studies at hand, the behavior and attitudes of the parents ostensibly either enable or constrain the adolescent in the accomplishment of this individuation task, and thus presumably incline the adolescent to utilize "differentiating" versus "constricting" coping patterns.

[9] For explication of the precise meanings and statistical representations of protective, compensatory, and vulnerability factors in stress research, see Luthar (1993) and Garmezy, Masten and Tellegen (1984).

[10] Carver et al. established the ability of the COPE to reflect coping processes based on dispositional as well as situational approaches. Although the validation study was relatively simple, the conceptual issues engendered are of considerable significance. Virtually all coping inventories prior to the COPE were developed based on the situational format originally devised by Lazarus and colleagues with their Ways of Coping Checklist, later Ways of Coping Questionnaire. Briefly, the situational format requires the respondent to think of a specific stressor s/he has experienced in a recent specified time period (most commonly within the past 6 months, but 1, 3 and 12 month time frames are also common, depending on the research requirements). The respondent is then asked to write out a brief description of the stressor (typically in one paragraph), and then finally to complete a coping questionnaire asking him/her to identify and/or rate the strategies used to deal with the specified stressor. This approach has pervaded coping research but has contributed to inconsistencies in the literature by serving to restrict the range of individuals' reported coping responses. An individual may accurately report what s/he did to cope with the chosen stressor (e.g., an overdrawn checking account), but had s/he chosen a different stressor (e.g., argument with spouse), the coping responses reported might have been equally effective, but would likely have been entirely different, leaving the other responses this person is capable of entirely untapped. This restriction of range has probably had the effect of focusing coping research on what the effective coper does, at the expense of what the effective coper is like. It has, for instance, been argued theoretically that a good coper is probably a person who is flexible, in effect, one who has many coping strategies in the repertoire, and who is good at choosing the ones needed in a given situation. However, if the assessment format for one's coping abilities is unnecessarily restricted, the full range of that person's coping skill can never be captured. Giving a person the opportunity to respond to broader assessments of coping as allowed under a dispositional format represents a considerable step forward in this research arena.

[11] Shown below is the facet theory mapping sentence utilized to develop the Orientation to Life Questionnaire. The sentence is drawn from Figure 1. of Antonovsky (1987b, p. 77).

	A. Modality	
Respondent X responds	{ 1. instrumental }	
to a(n)	{ 2. cognitive }	stimulus
	{ 3. affective }	
	B. Source	
which has originated	{ 1. the internal }	
from	{ 2. the external }	environment(s)
	{ 3. both }	
	C. Demand (subject)	
and which poses a(n)	{ 1. concrete }	
	{ 2. diffuse }	stimulus demand
	{ 3. abstract }	
	D. Time	
being in the	{ 1. Past }	
	{ 2. present }	in response
	{ 3. future }	dimension
E. SOC components		
1. comprehensibility	{ 1. high }	
2. manageability	{ 2. .... }	in terms of
3. meaningfulness	{ 3. low }	Facet E.

Figure R.1 -- Sense of Coherence Mapping Sentence for Questionnaire Design

[12] COPE subscale hypotheses are expansions of initial presumptions reported by Carver (personal communication) which suggested that Scales 1, 2, 5, 7 and 8 "should be" adaptive in situations wherein active coping efforts lead to favorable outcomes. It was also suggested that scales 3, 4 and 6 might also be similarly adaptive. Although not emphasized by Carver, the operative element in Scales 3 (Seeking Instrumental Social Support) and 4 (Seeking Emotional Social Support) is not the mere receipt of such supports, but rather the "seeking" of them, hence the proactive component. Carver speculated that Scales 10, 11 and 12 should tend to be maladaptive under circumstances wherein active coping produces favorable outcomes. Of note, this is **not** tantamount to saying that Scales 10, 11 and 12 reflect "passive" coping, but merely that they may tend to be counterproductive. Carver further speculated that it was less clear what tendencies might be most adaptive when situations were "uncontrollable." An assumption for the current study is that the adolescent respondents will probably not typically complete the COPE with uncontrollable circumstances in mind.

[13] Calculation of relative scores in this study are the researcher's variant of procedures followed in Folkman et al. (1985), Vitaliano et al, (1987), and Williams et al. (1992). Consult those documents for further discussion of relative scores.

[14] The interpretation of relative scores for COPE subscale 14 (Alcohol - Drug Use), requires some comment. In the original forward scoring procedure for subscale 14, Better and Poorer copers did not differ in their reponses to this subscale (Better - Poorer mean difference = .18, $t = .56$, $p = .576$; from Table 3.11), suggesting there was no overall difference in the two groups' alcohol or drug use. However, relative scores calculated from that original data suggested that Poorer copers did indeed devote a higher **proportion** of their coping efforts to alcohol or drug use (Better - Poorer mean difference = -.0084, $t = -3.43$, $p = .001$).

When the scoring of subscale 14 was reversed for **research participant selection purposes**, it introduced an artifact into the calculation of relative scores for this particular subscale. The original mean scores for Better and Poorer copers on subscale 14 (6.15, 5.97, respectively) were very low values compared to all other subscales. When the scoring of this scale was reversed (changing the selection of the Better and Poorer coping groups slightly), it also translated into fairly **high** mean subscale values compared to the other subscales (14.43 and 13.29 for Better and Poorer copers, respectively), particularly for Poorer copers, whose scores on all subscales were generally lower. Therefore, if **relative** scores based on reversed scoring were calculated for subscale 14, Poorer copers would still earn higher **proportional** scores compared to Better copers inasmuch as an average score of 13.29 would comparatively represent a much higher score for Poorer copers on **any** subscale than a score of 14.43 would for Better copers. Thus, Poorer copers would earn higher relative scores on subscale 14 no matter how the scale was scored. Therefore, even though the **scoring** of subscale 14 was reversed in this study, the **interpretation** of the Better and Poorer copers' relative scores should

be based on the original item endorsement patterns, which are indicated in Tables 4.1 and 4.2 by the designation FS14.

Interpretation of individual relative scores generated with a reversed scoring format would be valid only if **all** subscale scorings were reversed. Otherwise, as in the case of subscale 14, Poorer copers' higher relative scores under a reversed scoring format would presumably now indicate a higher proportion of coping effort devoted to **non-use** of alcohol or drugs, and this is not the case. If and only if all subscale scorings were reversed, the magnitude of the relative scores for subscale 14 (and the direction of their mean differences) would favor Better copers, thence indicating correctly that **Better** (rather than Poorer) copers would be devoting relatively more coping effort to the non-use of alcohol or drugs.

[15] Of additional interest, when the Sense of Coherence parent variable was eliminated from consideration in the regression procedure, leaving only its subscales in the analysis, Manageability emerged as the preeminent variable in the regression equation, along with the other variables of Stressor Rating, Stressor Experience, and Resilience. The multiple R increased slightly (from .4908 to .5144), but the significance here is that in discussions of the "steeling effect," it is often speculated that exposure to stress exerts its potential growth effect only if the stress is considered "manageable." However, the emergence of Manageability was produced in this exploratory analysis only by clearing SOC away from the variable menu, and only by removing the data set of one identified outlier. As well, this effect only emerged in the forward stepwise regression procedure. In the backward elimination regression, the SOC subscale of Comprehensibility emerged as the preeminent variable rather than Manageability (Multiple R change = +.0044 from .5088 to .5132). Nonetheless, the combination of variables accounting for Stress Appraisal remains intriguing.

[16] In most stepwise regression / classification analyses, predictor variables must satisfy statistical significance tests both for inclusion in the model and for exclusion from it. Typically, predictors are accepted into a regression equation if they are statistically significant predictors of the dependent variable at the .05 level. However, to remain in the equation, they must also typically maintain significant at the .10 level as each subsequent predictor is added. For purposes of the analyses here, the exclusion criterion was increased to .05, thus making it more difficult for any marginal predictors to remain in the equation at each step.

[17] Logistic stepwise elimination regression results with Sense of Coherence and Comprehensibility removed from statistical consideration are shown in Table R.1 below. With SOC subscales of Manageability and Meaningfulness removed as well, results are also identical to those shown below. This pattern, along with those reported in Chapter IV, suggests that in general, Hardiness and Sense of Coherence are approximately equal predictors of Better coping, although the precise nature of those predictions varies somewhat with the subscale patterns.

Table R.1
Stepwise Elimination Logistic Regression Analysis
Variables in the Equation

Variable	R	Improvm. Chi Sq.	p	Model Chi Sq.	p	Correct Classif.
All		70.523	.000	70.523	.000	81.82%
HRD	.2126					
GD	-.2583					
RES	.1551					
GPA	.1532					
Gender	.1381					
SRS Rtg.	.0994					
Age	.1105	4.521	.034	57.575	.000	74.24%

	Beta	S.E.Beta	(Wald) Chi Sq.	p	Exp. Beta Odds Ratio
HRD	.1290	.0403	10.248	.0014	1.1377
GD	-.2754	.0731	14.178	.0002	.7593
RES	.0267	.0106	6.393	.0115	1.0270
GPA	.8405	.3354	6.281	.0122	2.3176
SRS Rtg.	.0120	.0062	3.802	.0512	1.0121
Gender (1)	.5778	.2469	5.478	.0193	1.7821
(2)	-.5778				.5611
Age	.5657	.2752	4.227	.0398	1.7607
Constant	-23.1683	5.6367	16.894	.0000	

Gender (1) = Female
Gender (2) = Male

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