

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

7

Order Number 9207061

Hardiness in adolescence: An inquiry into stress resistance

Collins, Carla Burd, Ph.D.

City University of New York, 1991

Copyright ©1991 by Collins, Carla Burd. All rights reserved.

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

A

HARDINESS IN ADOLESCENCE: AN INQUIRY INTO STRESS RESISTANCE

by

CARLA B. COLLINS

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

1991

© 1991

CARLA B. COLLINS

All Rights Reserved

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

24 September 1991
Date

James Ouellette
Chair of Examining Committee

September 24, 1991
Date

Herbert D. Saltzman (S)
Executive Officer

Professor Suzanne Ouellette Kobasa
Professor Carol Tittle
Professor A. J. Franklin
Supervisory Committee

The City University of New York

ABSTRACT

HARDINESS IN ADOLESCENCE: AN INQUIRY INTO STRESS RESISTANCE

by

Carla B. Collins

Adviser: Professor Suzanne Ouellette Kobasa

Adolescence, typically, is the period of life in which an individual is expected to achieve a measure of independence and autonomy from primary caretakers and to establish an identity which harmoniously integrates aspects of the self with the environment. In the process of meeting these demands, the young individual is subjected to numerous experiences which may be construed either as opportunities for growth or as debilitating events. Investigations into the factors influencing successful adaptation from childhood into adulthood, particularly under adverse conditions, have pointed out the importance of personality.

One of the most important stress resistance resources emerging from research in adults has the hardy personality (Kobasa, 1979). Kobasa proposes that hardiness consists of three components, challenge, commitment and control, which interact to promote healthy coping skills. Identification of such a personality characteristic in young adults would provide some understanding of who emerges from a period of instability and change with skills that help them adapt in a variety of social situations. Thus, a study was designed to assess the

effects of stress and hardiness in an adolescent population. The primary goals were to develop a scale measuring the hardy personality in adolescents and to determine whether hardiness acts as a stress resistance resource in a young population.

Following a factor analytic approach to scale construction, adolescent hardiness was found to be composed of three subscales, task engagement, goal directedness and positive self. Furthermore, empirical support for the conceptualization of hardiness as a stress resistance resource was found. Hardiness acted as a buffer, moderating the effects of stress for drug use and was directly influential in the prediction of aberrant behavior and affective reactions.

Nevertheless, it was determined that the role of social desirability and the sociodemographic factors of age and sex were important considerations when interpreting research findings for an adolescent population.

Acknowledgements

I would like to express my appreciation for the guidance, support and encouragement received from the members of my dissertation committee, Suzanne Ouelette Kobasa, Carol Tittle and Anderson J. Franklin. I would also like to thank my outside readers Elizabeth Taleporos and Howard Ehrlichman who, despite their own commitments, provided critical feedback and insightful suggestions on my research.

Further acknowledgement goes to all the New York City school students who participated in this study and to those who assisted in their recruitment, especially Pat Walters and Celeste Ridgeway.

Finally and most importantly, I would like to express a heartfelt thanks to my daughters, Tara and Radha Collins, for their remarkable patience, understanding and support throughout this academic pursuit.

TABLE OF CONTENTS

Introduction and Literature Review	1
An Overview of the Stress - Health Paradigm	1
Conceptualizations of the Stress-Illness Paradigm	3
A Review of the Hardiness Literature	9
Definition of hardiness	9
Role of hardiness in the stress-illness paradigm	12
Overview of Adolescence	19
Adolescence and Stress	20
Developmental processes	21
Biological factors	21
Psychosocial factors	22
Theoretical approaches to adolescence and stress	23
Erikson	23
Maddi	26
Stress Research in Adolescence	28
Background	28
Salience of stressful life events	30
Individual differences in the stress-health relationship	32
Role of personality in stress research	36
Self esteem	38
The hardy personality	41
Statement of the Problem	44
Assumptions and Limitations	44
Hardiness as a protective factor	45
Stressful life events research	49
Content of life event scales	50
Methodological problems	51
Purpose of the Study	53
Hypotheses	53
Summary and Significance of the Research	55
Methodology	58
Preliminary Analyses	58
Revision of the Personal Views Survey	58
Examination of the psychometric properties of the Hardiness	
Scale for Adolescents	59
Subjects	60
Instruments	60
Results	66
Conclusions	70
Research Study	72
Sociodemographic characteristics of the sample	72
Questionnaire administration	73
Reliability and validity of the instruments	75

TABLE OF CONTENTS (continued)

Hardiness Scale for Adolescents - Revised	76
Youth Adaptation Rating Scale	80
Coopersmith Self-Esteem Scale	81
Perceived Stress Scale	81
Differential Personality Inventory	82
Response style scales	85
Multidimensional outcome measures	87
Adjustment	87
Strain	89
School absence	90
Drug use	90
Results	91
Health Behaviors of the Sample	91
Relationship Between Hardiness, Stressful Life Events, Esteem, the Outcome Measures and Response Styles	92
Relationship Between Sociodemographics, Hardiness, Stressful Life Events, Social Desirability, the Outcome Measures and Self Esteem	93
Testing of Hypotheses	94
Hypothesis 1	95
Hypothesis 2	96
Hypothesis 3	98
Controlling for social desirability in the stress - hardy personality relationship	98
Social desirability, sociodemographics and the hardy personality	100
Hypothesis 4	101
Supplementary Analyses	102
The role of negative affect in the stress - behavioral outcome relationship	102
Stress and hardiness	103
Sociodemographics and hardiness	104
Discussion	105
Overview of Hardiness in Adolescents	105
Hardiness Scale Construction	106
A factor analytic approach	106
Role of response styles in the HSA - R	108
The relationship between the hardy personality and self esteem	110
Convergence of self esteem and hardiness	110
Role of hardiness and self esteem in the stress - adjustment model	113

TABLE OF CONTENTS (continued)

Hardiness as a Stress Resistance Resource	116
Hardiness as a Buffer of Stressful Life Events in Adolescence	116
Problems in measurement	117
Reliability and validity	117
Sampling of stressful life events	117
Multicollinearity	119
Role of social desirability in the hardiness model for adolescents	120
Role of Age, Sex and Socioeconomic Status in the Hardiness Model for Adolescents	123
The Role of Negative Affect in the Stress - Adjustment Model for Adolescents	125
Conclusion	130
 Appendices.	140
A. Erikson's Psychosocial Stages of Development	140
B. Preliminary Survey Measurement Instruments	143
C. New York City Public School System Research Approval Form . . .	155
D. Parent Consent Forms.	158
E. Instructions for Administration	161
F. Scales Administered in the Research Study	163
G. Factor Loadings of Items on Each of the Three Factors of the Psychological Adjustment Outcome Measure.	181
H. Factor Loadings of Items on Each of the Two Factors of the Composite Strain Measure.	189
I. Frequency of Drug Use per Month.	193
J-1. Multidimensional Outcome Measures Regressed on Stressful Life Events, Personality, and the Hardiness-Stress Interaction with Social Desirability Restricted.	195

TABLE OF CONTENTS (continued)

J-2. Multidimensional Outcome Measures Regressed on Stressful Life Events, Personality, and the Hardiness-Stress Interaction for Respondents with High Social Desirability Scores.	197
K-1. Multidimensional Outcome Measures Regressed on Sociodemographics, Stressful Life Events, Hardiness and the Hardiness-Stress Interaction with Social Desirability Restricted . .	200
K-2. Multidimensional Outcome Measures Regressed on Sociodemographics, Stressful Life Events, Hardiness and the Hardiness-Stress Interaction for Respondents with High Social Desirability Scores.	203
L-1. Multidimensional Outcome Measures Regressed on Esteem, Stressful Life Events, Personality, and the Interaction Terms with Social Desirability Restricted	206
L-2. Multidimensional Outcome Measures Regressed on Esteem, Stressful Life Events, Personality, and the Interaction Terms for Respondents with High Social Desirability Scores.	208
L-3. Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms with Social Desirability Restricted	210
L-4. Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms for Respondents with High Social Desirability Scores.	213
References.	216

List of Tables

1. Descriptive Statistics for the Preliminary Survey	54
2. Sociodemographic Characteristics of the Sample.	61
3. Descriptive Statistics for the Survey Instrument.	65
4. Factor Loadings of Items on Each of the Three Factors From the 23 Item Hardiness Scale for Adolescents	69
5. Intercorrelations Among Hardiness and the Hardy Subscales	72
6. Intercorrelations of the Hardiness Subscales, Self Esteem and Response Styles.	73
7. Frequency of Endorsement of Stressful Life Event Items Over a Six Month Period.	75
8. Intercorrelations Among Hardiness, DPI Subscales and Perceived Subjective Stress	84
9. Intercorrelations Among Hardiness, Social Desirability, Sociodemographic and Health Behavior Variables	88
10. Intercorrelations Among Major Independent Variables, Responses Styles and Outcome Measures.	89
11. Correlation of Age, Sex and Socio-economic Status With Major Independent Variables, Response Styles and Outcome Measures	91
12. Multidimensional Outcome Measures Regressed on Stressful Life Events, Personality and the Hardiness-Stress Interaction.	94
13. Multidimensional Outcome Measures Regressed on Socio- demographics, Stressful Life Events, Hardiness and the Interaction Term	96
14. Multidimensional Outcome Measures Regressed on Social Desirability, Stressful Life Events, Personality and the Hardiness Stress Interaction	99
15. Multidimensional Outcome Measures Regressed on Socio- demographics, Stressful Life Events, Hardiness and the Hardiness-Stress Interaction Term	102

List of Tables (continued)

16. Multidimensional Outcome Measures Regressed on Negative Affect, Stressful Life Events, Hardiness and the Interaction Terms 107
17. Multidimensional Outcome Measures Regressed on Social Desirability, Negative Affect, Stressful Life Events, Hardiness and the Interaction Terms. 108
18. Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability, Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms. 110
19. Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability, Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms. 113

List of Figures

1. A Model for Understanding Stress-Adjustment Status. 38
2. Effects of Hardiness on Drug Use at Different Levels of Stressful
Life Events With and Without Controls for Social Desirability and
Sociodemographics 126

Introduction and Literature Review

An Overview of the Stress - Health Paradigm

In Western society, confrontations with stressors, whether externally or internally induced, are the norm, not the exception. As a result, the ability to cope with stress is seen by many contemporary researchers as the most important factor influencing an individual's well being (Coelho, Hamburg and Adams, 1974; Roskies and Lazarus, 1980).

One of the most influential factors moderating the relationship between stress and the onset of illness is personality. Kobasa (1979b) was the first to systematically investigate the role of personality in the coping process through a construct identified as hardiness. Hardiness is composed of three components; control, commitment, and challenge which interact to increase transformational coping and decrease regressive coping when the person is confronted with aversive events. Research on the hardy personality has focused on the validation of hardiness as an important stress resistant resource in adults. It has been studied in conjunction with the impact of constitutional and physical exercise factors on the outcome of stressful events and it has been investigated in various types of professions: military personnel (1979a); white collar workers (Kobasa,

1982a); and, blue collar workers (Bartone, 1985). However, literature describing the development of a hardy personality style is relatively negligible.

One period of life that appears to offer a fertile ground for further exploration of the hardy personality is adolescence. During the adolescent years, a child is expected to accomplish two developmental tasks: 1) to achieve a measure of independence and autonomy from one's parents; and, 2) to form an identity (i.e., create an integrated self that harmoniously combines different elements of the personality) (Craig, 1986). In the process of meeting these demands, the young individual is subjected to numerous pressures and/or novel events which may be construed either as opportunities for growth or as debilitating restrictive events. Three major forms of adolescent stressors have been identified by Garmezy (1981): extraordinary personal changes in biophysical and psychosocial arenas; multiple conflicts arising from discrepancies between parental and peer values; and demands made by society to insure adequate adjustment into the adult world. All these stressors impact upon the adolescent within a short period of time (approximately four years) creating a rich potential for pathological responses.

Maddi (1981) believes that although adolescence is stressful, this transitional period is a necessary experience for personality development because it provides the adolescent with a chance to address and resolve various issues using a variety of adaptive responses, without making an immediate commitment. As a result, the adolescent has the opportunity to grow and establish his or her own unique and positive sense of self. Not all adolescents, however, successfully adapt to adulthood. Insight into the development of a hardy personality would

not only provide a basis for identifying hardy adolescents who cope successfully with stressful events but also for confronting stressful situations in the future. This study will be directed toward an understanding of adolescents and their transition into adulthood through the investigation of the differential impact of stressful life events on adolescents and on the development of a hardy personality style.

Conceptualizations of the Stress-Illness Paradigm

In the past the concept of stress, itself, was the focus of investigation. Classically defined, stress refers to "the nonspecific response of the body to any demand made upon it (Selye, 1956). Conceptualizing stress in this manner led to an empirical diversity that can only be classified as confusing (Mason 1975). Stress has been looked at in terms of a stimulus, a response, as a state-trait variable and as both behavioral and physiological arousal (Glass, 1977), depending upon the orientation of the investigator.

One major area of research (Dohrenwend and Dohrenwend, 1974; Holmes and Rahe, 1967; Paykel, 1974) concentrated on the impact of stressful life events upon the person. These investigations, arising from a sociological/epidemiological viewpoint, aimed to understand whether the stressfulness of an event was a function of the amount of change required regardless of whether the change was for the better or the worse (Holmes and Rahe, 1967). Statistically significant relations between a quantitative index of the amount of change entailed in recent life events and problems or disabilities ranging from myocardial infarction and childhood leukemia to poor teacher

performance and low grades were reported.

A major finding of the stressful life event research was that the occurrence of each event was usually associated with some adaptive or coping behavior (Holmes and Masuda, 1974). Holmes and Masuda state that "life change events, by evoking adaptive efforts by the human organism that are faulty in kind and duration, lower bodily resistance and enhance the probability of disease occurrence" (p.67). As a result, research efforts were directed toward inquiries into qualitative factors. Research questions concentrated on the specification of the kind of life events that affect specific disorders (Paykel, 1974; Theorell, 1976), the desirability/undesirability of the stressful event (Ross and Mirowsky, 1979; Vinokur and Selzer, 1975), and whether the stressful component was the change itself or the desirability of the change (Dohrenwend, 1973; Mueller, Edwards, and Yarvis, 1979). At present, the studies have provided inconclusive results suggesting that future investigations should avoid asking which dimensions or aspects of life events are or are not generally stressful (Hinkle, 1973). Rather, efforts should be toward assessing the relationship between particular aspects of life events (e.g., positive or negative events) and specific health indicators (Dohrenwend and Dohrenwend, 1981). It is important, however, to recognize that items used to measure both the stressful events and the illness outcome may result in artificially inflated correlations (Thoits, 1981) because of overlap between life events and illness.

Stress has also been defined as response(s) (affective, behavioral, physiological) to unusual or aversive stimuli in the environment. As we go up the phylogenetic scale, however, stress reactions occur more as a product of value-

laden social and cultural cues associated with external stimuli rather than with the intensity of the stimuli (Glass and Singer, 1972). From this perspective, the above definition of stress has one major oversight, the exclusion of cognitive mediation factors. Lazarus has proposed (1966; 1975) and, for the most part, developed a framework for a transactional model of stress including these factors (Lazarus, Averill and Opton, 1970; Lazarus and Cohen, 1977); Lazarus and Launier, 1978; Roskies and Lazarus, 1980).

This perspective places emphasis on cognitive appraisal and coping processes. When confronted with some external stimulus, an individual's initial response is to appraise the source of information and distinguish the potentially harmful from the potentially beneficial or irrelevant (primary appraisal). The individual then begins to mobilize her/his resources (secondary appraisal) compiling a range of alternative responses available for mastering the threat or achieving beneficial results (coping responses such as avoidance and direct action). These responses are often followed by a reappraisal, which refers to a change in the original perception. Such reappraisal is a reaction to ongoing conditions, taking into account both external and internal cues which influence the subsequent situational response (coping efforts). Continuous transactional processes may occur over a number of repetitive phases until the goal is reached (i.e., of mastery, achievement, or avoidance). Thus, appraisal and coping influence each other throughout an encounter. Stress is precipitated, therefore, not by noxious environmental stimuli as with Selye's General Adaptation Syndrome, but by an individual's perception of and psychological reaction to stimuli. It occurs as the result of "demands that tax or exceed the resources of

the system.....demands to which there are no readily available or automatic adaptive responses" (Lazarus and Cohen, 1977:109).

One traditional view of stress reflected in this transactional definition is that of stress as a by-product of an unusual situation, a situation in which routine or automatic responses are inadequate. Conceptualization of stress as involving some out-of-the-ordinary circumstance is no longer tenable. Our society is constantly changing and lurching from one "crisis" to another. Values and roles seen to be constantly under scrutiny. Social institutions such as the church and the family, which previously provided some sort of structure/order and psychological security, have and are continuing to fade in strength. These social conditions, considered individually, in combination or combined with other instabilities result in a rapidly decreasing number of situations in which routine or automatic responses are adaptive. Roskies and Lazarus (1980) state that "in psychology, one can no longer speak of the complete absence of stress, but only of variations in its intensity and quality" (p.40). But even though stress is the norm, not every person is detrimentally affected - physically, psychologically or socially (Antonovsky, 1980).

As a result, the coping processes developed and used by individuals play an increasingly important role in their ability to deal with stressful circumstances. Lazarus (1966) draws a distinction between coping strategies and coping styles. Coping strategies are responses that occur within the context of a particular situation. Coping styles refer to characteristic modes of responding to stressful events that show some degree of consistency within the individual across different situations.

A number of research studies have focused on coping styles by looking at the interaction between behavioral and physiological reactions. The focus has been on a particular manner of reacting to a stressful situation identified as the Type A behavior pattern (Rosenman and Friedman, 1959). The Type A behavior pattern bears a reliable, prospective association with the clinical manifestations of coronary heart disease (Dembroski, Weiss, Shields, Haynes, and Feinleib, 1978) but is limited in that it lacks specificity. Specificity, derived from an epidemiological orientation, refers to the fact that the current measures of Type A falsely identify many individuals as being coronary prone when, in actuality, they never develop the disorder (Krantz, Glass, Schaeffer, and Davia, 1982). A similar problem persists in research relating Type A behavior and biological responses believed to underlie cardiovascular dysfunction -- the association appears reliable, but a significant portion of the variance is left unexplained (Contrada, Wright and Glass, 1986). As a result, efforts have been made to improve epidemiological specificity and to increase precision in the prediction of pathogenic responses culminating in illness. One approach has been to consider the impact of personality.

A Review of the Hardiness Literature

Definition

According to Maddi and Kobasa (1984), the individual receiving high hardiness scores appears to be ready to confront anything including an uncertain, strenuous future; is able to work with others (family, peers, coworkers) to solve problems and carry out other mutually satisfying interactions; feels comfortable

with him- or herself and being alone; had supportive and encouraging parents; and, is mentally and physically healthier than her/his low hardy individuals. The low hardy person, in comparison appears vulnerable; is dependent on others yet seems to be afraid of intimacy; frequently complains about life circumstances; had parents who were more critical and demanding; and, is mentally and physically inferior to high hardy individuals.

The hardiness construct emerged from an existential theory of personality (Kobasa and Maddi, 1977). This theoretical approach has produced two basic premises particularly relevant to stress research: 1) personality is seen as continuously changing and 2) personality is critically involved in a person's ability to thrive on ever changing situations by confronting, shaping and utilizing them. Three existential concepts represent this orientation to stress: commitment, control, and challenge.

Commitment is the ability to believe in the value of oneself and what one is doing rather than feeling alienated. As a result, there is a tendency to involve oneself fully (i.e., "find some reason why its worth getting involved" Maddi, 1981) in the many situations of life, including work, family, interpersonal relationships, and interactions with social institutions such as the church or school.

Commitment to self provides a sense of purpose which moderates the perceived threat of a stressful life event in many life situations, including threats to one's view of self. The committed person knows not only what he or she is involved in but also why the involvement was chosen. With commitment comes a self-understanding, a realization of one's goals and priorities and a confidence/satisfaction with ones ability to make decisions and choose values.

This self understanding supports and revitalizes the internal structure and strength that theorists (White, 1959; Coelho, Hamburg, and Adams, 1974) consider important for accurate appraisals and the subsequent selection of coping mechanisms. However, commitment extends beyond self-esteem or personal competence. Committed persons have a sense of community, a responsibility for "being with others"; and they benefit from both the knowledge that they can turn to others in stressful times if they need to as well as the sense that others are counting on their not giving up under pressure. Antonovsky (1979) calls this sense of community the most fundamental interpersonal resource a person can have for successful coping with stress. Both the inner and other directed aspects of commitment act as deterrents to the adverse (e.g., illness provoking) effects of stress.

Kobasa (1982b) describes control as the tendency to believe and act as if one can influence the course of events. Individuals having control explain an event in terms of their own responsibility rather than the actions of others involved or unfortunate effects of fate. Control has been demonstrated to mitigate the effects of stress in many experimental investigations (Averill, 1973; Glass, Singer, and Friedman, 1969; Lefcourt, 1978; and, Seligman, 1975). Feelings of control allow individuals to perceive numerous stressful life events as predictable consequences of their own actions and under their direct manipulation. Averill (1973) states that, in the face of any stressful life event, a person benefits from autonomy and intention, for these characteristics provide a sense of efficacy which permits the interpretation and incorporation of various events into an overall scheme, rendering them less intrusive.

Challenge has two components. One is based on the belief that change rather than stability is the normative mode of life (Csikszentmihalyi, 1975). The other is that change provides an opportunity and incentive for personal growth, rather than a threat. Challenge induces people to take active roles in shaping their environments and to practice dealing with the unexpected through their search for new and interesting experiences.

The three hardiness components are interlocking and act, in combination, as a stress resistance resource.

Hardiness exerts its stress buffering effect through the individuals coping processes. Those who are high in hardiness tend toward transformational coping. Transformational coping involves altering events so they are less stressful. This is accomplished by thinking about events optimistically and dealing with them in a decisive manner so as to change them into a less stressful form. Those who are low in hardiness engage in a regressive coping style. Instead of trying to change stressful events, the practitioner of this coping style thinks about the events pessimistically and acts evasively so as to avoid contact with the adverse stimulus. This is not to say that regressive coping is always ineffective. Distracting oneself may reduce stress and strain initially; however, the pessimistic attitude persists, and in the long run is not effective because nothing is done to transform the event.

Role of Hardiness in the Stress-Illness Paradigm

The hardy personality style has been investigated in a series of studies and has been found to buffer the illness inducing effects of stress. Retrospective

studies (Kobasa, 1979a; Kobasa, Maddi and Pucetti, 1982) have shown that individuals with low hardiness scores have been more likely to develop somatic disease even though the frequency with which stressful life events occur did not differ and the objective stress levels remained relatively constant. Similar results were found using prospective designs (Kobasa, Maddi and Kahn, 1982, Kobasa, Maddi and Courington, 1981; Kobasa, Maddi, Pucetti and Zola, 1985).

Hardiness also has been examined in relation to alternative sources of stress resistance. Investigations of the effects of hardiness and exercise (Kobasa, Maddi, and Pucetti, 1982) and the effects of hardiness and constitutional strength (Kobasa, Maddi, and Courington, 1981) on the stressful life events - illness relationship reveal independent action of the stress resistance resources. In addition, Kobasa, Maddi, Pucetti, and Zola (1985) found that when there are none, one, two or three stress resistance resources, the level and probability of both concurrent and prospective illness drops in a regular and marked fashion. These results emphasize the importance of multiple resistance resources. However, estimates of relative effectiveness indicate that hardiness is the most important stress resistance resource.

All studies with the exception of one (Kobasa, 1982b), reported hardiness as a stress resistance resource. Examination of the effects of hardiness on the stress - illness relationship in military officers revealed that the challenge component of hardiness increased illness. Contrasting with business executives, attorneys, and managers, these army officers exhibited extremely large stress - illness correlations while simultaneously demonstrating the lowest hardiness levels. Kobasa (1982b) proposes that this inconsistency may be accounted for by

the occupational ideology (i.e., role expectations, social climate) inherent in a military setting. This explanation indicates that one's social environment may exert an important influence on the stress buffering effect of hardiness. A closer inspection of this finding is necessary.

More recently, criticisms concerning research on the hardy personality have been posited by a number of investigators. Carver and Scheier (1987) conducted a study investigating the impact of using a positive approach to coping with undesirable situations. Although their primary focus was on the presence of an "optimistic outlook", they included alternative but similar concepts such as self-esteem and hardiness in their measurement. In their conclusions, they note the problem of a lack of consistency across measures of hardiness in different studies. In almost every investigation, a different form of the hardiness scale was used.

Hull, Van Treuren and Virnelli (1987) also point out this methodological problem in the measurement of the hardy personality and expand their criticisms into the theoretical domain. They feel that before research on the role of hardiness as a predictor of health outcomes proceeds it is critical to address: 1) how hardiness is to be measured; 2) whether hardiness should be treated as a unitary phenomenon or as three separate phenomena associated with commitment, control and challenge; and, 3) whether hardiness has direct effects on health or indirect effects by buffering the impact of stressful life events. Following a review of the literature and conducting an investigation into the psychometric properties of both the long and short forms of the hardiness scale (Kobasa and Maddi, personal communication, 1988), they make several conclusions: 1) hardiness is not a unitary phenomenon, but should be treated as

involving three separate components; 2) that only commitment and control have adequate psychometric properties and are systematically related to health outcomes; 3) that lack of control and lack of commitment have direct effects on health because they are psychologically stressful; and, 4) that when buffering effects of commitment and control are found, they are in addition to the direct effects and are situation specific (Hull, Van Treuren and Virnelli, 1987).

Nevertheless, the hardy personality has also been shown to demonstrate its effectiveness as a stress resistant resource. Following a structural equation approach, Roth, Wiebe, Fillingim and Shay (1989) suggest that the health effects of hardiness may actually be mediated by the occurrence or interpretation of stressful life events. The mediation effect could be accounted for by several possible mechanisms: 1) hardy individuals may simply experience fewer negative life events or 2) hardy individuals may possess a cognitive style such that troubling life events are interpreted less negatively and thereby rendered less harmful. Findings supporting stress appraisal processes as a mediator of the relationship between hardiness and health were reported by Rhodewalt and Zone (1989). Furthermore, Rhodewalt and Agustsdottir (1984) found that low hardy individuals rated life-change events as less positive and controllable than high hardy individuals. And, Allred and Smith (1989) demonstrated that high hardy participants make more positive self-statements in response to evaluative threat than do low hardy participants.

Although inconsistent, the results of research investigating physiological correlates of the hardy personality also indicate the role of hardiness in the prediction of health. Lawler and Schmeid (1987) found female secretaries who

were low in powerlessness (i.e., high control) to be physiologically less reactive to a laboratory stressor than were those high in powerlessness. Similarly, in men, Contrada (1989) found that high hardy subjects demonstrated reduced diastolic blood pressure responsivity to a mirror-tracing task. In contrast, Allred and Smith (1989) found that high hardy male subjects displayed higher systolic blood pressure responses to evaluative threat than did low hardy male subjects.

It has also been suggested that the stress-moderating effects of hardiness are less pronounced among women compared to men (Holahan and Moos, 1985; Schmied and Lawler, 1986). Questioning the conceptual basis of hardiness, Rhodewalt and Zone (1989) found beneficial health effects for hardiness among a sample of women. Their results indicate that non-hardy subjects appraise a significantly higher proportion of their life experiences as undesirable and report that each negative event requires greater adjustment compared to hardy subjects. Dermatis (1989), using a sample of female nurses, also identified hardiness as beneficial to women's health. Hardiness in women, however, was found to be conceptually different from hardiness in men. Thus, the 50 item hardiness scale initially developed on male subjects, may not adequately tap "hardiness" in a female population (Dermatis, 1989). This suggestion was supported by Wiebe (1991) in the first study directly comparing hardiness effects across gender. Hardiness was found to exert similar effects for men and women on both affect and frustration tolerance measures. However, when hardiness (or components) did interact with gender, it consistently exerted protective effects among men and not among women. Wiebe (1991) concludes that the characteristics of hardiness are equally important for men and women, but that the current hardiness scale is

not an adequate measure of the construct among women.

Hardiness also has been shown to be effective in research domains other than health and illness. Maddi (1990) reports that Westman (1987), investigating hardiness in men and women about to enter officer training school for the Israeli military, found high hardy individuals to be more likely to graduate successfully. Furthermore, in a study of high school basketball players measured for hardiness prior to the beginning of the basketball season, Hess and Maddi (1990) found that the higher the hardiness, the better the performance according to a number of success criteria.

Thus, despite inconsistencies in methodology, debates concerning component versus composite scoring procedures and questionable generalizability practices, hardiness, directly or indirectly, tempers mental and physical health. And, its more recent application in areas beyond "health and illness help to establish hardiness as a general aspect of personality" (Maddi, 1990: p.139). Further, the stress resistant effect of the hardy personality appears to be exerted through a transformational coping process whereby negatively perceived events are actively confronted, analyzed and reacted to. It therefore, represents a positive approach that allows stressful events to become opportunities for personal growth. One portion of the life span providing a rich arena for investigating the hardy personality is adolescence, particularly considering the naturally occurring biological and psychosocial sources of stress and the patterns being established for future life choices.

Overview of Adolescence

In our culture, adolescence extends for nearly a decade. This prolonged transition from youth to adult status has evolved with advances in modern science and technology. In more "primitive" societies, the transition period is usually shorter. In these societies, the young person undergoes "rites of passage" involving a name change, a symbolic ceremony or a challenge at puberty, followed by a year or two of social apprenticeship and then acceptance as an adult. This difference in the developmental process is at least partially due to the impact of the immediate social and economic milieu. Adolescence is the period when the individual attempts to confront and master the existing social pressures by establishing a balance between internal and external values. Thus, in less complex cultures, the skills required for adult life can be mastered without the benefit of a lengthy education (Craig, 1986).

Adolescents are extremely sensitive to the society around them - its values, its political and economic tensions, and its unwritten rules. Keniston (1975) sees the problem of most adolescents as arising from a "tension between self and society" (i.e., a lack of fit between who they feel they are and what they feel society wants them to be). Adolescents try to incorporate rules, values and boundaries instilled from prior development with the realities of the world in which they live. They try to cope with the resultant tensions by redefining and transforming themselves using various adaptive and maladaptive mechanisms. Where previously one could seek answers from family, friends, reference groups and significant others, the young people of today, frequently find uncertainty, conflicting values and social disorganization.

Adolescence and Stress

Adolescence is sometimes assumed to be the "stormiest" and most stressful period of development due to the extraordinary intrapersonal changes, multiple interpersonal conflicts, and marked societal demands upon the individual for the successful completion of significant developmental tasks (Garmezy, 1981). One especially important aspect is that the events that occur, the new learning, the emotional involvements and the growing sense of self have never occurred before and never will in quite the same way again (Newman and Newman, 1979).

Developmental processes

Two major types of naturally occurring events, biological (e.g., the assumption of roles related to sexuality) and psychosocial (e.g., academic, occupational, interpersonal, and social responsibilities) are major transitions that can bring discomfort and emotional distress (Garmezy, 1981). They can be considered as stressors because significant adaptation is needed to restore a sense of inner harmony and homeostasis to the adolescent.

Biological factors. Biological changes in adolescence include a marked increase in the rate of growth, changes in body size and strength, rapid development of the reproductive organs, and the appearance of secondary sex characteristics. Some of the changes occur universally but most are sex specific. Males and females develop at different rates with girls rather uniformly experiencing extensive biological changes nearly two years before boys (Tanner, 1971). Moreover, there is a great deal of variation in the rate of development among members of the same sex. Individual differences and sex differences in physical growth are considered as contributors to individual variability. And,

because they are considered a marginal group (i.e., neither children nor adults), adolescents can be extremely intolerant of deviation whether it be in body type (i.e., obesity) or maturation (e.g. late bloomer) (Craig, 1986). Selman (1976) has been able to chart a series of developmental changes regarding children's ability to take the perspective of others toward their self. Children tailor their activities so as to make certain impressions on others. They have an image which they wish to project. Consequently, they become vulnerable to being humiliated or shamed if they behave in public in a way that is not seen as consistent with their desired image. They take great pains about their appearance and they become skilled at devising a cover story which will rationalize any discrepancies between how they want to be seen and the way they fear others may interpret their actions. These perceptions are heightened by the media and their marketing of the ideal image. As a result, the psychological consequences of biological growth in adolescence may impact on personality and levels of stress and anxiety.

Psychosocial factors. The interaction between the individual and his or her environment creates a mutual network or psychosocial system. According to Newman and Newman (1981), the person brings certain resources and needs to her or his social environment and the social environment provides resources and makes demands on the person. For survival, the individual's needs must be met. In turn, insuring survival of the social system or group, the person must make the commitment necessary to maintain group values and skills (Kelly, 1968). Thus, resources are used and replaced in an alternate form. For example, in the educational process, learning, encouragement and opportunity are provided by the adolescent's school/teachers and, in turn, time, energy and commitment are

returned by the student. Both the person and the social group must be able to change and adapt to maximize the chances for continuation and growth (Moos, 1976).

Psychosocial changes resulting in stress may originate from a number of sources including, a heightened sexuality, a growth of peer attachments and intimacy; the striving to achieve autonomy from and reduce dependency on parents; the assumption of specific gender roles; or the heightened search for personal conflicts and societal demands. These potential psychosocial stressors can best be exemplified through the adolescent's search for identity.

Theoretical approaches to adolescence and stress

Erikson. Erikson's psychosocial theory (Erikson, 1959; 1968) presents two major assumptions concerning development. Following a stage approach, Erikson states that individuals, at every life stage, have the ability to contribute to their own growth. They can confront, understand, organize and integrate their experiences allowing growth, not just be the passive recipients of social and environmental forces. He further states that the individual's social and cultural group directly influences the direction of personal growth. The goals and expectations of those around an individual and the opportunities available actively contribute to development. In psychosocial theory, the concept of crises refers to the individual's psychological efforts to adjust to the demands of his or her environment. Coping refers to the active efforts an individual engages in to resolve stress and to create new solutions to the challenges of each developmental stage (Erikson, 1959).

Erikson considers identity formation to be the major task that adolescents

must address and resolve in order to make a thorough and successful transition into adulthood. Establishment of an identity gives adolescents an integrated specification of what they will do with their bodies, their sexuality, their minds, their relationships and their morality. For the first time, the adolescents see themselves as having a past and a future that are exclusively theirs.

The establishment of an identity serves as an anchor that allows the individual a sense of continuity in social relationships. Each adolescent must find an orientation to life that fulfills the attributes of self and, at the same time, is consistent with what he or she appears to be to others.

Thus, in addition to the emerging integration of self, Erikson postulates a cultural component to identity. The emerging self reflects the roles and accompanying expectations that individuals are involved in as well as the roles and expectations that they plan to become involved in. Identity must reflect some of the value orientation of the individuals reference groups/significant others and it must reflect some of the value orientation of the culture.

As young people age, they find that family, friends, teachers, their ethnic group and the culture maintain certain expectations for behavior such as being toilet trained, going to school, working, starting a family, voting, etc. These expectations present the individual with relatively predictable periods of conflict that must be accommodated into a person's identity for successful and healthy development. Crisis periods occur when the person's skills and capabilities are newly acquired necessitating a substantial reorganization or adjustment for the individual and her or his social environment. Erikson proposes nine stages of development across the life span. The effects of adjustment to these psychosocial

crises are reversible though cumulative in that the person's manner of adjustment at each developmental stage affects the way he or she handles the next conflict. The nine stages of development, the expected time frame and the positive and negative ways of resolving the crises associated with each stage are presented in Appendix A. Erikson's concept of normal or expected life crises has three implications according to Newman and Newman (1981). First, they suggest that anxiety concerning the ability to succeed at resolving conflicts is a routine part of the life and it is this anxiety that leads to growth. From this viewpoint, anxiety can be seen as negative, signalling a danger or threat or as positive, acting as a motivational force. It also suggests that the resolution involves a balance between the positive and negative forces. And, by learning how both the positive and negative factors contribute to development or growth, anxiety helps people to develop more fully. Finally, the third implication is that positive resolution or previous conflicts provide an experiential basis which may lead toward an easier resolution of subsequent crises.

Maddi. Following an existential perspective, Maddi (1981) also proposes a positive growth orientation for adaptive personality development. Based upon his research of the hardy personality style, he has proposed that as the result of child rearing practices and/or family dynamics, (e.g., parents or adults who were supportive, yet set limitations), individuals will emerge from childhood with rudimentary tools for coping successfully. And although these basic tools are untested and non-individuated, adolescence, with its natural stresses (e.g., biological, psychosocial) in combination with the freedom from parental influence, provides a fertile ground for testing what has been learned in childhood. As in

the hardy adult personality style, the multiple changes provide important learning experiences. Maddi (1981) suggests that direct attempts to reduce the number of experiences occurring is not helpful. Adolescents should not be subjected to overt efforts aimed at reducing stress because change acts as a stimulus to development and growth. Help from adults (parents, teachers, etc.) should be indirect, through modeling and the provision of relevant ideology emphasizing that one should expect that life by its very nature is a changing phenomena and that "the person's own capabilities of symbolization, imagination, and judgment are helpful in interpreting and using these changes effectively. Ultimately, the child should come to value the struggle to grow and develop" (Maddi, 1981). If the rudiments of hardiness are in place, the adolescent will benefit from the multiplicity of changes encountered during the transition into adulthood. A consolidated and individuated style of hardiness will have evolved, providing the young adult with a means of coping with external pressures in a positive or healthy manner.

One social change directly impacting on the individuation of personality at this time is the increasing influence of one's peers. Maddi (1981) feels that peer group influences are generally toward regressive (avoidance) coping rather than a positive or transformational type of coping because adolescence is an inherently stressful time and many children do not experience sound early development. Thus, many adolescents tend to be easily influenced by their peers. The interpersonal signs of avoidance coping are being overly dependent on the approval of others, insistence on static relationships, intolerance of unusualness, absence of intimacy, and alcohol and drug abuse. In both interpersonal and

social relations, the adolescent may temporarily slip into such a regressive pattern of coping.

Stress Research in Adolescence

Background

Confronting situations that are potentially threatening, challenging or, in general, stressful is typical of the developmental process. From early childhood, individuals encounter stressors requiring action and adaptation. And as the individual moves from one chronological age to another, from one historical or social era to another, or from one geographic area to another, expectations change. Individual behaviors and ideological stances need to be reconsidered or changed to maintain social acceptance.

Parents are usually seen as the most important people in the life of adolescents. Nevertheless, when the adolescent begins searching for an identity and begins to exert autonomy, peers also play an important role. Often the roots of stressful experiences are found in the disparity between the values of the adolescent peer culture and familial values. The adolescent peer group provides emotional support for questioning, and sometimes rebelling, against adult standards. Although this developmental process may be extremely stressful due to its potential for disrupting functioning and its effects on subsequent development, adolescents learn what is socially rewarding and what best suits their own needs (Craig, 1986).

Stress research in adolescence is currently characterized by its diversity. Early studies of stressful life events concentrated on children and for the most

part were downward extensions of the Holmes and Rahe (1967) Social Readjustment Rating Scale (Coddington, 1972a, 1972b; Garmezy, 1983). Like all life events scales, development was based on a theoretical model of stress that assumes that life events create changes requiring the individual to adapt and/or readjust. Moreover, it is believed that some events are more stressful than others. As a result, the change required for more traumatic and undesirable events is far greater than for minor or less significant events. These views of adaptation emerge from the seminal work of Cannon (1929) and Selye (1956). However, questions concerning the types of stressful life events, both qualitatively and quantitatively, have arisen.

Salience of stressful life events

Elias, Gara and Ubriaco (1983) reviewed evidence suggesting that children entering middle school are undergoing a life transition with considerable stress-inducing and pathogenic properties arising from the institution's routine procedures. In addition, they pointed out that transitions between social institutions (i.e., entry into intermediate/junior high schools and high schools) involve nodal developmental periods during which children are subject to adaptational challenges that tap their coping skills (Moos, 1984). Since no previous studies had been conducted systematically to identify salient clusters of stressors or necessary coping skills, they initiated a study based on a life transition framework of 158 sixth-graders approximately four weeks into their entry into middle school. Their findings provide a greater differentiation in the nature of stressors encountered by children experiencing transitions into new environments and identify important time factors influencing the salience of the stressors.

Support for the negative impact of social-environmental factors on the mental health of adolescents was found by Brooks-Gunn and Warren (1989). Their research was a preliminary investigation aimed at determining whether internal or external pubertal changes and whether social or biological factors were more likely to be associated with negative affect. Based on 100 non-minority females aged 10 to 14, they report that social factors (i.e., negative life events) accounted for more variance (8% for depressive affect and 18% for aggressive affect) than pubertal factors as predictors of negative affect. Furthermore, social factors together with interactions accounted for more variance than pubertal factors. The combination of negative life events with the pubertal status measure and with the social stimulus (menarcheal status and breast growth, 9%) accounted for 17% of the variance in depressive affect. Higher amounts of variance were explained for aggressive affect - 18% by negative life events and 15% by the interaction of negative events and a hormone associated with the onset of puberty, dehydroepiandrosterone sulfate (DHEAS). Brooks-Gunn and Warren conclude that it appears that environmental factors may overshadow hormonal activation in young girls.

Gersten, Langner, Eisenberg and Orzeck (1977) take the stress-disorder relationship one step further by refining the type of social factors predicting stress and strain. They determine that an imbalance in the desirability or undesirability of events, not the amount of change or readjustment required is the crucial component for producing antisocial stress responses such as self-destructive tendencies, conflicts with parents, fighting and delinquency in adolescents. They were not, however, able to replicate this link between life events and behavioral

disorders in a longitudinal follow-up study.

Partial support for the frequency of undesirable events as the key factor in the link between stressful life events and health was also provided by Hotelling, Atwell and Linsky (1978). Using physical health as the outcome measure, they determined that frequency of life events, especially undesirable and/or events with ambiguous impact were related to seriousness of illness. In addition, Vaux (1981) also found a statistically significant relationship between the number of life change events in the recent past and both physical and psychological symptoms (e.g., tension, sleeplessness, headaches and colds and anxiety) and behavioral symptoms (e.g., school absence, frequency of smoking cigarettes, excessive drinking and use of marijuana).

At best, however, only moderate correlations between stressful life events and psychological and behavioral disorders has been found (Compas, Davis, Forsythe and Wagner, 1987). It appears that individual difference factors related to coping with stress may influence the stress-disorder relationship for adolescents as for adults.

Individual differences in the stress-health relationship

Presently, there is a growing concern to identify "protective" factors -- those attributes of persons, environments, situations, and events that appear to temper predictions of illness based upon an individual's at-risk status (Rutter, 1979). "Protective" factors provide resistance to risk and foster outcomes marked by patterns of adaptation and competence. Three studies approaching the stress - illness relationship from different orientations outline the variables found to be associated with stress resistance below.

The first set of studies (Rutter, 1975a; 1975b) follows an epidemiological approach to a study families on the Isle of Wright and inner London. A number of protective factors which ameliorated a child's risk status were identified. These included positive temperament factors (e.g., flexibility of response, a positive mood), gender (girls less vulnerable than boys), warm parental/child interaction, and an encouraging school environment that enhanced a child's values and competencies. Rutter summarized these factors into three categories: 1) positive personality dispositions, 2) a supportive family milieu, and 3) an external social agency that functions as a support system for strengthening and reinforcing the child's coping efforts.

The second set of studies entailed a literature review that has been presented through several articles (Garmezy, 1981; Garmezy and Neuchterlein, 1972). These researchers located studies of competent black children in the urban ghettos who had been exposed to the stressors of poverty and prejudice. Their results support and expand upon Rutter's (1975a, 1975b) triad of stress resistant factors. The predominant factors were individual differences among the children. Resilient children were found to have a positive sense of self, self-regard; a sense of personal power rather than powerlessness; internal locus of control and a belief that they were capable of exercising a degree of control over their environment. The dominant cognitive style appeared to be one of reflectiveness and impulse control. Furthermore, teachers and clinicians rated children with resiliency as possessing social skills; they were seen as friendly and well-liked by peers and adults, more socially responsive, interpersonally sensitive, less sullen and restless; lower in defensiveness and aggressiveness and higher on

cooperation, participation, and emotional stability. The other factors associated with stress resistance were family cohesion and warmth (e.g., parental concern toward educating the child, allowing their children greater self-direction and recognizing the child's interest and goals) and the presence of role models or support figures in the environment, particularly in the schools.

A final study was a longitudinal-developmental study conducted by Werner and Smith (1981). They studied a cohort of children born on the island of Kauai, Hawaii from birth to early adulthood. Many of these children when born were at risk by virtue of perinatal stress, poverty, family instability and in some cases, a family history of mental illness. However, most of these children were able to make adequate adjustments in adult life. Once again the triad is stated as the redeeming factors: the child's personality dispositions in infancy and childhood (e.g., whether they were active, socially responsive, autonomous); their family milieu (family closeness, rule setting, supportive parents); and, the presence of external support from peers, older friends, ministers, and teachers.

Werner and Smith (1981) summarize these effects from a psychological perspective: "Central to coping with inevitable stresses may be a sense of coherence, a feeling of confidence that one's internal and external environment is predictable, that probably things will work out, and that, in a sense, we can control our small world". They further state that the most optimistic thing is that even under adverse circumstances, change is possible if the older child or adolescent encounters new experiences with people who give meaning to his life, who give him a sense of fixity, and who tell him that he matters.

Usually, the individual masters stress by reducing the intrapsychic and

affective arousal induced by stressors to a tolerable level by altering the stress-outcome relationship or by removing the threatening event (Caplan, 1981). The adolescent's ability to remove a threat, according to Bandura (1977), is influenced by his or her feelings of efficacy which arise from past experiences as well as from self confidence and self-esteem.

Based on theoretical perspectives, the measurement of successful adaptation relies on the internalization of social values and mores imposed by the family, peer groups and culture as well as on self-presentation as reflected by one's personality (Erikson, 1968). In light of theory as well as the inconsistencies in the research associating life change and both psychological and behavioral outcomes, it appears useful to gain an understanding of the degree of adaptation associated with different personality styles under varying circumstances such as periods of high stress and low stress.

Role of personality in stress research

Research investigating the role of adolescent personality characteristics in specific stressful situations is sparse, despite its apparent global importance. Greenberger, Steinberg and Vaux (1982) examined adolescent health and behavior from the perspective of person-environment fit using youngsters in tenth and eleventh grades. They operationalized person-environment in terms of eight goals relevant to adolescent development. These goals concerned autonomy, social relations, power, achievement, and activity and were measured by weighing the subjects' judgments of the importance of the goal with its ease of access in their environment. They found that although person-environment congruence had little impact on the adolescents' health and well-being, its contribution was

independent of the contribution of life events. One of the reasons for their failure to find impact from their environmental fit factor may be the result of adjustments made by the adolescents when needed goals were thwarted by their environment. The adolescents tended to alter the importance of established goals and consequently describe their environments as meeting their most important needs. In other words, to reduce the cognitive dissonance created by the prevention of goal attainment, the youngsters adjusted their ratings of importance and ease of environmental facilitation so that their reported congruence would be positive or more socially desirable. Furthermore, Greenberger, Steinberg and Vaux (1982) feel that negative congruence (i.e., the degree to which the environment puts constraints on personal needs or goals) rather than person-environmental fit is the crucial factor in health and behavioral disorders.

These findings support the theoretical assumption that coping with stress is a reciprocal process, part of an interactive, ongoing transaction between the individuals behaviors and the external and internal environment (Roskies and Lazarus, 1980). This model presumes that the individuals actions change the environment which in turn becomes the context for subsequent action (Lerner and Busch-Rossnagel, 1981). Two personality characteristics particularly relevant to person environment research are self esteem, a self evaluation concept and hardiness, a stress resistance resource.

Self esteem. During adolescence, there is a gradual transition from concrete operational thought to formal operational thought. In this phase, analytical and abstract thinking processes are developed and applied to more complex problems arising from expanded experiences in a variety of roles,

increased self-awareness and an awareness of the importance of future events. Thus, the conceptual gains of adolescence should contribute to a changing self-concept.

The self concept is a cognitive conceptualization that everyone formulates about themselves which includes the body self, the social self and values (Epstein, 1973). The process of forming a self concept takes place through learning and therefore is subject to environmental rewards and punishments as well as cognitive evaluation. The learning occurs from the integration of the self's physical, physiological, cognitive and social encounters with the successes and failures experienced. These experiences help the individual become aware of the limitations of his or her competencies and helps to steer individuals into life styles and behaviors that combine maximum chances of success with maximum rewards. The self concept also acts to steer the individual away from activities in which he or she is less likely to achieve success or to receive satisfying rewards. Behavior is directed toward the selection of social situations and the resolution of conflicts in a manner consistent with the established conceptualization.

McCandless (1970) proposed three components of the self concept: structure, function and quality. The structural component refers to descriptive terms concerning the self such as flexible or rigid and simple or complex. The function of the self concept is to act as a motivational force. It includes self evaluation, self actualization, the determination as to whether behavior will be inner or outer directed and the prediction of the activities in which the individual will engage. The third component of self concept is qualitative, an affective reaction to the self generally referred to as self esteem. Self esteem is seen as

the key to a healthy self concept. Since it is the value the individual places on the self-concept, it is related to the views held regarding his or her intellectual and social competencies and, in turn, to how she or he will relate in social situations.

Dusek (1977, 1991) points out that positive self concept as reflected in self esteem is important for an individual's general outlook and mental health. He further suggests that those with high self esteem are generally better adjusted socially than individuals with low self esteem. In addition, research has shown that individuals with low self esteem engage in qualitatively different social relationships than those with high self esteem (Walster, 1965; Jacobs, Berscheid and Walster, 1971; Mecca, Smelser and Vasconcellos, 1989). Specifically, social problems such as child abuse, failure in school, teenage pregnancy, delinquency, chronic welfare dependency and alcohol and drug abuse have been associated with lowered self esteem. The issue of causal direction in the relationship between self esteem and social problems, however, is very complicated. It has not been determined whether low self esteem leads to social problems or involvement in negative behaviors leads to lowered self esteem (Harter, 1989; Mecca, Smelser and Vasconcellos, 1989). Individuals who are low in self esteem also have been shown to suffer from psychosomatic illness, nervousness and insomnia whereas high self esteem individuals are less likely to experience these symptoms (Howard and Kubis, 1964; Harter, 1989).

Thus, the development of a favorable attitude toward the self is an important aspect of healthy psychological functioning. Wylie (1961) found that individuals who are low in self-esteem see themselves as unworthy, helpless and

inferior, as incapable of improving their situations and as lacking the inner resources to tolerate or to reduce the anxiety readily aroused by everyday events and stress (Rogers and Dymond, 1954). Adolescents with low self esteem are prone to a depressive mood (Pfeffer, 1986; Rosenberg, 1986; Harter, 1989). In addition, Dusek (1991) points out that adolescents with low self esteem are especially vulnerable to criticism and rejection because this feedback reinforces their feelings of low self worth and negative views of the self. Scheier and Carver (1984) found that individuals low in self esteem interpret personal experiences and interpersonal behaviors in a less optimistic fashion than those who have a high level of self esteem. Therefore, those low in self esteem may feel threatened or uncertain of a situation and consequently react using unhealthy or maladaptive coping strategies.

The hardy personality. A second study looking specifically at stress experiences, health outcomes and a personality moderator of stress among adolescents is Lewis' (1989) application of the hardiness model. Using a composite scale constructed from dimensions believed to be theoretically relevant to the stress buffering action of the hardy personality style (i.e., goal directedness, confidence/empowered, internality and competence), the impact of personality as a moderator of the stress-adjustment relationship in adolescents was confirmed (Lewis, 1989). Lewis examined differences in post stress symptoms and transient adjustment in nearly 800 pairs of mother-child participants. Perceived competence and goal directedness were found to predict fewer generalized behavioral symptoms as measured by the Achenbach Child Behavior Checklist (Achenbach, 1981). These two dimensions of hardiness also predicted fewer

maladaptive reactions to life events rated as most disturbing by the youngsters and their parents.

Furthermore, a study was conducted investigating the correlates of the hardy personality in adolescents (Morrissey and Hannah, 1987; Hannah and Morrissey, 1987). They administered the 20-item hardiness scale (Kobasa and Maddi, 1982a), revised for relevance to an adolescent population (i.e., work related items were changed to school related items), to slightly more than three hundred school children enrolled in grades 7 through 12. Psychometric properties of the scale were minimally satisfactory. The alpha reliability coefficient was determined to be .63 and a .24 correlation providing a measure of concurrent validity was found between the hardiness scale and a measure of well-being. Five variables, age, grade, religion, sex and happiness were regressed on the hardiness scale. All variables, both singly and in combination, were found to be important in the early development of hardiness. They further suggest that the effects of these occur through two potential paths of causality: one through age and grade and the other through religion, sex and happiness.

Statement of the Problem

Assumptions and Limitations

The research reviewed suggests that the hardiness model of stress resistance provides a integrative model for investigating the effects of personality and environmental factors on psychological well-being and behavior in an adolescent population. Paralleling research in adults, diverse methodological and conceptual perspectives emerge from the literature on adolescent adjustment to stress. Some researchers (Coddington, 1972a, 1972b; Gersten, Langer, Eisenberg and Orzeck, 1977) address the impact of stressful life events. Others (Garmezy, 1987; Garmezy and Rutter, 1983; Werner and Smith, 1981), operationalize stress globally (i.e., poverty, family instability, constitutional vulnerability). While research has expanded across domains to include studies on war, sexual and physical abuse, death, divorce, posttraumatic stress (Garmezy, 1987), much of the adolescent research within domains remains cursory. Nevertheless, the research concurs in its support of a significant relationship between stressful events and general maladjustment such as lower grades in school (Grannis, Fahs and Bethea, 1988) and family discord (Gersten, Langer, Eisenberg and Orzeck, 1977). Nevertheless, current childhood and adolescent life event research appears fixated on the methodological debate concerning scaling and the clustering of events (Compas, Davis and Forsythe, 1985; Swearingen and Cohen, 1986) while individual variation in response has been virtually ignored. Although some investigations have explored individual differences in resiliency to stress, most have focused on developmental factors resulting from an individual's

reaction to a specific event or stressor rather than on responsivity to discrete life events or the demands of cumulative change. A review of the childhood and adolescence literature (Garmezy, 1983) identified three factors influencing an individual's reactions to stress: 1) protective factors; 2) precipitators or life events; and, 3) temperament/mood.

Hardiness as a protective factor

Several sources of protection have emerged from the diverse studies of youngsters who have thrived despite chronic stressful conditions. Some of the identified factors are: personal sense of control and positive self regard (Garmezy and Neuchterlain, 1972); internal locus of control and parental supportiveness of autonomy/independence (Garmezy, 1981); ego resilience/ flexibility (Bloch and Bloch, 1980); and social responsivity (Murphy and Moriarity, 1976; Werner and Smith, 1982). These protective factors are summarized by Garmezy into three individual difference dimensions: 1) flexibility vs inflexibility, 2) active vs passive coping and 3) competence vs incompetence. These three dimensions are suggestive of hardiness, a personality variable which in adult males, has been shown to buffer the negative effects of stress on physical health.

As described earlier, the hardiness construct has three components: challenge, commitment and control, which interact in such a way that the hardy individual transforms negative or debilitating events into learning or growth experiences. Individuals having a strong sense of challenge view change as a natural occurrence. Strong control beliefs lead to an active purposeful participation in encounters. These individuals feel they can influence the world around them and attempt to turn situations to advantage. People with a strong

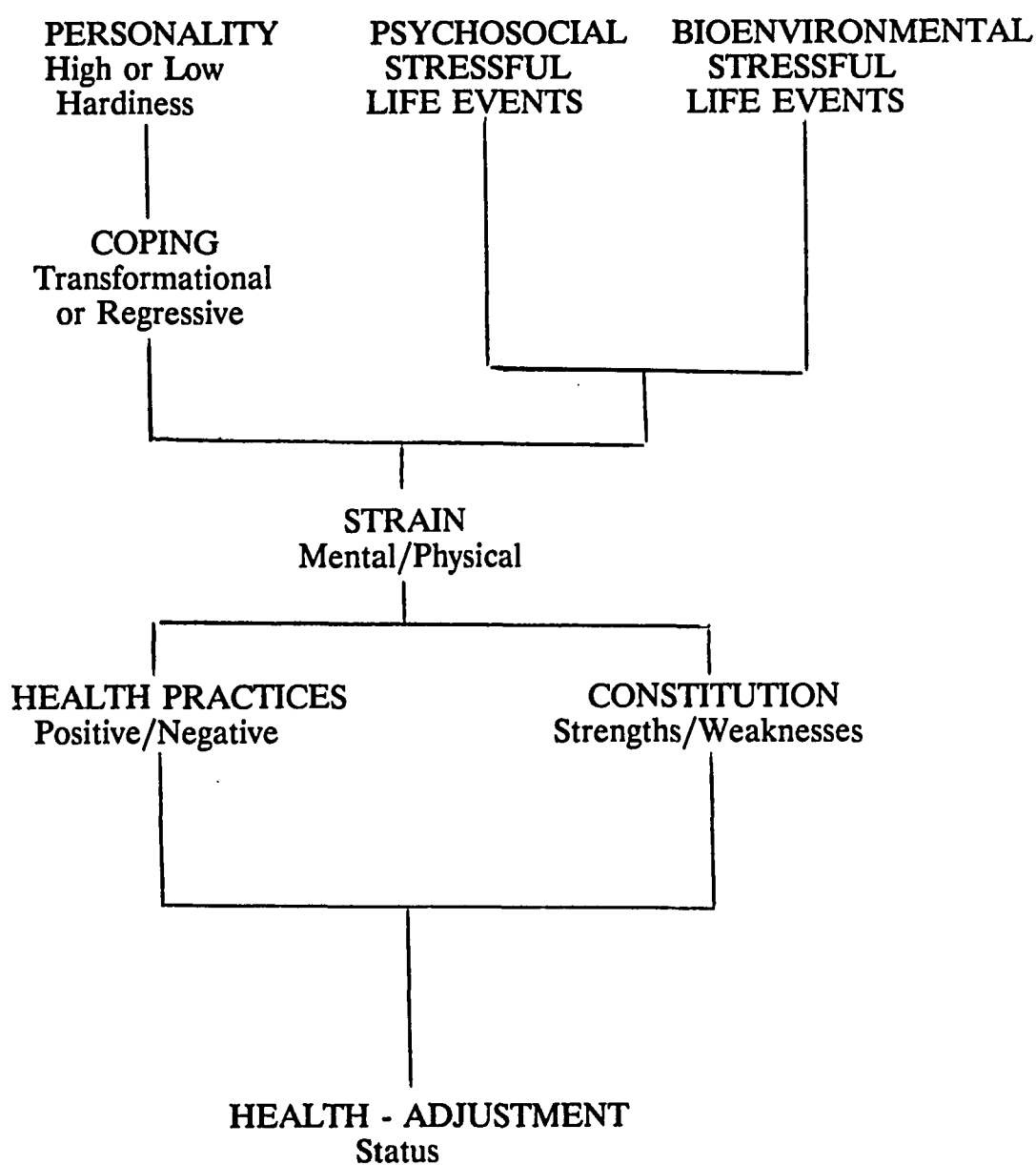
sense of commitment involve themselves in and generally attempt to make the best of whatever they are doing. From these descriptions of the hardiness components, flexibility can be seen as a combination of challenge and control while competence may arise from an interplay between control and commitment. Hardiness, therefore, appears to encompass aspects of protective factors rendering it viable in an adolescent population.

Active coping styles such as the hardy personality reflect the ability to make choices and, consequently, activate a chain of events to restructure adverse circumstances. Theoretically, adolescents, age 12 and over, have the developmental capacity to initiate or use coping skills as those associated with the hardy personality. According to Erikson's psychosocial stages of development, a youngster entering adolescence has already passed through and, to varying degrees, resolved the stages where he or she develops, a sense of confidence and control (autonomy vs shame and doubt), the ability to explore and experiment with the environment (initiative vs guilt) and a sense of competence and self-enrichment (industry vs inferiority). These precursors to the establishment of an identity also reflect the protective factors proposed by Garmezy. One potential problem emerging from the application of hardiness to an adolescent population would involve the point at which the youngster was in the process of developing an identity. A child beginning the process may have the rudiments of hardiness but has not developed the ability to integrate them successfully. On the other hand, an older child may or may not have a completely developed sense of self (i.e., is competent, goal-oriented, has developed a sense of belonging and of future direction) and effective methods of coping.

The model for investigating hardiness and stress resistance in adolescents was presented by Maddi (1981) and Kobasa (1979b). Figure 1 provides the framework by which the health - adjustment continuum will be examined.

Figure 1

A Model for Understanding Health - Adjustment Status



Adapted from Maddi (1981)

A few studies (Daniel, 1986; Schmeid and Lawler, 1986; Schlosser, 1986) have found hardiness to be operational in college-aged students. However, the hardiness survey has never been administered to a sample of early adolescents.

As a result, its generalizability to a younger population is questionable. Thus, revision of the hardiness scale and an investigation of the psychometric properties is necessary so as to provide a foundation leading toward reliable interpretations of hardiness data in an adolescent population.

Stressful life events research

Since Cannon's (1929) demonstration with laboratory animals that emotion-provoking stimuli can produce the physiological and bodily changes required for fight or flight, researchers have studied the effects of various event(s) on physical and mental health. Consistently, life events have been significantly associated with physical and mental health. However, according to Rabkin and Struening (1976), life change has been found to explain at most 9 to 16 percent of the variance in psychological outcomes (i.e., correlations between physical and/or mental health and life events usually are around .30 and rarely exceed .40). These findings have been explained in three ways (Thoits, 1983): 1) a failure to specify the type of events precipitating the outcome measured, 2) methodological problems primarily in instrumentation, and 3) the participants' utilization of efficacious coping responses.

Content of life event scales. The events selected for life event scales frequently include several distinct types of events: role transformations, environmental changes/situations, impositions of pain, permanent and transitory events, voluntary and involuntary events and socially isolating and integrating

changes (Thoits, 1985). Although a cross-sectional representation of events is currently the norm, the event-health relationship may be weakened by combining these various events into a total score (Thoits, 1986). At present, few researchers have systematically chosen specific life events using a theoretical rationale.

At the same time, the sample of events included on stressful life event checklists are not exhaustive. Many stressful events are omitted: socially controversial issues, events that are specific to certain groups such as women, the underprivileged or minorities and events associated with particular occupational groups (Rabkin and Struening, 1976).

Furthermore, the stressfulness of some life events may arise from the undesirability or ambiguity of the item. These types of events tend to lower the correlation between events and health. Other events inflate the relationship between the number of events and the outcome measure. For instance, the inclusion of events that are interrelated (i.e., if one event generates a number of other events and each is scored separately, the overall stressful event total may be inflated) or confounded (e.g., items are indications or potential products of physical or mental illness). The questionable reliability and/or validity of the life events scale consequently requires careful interpretations of results.

Methodological problems. In addition to the reliability and validity of the measurement instruments, the personal qualities and characteristics that an individual brings to the stress interaction are likely to be important factors in the stress - health correlation. Thoits (1983) points out two well-known sources of variation in scores: response styles and sociodemographic variables. These characteristics influence individuals responses and, consequently, contaminate

results. Response styles such as social desirability, the tendency to give a favorable picture of oneself, and acquiescence, the tendency to agree (or disagree) with statements regardless of their content, have been of considerable concern. As a result, the scores on tests of personality or mental health may reflect differences in willingness to admit to having feelings and/or behaving in ways that are socially disapproved as well as true differences in the feelings and behavior assessed. Thus, all aspects of the stress - health correlation may be effected. Other enduring characteristics such as age, sex and socioeconomic status also have been shown to influence the stress - health correlation. Werner and Smith (1982) found age differences in factors influencing coping skills. In a longitudinal study, they found that self-help skills, problem-solving capacities and autonomy distinguished younger children who thrived despite adverse conditions from children who did not cope well. For older children, internal control, positive self-concept and achievement needs were identified as the pertinent discriminators.

Bush and Simmons (1987) conducted a review of gender and coping in early adolescence. They pointed out that previous work on adolescence assumed that the processes of development were the same for boys and girls and that gender differences were attributable to different traits or gender-specific socialization processes. They suggest that gender cannot be regarded so simply because social organization of gender leads to experiences and interactions for women and men that may overlap, conflict or be conceptually different.

Socioeconomic status of the family (e.g. the ranking of parents/guardians on various social and/or financial indicators) also has been shown to be positively

associated with adaptation (Renne, 1970). Families with more resources have better access to information, are more flexible in their reaction to social environmental forces and are usually less preoccupied with the chronic stresses of illness and poor housing. On the other hand, Maddi and Kobasa (1984) state that economic and social advantage is, for the most part, unimportant in the development of personality hardiness. One reason is that the development of hardiness in children emerges from an "atmosphere", a developmentally beneficial environment, rather than a specific type of background.

Purpose of the Study

The purpose of the present study was to assess the effects of stress and hardiness in an adolescent population. The primary goals of the research were: 1) to develop a scale measuring the hardy personality in adolescents; and, 2) to determine whether hardiness acts as a stress resistance resource.

Hypotheses

With a hardiness scale for adolescents demonstrating acceptable psychometric properties (e.g., an adequate level of internal consistency and relatively free of the effects of response styles), the following hypotheses will be tested:

1. Hardiness, among adolescents, will serve as a health enhancing resource. By this, it will have a direct relationship to affective reactions, aberrant behavior, strain, school absence and drug use. Hardiness also will be shown to have a buffering effect on the negative impact of stressful events for

adolescents. Specifically, high hardy individuals will have a lower incidence of strain, demonstrate a higher level of well-being as measured by their affective reactions and aberrant behavior, exhibit less drug use and have higher overall school attendance compared to low hardy individuals.

2. Over and above the effects of sociodemographic factors (e.g., age, sex and socioeconomic status), hardiness will function as a health enhancing resource, minimizing negative affective reactions, aberrant behavior, strain, school absence and drug use.
3. Over and above the effects of social desirability, hardiness will function as a health enhancing resource, minimizing negative affective reactions, aberrant behavior, strain, school absence and drug use.
4. Above and beyond a low intercorrelation with the hardy personality, self esteem will contribute independently to healthy psychological functioning (e.g., affective reactions and strain). For social behaviors (e.g., aberrant behavior, school absence and drug use), however, self esteem will not demonstrate a significant influence over and above the hardy personality.

Summary and Significance of the Research

Adolescence provides one time period in development replete with naturally occurring, multidimensional stressors where one's successful adaptation involves appropriate coordination between the changing self and the changing

context. During this period of experimentation and exploration, young people acquire the intellectual capacity to imagine a variety of behaviors, roles and relationships that they may not have actually experienced. Furthermore, they have the freedom to try out some of these new behaviors apart from the supervision of parents or other adult authorities. Adolescents are also freer to take risks in their behavior and challenge existing social norms since fewer responsibilities are assigned to their age group. For the most part, experimentation helps to clarify the content and the limits of the opportunities available for future growth. At times, however, it leads to unfortunate consequences, both mentally and/or physically. All of these changes constitute potential sources of stress.

Since Coddington's early (1972a, 1972b) study of stressful life events for preschoolers and older children, developmental research has barely touched upon the role of mediator/moderator variables of the stress-adaptation relationship (Johnson, 1986). Only some of what we have learned from the adult literature has been applied to the assessment of stress in youth (Johnson, 1986; Compas, Davis and Forsythe, 1985; Swearingen and Cohen, 1985). Unfortunately, the richness of the developmental literature on stress-resilience in high-risk children (Rutter, 1983; Werner and Smith, 1982; Garmezy, 1981; Murphy and Moriarity, 1976) has not been explored for its generalizability. These limitations are particularly noticeable when considering non-clinical, groups of teenage adolescents.

How an adolescent perceives, reacts to and copes with the multitude of changes that occur during the transition between childhood and adulthood is a

function of many internal and external factors: appraisal processes (Lewis, 1988), personal and social resources (Kobasa, 1979; 1985a), pre-existing vulnerabilities (Murphy and Moriarity, 1976); and controllability of the stressor (Glass and Singer, 1977).

One of the personal resources currently being investigated is the hardy personality style. Hardiness was conceptualized following an existential view of personality theory. From this perspective, the individual has the capacity to evaluate the situation, pull appropriate support services together and restructure the event so that it can be used as a learning rather than a debilitating experience. This optimistic appraisal and decisive action, known as transformational coping, is the key element in ameliorating the negative impact of stressful life events. Although hardiness has repeatedly been shown to act as a stress resistance resource in adults, its application in adolescence has been minimal. Considering the changing psychosocial environment confronting adolescents, research validating a stress resistance resource such as the hardy personality would enrich our understanding of the adaptation process and its associated consequences/successes for adolescents today and for their futures as adults.

Insight into individual differences in the hardy personality in adolescence has implications for the identification of young adults who emerge from a period of instability and change with skills that help them successfully cope with a variety of social situations. Identification of the skills and a fundamental understanding of their association with successful adjustment in adolescence may indicate their importance for clinical programs dealing with maladjusting

youngsters (those who have inadequate or incompletely developed coping skills), may be useful for educational placement and may provide a basis for anticipating future social interactions.

Methodology

Preliminary Analyses

Development of a hardiness scale for adolescents followed a modified version of Jackson's (1971) approach to scale construction. Instead of building the hardiness scale for adolescents from a pool of items representing the hardy construct and its components, the adult version of the scale, the Personal Views Survey (PVS) was adapted for an adolescent population. Two preliminary studies investigating hardiness and the interaction between stress and hardiness were conducted. Appendix B provides a copy of the questionnaires administered in these preliminary investigations.

Revision of the Personal Views Survey

Initially, the hardiness scale was administered to a small ($N = 31$), heterogeneous group of adolescents to determine whether hardiness could be identified and measured in adolescents. Questionnaire items were initially drawn from the 45 item PVS developed on a sample of white middle-class males from the suburban Midwest (Kobasa, 1979b; 1982a). Prior to administration, items were revised to increase salience for a considerably younger sample. First, all work related items were reworded into items pertaining to school (e.g., "I really look forward to my work" was changed to "I really look forward to school"). Items were then reviewed for any gender biases. If an item referred to a particular

gender, it was made neutral. For instance, "I won't answer a person's questions until I am very clear as to what he is asking" was changed to "I won't answer a person's questions until I am very clear as to what is being said". The resulting scale was administered to 31 subjects ranging in age from 10 to 21. In the analysis of responses, eight items failed to produce any variance in responses. These items were either rephrased or dropped and new items were written. An example of a rephrased item was changing "Most of the time it doesn't pay to try hard, since things never turn out right anyway" to "No matter what you do, nothing ever turns out the way you want it to". One of the dropped items was "When you marry and have children, you have lost your freedom of choice". It was replaced by "When you select a high school, you lose your freedom to study anything you want".

Examination of the psychometric properties of the Hardiness Scale for Adolescents

The second preliminary study involved the administration of the Hardiness Scale for Adolescents (HSA) in conjunction with other measurement instruments to determine preliminary reliability and validity estimates in a larger group of adolescents. The data provided were subjected to an exploratory factor analysis intended to serve as a guide for additional revisions in item content.

Subjects. The new sample consisted of 73 New York City Public School students. The majority of subjects were drawn from one district whose students who were attending a school health fair sponsored by the Department of Health. They ranged in age from 10 to 16 and the distribution of girls to boys was approximately two to one. Almost all subjects were from ethnic minority groups

(i.e. Hispanic and Black) and nearly one-third lived in single parent families.

Participants voluntarily completed a questionnaire prior to their entrance into the health fair. The students were assured that the completed questionnaire would be anonymous and that all responses would be kept completely confidential.

Instruments.

1. Hardiness Scale for Adolescents (HSA) - The HSA was developed to measure hardiness, a psychological construct which in adult males is composed of three components: commitment, control and challenge. According to Kobasa (1982b), commitment is a belief in the importance and value of what one is doing. Control refers to the tendency to believe and act as if one can influence the course of events including the making of responsible decisions. Challenge emerges from the belief that change rather than stability is the norm, and as a result, is seen as an opportunity for personal growth or in an optimistic fashion.

Responses to each of the 50 HSA items were gathered using a 6-point Likert-type scale. Values for each item ranged from "not true at all", assigned a 0, to "completely true", assigned a 5. Scoring was conducted by reverse keying negatively worded items and then summing all item values. Thus, providing an overall composite hardiness score with a low of 0 and a high of 250.

Administration time for the hardiness scale in an adolescent population was approximately 20 minutes. The alpha reliability of the HSA, based on the initial administration of the PVS adapted for adolescents, was determined to be .83.

2. Coopersmith Self-Esteem Survey - This instrument was designed to measure self-esteem in school children ages 8 to 15. The School Form, as

currently published (Coopersmith, 1987), consists of 50 items scored on 5 scales: General Self, Social Self-Peers, Home-Parents, School-Academic and the Total Self. It also contains an 8 item Lie Scale as an index of defensiveness. The items comprising the Lie Scale are all answered in the defensive mode ("Unlike Me").

The Coopersmith Self-Esteem Inventory (CSEI) is scored by assigning each positively worded item a value of one for a "like me" response and for negatively worded items, a value of one for an "unlike me" response. These item scores are summed to create a total raw score which is then multiplied by two. The range of scores is from 100 for a totally positive self-esteem score and 0 for a totally negative score.

Kuder-Richardson formula 20 reliability estimates of more than .80 were found (Coopersmith, 1987). A factor analysis was also conducted on the CSEI to determine whether the subscales were measuring what they purported to measure. Kokenes (1974) found that the four bipolar dimensions obtained were highly congruent with the tests four subscales.

The School Short Form, developed through an item analysis of the School Form, consists of item 1 through item 25 of the School Form. Designed primarily as a time-limited version of the longer inventory, it correlates .86 with the School Form. Due to time constraints, the School Short Form, which takes approximately 10 minutes, was administered.

3. Youth Adaptation Rating Scale - The Youth Adaptation Rating Scale (YARS), developed by Beall and Schmidt (1984), identifies the type of events stressful to adolescents and the amount of adaptation they require.

This instrument was chosen as the stressful life events measure because it was designed to measure the causes of adolescent adaptation and therefore included items that were developmentally appropriate to the junior high/intermediate and high school experience. The YARS consists of 61 items identifying potentially stressful situations in the developing adolescent. Each item is assigned a value of 1 for its endorsement, yielding total scores ranging from 0 to 61. As reported by Beall and Schmidt (1984), the test-retest reliability correlation has been determined to be .94.

In the YARS, respondents were asked to indicate whether a event happened or did not happen to them within a specified time period and then to rate the stressfulness of the event on a six-point scale ranging from not stressful to extremely stressful. Thus, both a quantitative (frequency count) and a qualitative (degree of stress experienced) score were collected.

4. Perceived Stress Scale - This scale was constructed to measure perceived subjective stress (Wills, 1984). The 14 item scale indexes typical subjective reactions to stress, including feelings of tension, difficulty in relaxing, time pressure and somatic symptoms. Items were administered using a 4-point response scale to index frequency of occurrence during the past week with 0 representing rarely or none of the time and (less than 1 day) and 4 representing most or all of the time (5 - 7 days). Response totals therefore, could range from 0 to 56. Internal consistency reliability was reported to be high (Cronbach's alphas = .85 to .87) in initial administrations and was comparable in subsequent administrations (Wills, 1984).

5. Center for Epidemiological Studies Depression Scale (CES-D) - The

CES-D was developed for use in a non-clinical population (Radloff, 1977). This is a 20-item scale measuring the frequency or duration of symptoms associated with depression in the week preceding survey administration. Cognitive, affective, behavioral and somatic symptoms associated with depression are assessed by 16 items and positive affect is assessed by four items which have been included to minimize response biases attributable to response sets.

For each item, respondents indicate the frequency or duration with which they experienced a specific depressive feature within the previous week by circling a number from 0 to 3. The values associated with these numbers ranged from "rarely or none of the time" (less than one day), for 0 to "most or all of the time" (5 - 7 days) for 3. The range of totaled scores is from 0 to 60 with higher scores reflecting greater distress.

Reliability as measured by Cronbach's alpha was found to be .84, .85 and .90 for the CES-D (Radloff, 1977). Test-retest reliability was also estimated. Reliability values were similar for two ($r_{tt} = .51$), four ($r_{tt} = .67$), six ($r_{tt} = .59$) and eight ($r_{tt} = .59$) week intervals. Test-retest reliabilities over longer periods of time were also examined. These also yielded similar results, $r_{tt} = .48$ for three months, $r_{tt} = .54$ for six months and $r_{tt} = .49$ for a twelve month period (Radloff, 1977).

6. Social Desirability Scale - The Desirability Scale of the Personality Research Form (PRF) (Jackson, 1974) was used to measure social desirability, a response bias where the individual exhibits a tendency to respond to items in a socially acceptable manner. Whether consciously or unconsciously, accurately or inaccurately, the individual describes him- or herself in terms judged by others to

be desirable rather than as they typically would respond.

Social desirability, has been identified as a major determinant of responses to many personality inventories and its effects need to be identified and minimized in order to accurately interpret the results of personality measures as well as data from other research instruments administered.

The Kuder-Richardson formula 20 reliability estimate is .83 for the Desirability Scale (Jackson, 1974), indicating substantial consistency of responses to the heterogeneous desirability items.

Scoring of the PRF Desirability Scale involves summing questions so that the higher the overall score, the stronger the tendency to respond in a socially desirable manner. Scores range for the current administration from 0 to 75, and can be converted to standard scores or percentile equivalents. Conversion tables are available for males and females separately.

7. Questions concerning demographics and adolescent behaviors including health behaviors (e.g. smoking, alcohol consumption and drugs) and school attendance were administered.

Results. A summary of descriptive statistics for all instruments administered is presented in Table 1. For the most part, preliminary analyses were directed toward initial establishment of the reliability and validity of the Hardiness Scale for Adolescents. Reliability estimates for the hardiness scale and its three component subscales: challenge, commitment and control were obtained. Total scale reliability, using Cronbach's alpha was moderate, $r = .64$. Subscale reliabilities were lower: for challenge, $r = .43$; for commitment, $r = .55$; and, for control, $r = .42$. Nunnally (1978) suggests that acceptable reliability levels should

Table 1
Descriptive Statistics for the Preliminary Survey

	Number of Items	Total Score Range	Mean	SD	Survey Range	Skewness
Hardiness Survey for Adolescents	50	0-250	127.4	21.0	84-180	.13
Stressful Life Events (Youth Adaptation Rating Scale)	61	0-61	43.5	8.7	15-60	-.84
Coopersmith Self Esteem Inventory	46	1-92	32.4	6.4	17-45	-.32
Center for Epidemiological Study - Depression	20	1-80	36.1	9.5	20-66	.82
Perceived Stress Measure	14	1-56	24.8	7.9	14-56	1.43
Social Desirability (Personality Research Form)	16	0-16	9.4	2.2	5-14	.10
Lie Scale (Coopersmith Self Esteem Inventory)	7	1-14	12.2	1.5	8-14	-.68

not fall below .70 during the early stages of scale development and that they should equal or exceed .80's once it has been adjusted for initial limitations. Such low reliabilities for the adolescent hardiness scale necessitated a closer look at the items.

An inspection of the frequency distributions of the 50 hardiness items revealed positively skewed responses suggesting the presence of response bias. Subsequent exploratory analyses employed a factor analytic approach to scale construction.

The 50 item HSA was subjected to a principal components factor analysis to investigate the influence of acquiescence. Since a measure of acquiescence was not included in the survey, the hardiness items themselves were used to

simulate an acquiescence variable (Messick, 1988). This simulated acquiescence variable tests the presence of acquiescent response bias¹. The simulated acquiescence variable was created by: 1) dichotomizing responses to each hardiness item disregarding the directionality of item content. In other words, recorded answers of 0, 1 or 2 indicating the item was not true of the person were recoded as 0's and recorded answers of 3, 4 or 5 indicating the item was true of the person were recoded as 1's irrespective of the positive or negative wording of the response, and then, 2) summing the items to create a total simulated acquiescence score. Hardiness items were then prepared for the factor analysis²: 1) negatively phrased items were reverse keyed so that high values indicated high hardy responses and low values indicated low hardy responses and, 2) both reverse keyed negative items and positive items were recoded so that values of 0, 1 or 2, representing low hardiness, equalled 0 and values of 3, 4, or 5, representing high hardiness, equalled 1.

Both the simulated acquiescence variable and the hardiness items were factor analyzed. A 4-factor solution was assumed based upon hardiness theory and the purported presence of acquiescence. Based on the unrotated factor matrix, the simulated acquiescence variable loaded .84 on the largest factor which accounted for approximately 10 percent of the variance. Nineteen hardiness

¹The possibility of extremity of response bias was minimized by dichotomizing the 6-point scale. Responses of 0, 1 or 2 were recoded 0 and responses 3, 4 or 5 were recoded 1.

²Usually scaled items are not reversed keyed before entering them into a factor analysis. For the purpose of determining the relationship between hardiness items and simulated acquiescence based on the same items, this procedure was recommended (Messick, 1988).

items loaded on the "acquiescence" factor. However, items loading on the other three factors loaded within .05 on both their primary factor and the "acquiescence" factor, indicating not only the influence of acquiescence in the hardiness scale, but of acquiescent-hardiness blends. To partial out the effects of acquiescence, additional data were needed.

In an effort to gain some understanding of hardiness in adolescents as a unidimensional concept, the item-total test correlations of the 50-item scale were reviewed. Nineteen items were found to have a negative or very low positive (i.e., correlation of less than .1) relationship with the total test. As a result, the hardiness scale was divided into two scales, a 31-item scale with adequate item-total test correlations and a 19-item scale with questionable item total test statistics. Subsequent preliminary analyses of hardiness in adolescents used the 31-item HSA.

The internal consistency of the 31 item scale using Cronbach's alpha was substantial ($r = .81$). Nevertheless, in addition to a relationship between the control subscale and depression ($r = -.25$, $p < .03$), the commitment subscale demonstrated a correlation with stress ($r = .33$, $p < .01$), with social desirability, ($r = .22$, $p < .05$) and with the lie scale ($r = .26$, $p < .03$). The only significant relationships found for the 31-item HSA was with the lie scale ($r = .42$, $p = .01$) and a measure of defensiveness in which all items are positively phrased and the stress scale ($r = .35$; $p < .01$). The stress scale also demonstrated a significant correlation with the lie scale ($r = .42$, $p = .00$).

The resulting 31-item hardiness scale was then subjected to a principal components factor analysis. Unrotated as well as varimax and oblique rotations

were run. Since the factor structure was unknown, factor analyses separately setting the factors from 3 to 11 based upon eigenvalue distributions were conducted. The best fit appeared to be with the 6 factor solution. These factors were representative of goal directedness, commitment to self, commitment to school, control, adaptability and problem-solving orientation.

Items within each factor were reviewed and any item loading less than .35 on the primary factor and/or having a loading similar to the primary factor were dropped or rephrased. To reduce the influence of acquiescent response bias in the HSA for the subsequent research study, items were written so that the final scale had equal numbers of positively phrased and negatively phrased items. The resulting hardiness scale for adolescents contained 36 items, three positively phrased and three negatively phrased items for each of the six factors.

The stressful life events scale (YARS) was also examined for its salience to an urban adolescent population. Individual items were evaluated and the elimination of an item was based on a combination of face validity, repetition and the responses of the participants in the preliminary analyses. Eighteen items such as "pet dies", "getting braces", "getting a car", "moving to a new town" and "getting caught cheating or lying" were dropped. Thirteen new items reflecting an urban environment and current health issues were added. Some of the new items were "fear of getting AIDS", "losing a home due to fire or eviction", "living in a drug-ridden neighborhood", "getting things stolen in school" and "losing your bus/train pass". The result was a 56 item scale measuring stressful life events.

Conclusions. Due to the apparent prevalence of the acquiescent response style, no conclusions were drawn concerning the role of hardiness in the stress -

strain or stress - health relationship. Acquiescence may have played a substantial part in this investigation due either to the salience of the hardiness items for an adolescent population or as the result of the age distribution of the sample which consisted of a homogeneous group of youngsters who were entering adolescence (nearly 88% of the valid cases were 12- or 13-year olds).

Adolescents, particularly those in the early stages of development (e.g. 12 and 13 year olds), tend to acquiesce more than other teenage groups. This tendency progressively declines with age. According to Cronbach (1946), acquiescence should operate primarily on items that subjects are at a loss to answer, either because they are uninformed about the topic in question or because they are not sure of the meaning of the items (i.e., item difficulty and item ambiguity). The prevalence of acquiescence also lessens when other response styles such as social desirability are present. Thus acquiescence appears to operate mainly on scales that are relatively neutral in desirability and decreases steadily in influence as scales become more and more desirable or more and more undesirable (Jackson and Messick; 1961, 1962). Acquiescence may assume a different character in the self-description of personality measurement than it does in the expression of social attitudes (Damarin and Messick, 1965). Damarin and Messick point out that "people may be more acquiescent with ambiguous items that refer to abstract ideological principles or external social objects than they are with equally ambiguous statements that bear on their character and behavior" (Messick, 1967: p.121).

It was concluded that subsequent research studies needed to take precautions for controlling the influence of acquiescence. Two controls for

reducing or eliminating the influence of acquiescence were incorporated into the methodology used in the subsequent research study: 1) a broader age range, sampling adolescents between the ages of 12 and 16 years old and 2) equal numbers of positively and negatively phrased items in the revised HSA.

Research Study

Sociodemographic characteristics of the sample

Participants were recruited from the New York City School System. Permission to conduct the survey within the public school system was granted by the Proposal Review Committee at the Central Board of Education. A copy of the approval letter is presented in Appendix C.

The majority of subjects 71.7% (N = 160) attended a single public secondary school while 27.9% (N = 62) were drawn from parochial and private schools as well as other public intermediate/junior high schools and high schools throughout the city. Only one respondent did not indicate the school she or he attended (0.4%). All participants were required to have parental consent prior to administration of the survey. Since the participants were assured anonymity, passive or implied consent was obtained by sending a letter home with students at the various schools. In order to maximize parental understanding of the survey their son or daughter would be participating in, the parent consent forms were written in English and Spanish. Appendix D contains a copy of the parent consent forms.

The 223 participants ranged in age from 11 to 16 years old with a mean of 14.0 years. This age range corresponded to grade levels ranging from grade 6

through the junior year of high school. Nearly three-fifths of these students were females (58.3%) while the other two-fifths were male (41.7%). For the most part, the sample mirrored the ethnic distribution of students in New York City Public Schools: 31.8% Black, 35.9% Hispanic, 10.8% White, 1.8% Native American, 2.2% Oriental and 0.9% Asian. Another 14.8% indicated identification with more than one group and 1.8% did not respond. Also supported by public school statistics, the survey found that 14.8% of the participants were born outside the United States. The family structure for more than half (57.0%) of the participants included two parents/guardians while 41.3% lived in single parent/guardian families. Table 2 summarizes the sociodemographic information.

Questionnaire administration

Questionnaire items were administered to both individuals and groups of individuals by the project director, teachers and parents between December, 1989 and March, 1990. Respondents were asked to complete all items in the survey including the demographic data as honestly as possible. They were assured anonymity and confidentiality. Letters introducing the survey, explaining its purpose and providing guidelines for its administration are available in Appendix E. Additional instructions were provided on each questionnaire. Administration of the complete questionnaire varied from 45 minutes to 75 minutes.

Slightly less than 500 questionnaires were distributed to New York City School students. The majority of questionnaires (approximately 300 based on 20 students per class for 15 classes) were administered in a single secondary school setting. The survey was conducted in two consecutive half-day sessions. Eight

Table 2

Sociodemographic Characteristics of the Sample

Descriptor	Number	Percentage
Age		
12	30	13.5
13	51	22.9
14	60	26.9
15	53	23.8
16	<u>29</u>	<u>13.0</u>
	223	100.0
Sex		
Males	93	41.7
Females	<u>130</u>	<u>58.3</u>
	223	100.0
Ethnicity		
White	24	10.8
Black	77	31.8
Hispanic	80	35.9
Native American	4	1.8
Oriental	5	2.2
Asian	2	0.9
Multiethnic	33	14.8
No Response	<u>4</u>	<u>1.8</u>
	223	100.0
Grade		
6	1	0.4
7	46	20.6
8	53	23.8
9	69	30.9
10	42	18.8
11	10	4.5
No Response	<u>2</u>	<u>0.9</u>
	223	100.0
U.S. Born?		
Yes	188	84.3
No	33	14.8
No Response	<u>2</u>	<u>0.9</u>
	223	100.0

Table 2 (continued)

Sociodemographic Characteristics of the Sample

Descriptor	Number	Percentage
Family Style		
Single Parent/Guardian	92	41.3
Two Parent/Guardians	127	57.0
No Response	<u>4</u>	<u>1.8</u>
	223	100.0
Family Work Status		
No one working	14	6.3
One person working	110	49.3
Two people working	92	41.3
No Response	<u>7</u>	<u>3.1</u>
	223	100.0
Overall Health		
Extremely Good	73	32.7
Good	93	41.7
Fairly Good	41	18.4
Fairly Poor	6	2.7
Poor	4	1.8
Extremely Poor	3	1.3
No Response	<u>3</u>	<u>1.3</u>
	223	100.0
Exercise Routine (days per week)		
Most or all the time (5-7)	50	22.4
Occasionally (3-4)	69	30.9
Some or a little of the time (1-2)	50	22.4
Rarely or none of the time	48	21.5
No Response	<u>6</u>	<u>2.7</u>
	223	100.0
Eating Habits		
Extremely Good	66	29.6
Good	66	29.6
Fairly Good	66	29.6
Fairly Poor	11	4.9
Poor	6	2.7
Extremely Poor	5	2.2
No Response	<u>3</u>	<u>1.3</u>
	223	100.0

Table 2 (continued)
Sociodemographic Characteristics of the Sample

Descriptor	Number	Percentage
Self Image		
Extremely Satisfied	67	30.0
Satisfied	36	16.1
Somewhat Satisfied	84	37.7
Somewhat Unsatisfied	22	9.9
Unsatisfied	5	2.2
Extremely Unsatisfied	5	2.2
No Response	<u>4</u>	<u>1.8</u>
	223	100.0
Type of doctor's visit³		
None	28	12.6
General/Routine	76	34.1
Minor (e.g., colds, flu)	23	10.3
Minor and General	59	26.5
Major (e.g., broken bones, asthma, diabetes)	4	1.8
Major and General	3	1.3
Major and Minor	1	0.4
Major, Minor and General	15	6.7
No Response	<u>14</u>	<u>6.3</u>
	223	100.0
School Absence		
Never Absent	43	19.3
Absent a Few Days	98	43.9
Absent Once or Twice a Month	42	18.8
Absent Once or Twice a Week	12	5.4
Absent 3 or 4 Times a Week	11	4.9
Absent Weeks at a Time	11	4.9
No Response	<u>6</u>	<u>2.7</u>
	223	100.0

³The average number of doctor visits reported for the past six month period was two.

classes of 7th- and 8th-graders participated the first day and seven classes of 9th- and 10th-graders participated on the second day. The remaining questionnaires were distributed through students attending night classes at a community college in Queens. The students were given extra credit for recruiting teenage friends and relatives and returning a completed questionnaire.

Of the 306 (62.1%) questionnaires returned, 13.7% (N = 42) were dropped from the final samples as the result of incomplete or uninterpretable data. Another 41 questionnaires were eliminated because the respondent was over age 16. The remaining 223 questionnaires, containing less than 2% missing data satisfied the sample size required by the proposed statistical analyses.

Reliability and validity of the instruments

Based upon the research model used in this study, the following instruments were administered:

- 1) Hardiness Scale for Adolescents
- 2) Youth Adaptation Rating Scale
- 3) Coopersmith Self-Esteem Inventory
- 4) Perceived Stress Scale
- 5) Differential Personality Inventory Subscales
 - a) Familial Discord
 - b) Rebelliousness
 - c) Depression
 - d) Somatic Complaints
 - e) Socially Deviant Attitudes
 - f) Repression
 - g) Defensiveness
- 6) Response Style Scales
- 7) Health practices, constitution and demographics

All of these instruments were designed for administration to an adolescent population. However, some of the instruments tended to address the late adolescent period, ages 18 to 24 (i.e., the college student) and consequently needed some item revisions. Appendix F presents each instrument separately. Table 3 provides descriptive statistics for all measures.

Table 3
Descriptive Statistics for the Survey Instruments
(N = 223)

	Number of Items*	Mean	SD	Range	Skewness	Reliability (Alpha)
Hardiness Survey for Adolescents	23	71.4	14.0	35-109	.18	.73
Task Engagement	9	32.1	7.6	12-45	-.58	.71
Goal Directedness	9	24.0	7.6	4-45	.13	.63
Positive Self	5	14.6	4.6	0-25	-.07	.52
Stressful Life Events (YARS)	56	13.7	6.4	1-34	.52	.80
Self Esteem (CSEI)	25	70.2	20.1	15-124	-.02	.86
Response Styles						
Social Desirability (PRF)	15	42.4	11.2	0-70	-.19	.72
Acquiescence Measure	12	27.3	7.6	7-48	-.03	.43
Defensiveness (DPI)	16	37.5	10.0	2-68	.04	.59
Aberrant Behavior						
Socially Deviant Attitudes (DPI)	16	30.6	13.4	1-75	.46	.77
Rebelliousness (DPI)	16	43.0	9.6	14-71	.24	.56
Repression (DPI)	16	32.7	9.0	6-57	-.28	.44
Affective Reaction						
Familial Discord (DPI)	16	33.4	15.2	0-77	.26	.85
Depression (DPI)	16	27.9	14.7	0-80	.55	.85
Strain						.85
Somatic Complaints (DPI)	16	31.0	12.2	5-68	.18	.69
Perceived Stress Measure	14	26.8	13.0	0-63	.49	.87

* Items on the stressful life events scale (YARS) were present in a yes (1)-no (0) format.
All other items were measured on a 6-point Likert-type scale with values ranging from 0 to 5.

Hardiness Scale for Adolescents - Revised. - The revised Hardiness Scale for Adolescents, a 36 item scale, was developed to measure hardiness in adolescents. Based upon preliminary analyses, the scale is comprised of six, six-item subscales; goal directedness, commitment to self, commitment to school, control, adaptability and problem solving.

Scoring of the revised Hardiness Scale for Adolescents is conducted by reverse keying negatively worded items and then summing item values. An overall composite score or individual component scores can be obtained. Administration time for the 36 item hardiness scale is approximately 15 minutes.

In addition to the 36 item hardiness scale for adolescents, a nineteen item scale believed to be a hardy-acquiescence emerged from preliminary analyses of the 50 item hardiness scale. Acquiescence appeared to be a major element in determining responses in the preliminary analyses, which led to questionable interpretation of the results. Therefore, items from both scales were combined and examined to evaluate basic psychometric properties. Reliability using Cronbach's alpha was .66.

The dimensions tapped by items on the hardiness scale were investigated by applying a principal components factor analysis aimed at investigating the role of acquiescence and determining if the factor structure of the hardiness scale identified in the preliminary analyses was upheld. Solutions for a 3- through 7-factor scale were investigated. It was believed that the acquiescence component of hardiness would cluster into a single component. Acquiescence, however, did not fall out in this fashion; the acquiescence items loaded on all of the factors regardless of the factor solution or the rotation of items. The acquiescence items

were then separated from the hardiness items and investigated separately.

Correlations with both the 36 item hardiness scale and the 19-item measure of the hardy-acquiescence blend were run. As expected, the 19 hardy-acquiescence items were moderately correlated with the hardiness scale ($r = .47, p < .001$). They were found to correlate at a low level with the formal acquiescence measure developed by Messick ($r = .13, p < .05$), while the 36 item hardiness scale demonstrated almost no relationship ($r = -.07, p = \text{NS}$) with the Messick scale. Thus, it appears that the nineteen items are blends of acquiescence and hardiness. Based upon the orientation that particular dimensions of psychological adjustment are conceptually different from response styles and therefore should be measured separately, these items will not be included in subsequent data analyses.

Principal components factor analyses separately setting the factors from 3 to 5 based upon eigenvalue, discontinuity, interpretability and the scree test were conducted for the 36 item hardiness scale. Instead of the six factor structure suggested by the preliminary analyses, the best fit appeared to be with the three factor structure. One possible explanation for this instability in structure may be attributed to the influence of acquiescence on preliminary research findings. It may also be due to characteristic differences in the groups sampled. In addition to being a younger group of students, the preliminary sample was consistently more homogeneous in age, ethnicity and socioeconomic status. It also was one third the size of the current sample.

Following a three factor solution, unrotated, varimax and oblique rotations were evaluated. Since the factors were not correlated, the varimax rotation was

followed. Items were eliminated from the hardiness scale if they loaded less than .3 on the primary factor and/or loaded on other factors within .05 of the primary factor. Based on these criteria, only 26 of the 36 items were retained.

Reliability of the factored hardiness scale containing the remaining 26 items was determined to be .65, a slightly less than acceptable level of internal consistency. An inspection of the item - total correlations showed that 3 items were either negatively correlated or had very low (less than .1) correlations. When these items were dropped, the reliability of the 23 item hardiness scale for adolescents reached an acceptable level ($r = .73$), not much different from the 50 item hardiness and hardy/acquiescence scale ($r = .77$). Table 4 summarizes the scale development.

Components of the revised hardiness scale based on the three factor structure were also examined. Factor 1, retaining 9 items, demonstrated an alpha reliability of .71. These items appeared to measure task/school engagement, the adolescent's sense of commitment and mastery of situations encountered. Factor 2 consisted of items focused on goal directedness. The internal consistency of these nine items based on Cronbach's alpha reliability was .63. The third factor was represented by five items. These items suggested the adolescent's positive orientation towards the self and the ability to adapt. The alpha reliability was determined to be .52.

Intercorrelations between the three components of adolescent hardiness and the total hardiness scale were examined. All three factors were highly correlated with total hardiness but only somewhat correlated with each other, thus indicating three partially independent measures. Table 5 summarizes these

Table 4
Factor Loadings of Items on Each of the Three Factors From
the 23 Item Hardiness Scale for Adolescents
(N = 223)

		Varimax	Factor	Loadings
	Key	I	II	III
<u>Factor I Items (Task/School Engagement)</u>				
I feel I have to study hard because school matters alot.	+	.59	-.09	.06
When my teachers tell me to behave, they usually have a good reason.	+	.48	-.08	.05
Working hard at a job gives me a feeling of satisfaction.	+	.46	-.02	-.02
I really look forward to school.	+	.44	-.20	.10
I like having school subjects that I have never had before.	+	.44	-.10	.11
Problems don't work themselves out, you have to think about them and decide what you are going to do about them.	+	.43	.07	-.00
I believe the people who tell me that the work I do at school is of value in the real world.	+	.42	-.07	.09
No matter what you do, the "tried and true" ways are always the best.*	-	.40	.05	.26
I often think about dropping out of school.	-	-.39	.36	.03
I believe that most athletes have to work hard to be good at sports.	+	.37	.08	.00
I feel that the decisions I make are the best ones for me.**	+	.37	.08	.35
I don't mind speaking with people who are confused about what they mean to say.**	+	.25	.14	.16
I believe most of what happens in life is just meant to happen.**	-	.16	.14	.01

* The item was eliminated based on low item-total correlations.

** The item was eliminated based on the results of the factor analysis.

Table 4 (continued)
 Factor Loadings of Items on Each of the Three Factors From
 the 23 Item Hardiness Scale for Adolescents
 (N = 223)

		Varimax	Factor	Loadings
	Key	I	II	III
<u>Factor II Items (Goal/Self Directedness)</u>				
Ordinary school work is just to boring to be worth doing.	-	-.29	.48	-.05
No one will ever catch me in the library if I have something else to do.	-	-.15	.47	.06
Most people who go to school are just manipulated by their teachers.	-	-.18	.45	-.06
I think people believe in individuality only to impress others.	-	.07	.42	-.02
When you select a high school you lose your freedom to study anything you want.	-	-.24	.38	-.00
I find it difficult to imagine getting excited about school.	-	-.22	.37	.01
When other people get angry at me, it's usually for no reason at all.	-	.03	.35	-.13
It bothers me when something unexpected interrupts my daily routine.	-	.08	.33	.02
My life seldom gets wasted doing things that don't mean anything.*	+	-.01	.32	-.01
I find it's usually very hard to change a friend's mind about something.	-	.15	.30	-.09
I don't like things to be uncertain or unpredictable.**	-	.21	.25	-.13
I have no use for stories that are not closely tied to the facts.**	-	-.01	.24	.13

* The item was eliminated based on low item-total correlations.

** The item was eliminated based on the results of the factor analysis.

Table 4 (continued)

Factor Loadings of Items on Each of the Three Factors From
the 23 Item Hardiness Scale for Adolescents
(N = 223)

		Varimax	Factor	Loadings
	Key	I	II	III
<u>Factor II Items (continued)</u>				
My parents sometimes change their minds about something after they hear what I have to say.**	+	.17	.23	-.09
The most exciting thing for me is my own fantasies.**	-	.18	.18	-.12
<u>Factor III Items (Positive Self)</u>				
When I make a mistake, I feel I can almost always do something to make things right again.	+	.06	-.03	.52
In general, I feel confident about the work I do and the decisions I make.	+	.22	-.05	.40
No matter what you do, nothing ever turns out the way you want it to.	-	-.07	.27	-.40
Most days, life isn't very exciting for me.	-	.06	.15	-.35
When I really try, I can make almost anything go my way.**	+	.20	.29	.32
Lots of times I really don't know my own mind.	-	.13	.24	-.30
I find ways of making even the most boring task interesting.**	+	.17	.06	.29
Changes in routine don't bother me.**	+	-.02	-.04	.28
I do not feel uncomfortable if I have to make any changes in my everyday schedule.**	+	.04	.09	.21

* The item was eliminated based on low item-total correlations.

** The item was eliminated based on the results of the factor analysis.

intercorrelations.

Table 5
Intercorrelations Among Hardiness and
the Hardy Subscales
(N = 189 to 200)

	2	3	4
1. Hardiness	.74*** (189)	.76*** (189)	.53*** (189)
2. Task Engagement	--	.27*** (195)	.12* (196)
3. Goal Directedness		--	.23*** (200)
4. Positive Self			--

*** $p < .001$

** $p < .01$

* $p < .05$

The relationship between the hardiness components, self esteem and response styles also were investigated. Moderate and low correlations were found between self esteem, the response styles and two hardiness components, task engagement and goal directedness. For the positive self component, substantial correlations were found with self esteem ($r = .65$, $p < .001$) and with social desirability ($r = .63$, $p < .05$). These results are presented in Table 6.

Although the factors composing hardiness in adolescents appear to be relatively reliable, the revised hardiness scale for adolescents will be used as a

Table 6
Intercorrelations of the Hardiness Subscales,
Self Esteem and Response Styles
(N = 189 to 200)

	Task Engagement	Goal Directedness	Positive Self
1. Self Esteem	.33*** (172)	.39*** (176)	.65*** (178)
2. Social Desirability	.42*** (183)	.46*** (186)	.63*** (189)
3. Acquiescence	.14* (179)	-.33*** (185)	-.05 (184)
4. Defensiveness	.21** (184)	.19** (187)	.25*** (188)

*** p < .001

** p < .01

* p < .05

unidimensional concept for all subsequent analyses. Use of a composite score is based on Kobasa's (1979) original theoretical conception of hardiness as a unitary phenomenon. Hardiness, in adults, is an amalgam of control, commitment and challenge which "should be regarded not as mutually exclusive aspects, but, rather, as inextricably intertwined aspects that bear a considerable resemblance to each other" (Kobasa, 1981, p.369).

Youth Adaptation Rating Scale - A 56-item Youth Adaptation Rating Scale (YARS) measuring the frequency of stressful life events experienced within a six month period was administered. Usually respondents are asked to indicate whether a event happened or did not happen to them within a specified time

period and then to rate the stressfulness of the event on a six-point scale ranging from not stressful to extremely stressful. However, on the basis of previous research (Gersten, et al., 1977; Vaux, 1981), the stressfulness rating was eliminated. Only a quantitative score was obtained.

The number of stressful life events was identified by obtaining responses to items on the YARS. A statistical overview of this scale is provided in Table 3. Stress scores ranged from zero to 34 over a six month period with an average of approximately 14. A listing of the stressful events and the frequency of endorsement of each item is presented in Table 7.

The items endorsed by more than 50 percent of the adolescent respondents concerned arguments with siblings or friends, having to stay home, weight problems, falling in love and not meeting classroom or teacher expectations.

Coopersmith Self-Esteem Scale - The School Short Form consisting of 25 items measuring self-esteem was administered. Self-esteem refers to the relatively stable evaluation a person makes with regard to him- or herself. Coopersmith defines self-esteem as a person's "judgment of worthiness that is expressed by the attitudes she or he holds toward the self. It is a subjective experience conveyed to others by verbal reports and other overt expressive behavior" (Coopersmith, 1987: p.5).

Scores on the self esteem measure ranged from 15 to 114 out of a possible total of 125 with a mean of 64.8. Thus, this sample of minority 7th- to 11th-graders reflected a similar distribution to those reported by Coopersmith (1987).

Perceived Stress Scale - Items are usually administered with a 3 point

Table 7
Frequency of Endorsement of
Stressful Life Event Items Over a Six Month Period
(N = 223)

Event	Endorsed	Did not Endorse
1. starting to go to weekend parties/rock concerts	40.4	59.2
2. receiving a special award	25.6	74.0
3. death of a parent/guardian	13.5	86.5
4. not getting promoted to next grade	13.6	86.4
5. getting caught using drugs	3.6	96.0
6. trying to get a job/job interview	27.8	72.2
7. making a team (debate, drill, athletic)	37.2	62.6
8. losing your bus/train pass	27.8	72.2
9. getting married	3.1	96.4
10. getting beat up by parents	4.5	95.5
11. getting attacked/raped/assaulted	8.1	91.5
12. pressure to have a boy/girl friend	37.8	62.2
13. parents getting a divorce/separated	12.6	87.4
14. having bad rumors spread about you/ being stereotyped/discriminated	29.9	70.1
15. pressure to wear certain kinds of clothes	29.7	70.3
16. graduation	18.0	82.0
17. fights with parents	39.9	59.7

Table 7 (continued)

Frequency of Endorsement of
Stressful Life Event Items Over a Six Month Period

Event	Endorsed	Did not Endorse
18. getting expelled/suspended	5.0	95.0
19. going into debt	18.3	81.7
20. getting fired from a job	2.7	97.3
21. getting pressure about having sex	15.3	84.7
22. fear of getting AIDS	29.6	70.4
23. death of a close family member	25.1	74.9
24. death of a boy/girl friend/ close friend	7.7	92.3
25. getting V.D.	5.9	94.1
26. getting someone pregnant/ getting pregnant	9.4	90.6
27. taking subject tests/Regents' exams	43.7	56.3
28. fear of getting caught using drugs	6.8	93.2
29. being sent to the principal's office	17.5	82.5
30. getting acne/warts	40.9	59.1
31. trouble getting a date when it was not a problem before	17.6	82.4
32. having problems with the law/police	6.8	93.2
33. not getting along with teachers or employers	37.4	62.6
34. making career decisions (HS choice, courses, training, ets.)	36.8	63.2

Table 7 (continued)
Frequency of Endorsement of
Stressful Life Event Items Over a Six Month Period

Event	Endorsed	Did not Endorse
35. first day of school	44.0	56.0
36. breaking up with boy/girl friends	35.6	64.4
37. getting a minor illness (cold, flu) and having to stay in the house	55.4	44.6
38. arguments with friends/brothers/sisters	71.5	28.5
39. starting to speak or perform in front of a lot of people	40.3	59.7
40. living in or next to a building where drugs/crack is sold	40.5	59.5
41. going to jail/reform school	3.2	96.8
42. losing a home due to fire or eviction	2.7	97.3
43. getting braces	9.5	90.5
44. having relatives with AIDS	7.7	92.3
45. losing or gaining weight	57.5	42.5
46. having friends with AIDS	5.9	94.1
47. living in a drug ridden neighborhood	44.8	55.2
48. moving/being asked to move out of the house	8.1	91.9
49. falling in love	57.7	42.3
50. moving to a welfare hotel/shelter	3.6	96.4
51. getting pressure to take drugs	6.8	93.2

Table 7 (continued)
Frequency of Endorsement of
Stressful Life Event Items Over a Six Month Period

Event	Endorsed	Did not Endorse
52. getting a bad report card	34.2	65.8
53. family members moving out	14.0	86.0
54. getting things stolen in school	26.5	73.4
55. not being prepared for classes	50.9	49.1
56. having teachers that expect too much	59.5	40.5

response scale to index frequency of occurrence during the week prior to survey administration. For purposes of consistency, a 6-point scale was used in this study. Each item ranged from 0 to 5 with total scores ranging from 0 to 70. For this study, perceived stress scores ranged from 0 to 63 with an average score of 26.7. This mean was approximately 1 standard deviation below the midpoint of possible scores, indicating relatively low endorsement of these perceived subjective stress items. Furthermore, based upon correspondence with the author (Wills, 1988), the time frame was changed to a one month period due to increased reliability.

Differential Personality Inventory - Seven of the 28 subscales of the Differential Personality Inventory (DPI), an instrument discriminating between personality types along multidimensional outcomes while simultaneously controlling for response styles were administered. These subscales were

depression, repression, socially deviant attitudes, rebelliousness, somatic complaints, familial discord, and defensiveness. The DPI scales are bipolar providing descriptive characteristics of high scorers and low scorers on each dimension measured. Healthy, non-clinical populations as well as aberrant and/or psychopathological personalities are differentiated based upon the degree to which these characteristics appear.⁴

Six of the seven subscales selected for the adolescent survey were administered to the college sample. A descriptive summary of each scale and the estimates of internal consistency found in the college sample follow.

Depression ($r = .87$). A high scorer tends to be down-hearted, despondent and looks to the future in a pessimistic manner. The low scorer signals cheerfulness, persistence, confidence and is, in general, optimistic about

⁴Although designed as a measure of psychopathology, the DPI's primary value for use with normal populations lies in the dimensional approach used for its development. This approach is based on the conception that "the traits underlying behavior sometimes labelled as deviant or psychopathological are present in all persons in some measureable degree. That when a person manifests behavior reflecting extreme locations on certain combinations of one or more of these dimensions, he or she is likely to be identified as engaging in psychopathological or disordered behavior. The appearance of behavior relevant to the underlying dimension, according to this model, is a joint function of the person's location on the dimension, (e.g., depression) and situational events" (Jackson, 1975, p.10).

Because the DPI was developed primarily for use with clinical populations, one may expect a restricted range in scale distributions, preventing a reliable and valid assessment. Using nearly 400 college undergraduates, however, Jackson and Carlson (1973) correlated DPI scores with a comparison measure, the Roommate Rating Schedule and found all convergent validities to be significant at the .001 level. In addition, the reliability estimates for the 12 DPI scales administered to the college sample ranged from .73 for rebelliousness to .89 for depression. This finding implies the application of the DPI in "normal" populations to identify levels of psychopathology less extreme than in psychiatric populations.

the future.

Somatic Complaints ($r = .79$). Individual who scores high anticipates physical difficulties and is generally in poor health. The low scorer seldom has physical complaints and is usually energetic.

Socially Deviant Attitudes ($r = .79$). The high scorer holds attitudes different from accepted social codes, tends to depart from the truth and behaves in an untrustworthy manner. Low scorers appear to be socially responsible and act accordingly.

Familial Discord ($r = .88$). High scorers experience conflict with and tend to be disrespectful of their family members. Low scorers report satisfying familial relationships.

Rebelliousness ($r = .73$). High scorers are frequently uncooperative, and disobedient. They tend to react against criticism and discipline. Low scorers respect authority and accept clearly defined rules and regulations. They appear to learn from criticism.

Defensiveness ($r = .79$). High scorers on this measure of response style attempt to present themselves in a favorable light. Low scorers have a capacity for self criticism and tend to answer questions about themselves frankly and truthfully.

Repression. High scorers lack insight into their feelings and behaviors. They tend to avoid unpleasant topics and become anxious when confronted with past or dramatic events. Low scorers are not afraid to discuss anxiety evoking topics such as death or aggressiveness and appear to accept their feelings as a part of their beings.

Each item is keyed on only one scale, having been selected following a number of substantive and empirical criteria. For each scale, raw scores are calculated by assigning a value of one to each time agreed with and 0 when there is disagreement and then summing the assigned values. A comparison of high scorers and low scorers can then be made. Or, the raw scores can be standardized and converted to "T" scores which permits an appraisal of profile shape and elevation. Thus, in addition to ascribing characteristics to respondents on the basis of individual scale, it is possible to appraise the degree to which the entire configuration of scales relates to that of other groups.

Response style scales. When left unattended, response biases interfere with the interpretations of the personality construct under consideration. To control for these potential confounds, instruments measuring three response styles, social desirability, defensiveness and acquiescence were administered.

The Social Desirability Scale of the Personality Research Form (PRF) (Jackson, 1974), reviewed in the previous section, was used to measure social desirability. Defensiveness, a subscale of the DPI reviewed above, represented the tendency to lie by presenting oneself in a favorable light. The measure of acquiescence developed by Messick (1988) is the result of factor analyzing data from the Personality Research Inventory (Saunders, 1955). Acquiescence measures the respondents tendency to agree with statements that are difficult or ambiguous, particularly when the presence of other response styles have been controlled for.

Two acquiescence scales containing 12 items each were produced by Messick's analyses. Scale 1 represents items from subscales whose content

focuses on tolerance of ambiguity, compulsiveness, impulsiveness, self-sufficiency, affective-effective states and unconventionality. The other scale (Scale 2) consists of items drawn from subscales directed at the content areas of anxiety, tolerance of frustration, tolerance of ambiguity, self-sufficiency, conformity in controlling aggression and unconventionality.

Scale 1 was chosen for the current study because it appeared to draw from content areas reflective of the dimensions of acquiescence found by Damarin and Messick (1965) in their review of response styles in factor analytic studies. The wording of some of the statements were modified by Messick by reversing the direction of the content to produce an equal number of "true" and "false" items on the content scales used. To reduce confounding with social desirability, values were obtained by averaging ratings of desirability made on a 9-point scale by 162 undergraduates. The higher the value, the more desirable the item. The average desirability rating for Acquiescence Scale 1 was determined as 5.03.

The three measures of patterned response style were found to have low reliabilities for the adolescent sample. For research purposes, however, these scales are adequate measures for assessing response patterns. Using Cronbach's alpha, the social desirability scale attained the highest internal consistency ($r = .72$) while the acquiescence scale exhibited an alpha reliability of .43. The internal consistency of the defensiveness scale was .59. Table 2 provides statistical summaries for each response style measure.

Multidimensional outcome measures

Four different outcomes were selected to assess the impact of stressful life events on adolescents: adjustment, psychosomatic strain, school absence, and use

of drugs such as alcohol, marijuana, cocaine/crack and cigarettes. A number of outcome measures were selected due to the sparse research on relations between psychosocial-environmental stressors and adolescent well-being.

Adjustment. Initially, adjustment was to be measured by a composite score derived from five subscales of the DPI, depression, repression, socially deviant attitudes, rebelliousness and familial discord. All of these DPI subscales were designed as bipolar behavioral indices of psychological well-being. Initial analyses found high ($r = .86$) internal consistency among the items of the five subscales, using Cronbach's alpha. The intercorrelations between the subscales, on the other hand, varied. The relationship between the depression and familial discord subscales was high ($r = .61, p < .001$) while the repression subscale demonstrated low intercorrelations with all other subscales. Table 8 summarizes these interrelationships as well as their relationship to hardiness. Hardiness was found to have a substantial negative correlation with four of the five DPI scales: depression ($r = -.57, p < .001$), familial discord ($r = -.56, p < .001$), socially deviant attitudes ($r = -.42, p < .001$) and rebelliousness ($r = -.36, p < .001$). No correlation was found between hardiness and repression ($r = -.01$).

As an additional check of scale properties, a factor analysis was conducted. A factor analysis of the items composing the five subscales indicated a separation of the adjustment measure. Following a varimax rotation, items from the five DPI subscales were found to load on three factors. Appendix G presents the items and the factor loadings for the measure of adjustment. Items from the depression and the familial discord subscales dominated Factor 1. Rebelliousness and socially deviant attitude subscale items represented, for the most part, Factor

Table 8
Intercorrelations Among Hardiness, DPI Subscales
and Perceived Subjective Stress
(N = 169 to 203)

	2	3	4	5	6	7	8
1. Depression	.61*** (176)	.19** (182)	.18** (173)	-.14* (173)	.50*** (170)	.60*** (195)	-.57*** (170)
2. Familial Discord	--	.39*** (186)	.41*** (180)	-.21** (176)	.40*** (176)	.46*** (195)	-.56*** (173)
3. Socially Deviant Attitudes		--	.49*** (188)	-.04 (181)	.23*** (182)	.17** (203)	-.42*** (177)
4. Rebelliousness			--	-.25*** (179)	.16* (181)	.22** (197)	-.36*** (172)
5. Repression				--	.05 (174)	-.16* (195)	-.01 (173)
6. Somatic Complaints					--	.40*** (193)	-.37*** (169)
7. Subjective Stress						--	-.46*** (188)
8. Hardiness							--

*** p < .001

** p < .01

* p < .05

2. Repression subscale items tended to fall into Factor 3 but were also present in Factor 2 and Factor 1.

Because the factored items appeared to fall into two exclusive categories, one affective and one behavioral, two adjustment measures, affective reaction and aberrant behavior were used. Affective reaction was measured by a composite score based on items from the depression and familial discord subscales.

Aberrant behavior was measured using a composite score calculated from the

rebelliousness, socially deviant attitudes and repression subscales.

The internal consistency of the items in the two adjustment measures were considerably different. Cronbach's alpha for affective reaction was high ($r = .90$) but was only acceptable for aberrant behavior ($r = .70$).

Strain. The strain measure combined the standardized scores for the Perceived Stress Scale (PSS), a measure of subjective stress and the somatic complaints subscale of the Differential Personality Scale (DPI). Conceptually both of these scales measure psychosomatic elements of well-being. To determine if these measures could be combined psychometrically, two statistical checks were performed. First, the relationship between the two measures was investigated. The Pearson's product-moment correlation ($r = .40$) obtained indicated a moderate relationship between subjective stress and somatic complaints. A negative relationship with hardiness in adolescents was also demonstrated by the measure of perceived or subjective stress ($r = -.46, p < .01$) as well as the somatic complaints subscale from the DPI ($r = -.37, p < .001$). Table 8 summarizes these relationships.

Items from the perceived stress scale and the somatic complaints scale were then subjected to a factor analysis. Two factors appeared with the perceived stress items loading on one factor and the somatic complaint items loading on two factors. Appendix H provides a summary of the results. Reliability of the composite strain measure was high ($r = .85$) using Cronbach's alpha.

School absence. School absence was indicated by the participants response to a single question asking the number of times they were absent between the

beginning of school in September, 1989 and the end of February, 1990. Although absenteeism ranged from 0 days through weeks at a time, 19.3% of the respondents reported never being absent while 43.9% stated that they missed only a few days of school.

Drug use. Drug use combined the responses from questions asking the frequency with which six drug/narcotic substances (i.e., cigarettes, wine, beer, liquor, cocaine, marijuana) were used on a monthly basis. On the average, overall drug use was reported as occurring approximately two to three times a month and drinking was limited to one or two alcoholic beverages. About 12 percent of these adolescents drank while 11 percent smoked cigarettes, 6 percent smoked marijuana and 0.8 percent reported using cocaine/crack. Appendix I provides a frequency distribution of drug use broken down by category.

Results

Health Behaviors of the Sample

In general, the physical and mental constitution of the participants, as self reported, was good. A descriptive summary of the health behaviors of these adolescents is also provided in Table 2. Overall health was considered good or better by 74.4% of the respondents. Only 5.8% reported their health as poor. This general opinion was corroborated by the frequency and type of doctor visits made within a six month period prior to participation in the study. When an examination of more specific behaviors was made, however, a slightly less positive picture is seen. Only 59.2% reported good eating habits and only 53.3% stated that they followed an exercise routine at least 3 to 4 days a week. And, possibly most important, only 41.6% of these young adults stated that they were satisfied with their self image; while 37.7% were somewhat satisfied and 14.3% reported being unsatisfied with the way they looked.

Few significant correlations were found between hardiness and the sociodemographic and health behavior variables collected in the present survey. Hardiness was related to health ($r = .15, p < .05$) and self image ($r = .13, p < .05$). Health, in turn, was significantly correlated with frequency of doctor visits ($r = -.11, p < .05$), with eating habits ($r = .51, p < .001$) and with self image ($r = .33, p < .001$). All variables, with the exception of frequency of doctor visits, age and sex were significantly correlated with social desirability. In addition, age was found to be related to self image ($r = .20, p < .01$). Table 9 presents these

intercorrelations.

Table 9
Intercorrelations Among Hardiness,
Social Desirability, Sociodemographic and Health Behavior Variables
(N = 172 to 223)

	2	3	4	5	6	7	8	9	10
1. Hardiness	.09 (185)	.07 (189)	.15* (187)	.10 (188)	.13* (186)	.05 (189)	.12 (189)	-.05 (184)	.68*** (172)
2. Exercise	--	-.02 (217)	-.12 (216)	.03 (216)	-.00 (215)	.04 (217)	.10 (217)	.04 (211)	-.20** (192)
3. Doctor Visits		--	-.11* (220)	-.00 (220)	-.02 (219)	-.05 (223)	.05 (223)	-.01 (215)	-.03 (196)
4. Health			--	.51*** (219)	.33*** (218)	.10 (220)	-.07 (220)	.02 (214)	.27*** (194)
5. Eating Habits				--	.40*** (218)	.09 (220)	-.03 (220)	.03 (214)	.19** (194)
6. Self Image					--	.20** (219)	-.09 (219)	.02 (213)	.23*** (193)
7. Age						--	-.10 (223)	-.03 (215)	.00 (196)
8. Sex							--	-.03 (215)	-.04 (196)
9. SES								--	-.16* (191)
11. Social Desirability									--

*** p < .001

** p < .01

* p < .05

Relationship Between Hardiness, Stressful Life Events, Esteem, the Outcome Measures and Response Styles

As shown in Table 10, hardiness demonstrated a moderate and statistically significant negative correlation with stressful life events ($r = -.36$, $p < .001$).

Table 10
Intercorrelations Among Major Independent Variables,
Response Styles and Outcome Measures

	2	3	4	5	6	7	8	9	10	11
1. Hardiness	-.36*** (189)	.60*** (163)	-.61** (155)	-.45*** (153)	-.50*** (188)	-.16* (184)	-.26*** (173)	-.10 (170)	.68*** (172)	.31*** (172)
2. Stressful Life Events	--	-.40*** (184)	.41*** (176)	.26*** (170)	.38*** (193)	.20*** (217)	.30*** (205)	.25*** (191)	-.41*** (196)	-.24*** (196)
3. Esteem		--	-.82*** (153)	-.13 (148)	-.61*** (167)	-.19** (178)	-.18** (170)	-.15* (164)	.78*** (167)	.40*** (169)
4. Affective Reaction			--	.23** (139)	.65*** (155)	.20** (174)	.23** (163)	.13* (160)	-.83*** (157)	-.32*** (160)
5. Aberrant Behavior				--	.25** (154)	.21** (165)	.27*** (157)	.07 (155)	-.27*** (158)	-.29*** (156)
6. Strain					--	.19** (187)	.20** (178)	.17* (172)	-.64* (171)	-.25** (175)
7. School Absence						--	.27*** (202)	.09 (186)	-.19** (191)	-.16* (192)
8. Drug Use							--	.25** (174)	-.22** (181)	-.10 (182)
9. Acquiescence								--	-.16* (173)	-.04 (175)
10. Social Desirability									--	.48*** (176)
11. Defensiveness										--

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

Negative correlations were also found between hardiness and the multidimensional outcome measures: affective reaction ($r = -.61$, $p < .01$), aberrant behavior ($r = -.45$, $p < .001$), strain ($r = -.50$, $p < .01$), school absence ($r = -.16$, $p < .05$) and drug use ($r = -.26$, $p < .001$).

The relationship between hardiness and the response styles was variable. The strongest relationship was found between hardiness and social desirability ($r = .68$, $p < .001$) while a low correlation was shown between hardiness and

acquiescence ($r = -.10$, $p = \text{NS}$). A moderate but positive correlation was demonstrated with the lie subscale from the DPI, defensiveness ($r = .31$, $p < .01$).

Self-esteem, the personality variable administered for the purpose of investigating the convergent validity of the hardiness scale for adolescents was found to have a substantial, positive relationship ($r = .60$, $p < .001$). Self esteem, similar to hardiness demonstrated negative relationships to the multidimensional outcome measures. Nevertheless, the strength of the relationship between self esteem and each variable was somewhat different than that shown by hardiness: affective reaction ($r = -.82$, $p < .001$); aberrant behavior ($r = -.13$, $p = \text{NS}$); strain ($r = -.61$, $p < .001$); school absence ($r = -.19$, $p < .01$); and, drug use ($r = -.18$, $p < .01$).

Also of import is the relationship demonstrated between the response styles, particularly social desirability and acquiescence and the other variables in the stress - adjustment model. The correlations between social desirability and the other variables ranged from $-.83$ with affective reaction to $.78$ with esteem. In addition, acquiescence showed low but significant relationships (correlations ranging from $-.15$ to $.25$) with stressful life events, esteem, affective reaction, strain and drug use.

Relationship Between Sociodemographics, Hardiness, Stressful Life Events, Social Desirability, the Outcome Measures and Self Esteem

Age, sex and socio-economic status were found to be differentially associated with hardiness, the multidimensional outcome measures, social

desirability and self esteem. Table 11 summarizes the relationship between these variables.

Table 11
Correlation of Age, Sex and Socio-economic Status With
Major Independent Variables, Response Styles and Outcome Measures
(N = 166 to 223)

	Age	Sex	SES
1. Hardiness	.05 (189)	.12 (189)	-.05 (184)
2. Stressful Life Events	-.00 (223)	.00 (223)	.03 (215)
3. Social Desirability	.00 (196)	-.04 (196)	-.16* (191)
4. Affective Reaction	-.05 (176)	.13* (176)	.03 (172)
5. Aberrant Behavior	-.05 (170)	.26*** (170)	-.05 (166)
6. Strain	.05 (193)	.02 (193)	.17** (185)
7. School Absence	.01 (217)	-.07 (217)	-.01 (211)
8. Drug Use	.19** (205)	-.08 (205)	.09 (200)
9. Esteem	.10 (184)	-.06 (184)	.11 (179)

*** p < .001

** p < .01

* p < .05

Although the intercorrelations were low, ranging from .08 to .26, each of the sociodemographic variables was significantly associated with at least one other variable. Age was found to have a positive relationship with drug use ($r = .19$, $p < .01$). In other words, the older the adolescent the greater the tendency to

smoke, drink, or use drugs. As the socioeconomic status of the participant increased, the amount of reported strain or subjective stress ($r = .17, p < .01$) increased but the tendency to respond in a socially desirable manner decreased ($r = -.16, p < .05$). Sex, coded one for males and two for females, was found to be associated with two of the outcome measures, affective reaction ($r = .13, p < .05$) and behavioral adjustment ($r = .26, p < .001$). Age, sex and socioeconomic status showed no relationship with hardiness, stressful life events, self esteem or school absence.

Testing of Hypotheses

A multiple regression/correlation (MRC) approach was used to test the hypotheses concerning hardiness in an adolescent population. The MRC system is generally used whenever a quantitative variable (the dependent variable) is to be studied as a function of, or in relationship to, any factors of interest (expressed as independent variables). Thus, it is efficient because it allows for the study of multiple factors at one time. In addition, statistical control of a research factor can be examined in relation to increments of any other desired set of factors. Each measure has a significance test value for the null hypothesis (F or t value), a standardized regression coefficient indicating the variable's weight (beta) and a standardized value, equivalent to a standard deviation, indicating the error associated with the betas (standard error of the beta).

Stress buffering effects occur when stress exerts direct effects on the outcome measure and the interaction between stress and hardiness is significant

such that under conditions of high stress, high levels of hardiness decrease the negative effects of the outcome measure. In testing the stress buffering effects of hardiness, it was assumed that hardiness scores were continuous measures and the results obtained were based on parametric statistical tests.

Hypothesis 1 - Hardiness, among adolescents, will serve as a health enhancing resource. By this, it will have a direct relationship to affective reactions, aberrant behavior, strain, school absence and drug use. Hardiness also will be shown to have a buffering effect on the negative impact of stressful events for adolescents. Specifically, high hardy individuals will have a lower incidence of strain, demonstrate a higher level of well-being as measured by their affective reactions and aberrant behavior, exhibit less drug use and have higher overall school attendance compared to low hardy individuals.

Table 12 presents the results of five regression analyses; the stress - affective reaction relationship, the stress - behavioral adjustment relationship, the stress - strain relationship, the stress - school absence relationship and the stress - drug use relationship. Although no joint effects for stress and hardiness were found, a significant negative effect for hardiness on each behavioral outcome, except for school absence, was obtained. Thus confirming hypothesis 1 for affective reaction, aberrant behavior, strain and drug use. After stressful life events were entered into the model, the hardiness composite accounted for 25 percent of the variance associated with affective reactions, 15 percent for behavioral adjustment and strain and 3 percent for drug use.

Table 12

Multidimensional Outcome Measures Regressed on
Stressful Life Events, Personality and the Hardiness-Stress Interaction

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction</u> (N = 154)						
main effects	SLE	.40	.07	.16	29.21	.000
	hardiness	-.53	.07	.25	65.21	.000
interaction	HS	-.02	.27	.00	.01	NS
<u>Aberrant Behavior</u> (N = 152)						
main effects	SLE	.25	.08	.06	10.26	.002
	hardiness	-.42	.08	.15	28.31	.000
interaction	HS	.44	.30	.01	2.24	NS
<u>Strain</u> (N = 167)						
main effects	SLE	.37	.07	.14	27.14	.000
	hardiness	-.42	.07	.15	36.06	.000
interaction	HS	-.08	.27	.00	.08	NS
<u>School Absence</u> (N = 183)						
main effects	SLE	.19	.07	.04	6.88	.009
	hardiness	-.10	.08	.01	1.59	NS
interaction	HS	.08	.31	.00	.07	NS
<u>Drug Use</u> (N = 172)						
main effects	SLE	.28	.07	.08	14.66	.000
	hardiness	-.18	.08	.03	5.22	.024
interaction	HS	-.56	.30	.02	3.54	NS

Hypothesis 2 - Over and above the effects of sociodemographic factors (e.g., age sex and socioeconomic status), hardiness will function as a health enhancing resource, minimizing negative affective reactions, aberrant behavior, strain, school absence and drug use.

Low but significant relationships were found between the sociodemographic variables and four of the five outcome measures: affective reaction, aberrant behavior, strain and drug use. As the result of these correlations, adjustment, strain, school absence and drug use were regressed on sociodemographics (e.g., age, sex and SES), stressful life events, hardiness and the interaction between hardiness and stress. The results of this analysis are presented in Table 13.

Hardiness was found to demonstrate significant main effects for strain, drug use, aberrant behavior and affective reactions over and above the effects of any sociodemographic variables confirming hypothesis 2. Hardiness was not found to be a positive resource for school absenteeism.

Inclusion of the sociodemographic variables in the regression equation also yielded a significant interaction between hardiness and stressful life events for drug use. When age and to a lesser extent, socioeconomic factors were controlled, the joint effect between the hardy personality and stress accounted for 3 percent of the variance in adolescent drug use.

The five outcome measures were differentially affected by the socioeconomic factors. Sex was identified as an important variable for predicting behavioral adjustment, composed of socially deviant attitudes, rebelliousness and repression items. The negative relationship between sex and behavioral

Table 13

Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Term

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction</u> (N = 152)						
main effects						
	SES	.07	.08			NS
	sex	.15	.08			NS
	age	-.01	.08			NS
	Sociodemographic Block			.03	1.44	
	SLE	.41	.07	.16	30.24	.000
	hardiness	-.55	.07	.26	70.63	.000
interaction						
	HS	.05	.26	.00	.04	NS
<u>Aberrant Behavior</u> (N = 149)						
main effects						
	SES	-.02	.08			NS
	sex	-.29	.08			.001
	age	-.12	.08			NS
	Sociodemographic Block			.09	4.60	
	SLE	.20	.08	.04	6.30	.013
	hardiness	-.39	.08	.13	25.09	.000
interaction						
	HS	.44	.30	.01	2.14	NS
<u>Strain</u> (N = 163)						
main effects						
	SES	.20	.08			.011
	sex	.06	.08			NS
	age	.09	.08			NS
	Sociodemographic Block			.05	2.58	
	SLE	.36	.07	.13	25.23	.000
	hardiness	-.43	.07	.16	37.51	.000
interaction						
	HS	-.03	.27	.00	.01	NS

Table 13 (continued)

Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Term

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>School Absence (N = 180)</u>						
main effects						
	SES	.02	.08			NS
	sex	-.10	.08			NS
	age	.02	.08			NS
	Sociodemographic Block			.01	.72	
	SLE	.20	.07	.04	7.62	.006
	hardiness	-.09	.08	.01	1.39	NS
interaction						
	HS	-.01	.32	.00	.00	NS
<u>Drug Use (N = 170)</u>						
main effects						
	SES	.12	.07			NS
	sex	-.10	.08			NS
	age	.22	.08			.005
	Sociodemographic Block			.08	4.54	
	SLE	.28	.07	.08	15.52	.000
	hardiness	-.19	.08	.03	6.29	.013
interaction						
	HS	-.68	.29	.03	5.55	.020

adjustment indicated a tendency for males to report more socially deviant attitudes, rebelliousness and repression than females. SES was found to be a predictor of increased reporting of subjective stress/strain and age was identified as being the most important sociodemographic characteristic in the prediction of

drug use (i.e., the older the adolescent the more reported drug experimentation).

Hypothesis 3 - Over and above the effects of social desirability, hardiness will function as a health enhancing resource, minimizing negative affective reactions, aberrant behavior, strain, school absence and drug use.

As presented in Table 10, substantial correlations between social desirability and affective reaction ($r = -.83, p < .001$) and strain ($r = -.64, p < .001$) were identified. Social desirability also showed significant though moderate to low correlations with behavioral adjustment ($r = -.27, p < .001$), school absence ($r = -.19, p < .01$) and drug use ($r = -.22, p < .01$). Two methods of controlling, statistical and experimental, for the effects of this response style on the five outcome measures were tested for the subsequent effects on the stress - hardiness relationship and the hardiness - sociodemographic relationship.

Controlling for social desirability in the stress - hardy personality relationship.

Table 14 presents partial confirmation of hypothesis 3. When social desirability is controlled statistically, hardiness persists as a resistance resource for aberrant behavior, affective reaction and drug use above and beyond the main effects of social desirability and stressful life events. In contrast, its health enhancing effects for strain are ameliorated. Furthermore, when social desirability is entered into the equation first, no hardiness - stress interaction effects are seen for any of the behavioral outcomes.

Slightly different results are seen when social desirability is restricted by the experimental design. Appendix J-1 presents the findings for the

Table 14

Multidimensional Outcome Measures Regressed on Social Desirability
Stressful Life Events, Personality, and the Hardiness-Stress Interaction

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction (N = 170)</u>						
main effects						
	SD	-.84	.05	.70	319.27	.000
	SLE	.07	.05	.00	1.70	NS
	hardiness	-.13	.06	.01	4.24	.041
interaction						
	HS	-.13	.19	.00	.44	NS
<u>Aberrant Behavior (N = 141)</u>						
main effects						
	SD	-.27	.08	.07	10.76	.001
	SLE	.18	.09	.03	4.07	.046
	hardiness	-.50	.10	.14	24.78	.000
interaction						
	HS	.37	.30	.01	1.54	NS
<u>Strain (N = 151)</u>						
main effects						
	SD	-.66	.06	.44	118.47	.000
	SLE	.14	.07	.02	4.26	.041
	hardiness	-.08	.09	.00	.83	NS
interaction						
	HS	-.22	.24	.00	.78	NS
<u>School Absence (N = 167)</u>						
main effects						
	SD	-.20	.08	.04	6.89	.010
	SLE	.10	.08	.01	1.35	NS
	hardiness	.03	.11	.00	.10	NS
interaction						
	HS	.07	.31	.00	.05	NS
<u>Drug Use (N = 157)</u>						
main effects						
	SD	-.21	.08	.04	7.19	.008
	SLE	.21	.09	.03	5.80	.017
	hardiness	-.22	.11	.03	4.44	.037
interaction						
	HS	-.47	.30	.01	2.48	NS

multidimensional outcome measures regressed on stressful life events, hardiness and the hardiness - stress interaction when the survey sample is restricted to adolescents who are low scorers on the social desirability scale (i.e., the respondent did not average more than slightly agree/disagree on the social desirability items, a score of 45 or less). Significant stress - hardiness interactions also were found for affective reaction and behavioral adjustment, similar to the results obtained when controlling for sociodemographic factors. The hardiness - stress interaction did not reach significance for strain, school absence or drug use when social desirability was controlled. Main effects for hardiness are demonstrated for affective reaction, behavioral adjustment and drug use. When the sample is limited to respondents exhibiting high social desirability scores (i.e., those with average total scores of greater than 45), all interaction effects and most main effects were lost. Appendix J-2 presents these results. Hardiness and stress demonstrated significant main effects on affective reaction while only hardiness remained influential in the prediction of behavioral adjustment and strain under these experimental conditions.

Social desirability, sociodemographics and the hardy personality. When the effects of social desirability and age are controlled statistically, the interaction effect between hardiness and stressful life events for drug use weakened but remained significant. Buffering effects were not seen for the other outcome measures.

Nevertheless, despite the significant contribution of social desirability and sex, hardiness continued to be directly influential in the prediction of aberrant

behavior Hardiness also demonstrated main effects for affective reaction. In contrast, the effects of social desirability were so strong, accounting for 44 percent of the variance associated with strain, none of the predictors were influential. No effects were again seen for school absence. A summary of these statistics is presented in Table 15.

Results obtained when controlling for social desirability by restricting the sample to respondents who score low on the social desirability measure are presented in Appendix K-1. Following this methodological approach, the presence of social desirability suppresses the relationship between hardiness and the outcome measures. When socially desirable responding is restricted and sociodemographics are entered first, hardiness buffers the effects of stress for both affective reaction and behavioral adjustment. Thus, when stylistic responses are controlled, hardiness mediates the effects of stress.

Appendix K-2 presents the same analyses for respondents who score high on social desirability. Similar results to those found when controlling for social desirability statistically are found. The inclusion of any subjects who characteristically respond to items appears to mask the effects of other potential predictors.

Hypothesis 4 - Above and beyond an intercorrelation with the hardy personality, self esteem will contribute independently to healthy psychological functioning (e.g., affective reactions, aberrant behavior and strain) and social behavior (e.g., school absence and drug use).

Both self esteem and hardiness demonstrated negative correlations with

Table 15

Multidimensional Outcome Measures Regressed on Social Desirability,
Sociodemographics, Stressful Life Events, Hardiness and the Hardiness-Stress Interaction

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction (N = 138)</u>					
main effects					
SD	-.84	.05	.70	320.86	.000
SES	-.04	.05			NS
sex	.07	.05			NS
age	-.02	.05			NS
Sociodemographic Block			.01	1.16	
SLE	.06	.05	.00	1.22	NS
hardiness	-.15	.06	.01	5.61	.019
interaction					
HS	-.09	.19	.00	.24	NS
<u>Aberrant Behavior (N = 139)</u>					
main effects					
SD	-.26	.08	.07	10.25	.002
SES	-.07	.08			NS
sex	-.31	.08			.000
age	-.12	.08			NS
Sociodemographic Block			.10	5.61	
SLE	.10	.09	.01	1.33	NS
hardiness	-.43	.10	.10	17.66	.000
interaction					
HS	.32	.30	.01	1.14	NS

Table 15 (continued)

Multidimensional Outcome Measures Regressed on Social Desirability,
Sociodemographics, Stressful Life Events, Hardiness and the Hardiness-Stress Interaction

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Strain (N = 149)</u>					
main effects					
SD	-.66	.06	.44	116.40	.000
SES	.12	.06			NS
sex	.04	.06			NS
age	.06	.06			NS
Sociodemographic Block			.02	1.57	
SLE	.13	.07	.01	3.82	.053
hardiness	-.09	.09	.00	1.14	NS
interaction					
HS	-.16	.25	.00	.41	NS
<u>School Absence (N = 165)</u>					
main effects					
SD	-.20	.08	.04	6.96	.009
SES	-.01	.08			NS
sex	-.09	.08			NS
age	.01	.08			NS
Sociodemographic Block			.01	.46	
SLE	.11	.08	.01	1.64	NS
hardiness	.04	.11	.00	.16	NS
interaction					
HS	-.01	.32	.00	.00	NS

Table 15 (continued)

Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Term

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
Drug Use (N = 155)					
main effects					
SD	-.21	.08	.05	7.27	.008
SES	.08	.08			NS
sex	-.08	.08			NS
age	.18	.08			.023
Sociodemographic Block			.05	2.67	
SLE	.21	.09	.04	6.04	.015
hardiness	-.26	.11	.03	6.03	.015
interaction					
HS	-.62	.30	.02	4.35	.039

the outcome measures as shown in Table 10. Nevertheless, the strength of the relationship varied. Although hardiness was found to be highly correlated with affective reaction and strain, self esteem demonstrated a stronger correlation. In contrast, hardiness demonstrated a stronger relationship with aberrant behavior and drug use than self esteem. Significant low relationships were found between both hardiness and self esteem for school absence.

Thus partially confirming hypothesis 4.

The differential effects of self esteem and hardiness indicated by these correlations could not be substantiated using a regression approach however due to the multicollinearity of the variables. Both self esteem and hardiness were

highly intercorrelated as well as being significantly correlated with social desirability. Entrance of these variables simultaneously into a multiple regression equation would confound interpretations of the results.

Supplementary Analyses

The role of negative affect in the stress - behavioral outcome relationship

In addition to protective factors and stressful life events, recent research has explored the role of negative affectivity (NA) in the stress-health relationship (Costa and McCrae, 1985, 1987; Watson and Pennebaker, 1989). These researchers state that both self-report health measures and self-report stress scales reflect considerable NA components but that NA is not strongly or consistently related to long term health status. Watson and Clark (1984) review extensive evidence indicating high NA individuals are likely to experience significant levels of distress and dissatisfaction at all times and in any given situation even in the absence of overt stress. Because the self-report measures of stress and health contain substantial NA components, their correlations tend to overestimate the true association between stress and health. The following analyses provide a cursory examination into the role of negative affect. The results should be carefully interpreted due to the multicollinearity of the variables under consideration.

Stress and hardiness. Negative affect was examined through the use of self esteem scores, as reported by Watson and Pennebaker (1989). Since negative affect exerts its effects on self report measures of stress and personality, it was entered into the regression equation first. When negative affect was controlled,

hardiness was found to buffer the effects of stress on drug use. Hardiness did not buffer the effects of stress for the other outcome measures. It did, however, approach significance for aberrant behavior ($F = 3.83, p = .053$). Main effects were demonstrated for four of the five outcome measures: affective reaction, aberrant behavior, strain and drug use. Table 16 summarizes these results.

When both negative affect and social desirability were controlled, the interaction between stress and hardiness for drug use as well as most main effects disappeared. Only the direct influence of hardiness on aberrant behavior remained. Table 17 presents these findings. Results for restricted and high social desirability groups are presented in Appendices L-1 and L-2, respectively.

Sociodemographics and hardiness

Table 18 provides a summary of findings when sociodemographics were included. Although sex was found to be an important factor for the prediction of aberrant behavior and age was significantly associated with drug use, the contributions of stress and hardiness remained virtually the same. Similar to the results provided in Table 17, the hardiness - stress interaction persisted, strengthening slightly while the near significant interaction between stress and hardiness for aberrant behavior did not change. Hardiness again demonstrated direct effects for all outcome measures except school absence.

When negative affect, social desirability and sociodemographics were controlled, few changes occurred. The buffering effect of hardiness for drug use decreased slightly and the direct effects of hardiness on affective reaction and strain washed out. Table 19 provides a summary of these findings. Appendices L-3 and L-4 provide statistics when social desirability is controlled experimentally.

Table 16

Multidimensional Outcome Measures Regressed on Negative Affect,
Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction (N = 135)</u>						
main effects						
	NA (esteem)	-.85	.05	.71	335.15	.000
	SLE	.07	.05	.00	1.80	NS
	hardiness	-.21	.06	.03	14.21	.001
interaction						
	NAS	-.23	.12	.01	3.32	NS
	HS	-.22	.26	.00	.72	NS
<u>Aberrant Behavior (N = 133)</u>						
main effects						
	NA (esteem)	-.21	.09	.04	6.01	.016
	SLE	.22	.10	.04	5.30	.023
	hardiness	-.54	.10	.18	31.53	.000
interaction						
	NAS	.25	.21	.01	1.36	NS
	HS	.97	.50	.02	3.83	.053
<u>Strain (N = 147)</u>						
main effects						
	NA (esteem)	-.61	.07	.37	86.17	.000
	SLE	.13	.07	.01	3.25	NS
	hardiness	-.20	.08	.03	6.12	.015
interaction						
	NAS	-.33	.19	.01	3.10	NS
	HS	.09	.40	.00	.05	NS
<u>School Absence (N = 157)</u>						
main effects						
	NA (esteem)	-.23	.08	.05	8.50	.004
	SLE	.10	.09	.01	1.43	NS
	hardiness	-.04	.10	.00	.18	NS
interaction						
	NAS	.04	.23	.00	.03	NS
	HS	-.19	.48	.00	.16	NS
<u>Drug Use (N = 150)</u>						
main effects						
	NA (esteem)	-.20	.08	.04	6.43	.012
	SLE	.29	.09	.07	11.40	.001
	hardiness	-.23	.10	.03	5.46	.021
interaction						
	NAS	-.29	.22	.01	1.68	NS
	HS	-.92	.45	.02	4.12	.044

Table 17

Multidimensional Outcome Measures Regressed on Social Desirability
Negative Affect, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>Affective Reaction</u> (N = 123)						
main effects						
	NA (esteem)	-.85	.05	.72	311.86	.000
	SD	-.45	.07	.07	39.43	.000
	SLE	.14	.11	.00	.62	NS
	hardiness	-.08	.06	.00	1.57	NS
interaction						
	NAS	-.18	.11	.00	2.44	NS
	HS	-.20	.25	.00	.62	NS
<u>Aberrant Behavior</u> (N = 124)						
main effects						
	NA (esteem)	-.21	.09	.04	5.44	.021
	SD	-.34	.14	.04	5.56	.020
	SLE	.22	.10	.03	4.06	.033
	hardiness	-.59	.11	.18	30.32	.000
interaction						
	NAS	.25	.21	.01	1.41	NS
	HS	.76	.50	.01	2.23	NS
<u>Strain</u> (N = 134)						
main effects						
	NA (esteem)	-.61	.07	.38	79.82	.000
	SD	-.47	.11	.08	20.13	.000
	SLE	.11	.07	.01	2.35	NS
	hardiness	-.05	.09	.00	.31	NS
interaction						
	NAS	-.28	.18	.01	2.31	NS
	HS	.02	.41	.00	.00	NS

Table 17 (continued)

Multidimensional Outcome Measures Regressed on Social Desirability
Negative Affect, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>School Absence (N = 145)</u>						
main effects						
	NA (esteem)	-.23	.08	.05	7.97	.005
	SD	-.10	.13	.00	.61	NS
	SLE	.07	.09	.00	.60	NS
	hardiness	.02	.12	.00	.04	NS
interaction						
	NAS	.07	.24	.00	.08	NS
	HS	-.29	.51	.00	.31	NS
<u>Drug Use (N = 138)</u>						
main effects						
	NA (esteem)	-.23	.08	.05	7.73	.006
	SD	-.15	.13	.01	1.32	NS
	SLE	.29	.09	.06	9.70	.002
	hardiness	-.24	.12	.03	4.18	.043
interaction						
	NAS	-.28	.22	.01	1.51	NS
	HS	-.85	.49	.02	3.08	NS

Table 18

Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability
Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction (N = 133)</u>						
main effects						
	NA (esteem)	-.85	.05	.72	331.54	.000
	age	.02	.05			NS
	sex	.04	.05			NS
	SES	-.00	.05			NS
	Sociodemographic Block			.00	.34	
	SLE	.08	.05	.01	2.56	NS
	hardiness	-.22	.06	.03	14.94	.001
interaction						
	NAS	-.21	.13	.01	2.71	NS
	HS	-.18	.26	.00	.47	NS
<u>Aberrant Behavior (N = 131)</u>						
main effects						
	NA (esteem)	-.20	.09	.04	5.59	.020
	age	-.12	.08			NS
	sex	-.31	.08			.001
	SES	.05	.08			NS
	Sociodemographic Block			.10	4.98	
	SLE	.17	.09	.02	3.14	NS
	hardiness	-.48	.10	.13	23.48	.000
interaction						
	NAS	.23	.21	.01	1.26	NS
	HS	.93	.48	.02	3.77	.054
<u>Strain (N = 144)</u>						
main effects						
	NA (esteem)	-.61	.07	.37	82.73	.000
	age	.02	.07			NS
	sex	.06	.07			NS
	SES	.09	.07			.058
	Sociodemographic Block			.02	1.72	
	SLE	.13	.07	.01	3.22	NS
	hardiness	-.21	.09	.03	6.04	.015
interaction						
	NAS	-.29	.19	.01	2.29	NS
	HS	.06	.39	.00	.02	NS

Table 18 (continued)

Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability
Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>School Absence</u> (N = 155)						
main effects						
	NA (esteem)	-.23	.08	.05	8.57	.004
	age	-.01	.08			NS
	sex	-.04	.08			NS
	SES	-.03	.08			NS
	Sociodemographic Block			.00	.12	
	SLE	.12	.09	.01	1.88	NS
	hardiness	-.03	.10	.00	.06	NS
interaction						
	NAS	.01	.24	.00	.00	NS
	HS	-.12	.48	.00	.07	NS

Table 18 (continued)

Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability
Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Drug Use</u> (N = 148)						
main effects						
	NA (esteem)	-.20	.08	.04	6.10	.015
	age	.22	.08			.008
	sex	-.07	.08			NS
	SES	.12	.08			NS
	Sociodemographic Block			.07	3.65	
	SLE	.27	.09	.06	10.36	.002
	hardiness	-.22	.10	.03	4.70	.032
interaction						
	NAS	-.28	.23	.01	1.59	NS
	HS	-1.09	.43	.03	6.28	.013

Table 19

Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability
Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
Affective Reaction (N = 122)						
main effects						
	NA (esteem)	-.85	.05	.72	308.12	.000
	SD	-.44	.07	.07	38.93	.000
	age	-.02	.04			NS
	sex	.03	.04			NS
	SES	-.03	.04			NS
	Sociodemographic Block			.00	.39	
	SLE	.03	.05	.00	.51	NS
	hardiness	-.09	.06	.00	2.01	NS
interaction						
	NAS	-.17	.12	.00	2.07	NS
	HS	-.18	.26	.00	.50	NS
Aberrant Behavior (N = 122)						
main effects						
	NA (esteem)	-.20	.09	.04	5.00	.027
	SD	-.37	.15	.05	6.33	.013
	age	-.11	.08			NS
	sex	-.31	.08			.001
	SES	-.01	.08			NS
	Sociodemographic Block			.10	4.63	
	SLE	.16	.10	.02	2.41	NS
	hardiness	-.52	.11	.13	21.62	.000
interaction						
	NAS	.24	.21	.01	1.31	NS
	HS	.68	.49	.01	1.93	NS
Strain (N = 132)						
main effects						
	NA (esteem)	-.61	.07	.37	77.04	.000
	SD	-.48	.11	.08	20.26	.000
	age	.04	.07			NS
	sex	.03	.07			NS
	SES	.11	.07			NS
	Sociodemographic Block			.01	1.01	
	SLE	.10	.07	.01	1.96	NS
	hardiness	-.06	.10	.00	.45	NS
interaction						
	NAS	-.24	.18	.01	1.69	NS
	HS	-.00	.41	.00	.00	NS

Table 19 (continued)

Multidimensional Outcome Measures Regressed on Negative Affect, Social Desirability
Sociodemographics, Stressful Life Events, Hardiness and the Interaction Terms

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
School Absence (N = 143)						
main effects						
	NA (esteem)	-.23	.08	.05	8.05	.005
	SD	-.10	.13	.00	.50	NS
	age	.01	.08			NS
	sex	-.01	.08			NS
	SES	-.02	.08			NS
	Sociodemographic Block			.00	.03	
	SLE	.09	.09	.01	.86	NS
	hardiness	.03	.12	.00	.06	NS
interaction						
	NAS	.05	.24	.00	.04	NS
	HS	-.23	.51	.00	.21	NS
Drug Use (N = 136)						
main effects						
	NA (esteem)	-.23	.08	.05	7.35	.008
	SD	-.17	.14	.01	1.55	NS
	age	.20	.08			.018
	sex	-.07	.08			NS
	SES	.11	.08			NS
	Sociodemographic Block			.06	2.93	
	SLE	.28	.09	.06	9.10	.003
	hardiness	-.24	.12	.03	4.19	.043
interaction						
	NAS	-.29	.22	.01	1.66	NS
	HS	-1.04	.46	.03	5.07	.026

Discussion

Overview of Hardiness in Adolescents

Measurement of the hardy personality in adolescents proved to be viable and informative. Although additional scale development is required, the initial development of a hardy personality scale for adolescents provides a framework for inquiries investigating healthy coping patterns in social environmental encounters.

Hardiness was found to be a health enhancing resource for all outcome measures - affective reaction, aberrant behavior, strain and drug use. No effects were found for school absence. In addition to the main effects of hardiness, a stress buffering effect was found for drug use. Furthermore, despite the strong relationship found between hardiness and self esteem, they were differentially related to the multidimensional outcome measures. Self esteem was found to have a stronger correlation with affective adjustment measures while hardiness demonstrated a stronger association with behavioral adjustment measures.

The role of stressful life events in the prediction of the multidimensional outcome measures also was variable. Direct effects were seen only for drug use once response biases reflected by social desirability and sociodemographics were controlled.

Hardiness Scale Construction

A factor analytic approach

A factor analytic approach to scale construction was employed for the

development of a hardiness scale in adolescents. Following this method, a 23-item scale, the HSA-R, demonstrating acceptable reliability ($r = .73$) emerged. The HSA-R was found to be composed of three factors: task/school engagement, 9 items; goal/self directedness, 9 items; and, positive orientation, 5 items. Internal consistency for these factored subscales varied. Task/school engagement demonstrated the highest reliability, .71. Goal/self directedness was next with an alpha reliability of .63 and positive orientation had the lowest, .52. Due to the low reliabilities of the subscales and the relatively small number of items, only the hardiness composite was assessed.

The failure to retain an adequate number of items for subscale analyses is a potential limitation of the factor analytic approach to scale development. The primary objective of factor analysis is the reduction of items based on their correlation with other items that fall together forming a subscale and their correlation with other commonly grouped items (Rummel, 1970; Kim and Mueller, 1978). In general, the first step of factor analysis involves an examination of the interrelationships among the items and factors. Once the type of relationship (e.g., positive or negative, high or low) is determined, factor analysis addresses whether these observed correlations can be explained by the existence of a smaller number of hypothetical variables or factors. This is particularly useful when confronted with a large number of scale items in combination with a large sample size.

Factor analysis operates by delineating clusters of interrelated variables. According to the principal axis factor technique, the first or primary group of variables/items is fitted to the variables to account for a maximum amount of

total shared variance. As a result, the factor dimension may be between a cluster(s) of variables rather than defining any one group. Rotation of the initial factors maximizes the fit to each cluster or group. In other words, there is a shift from factors maximizing total shared variance to factors delineating separate groups of highly intercorrelated variables. Thus, some items may contribute to the variance of the scale and still be eliminated because they do not meet the correlation criteria for the factor analysis. The development of the HSA-R provides an example. In the preliminary investigation, a 36-item scale was identified. Administration of this scale to a second sample initially yielded an alpha reliability of .65. When factor analysis was applied, 10 items were eliminated and a alpha reliability of .65 was determined for the remaining 26 items. When item-total correlations were examined, three additional items were eliminated increasing the reliability of the HSA-R to .73. The large drop in items in combination with a stable internal consistency warrants a closer inspection of scale properties to determine the interrelationships between the items.

Role of response styles in the HSA - R

Item responses cannot be meaningfully interpreted in terms of a single underlying construct if they are confounded with response styles. Response styles are relatively stable ways of responding to items that represent characteristics other than the construct under observation. If the response style is viewed as a legitimate component of the conceptual network underlying the construct, the construct is questionable. In other words, including a response style such as acquiescence or social desirability in the definition would yield a measure that is highly correlated with any and all measures incorporating these response styles or

with measures simply contaminated with them. Constructs developed to reflect independent substantive domains, such as the hardiness construct, cannot logically share major components of their variance. As the result of preliminary findings regarding the development of the HSA and the subsequent scale revision, the HSA-R was found to have little association with acquiescence and a slight relationship with defensiveness. But, it was substantially related to social desirability. The high correlation between hardiness and social desirability (i.e., nearly 45 percent of the hardiness variance is accounted for by the social desirability measure) necessitates a closer inspection of the HSA-R.

Examination of the correlations between the hardiness components reveals that all three subscales are, at minimum, moderately associated with social desirability. Nevertheless, relative to the magnitude of their correlations with social desirability, the internal consistency of the task/school engagement and the goal/self directedness components were higher indicating that they are empirically distinct dimensions. However, for the positive orientation subscale, the relationship with social desirability was higher than its internal consistency. Thus, it is hard to determine what content, independent of social desirability, the positive orientation subscale is tapping.

Considering the relationship of the subscales to social desirability, it appears that additional research is needed to identify the interrelationships and the functioning of the hardiness components. One approach to further scale development would be to identify the social desirability index of the HSA-R items and retain only those within acceptable ranges. Alternatively, scale development could focus on the positive orientation scale due to its high correlation with social

desirability. Possibly, new items tapping problem solving strategies in a neutral setting could be written rather than the inclusion of emotion-laden self presentation situations such as "No matter what you do, nothing ever turns out the way you want it to" or "In general, I feel confident about the work I do and the decisions I make" which tend to elicit socially desirable responses. In addition, the definition of hardiness in an adolescent population should be reconsidered, particularly the role of a positive or optimistic orientation.

The relationship between the hardy personality and self esteem

Convergence of self esteem and hardiness. Some evidence for the convergent validity of the revised Hardiness Scale for Adolescents was shown by its convergence with a measure of self esteem. According to existential theory, hardy individuals are striving for authenticity. Authentic beings are those who are in a dynamic state, open to new experiences, tolerant of change and in the process of learning new things about themselves. Inauthentic individuals, on the other hand, are characterized by an inability to see beyond their current condition and the acceptance of a fated destiny. Their primary purpose in life is the maintenance of the status quo. Variations in hardiness, therefore, reflect differences in challenge regarding new experiences, commitment to tasks at hand and a sense of control or influence over ones action, experiences, situations.

Similar to authentic individuals, those high in self esteem tend to be more comfortable and consequently more successful in interpersonal relationships which lead to more exposure and more opportunities for constructive or positive feedback. Low self esteem individuals, however, tend to shy away from new learning experiences and the associated sense of worthlessness. Maintaining their

environment is more important than growth attained through contact with the unexpected or novel. Thus, level of self esteem contributes to the willingness to take risks, to expectations of success and failure and the expectation that one will have a meaningful impact on others.

Self esteem and hardiness are nevertheless different conceptualizations. Self esteem is primarily affective and cognitive. It is a subjective experience in which an attitude of approval or disapproval regarding the self is expressed and the extent to which individuals believe they are capable, important, successful and worthy is indicated to others through verbal reports and other overt behaviors. Although levels of self esteem may determine the individual's participation in various events, it does not influence the array of potential environmental responses. Hardiness, on the other hand, appears to transcend the boundaries of self esteem/self concept by incorporating a behavioral component which actively restructures environmental events so as to reduce or eliminate the negative effects. Thus, hardiness extends beyond the affective and cognitive nature which defines self esteem.

It was surprising, then, that the correlation between hardiness and self esteem, as determined by Cronbach's alpha, was found to be $r = .60$, accounting for approximately 36 percent of the variance. Although it was important for the HSA-R to correlate positively with the self esteem measure, it was equally important that the relationship was not be too strong. An excessively high correlation indicates the measurement of the same rather than distinct concepts.

One reason for the strong correlation between hardiness and self esteem may be the result of their overlap with social desirability. Hardiness, as noted

previously, was highly correlated with social desirability, especially the positive orientation component. However, the self esteem measure demonstrated an even higher relationship with social desirability ($R = .78$), sharing more than 50 percent of its variance. To investigate this relationship, a partial correlation analysis was conducted. When social desirability was partialled out, the correlation between hardiness and self esteem dropped drastically ($r = .19, p < .01$).

Role of hardiness and self esteem in the stress - adjustment model. The hardy personality was found to have a higher correlation with the drug use and aberrant behavior outcome measures. In contrast, self esteem demonstrated a stronger relationship with affective reaction and strain. These differences may be accounted for by their conceptually different functions. As theorized, hardiness was found to be effective for outcomes involving action or overt behaviors. Drug use was measured by a composite score summing reported use of cigarettes, liquor, beer, wine, marijuana and cocaine. Aberrant behavior provided a measure of socially deviant attitudes, rebelliousness and repression. Questions such as "I dislike working for a person who is strict about rules", "Sometimes I have been so impressed by the cleverness of a crook that I hoped he would get away with it" or "At night, I rarely think over what has happened to me during the day". Hardy individuals cope with stress by confronting and actively transforming the event so that it becomes an opportunity for growth rather than a debilitating experience. Individuals high in self esteem, in comparison, may appraise the situation and with the help of positive feelings about themselves, favorably resolve any dissonance or discrepancy. Unlike hardiness, however, self esteem is not

sufficient a resource to change the situation. Thus, accounting for the stronger correlation between hardiness and the social behaviors, drug use and aberrant behavior.

In contrast, self esteem demonstrated high correlations with affective and cognitive outcomes. Affective reaction measured depression and familial discord, tapping responses to questions such as "My present situation seems quite hopeless" and "I feel free to say what I think at home without fear of getting into an argument". In these instances, having a positive view of the self is an evident asset. Hardiness, however, through its positive orientation in dealing with stressful events, its goal directedness and task engagement also seems a plausible resource. Nevertheless, coping with affective responses such as feelings of depression and negative attitudes toward one's family may not, at least initially, require more than an optimistic outlook. This may be particularly true for adolescents who are engaged in the establishment of an identity independent of adult supervision.

For school absence, a self-report of the number of days not in attendance during the six previous school months, both the hardy personality style and self esteem demonstrated weak relationships. These associations may be accounted for by a restriction in the range of absenteeism. Alternatively, it may be that the effects of hardiness are limited in situation specific measures. Previous research, in adults, has typically found hardiness to be predictive of global outcome measures such as physical health, experiences of pain, positive growth and depression. Nevertheless, the dependence of the outcome measure on the specificity of the situation in relation to hardiness has not been investigated. For

instance, absence from school may result from a breakdown in transportation, the necessity for a babysitter at home, an unexpected illness or a growing attitude of boredom or a preference for working. As the reason becomes less intrapersonal and more and more situation specific, the effects of hardiness may diminish.

Subjective strain, in comparison, tapped psychosomatic behaviors. Although affective in nature, it is directed toward internalized physical rather than behavioral reactions. Cognitive evaluation of the self and/or the self in the environment, therefore, would initially exert the greatest influence on the acknowledgment and reporting of psychosomatic ailments particularly regarding minor aches and pains. The predominate influence of a positive orientation, including measures of self esteem, supports previous research (Howard and Kubis, 1964; Wylie, 1961; Carver and Scheier, 1984) regarding the prediction of an individual's ability to cope with psychosomatic strain. Hardiness, however, extends beyond cognitive orientation to active intervention between the individual and the social situation. Since adolescents are still in the process of development and have considerably less bodily wear and tear, psychosomatic reactions such as those surveyed by the strain measure may be considered transient or as commonly referred to as "growing pains". Consequently, they may be determined not to be worth additional attention or confronted directly. Only when impairments in physical health are serious may the effects of hardiness, beyond the generally positive orientation, be exhibited.

Hardiness as a Stress Resistance Resource

The hypothesis that hardiness would act as a stress resistance resource to

the effects of stressful life events in an adolescent population was upheld for affective reaction, aberrant behavior and drug use. This effect persisted after controlling for the influence of social desirability and sociodemographics. Hardiness did not exert a protective effect for the strain or school absence outcome measures.

One potential explanation may be that factors other than hardiness may be influencing the adolescents behavior. Factors not investigated in the current study such as health behaviors and social supports have been shown to effect the relationship between stress and health in adults (Kobasa, 1984). In addition to these factors, the adolescents attitudes, feelings and behaviors also may be influenced by parental authority and concern and peer pressure. Insight into the process by which hardiness acts as a health enhancing resource requires a closer inspection before definitive explanations can be proposed.

Hardiness as a Buffer of Stressful Life Events in Adolescence

Hardiness was found to buffer the negative effects of stressful life events for drug use. According to Kobasa (1979), a stress buffering effect occurs when stress exerts direct effects on the outcome measure and the interaction between stress and hardiness is significant such that under conditions of high stress, hardiness exhibits its strongest effect.

Direct effects for hardiness were found for the affective reaction, aberrant behavior and drug use outcome measures. However, an interaction effect between stress and hardiness was demonstrated for drug use only. In order to identify the nature of the relationship between stress and hardiness for drug use,

a series of regressions were conducted. First, the distribution of stressful life event scores was examined and three levels of stressful life events were established, each containing approximately one-third of the respondents. Individuals experiencing 10 or fewer life events in the previous six month period were included in the low stress category. Those experiencing 11 to 15 events were considered as having a medium stress level and 16 or more life events constituted the high level of stress. Then, for each of the three stress levels, drug use was regressed on hardiness, on hardiness controlling for social desirability, on hardiness controlling for sociodemographics and on hardiness controlling for social desirability and sociodemographics. Figure 2 presents a graphic representation of these results. In all instances, except when drug use was regressed on hardiness and social desirability, hardiness exerted the strongest influence under high levels of stress. When social desirability was controlled, hardiness appeared to have its strongest effects under medium rather than high stress. This finding may be attributable to the suppressor effect of highly correlated variables. Or, it may be that there is little qualitative difference in the effects of experiencing 11 to 15 stressful life events within a six month period compared to 16 or more stressful experiences within the same time frame.

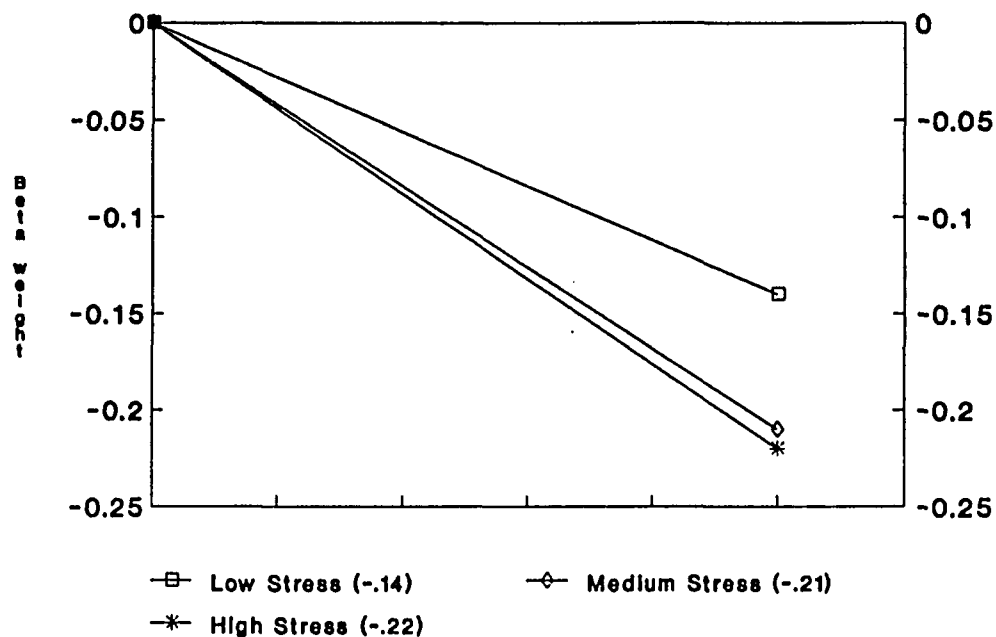
For affective reaction, aberrant behavior, strain and school absence the buffering hypothesis was not supported. A number of alternative explanations accounting for the failure to support a stress buffering hypothesis are discussed below.

Problems in measurement

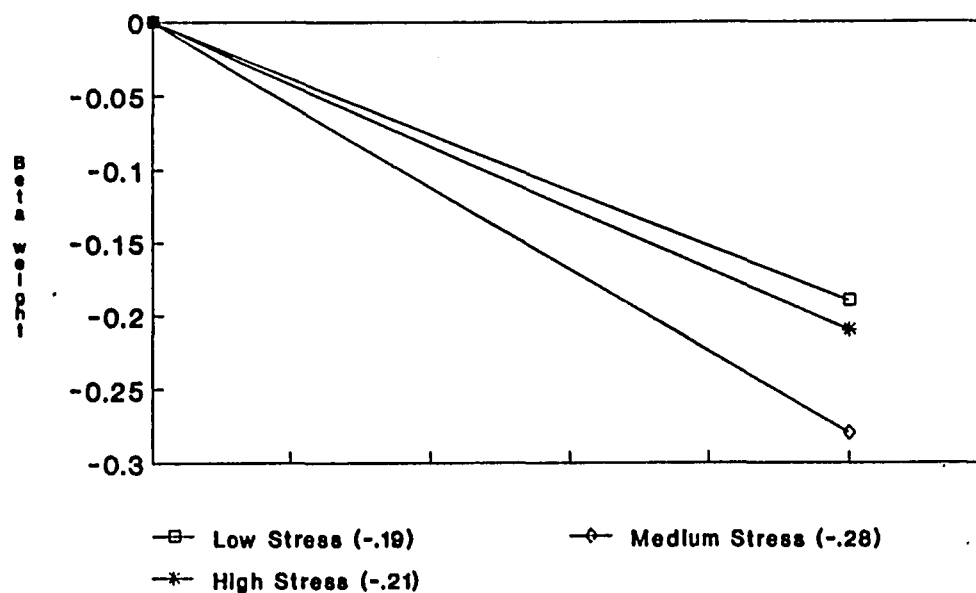
Reliability and validity. The lack of a buffering effect may be due to the

Figure 2

Effects of Hardiness on Drug Use at Different Levels of Stressful Life Events, With and Without Controls for Social Desirability and Sociodemographics



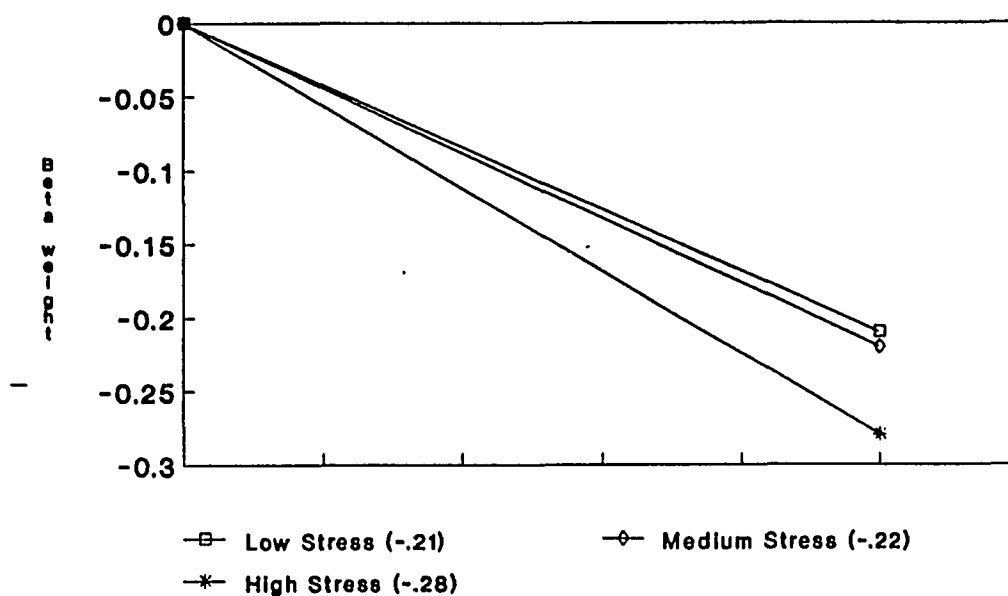
Drug Use Regressed on Hardiness



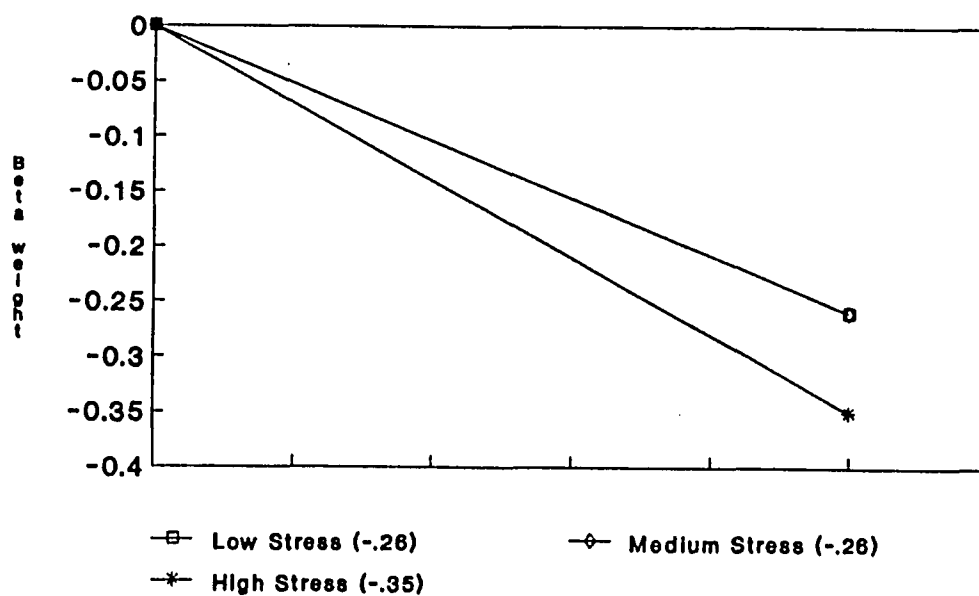
Drug Use Regressed on Hardiness
Controlled for social desirability (SD)

Figure 2 (continued)

Effects of Hardiness on Drug Use at Different Levels of Stressful Life Events, With and Without Controls for Social Desirability and Sociodemographics



Drug Use Regressed on Hardiness
Controlled for sex, age, SES



Drug Use Regressed on Hardiness
Controlled for SD, sex, age, SES

psychometric properties of the hardiness instrument. At present, the HSA-R is in the process of being validated. And, although initial investigation of the psychometric properties reveals an adequate scale, it is limited in scope due to its minimal reliability and validity.

Sampling of stressful life events. Following a stressful life events approach, the frequency with which negative events occur provides the potential for the overtaxing of a persons' personal and social resources and the subsequent onset of strain and or illness. How the individual perceives these events and their characteristic way of responding has repeatedly been shown to effect the consequences in adults. As an adult, it is assumed that a person has developed a sense of identity and has demonstrated independence. The period of experimentation and exploration has ended and social expectations project a life pattern that is more established and predictable.

In contrast, an established set of principles, expectations and goals has not been completely formulated for adolescents. Young adults are expected to be constantly trying something new. Multiple goals, roles and challenges are identified and accepted or rejected. Thus, the lack of an interaction effect between stressful life events and hardiness may be attributable to the fact that the adolescent's identity and sense of self are in transition. And, due to the numerous changes within oneself, the effects of external stressors are minimized. Of the potential 56 stressful life events, the average number reported as being experienced in the past six months was 13.7, a substantially lower number than the mean of 43.5 reported for the 61 item stressful life event scale in the preliminary analyses. Previous research (Lewis, 1988; Bolton and Christensen,

1986) support the low endorsement of life events by adolescents.

On the other hand, it is possible that the events surveyed do not adequately tap the specific situations or aspects of situations that require the adolescent to change or adapt. Perhaps, an alternative approach such as role research would be more salient, one which, for example, used items investigating aspects of being a student, of becoming autonomous, independent, or of interacting with peers. One investigation into the importance of environmental fit, specifically role congruence, compared to stressful life events was conducted by Greenberger, Steinberg and Vaux (1982). Due to methodological problems, environmental congruence did not significantly predict health, but was found to contribute to adjustment independently of stressful life events, thus indicating the potential viability of this approach.

Multicollinearity

Another reason for the lack of stress buffering effects may be the result of multicollinearity, the correlation between two or more independent variables that frequently suppress the effects of these variables in relation to the outcome measure. For this group of adolescents, a significant correlation between stress and hardiness ($r = -.36$, $p = .000$) was found. Since this finding contradicts both theoretical expectation and empirical findings in adults, items on the stressful life events scale were reviewed for their similarity to characteristics associated with a hardy personality. Six items (e.g., fights with parents, getting expelled/suspended) were identified as potentially confounding items. These items were dropped and the correlation between the remaining 50 stressful life event items and hardiness was reassessed. The new correlation ($r = -.33$, $p = .000$) was only slightly lower,

indicating that the relationship between stress and hardiness was not the result of item overlap. Furthermore, the correlation between stress and hardiness was not completely accounted for by social desirability, although the correlation did weaken when its effects were partialled out ($r = -.17, p < .02$). A corresponding decrease was seen for the 50 item stressful life events scale ($r = -.15, p < .03$).

One possible explanation for the relationship between stress and hardiness may be attributable to individual variations in development. Prior to the establishment of an identity, an individual tends to view him- or herself according to different roles; daughter or son, teammate, student, sister or brother, etc. (Craig, 1986). With cognitive development, however, the adolescent is capable of and consequently begins to analyze her or his roles in regard to oneself. New roles are constantly being tried and inconsistencies and conflicts in existing roles are confronted and restructured to form a new identity using previously learned skills. Thus, it is possible that for some adolescents, exposure to stressful events may retard development requiring a longer period for establishing an identity and healthy coping skills. On the other hand, hardy individuals may be more knowledgeable of themselves and their goals and consequently limit their exposure to some life events.

Role of social desirability in the hardiness model for adolescents

An alternative explanation for the lack of an interaction between stressful life events and hardiness in predicting the multidimensional outcome measures may be the effects of social desirability. Social desirability is defined as the tendency for individuals to respond to personality items in a manner that presents the self in a favorable light (Jackson, 1984). And, for the most part, adolescents

are seeking their niche in adult society. They are directed toward determining who they are, where they are going and what they would like or not like to be. This process incorporates not only the self but how the self interacts with and compares to others. Thus, socially desirable responding is inherent in their actions. However, when high, it biases individual responses and if not taken into account, interferes with interpretations of the findings. Thus, it is necessary to control for the effects of social desirability when aiming at a clear understanding of adolescent thoughts, feelings and actions.

When social desirability was entered into the hardy -stress equation, it was found to account for 70 percent of the variance associated with affective reaction and 44 percent of the variance associated with strain. For aberrant behavior, 7 percent of the variance was accounted for by social desirability. For school absence, only 4 percent and, for drug use, 4 percent of the variance was accounted for by social desirability.

When the effects of social desirability were controlled statistically, no interaction effects between hardiness and stressful life events were found. Furthermore, some of the main effects disappeared. Stressful life events continued to be important in determining aberrant behavior, strain and drug use. The importance of personality hardiness persisted for aberrant behavior and drug use. Similar effects were found when only high socially desirable respondents were included. In contrast, when social desirability was restricted to individuals who scored low on the social desirability scale (i.e., average item response was equal to 3 or less on the 6-point scale), support for the stress buffering effects of hardiness were found for affective reaction and aberrant behavior.

One reason for the differences between the statistical and experimental methods may be the result of qualitative differences in the samples. Since inclusion in a group is dependent on a single criteria, the respondents may vary on other characteristics (e.g., sex, age, hardiness development) that may bias or alter the interpretation of results from high compared to low groups. Limiting the sample in this manner also reduces the number of cases and creates a more unrealistic situation.

Another explanation may be that social desirability is continuing to work in the restricted sample. Even though limited, the presence of any socially desirable tendencies is enough to confound results (Messick, 1967). Therefore, further discussion will focus only on findings when social desirability has been statistically controlled.

Thus, social desirability appears to be highly influential in determining individual responses to inquiries concerning depression and family discord (affective reaction) and those concerning psychosomatic reactions (strain) rebelliousness and repression (aberrant behavior). It did not, however, account for the lack of hardiness - stress effects for any of the outcome measures.

Role of Age, Sex and Socioeconomic Status in the Hardiness Model for Adolescents

Three social influences, age, sex and socioeconomic status (SES), that may differentially effect the outcome measures were examined. As a result of socialization, these factors may exert their influence through variations in the individuals' perceptions of the situation and, subsequently, their behavioral

reactions.

Age, sex and SES were found to have differential effects in regards to the multidimensional outcome measures. When age was controlled, hardiness was found to buffer the negative effects of stress on drug use. Furthermore, being an older adolescent was found to predict more negative health behaviors such as smoking cigarettes, drinking or using marijuana/cocaine at twice the strength as sex differences or being a member of a high socioeconomic status bracket (i.e., those living in two parent families with both parents working). These findings persisted when the effects of social desirability were controlled.

Socioeconomic status was identified as an important sociodemographic factor for the prediction of strain. An adolescent's socioeconomic level was found to have twice the influence in predicting strain as did age or sex. Nevertheless, when social desirability was controlled, this influence washed out.

Sex differences, on the other hand, were influential in determining responses to aberrant behavior. Being male was twice as important as age and more than ten times the importance of socioeconomic status in predicting socially deviant attitudes, rebelliousness and repression (aberrant behavior). When sex of the adolescent was taken into consideration, hardiness still did not buffer the effects of stress. Controlling for the effects of sex differences and social desirability, however, washed out the effects of stress. Nevertheless, hardiness remained influential as resistance resource.

Thus, age is an important demographic factor in the stress - hardiness relationship for the prediction of drug use. Age had little influence on the effects of hardiness and stress for the other outcome measures. In comparison, sex and

socioeconomic status showed relatively no relationship to any of the outcome measures even when social desirability was controlled.

The Role of Negative Affect in the Stress - Adjustment Model for Adolescents

Recent research suggests that many stress - health correlations are inflated as the result of the common influence of a general underlying mood state/trait particularly when both the stressful life events and the outcomes are measured by self report. Negative affect is tapped through a number of measurement instruments (e.g., global maladjustment, anxiety, pessimism) including measures of low self esteem which according to Coopersmith (1967) is closely related to anxiety. He states "if it is threat that releases anxiety, as appears theoretically essential, it is the person's esteem that is threatened" (Coopersmith, 1967, p.4).

Information about self esteem was collected using an instrument designed to tap the individuals relatively enduring estimate of general self esteem rather than upon more specific and transitory changes in evaluation. This pervasive sentiment about one's worth tends to set the tone of optimism or pessimism regarding life events. Visualized in this manner, self esteem is reminiscent of optimism (Scheier and Carver, 1985), neuroticism (Costa and McCrae, 1987) and negative affect (Watson and Pennebaker, 1989). Thus, the empirical evidence provided by research coupled with the high correlation between self esteem and affective reaction and self esteem and strain renders negative affect as a highly plausible alternative explanation for the lack of stress buffering effects.

Although the results found in the current study are questionable, the analyses investigating negative affect provide important exploratory information.

When the effects of negative affect were controlled, the stress buffering effects of hardiness for aberrant behavior approached significance. The interactive effects of stress and hardiness for drug use weakened but persisted. When sociodemographics were entered into the regression equation, the buffering effects of hardiness on stress for aberrant behavior disappeared. Additive effects for stress and hardiness, however, continued over and above the influence of sex.

This finding indicating sex differences in aberrant behavior among adolescents, is given some support by the research reported for hardiness in women. In women, it has been suggested that the stress moderating effects of hardiness are less pronounced compared to men (Schmeid and Lawler, 1986). In other studies, hardiness has been found not to ameliorate the negative effects of stress on health in women. Its action is as a resistance resource, directly influencing health and illness (Dermatis, 1989; Rhodewalt and Zone, 1989; Schmeid and Lawler, 1987; Wiebe and McCallum, 1986; Wiebe, 1991). On the other hand, in adult men, the hardy personality style has been shown to exert a buffering effect on stressful life events, decreasing the negative impact on health. (Kobasa, 1979a; Kobasa, Maddi and Kahn, 1982).

When age and negative affect were controlled, hardiness strengthened as a buffer to negative life events for drug use. In contrast, the addition of social desirability to the regression equation, both with and without sociodemographic factors led to the suppression of hardiness. This finding can be explained by multicollinearity. Esteem and social desirability were highly correlated ($r = .78$, $p < .001$), overlapping in approximately 60 percent of their variance. Inclusion of linear dependencies in the same regression equation may cause contradictory or

misleading results (Pedhazur, 1978; Cohen and Cohen, 1983).

Joint effects did not emerge for hardiness and stress on affective reaction, strain or school absence. Controlling for sociodemographics in combination with negative affect also produced no significant stress - hardiness effects.

One potential explanation for these effects may be attributable to age differences in the developmental process. Age, however, demonstrated negligible effects on any of the multidimensional outcome measures other than drug use. No effects were seen even when social desirability and negative affect were controlled.

The lack of age differences may be the result of a homogeneous sample of adolescents. Respondents were limited to those between the ages of 12 and 16 to coincide with Erikson's adolescence stage of personality development. According to this theory, youngsters aged 12 and over have developed a favorable balance of industry over inferiority. They are competent, sure of themselves and are familiar with the rules of the game which coupled with the newly emerged ability to reason things out in a logical way, free the adolescent from dependence on parental authority. Thus, allowing him/her to find solutions to problems without the help from adults. With resolution of this stage, they become engaged in the establishment of an identity. Various roles are being tried and accepted or rejected in favor of alternatives which, in turn, are incorporated or discarded. The primary task at adolescence is the creation of a coherent sense of self that can account for the discontinuities of puberty and prepare adolescents for adult roles. In the current study, some indication of this process is evident. Hardiness was found to be composed of three components, task engagement, goal

directedness and positive self, reflecting characteristics associated with the resolution of industry vs inferiority. In contrast, active purposeful coping strategies reflect the ability to make choices and thereby activate a chain of events or restructuring of the adverse circumstances. The role of hardiness for different types of outcome measures is unclear as shown by the results obtained from affective reaction, aberrant behavior, strain, school absence and drug use. If the hardy personality trait was fully developed and incorporated into one's identity, its effects should be generalizable to all or at least most situations. Nevertheless, further research is needed to substantiate this explanation.

Socioeconomic status also failed to demonstrate effects on the outcome measures. One potential explanation may be found in the definition of socioeconomic status used for this investigation. In most research, socioeconomic status is based on the education, income, the type of work or some combination of social and financial factors. Socioeconomic status, in this case, was not determined on the basis of specific economics nor elements of power and prestige. It was defined as the individuals membership in a single parent or two parent family in combination with the employment status of the parent(s). This more general socioeconomic descriptor may represent the availability of support rather than the availability of resources. And, considering adolescence as a period of time when friends are often more influential than family, it is not surprising that socioeconomic status had little predictive strength.

Conclusion

The Hardiness Scale for Adolescents (HSA), demonstrating satisfactory psychometric properties, was developed for an adolescent population. Following a factor analytic approach to scale construction, hardiness was found to be composed of three subscales, task engagement, goal directedness and positive self. Hardiness was found to be related to though act independently, of self esteem.

Furthermore, empirical support for the conceptualization of hardiness as a stress resistance resource in an adolescent population was found. Hardiness acted as a protective factor, moderating the effects of stress for drug use. In addition, hardiness acted as a resistance resource for affective reaction, aberrant behavior and strain.

Nevertheless, important extraneous factors need to be considered when investigating the role of hardiness in a stress - adjustment model. Social desirability and negative affect acted independently for affective reaction, strain and drug use. In combination, however, they tended to suppress the effects of hardiness and stress as a result of their near perfect linear dependency. Only negative affect was influential for aberrant behavior.

Sociodemographic characteristics were also important for gaining a clearer understanding of the multidimensional outcomes. Age was significant for the prediction of drug use and sex differences influences aberrant behavior.

Four overall conclusions can be drawn from this study of adolescence and hardiness. First, the action of hardiness is different from that of self-esteem in regards to psychological and behavioral adjustment. Second, the effects of

hardiness are significant and distinct from those of social desirability and negative affect in explaining adjustment. Third, sociodemographic factors are an important part of the hardiness adjustment model in that age and sex are associated with drug use and aberrant behavior. Nevertheless, the development of hardiness is independent of age and sex factors. The fourth and final conclusion is that personality hardiness, as a predictor of psychological adjustment, varies with respect to whether the outcome measure is affective, behavioral or situation specific.

This study initiates a theoretical link between hardiness and adolescence, provides preliminary information concerning the psychometric properties of a hardiness scale developed for research with adolescents, identifies and describes social and psychological correlates of hardiness and establishes guidelines for the selection of outcome measures for investigating the relationship between stressful life events and personality hardiness. In doing so, a multitude of currently unanswered questions have been raised and numerous directions for future study have been indicated.

Appendix A

Erikson's Psychosocial Stages of Development

Appendix A

Erikson's Psychosocial Stages of Development

Psychosocial Crises	Life Stage	Positive	<u>Resolution</u>	Negative
<u>Trust</u> vs <u>Mistrust</u>	Infancy (birth to 2 years)	Feelings of confidence that one's needs will be met; one feels valued by others		Feelings that life is unpredictable; doubts that one's needs will be met; inability to experience physical and psychological comfort
<u>Autonomy</u> vs <u>Shame & Doubt</u>	Toddlerhood (2 to 4 years)	Pleasure and pride in doing things on one's own; sense of self confidence and self control		Sense that one's behaviors will result in the displeasure or disapproval of others; expectancies of failure
<u>Initiative</u> vs <u>Guilt</u>	Early School Age (5 to 7 years)	Exploration and experimentation; learning how one interacts with the environment		Self-imposed feelings that inhibit active exploration; feelings that one has violated some social taboo.
<u>Industry</u> vs <u>Inferiority</u>	Middle School Age (8 - 12 years)	Developing sense of competence and self-enrichment; builds positive sense towards work and strengthening skills		Feelings of lack of self-worth; inadequacy and incompetence
<u>Identity</u> vs <u>Diffusion</u>	Adolescence	<u>Group identity.</u> Sense of affiliation and belonging; satisfying and workable relationship between personal and group values <u>Individual identity.</u> Sense of self - where one came from and who one now is; sense of a future direction		<u>Alienation.</u> Sense of alienation, lack of commitment to any group; feelings that group memberships are not open <u>Role diffusion.</u> Sense of aimlessness; inability to integrate one's roles, competencies, relationships and goals

Appendix A (continued)

Erikson's Psychosocial Stages of Development

Psychosocial Crises	Life Stage	Positive	<u>Resolution</u> Negative
<u>Intimacy</u> vs <u>Isolation</u>	Young Adulthood	Sense of mutual understanding; capability of sharing oneself without losing individuality	Fear of losing ones identity; inability to make a commitment to another person
<u>Generativity</u> vs <u>Stagnation</u>	Maturity	Developing sense of responsi- bility for or commitment to improving the quality of life for future generations, resolution of social issues, assisting ones' children	Preoccupation with ones self (health, comfort, psychological needs); lack of psychological growth
<u>Integrity</u> vs <u>Despair</u>	Old Age	Ability to accept one's life history and confront death; personal satisfaction	Feelings fo regret, depression, resentment

Appendix B
Preliminary Survey Measurement Instruments

Appendix B-1

Hardiness Prepilot Questionnaire

On the following page are some items that you may agree or disagree with. Please indicate how you feel about each one by circling a number from 0 to 3 in the space provided. A zero indicates that you feel the item is not at all true; circling a three means that you feel the item is completely true.

As you will see, many of the items are worded very strongly. This is to help you decide the EXTENT to which you agree or disagree.

Please read all the items carefully and make sure your answer has been circled. Remember to answer on the basis of the way you feel now. Don't spend too much time on any one item.

0 = not at all true

1 = a little true

2 = quite true

3 = completely true

Appendix B-1 (continued)

1. I feel uncomfortable if I have to make any changes in my everyday schedule.
2. It doesn't bother me to step aside from something I'm involved in if I'm asked to do something else.
3. I don't like conversations when others are confused about what they mean to say.
4. A person whose mind seldom changes can usually be depended on to have reliable judgment.
5. I won't answer a person's questions until I am very clear as to what is being asked.
6. When I am at school performing a difficult task, I know when I need to ask for help.
7. When I make plans I'm certain I can make them work.
8. Planning ahead can help avoid most future problems.
9. No matter how hard I try, my efforts will accomplish nothing.
10. When you marry and have children you have lost your freedom of choice.
11. It's exciting for me to learn something about myself.
12. I often wake up eager to take up my life where it left off the day before.
13. I really look forward to school.
14. I find it difficult to imagine getting excited about school.
15. The most exciting thing for me is my own fantasies.
16. No matter how hard you work, you never really seem to reach your goals.
17. Thinking of yourself as a free person just makes you feel frustrated and unhappy.
18. I feel no need to try my best at school, since it makes no difference anyway.
19. Most of my life gets wasted doing things that don't mean anything.

Appendix B-1 (continued)

20. Ordinary school work is just too boring to be worth doing.
21. Most of the time it doesn't pay to try hard, since things never turn out right anyway.
22. I find it's usually very hard to change a friend's mind about something.
23. When I make a mistake, there's very little I can do to make things right again.
24. One of the best ways to handle most problems is to just not think about them.
25. When other people get angry at me, it's usually for no reason at all.
26. It bothers me when something unexpected interrupts my daily routine.
27. No matter what you do, the "tried and true" ways are always the best.
28. I respect rules because they guide me.
29. Changes in routine bother me.
30. I don't like things to be uncertain or unpredictable.
31. Most people who go to school are just manipulated by their teachers.
32. Lots of times I don't really know my own mind.
33. It doesn't matter if you work hard at school since it only makes teachers look good.
34. I find it hard to believe people who tell me that the work I do at school is of value in the real world.
35. I think people believe in individuality only to impress others.
36. Most of the time, my teachers or principle will listen to what I have to say.
37. When I'm reprimanded at school, it usually seems to be for no good reason at all.
38. I feel that it's almost impossible to change my parent's mind about something.
39. I believe that most athletes are just born good at sports.

Appendix B-1 (continued)

- 40. I feel that if someone tries to hurt me, there's usually not much I can do to stop him.
- 41. People who do their best should get full financial support from society.
- 42. New rules shouldn't be made if they hurt a person's income.
- 43. I want to be sure someone will take care of me when I get old.
- 44. I enjoy being with people with people who are unpredictable.
- 45. I have no use for stories that are not closely tied to the facts.

Appendix B-2

Adolescent Health Questionnaire

Do Not Put Your Name Anywhere on This Form

Your answers to these questions will help us to find out about the health practices of most teenagers. There are no right or wrong answers to any questions. We are interested in your opinions and your experiences. Answer as many questions as you can. Your honesty will be appreciated. No one other than the researchers will have access to your answers. Only information regarding group behaviors and experiences will be reported.

Please mark each statement in the following way:
 If the statement describes how you usually feel, put a check (✓) in the column "LIKE ME".
 If the statement does not describe how you usually feel, put a check (✓) in the column "UNLIKE ME".
 There are no right or wrong answers.

	Like me	Unlike me
1. I spend a lot of time daydreaming.	_____	_____
2. I'm pretty sure of myself.	_____	_____
3. I often wish I were someone else.	_____	_____
4. I'm easy to like.	_____	_____
5. My parents and I have a lot of fun together.	_____	_____
6. I never worry about anything.	_____	_____
7. I find it very hard to talk in front of the class.	_____	_____
8. I wish I were younger.	_____	_____
9. There are lots of things about myself I'd change if I could.	_____	_____
10. I can make up my mind without too much trouble.	_____	_____
11. I'm alot of fun to be with.	_____	_____
12. I get upset easily at home.	_____	_____
13. I always do the right thing.	_____	_____
14. I'm proud of my school work.	_____	_____
15. Someone always has to tell me what to do.	_____	_____
16. It takes me a long time to get used to anything new.	_____	_____
17. I'm often sorry for the things I do.	_____	_____
18. I'm popular with kids my own age.	_____	_____
19. My parents usually consider my feelings.	_____	_____
20. I'm never unhappy.	_____	_____
21. I'm doing the best work that I can.	_____	_____
22. I give in very easily.	_____	_____
23. I can usually take care of myself.	_____	_____

	Like me	Unlike me
24. I'm pretty happy.	_____	_____
25. I would rather play with children younger than me.	_____	_____
26. My parents expect too much of me.	_____	_____
27. I like every one I know.	_____	_____
28. I like to be called on in class.	_____	_____
29. I understand myself.	_____	_____
30. It's pretty tough to be me.	_____	_____
31. Things are all mixed up in my life.	_____	_____
37. I really don't like being a boy/girl.	_____	_____
38. I have a low opinion of myself.	_____	_____
39. I don't like to be with other people.	_____	_____
40. There are many times when I would like to leave home.	_____	_____
41. I'm never shy.	_____	_____
42. I often feel upset in school.	_____	_____
43. I often feel ashamed of myself.	_____	_____
44. I'm not as nice looking as most people.	_____	_____
45. If I have something to say, I usually say it.	_____	_____
46. Kids pick on me very often.	_____	_____
47. My parents understand me.	_____	_____
48. I always tell the truth.	_____	_____
49. My teacher makes me feel I'm not good enough.	_____	_____
50. I don't care what happens to me.	_____	_____
51. I'm a failure.	_____	_____
52. I get upset easily when I am scolded.	_____	_____
53. Most people are better liked than me.	_____	_____
54. I usually feel as if my parent are pushing me.	_____	_____
55. I always know what to say to people.	_____	_____
56. I often get discouraged in school.	_____	_____
57. Things usually don't bother me.	_____	_____
58. I can't be depended on.	_____	_____

Below is a series of statements which a person might use to describe themselves. Read each statement and decide whether or not it describes you. Then indicate your answer by circling the numbered response that comes the closest to how you feel.

Answer every statement even if you are not completely sure of your answer.

- 0 - Not true at all
- 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 am quite able to make correct decisions on difficult questions. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I am never able to do things as well as I should. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. My life is full of interesting activities. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I believe people tell lies any time it is to their advantage. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. If someone gave me too much change I would tell him. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. I would be willing to do something a little unfair to get something that was important to me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. I get along with people at parties quite well. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. I did many bad things as a child. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. I am glad I am growing up the way I am. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10. I often question whether life is worthwhile. | 0 | 1 | 2 | 3 | 4 | 5 |
| 11. I avoid criticizing others under any circumstances. | 0 | 1 | 2 | 3 | 4 | 5 |
| 12. My daily life includes many activities I dislike. | 0 | 1 | 2 | 3 | 4 | 5 |
| 13. I am one of the lucky people who could talk with my parents about my problems. | 0 | 1 | 2 | 3 | 4 | 5 |
| 14. Many things make me feel uneasy. | 0 | 1 | 2 | 3 | 4 | 5 |
| 15. I am careful to plan for distant goals. | 0 | 1 | 2 | 3 | 4 | 5 |
| 16. I find it very difficult to concentrate. | 0 | 1 | 2 | 3 | 4 | 5 |

The following items describe a number of events that may or may not interfere with your usual routine.

Please read through the list and indicate whether any of these events have occurred to you in the past year by checking the appropriate column on the left-hand side of the list.

Then, for each event that has occurred to you in the past year, circle the numbered response that best describes how you felt about the event.

- 0 - Not stressful at all. Probably no change would be required in order to adjust to this event.
- 1 - Mild stress. Hardly any stress at all. One could make the changes that might be needed without much effort.
- 2 - Semi-moderate. Stress is evidence but one could adjust fairly easily to this event without too much strain mentally, emotionally or physically.
- 3 - Moderately critical. This event causes stress, but one could take in without too great a change of living.
- 4 - Semi-critical event. Stressful. This would require changing one's life to adjust to the differences it would make.
- 5 - Critical event in one's life. Very stressful. This would require a major change. Totally demanding.

Happen?
yes no

- | | | | | | | |
|-----|--|---|---|---|---|---|
| — — | starting to go to weekend parties/rock concerts | 0 | 1 | 2 | 3 | 4 |
| — — | moving to a new town/school/
making new friends | 0 | 1 | 2 | 3 | 4 |
| — — | going on first date/start dating | 0 | 1 | 2 | 3 | 4 |
| — — | remarriage of a parent | 0 | 1 | 2 | 3 | 4 |
| — — | receiving a special award | 0 | 1 | 2 | 3 | 4 |
| — — | hospitalization of a parent | 0 | 1 | 2 | 3 | 4 |
| — — | failure to achieve something
you really wanted | 0 | 1 | 2 | 3 | 4 |
| — — | death of a parent/guardian | 0 | 1 | 2 | 3 | 4 |
| — — | not getting promoted to next grade | 0 | 1 | 2 | 3 | 4 |
| — — | getting caught using drugs | 0 | 1 | 2 | 3 | 4 |
| — — | getting a car | 0 | 1 | 2 | 3 | 4 |

0 - no stress
 1 - mild stress
 2 - semi-moderate stress
 3 - moderate stress
 4 - semi-critical stress
 5 - critical stress

Happen? Yes No							
—	—	fad pressure	0	1	2	3	4 5
—	—	graduation	0	1	2	3	4 5
—	—	fight with parents	0	1	2	3	4 5
—	—	getting expelled/suspended	0	1	2	3	4 5
—	—	going into debt	0	1	2	3	4 5
—	—	getting fired from a job	0	1	2	3	4 5
—	—	pet dies	0	1	2	3	4 5
—	—	getting pressure about having sex	0	1	2	3	4 5
—	—	caught cheating or lying repeatedly	0	1	2	3	4 5
—	—	getting a major illness/injury/ car accident	0	1	2	3	4 5
—	—	death of a close family member	0	1	2	3	4 5
—	—	death of a boy/girl friend/ close friend	0	1	2	3	4 5
—	—	getting V.D.	0	1	2	3	4 5
—	—	getting someone pregnant/getting pregnant	0	1	2	3	4 5
—	—	taking finals/ high school test	0	1	2	3	4 5
—	—	becoming religious or giving up religion	0	1	2	3	4 5
—	—	referral to the principal	0	1	2	3	4 5
—	—	getting acne/warts	0	1	2	3	4 5
—	—	trouble getting a date when it was not a problem before	0	1	2	3	4 5
—	—	getting a ticket or other minor problem with the law	0	1	2	3	4 5
—	—	trying to get a job/job interview	0	1	2	3	4 5
—	—	making a team (debate, drill, athletic)	0	1	2	3	4 5
—	—	getting married	0	1	2	3	4 5
—	—	getting beat up by parents	0	1	2	3	4 5

0 - no stress
 1 - mild stress
 2 - semi-moderate stress
 3 - moderate stress
 4 - semi-critical stress
 5 - critical stress

Happen? Yes No							
—	—	problems developed with teachers/ employers	0	1	2	3	4 5
—	—	making career decisions (HS choice, courses, training, etc.)	0	1	2	3	4 5
—	—	first day of school	0	1	2	3	4 5
—	—	breaking up with boy/girl friends	0	1	2	3	4 5
—	—	getting minor illness (cold, flu)	0	1	2	3	4 5
—	—	arguments with peers/brothers/ sisters	0	1	2	3	4 5
—	—	starting to perform (presentations, speeches, musical/drama performance)	0	1	2	3	4 5
—	—	going to the dentist or doctor	0	1	2	3	4 5
—	—	going to jail/reform school	0	1	2	3	4 5
—	—	starting to use drugs	0	1	2	3	4 5
—	—	getting braces	0	1	2	3	4 5
—	—	going on a diet	0	1	2	3	4 5
—	—	losing or gaining weight	0	1	2	3	4 5
—	—	changing exercise habits	0	1	2	3	4 5
—	—	pressure to take drugs	0	1	2	3	4 5
—	—	moving out of the house	0	1	2	3	4 5
—	—	falling in love	0	1	2	3	4 5
—	—	getting a bad haircut	0	1	2	3	4 5
—	—	getting glasses	0	1	2	3	4 5
—	—	getting a bad report card	0	1	2	3	4 5
—	—	family members moving out	0	1	2	3	4 5
—	—	getting attacked/raped/assaulted	0	1	2	3	4 5
—	—	taking the drivers license test	0	1	2	3	4 5
—	—	getting a new addition to the family	0	1	2	3	4 5
—	—	parents getting a divorce/separation	0	1	2	3	4 5
—	—	having bad rumors spread about you/ being stereotyped/discriminated	0	1	2	3	4 5

Below is a list of ways you might have felt or behaved. How often have you felt this way during the past week?
Please read each item and circle the number that indicates the number of times you felt this way in the past week.

- 0 - < 1 Rarely or none of the time (less than 1 day)
1 - 2 Some or a little of the time (1 - 2 days)
3 - 4 Occasionally or a moderate amount of time (3 - 4 days)
5 - 7 Most or all of the time (5 - 7 days)

DURING THE PAST WEEK :

- | | |
|--|------------------|
| 1. I was bothered by things that usually don't bother me. | 0-<1 1-2 3-4 5-7 |
| 2. I did not feel like eating; my appetite was poor. | 0-<1 1-2 3-4 5-7 |
| 3. I felt that I could not shake off the blues even with help from my family or friends. | 0-<1 1-2 3-4 5-7 |
| 4. I felt that I was just as good as other people. | 0-<1 1-2 3-4 5-7 |
| 5. I had trouble keeping my mind on what I was doing. | 0-<1 1-2 3-4 5-7 |
| 6. I felt depressed. | 0-<1 1-2 3-4 5-7 |
| 7. I felt that everything I did was an effort. | 0-<1 1-2 3-4 5-7 |
| 8. I felt hopeful about the future. | 0-<1 1-2 3-4 5-7 |
| 9. I thought my life had been a failure. | 0-<1 1-2 3-4 5-7 |
| 10. I felt fearful. | 0-<1 1-2 3-4 5-7 |
| 11. My sleep was restless. | 0-<1 1-2 3-4 5-7 |
| 12. I was happy. | 0-<1 1-2 3-4 5-7 |
| 13. I talked less than usual. | 0-<1 1-2 3-4 5-7 |
| 14. I felt lonely. | 0-<1 1-2 3-4 5-7 |
| 15. People were unfriendly. | 0-<1 1-2 3-4 5-7 |
| 16. I enjoyed life. | 0-<1 1-2 3-4 5-7 |
| 17. I had crying spells. | 0-<1 1-2 3-4 5-7 |
| 18. I felt sad. | 0-<1 1-2 3-4 5-7 |
| 19. I felt that people disliked me. | 0-<1 1-2 3-4 5-7 |
| 20. I could not get "going". | 0-<1 1-2 3-4 5-7 |
| 21. I worked under a great deal of strain. | 0-<1 1-2 3-4 5-7 |
| 22. I felt that difficulties were piling up so high I couldn't overcome them. | 0-<1 1-2 3-4 5-7 |

During the past week:

- | | |
|---|------------------|
| 23. My sleep was restless and disturbed. | 0-<1 1-2 3-4 5-7 |
| 24. Once I found the time, it was hard for me to relax. | 0-<1 1-2 3-4 5-7 |
| 25. My school day was made up of many deadlines. | 0-<1 1-2 3-4 5-7 |
| 26. I worried beyond reason about things that did not really matter. | 0-<1 1-2 3-4 5-7 |
| 27. I was more nervous than most people. | 0-<1 1-2 3-4 5-7 |
| 28. I found it difficult to concentrate on what I'm doing because of worrying about other things. | 0-<1 1-2 3-4 5-7 |
| 29. I had headaches or pains in my neck and shoulders. | 0-<1 1-2 3-4 5-7 |
| 30. I was under more stress than my friends appeared to be. | 0-<1 1-2 3-4 5-7 |
| 31. Nervousness interfered with my ability to face a difficult situation or make an important decision. | 0-<1 1-2 3-4 5-7 |
| 32. I felt tense, anxious or had nervous indigestion. | 0-<1 1-2 3-4 5-7 |
| 33. I couldn't turn off my thoughts at night or on weekends long enough to feel relaxed and refreshed the next day. | 0-<1 1-2 3-4 5-7 |
| 34. I had difficulty finding enough time to relax. | 0-<1 1-2 3-4 5-7 |

Please indicate how many times a week you used:

- | | |
|---|------------------|
| Cigarettes | 0-<1 1-2 3-4 5-7 |
| Alcohol | 0-<1 1-2 3-4 5-7 |
| Marijuana | 0-<1 1-2 3-4 5-7 |
| Hard drugs (e.g. cocaine, crack, heroin, speed) | 0-<1 1-2 3-4 5-7 |

Please indicate the number of times that you have been absent from school since September.

- 0 - never
1 - a few days
2 - once or twice a month
3 - once or twice a week
4 - three or four times a week
5 - weeks at a time

On the following pages are some items that you may agree or disagree with.

Please indicate how you feel about each one by circling a number from 0 to 5 in the space provided. A 0 indicates that you feel the item is not at all true; circling a 5 means the item is completely true.

As you will see, many of the items are worded very strongly. This is to help you decide HOW MUCH you agree or disagree.

Please read all items carefully and make sure your answer has been circled.

Remember to answer on the basis of how you feel now. Do not spend too much time on any one item.

- 0 - Not true at all
- 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 uncomfortable if I have to make any changes in my everyday schedule. 0 1 2 3 4 5
2. It doesn't bother me to step aside from something I'm involved in if I'm asked to do something else. 0 1 2 3 4 5
3. I don't like conversations when others are confused about what they mean to say. 0 1 2 3 4 5
4. A person whose mind seldom changes can usually be depended on to have reliable judgement. 0 1 2 3 4 5
5. I won't answer a person's questions until I am very clear as to what is being asked. 0 1 2 3 4 5
6. When I am at school performing a difficult task, I know when I need to ask for help. 0 1 2 3 4 5
7. When I make plans, I'm certain I can make them work. 0 1 2 3 4 5
8. Planning ahead can help avoid most future problems. 0 1 2 3 4 5
9. No matter how hard I try, nothing ever changes. 0 1 2 3 4 5
10. When you select a high school you lose your freedom to study anything you want. 0 1 2 3 4 5
11. It's exciting for me to learn something about myself. 0 1 2 3 4 5
12. I often wake up eager to take up my life where I left the day before. 0 1 2 3 4 5

- 0 - Not true at all
- 1 - Not true for the most part
- 2 - Slightly not true
- 3 - Slightly true
- 4 - True for the most part
- 5 - Completely true

13. I really look forward to school. 0 1 2 3 4
14. I find it difficult to imagine getting excited about school. 0 1 2 3 4
15. The most exciting thing for me is my own fantasies. 0 1 2 3 4
16. You can only reach your goals by working hard. 0 1 2 3 4
17. Being able to make my own decisions makes me feel happy and carefree. 0 1 2 3 4
18. I feel no need to study hard because school doesn't matter. 0 1 2 3 4
19. Most of my life gets wasted doing things that don't mean anything. 0 1 2 3 4
20. Ordinary school work is just too boring to be worth doing. 0 1 2 3 4
21. No matter what you do, nothing ever turns out the way you want it to. 0 1 2 3 4
22. I find it's usually very hard to change a friend's mind about something. 0 1 2 3 4
23. When I make a mistake, there's very little I can do to make things right again. 0 1 2 3 4
24. One of the best ways to handle most problems is to just not think about them. 0 1 2 3 4
25. When other people get angry at me, it's usually for no reason at all. 0 1 2 3 4
26. It bothers me when something unexpected interrupts my daily routine. 0 1 2 3 4
27. No matter what you do, the "tried and true" ways are always the best. 0 1 2 3 4
28. I respect rules because they guide me. 0 1 2 3 4
29. Changes in routine bother me. 0 1 2 3 4
30. I don't like things to be uncertain or unpredictable. 0 1 2 3 4
31. Most people who go to school are just manipulated by their teachers. 0 1 2 3 4
32. Lots of times I really don't know my own mind. 0 1 2 3 4
33. I find it hard to believe people who tell me that the work I do at school is of value in the real world. 0 1 2 3 4

- 0 - Not true at all
 1 - Not true for the most part
 2 - Slightly not true
 3 - Slightly true
 4 - True for the most part
 5 - Completely true

34. Working hard at school only makes the teachers look good. 0 1 2 3 4 5
35. I think people believe in individuality only to impress others. 0 1 2 3 4 5
36. Most of the time my teachers or principal will listen to what I have to say. 0 1 2 3 4 5
37. When I am reprimanded at school it usually seems to be for no good reason at all. 0 1 2 3 4 5
38. I feel that it's almost impossible to change my parent's mind about something. 0 1 2 3 4 5
39. I believe that most athletes are just born good at sports. 0 1 2 3 4 5
40. I never let my friends make decisions for me. 0 1 2 3 4 5
41. People who do their best should get full financial support from society 0 1 2 3 4 5
42. New rules shouldn't be made if they hurt a person's income. 0 1 2 3 4 5
43. I want to be sure someone will take care of me when I get old. 0 1 2 3 4 5
44. I enjoy being with people who are unpredictable. 0 1 2 3 4 5
45. I have no use for stories that are not closely tied to the facts. 0 1 2 3 4 5
46. I like alot of variety in my school work. 0 1 2 3 4 5
47. What I do today effects what happens tomorrow. 0 1 2 3 4 5
48. I believe most of what happens in life is just meant to happen. 0 1 2 3 4 5
49. Most days, life isn't very exciting for me. 0 1 2 3 4 5
50. Principals run our lives. 0 1 2 3 4 5

School Name/ Number _____

School District _____

1. How old are you? _____
2. Sex: Male _____ Female _____
3. Which of the following racial groups do you belong?:
 White _____
 American Black _____
 Carribbean Black _____
 Hispanic _____
 Native American _____
 Oriental _____
 Other (please indicate) _____
4. What grade are you in?:
 7th grade _____
 8th grade _____
 9th grade _____
 Other (please indicate) _____
5. Have you ever been skipped at grade?: Yes _____ No _____
6. Have you ever been held back a grade?: Yes _____ No _____
7. Are you in special education classes?: Yes _____ No _____
8. Which best describes your family?:
 Single parent/guardian working _____
 Two parent/guardian working _____
 Single parent/guardian non working _____
 Two parent/guardian non working _____
 Other (please indicate) _____
9. How many people over 18 years currently live in your house or apartment? _____
10. How many people under 18 years currently live in your house or apartment? _____
11. What is the main language spoken at home?:
 Spanish _____ French _____ English _____ Other _____
12. How many years have you lived in the United States?: _____

Note: Please go back to pages _____ and circle the number of any of the statements you did not clearly understand.

Appendix C

New York City Public School System Research Approval Form

Appendix C (continued)

New York City Public School System Research Approval Form

New York City
Board of Education

110 Livingston Street
Brooklyn, New York 11201

Bernard Mecklowitz
Chancellor

Dolores M. Fernández, Ph.D.
Deputy Chancellor for
Instruction and Development

Office of Research,
Evaluation and Assessment
Robert Tobias
Director
(718) 935-3767

October 16, 1989



Ms. Carla B. Collins
881 Tenth Avenue
New York, New York 10019

Dear Ms. Collins:

I am happy to inform you that your study of Hardineas and Adolescence has been approved by the Office of Research, Evaluation, and Assessment with the following conditions:

1. Approval by this office does not guarantee access to any particular school or student. It is your responsibility to make appropriate contacts and get the required permissions and consents before initiating the study. Participation in your research must be strictly voluntary. The following written consents are required.
 - a. Principals who agree to participate must sign the enclosed Research Application Form. In some districts, the superintendent must also sign. You should check with each principal to determine if the superintendent's signature is also required in that district. The signed form(s) should be returned to this office.
 - b. Before involving any child in your study or collecting student data, you must obtain written parental consent (*implied consent*).
 - c. In addition to the above written consents, all participants (e.g., teachers, guidance counselors, children) must be informed that they are not required to participate in the study, and that there are no consequences for non-participation.
2. Your report of the study should not include the identification of any school, student or staff member. A coding system should be used if necessary.

Appendix C (continued)

New York City Public School System Research Approval Form

Ms. Carla B. Collins

-2-

October 16, 1989

3. Please send a copy of your final report to this office; we are most interested in the results of your research.

Sincerely,



Irene Strum
Chairperson,
Proposal Review Committee

Appendix D

Parent Consent Forms

Appendix D-1

Dear Parent(s),

I am a graduate student at the Graduate Center of the City University of New York. I am interested in learning how young people in grades 7 to 12 react to different events, especially everyday events that may be considered stressful.

Many researchers have used adults to study the effects of stress. They have found that some adults react in a positive healthy manner while others react in a negative fashion and frequently have more health problems. Some of these differences are due to the ways adults feel about themselves and the people around them and the ways they cope with these events. I would like to find out if adolescents react in a similar way.

Upon your approval, your child will be asked to complete a series of questions during regular school hours. These questions concern how young people feel about themselves and the people around them such as their friends and family; how they feel about their future; and the ways they typically react to and deal with everyday events.

All answers given by your child will be kept strictly confidential. Only an identification number and your child's birthdate will identify his/her questionnaire, your child's name will not appear anywhere. In addition, all results of this research will be presented using group, not individual responses. Participation in this study is completely voluntary. There will be no consequences for your child if you decide that he or she should not participate.

A summary of the completed report will be provided upon request.

Sincerely,

Carla B. Collins
Doctoral Student,
Graduate Center of CUNY

_____ I will allow my child to participate in this study.

_____ I will not allow my child to participate in this study.

Child's Name _____ Class _____

Parent's Signature _____ Date _____

Appendix D-2

Queridos Padres,

Soy una estudiante graduada del Centro de Graduados de la Universidad de la Ciudad De Nueva York. Estoy interesada en aprender como los jovenes de los grados 7 al 12 reaccionan en diferentes eventos, especialmente los eventos diarios que causan o producen tension.

Muchos analistas han utilizado adultos para estudiar los efectos producidos por la tension. Han descubierto que algunos adultos reaccionan positivamente, en su mayoria estas personas disfrutan de buena salud. Mientras que otros reaccionan negativamente y estas personas son por lo general los que tienen problemas de salud. Algunas de estas diferencias se atribuyen a la forma que los adultos se visualizan asi mismos y con las otras personas alrededor de ellos en la forma que ellos tratan estos eventos o problemas. Me gustaria saber si los adolescentes reaccionan en una manera similar.

Con su aprobacion, su niño(a) se le pedira que complete una serie de preguntas durante las horas escolares. Estas preguntas son basicamente para saber como la juventud se ve o visualiza a su mismo y las personas alrededor de ellos como sus amistades, familiares y maestros, mas que pensar acerca de su futuro; y como reaccionan a los problemas diarios.

Todos las contestaciones de su niño(a) seran estrictamente confidencial, solamente un numero de identificación y la fecha de nacimiento de su hijo(a) identificara el cuestionario de el o ella, el nombre de su niño(a) no aparecera en la hoja. Ademas todo los resultados de este estudio seran presentados en grupo, no individualmente.

La participación en este estudio es completamente voluntario. No habra ningunas consecuencias para su niño(a) si usted decide que el o ella no debe participar.

Un resumen del reporte completo sera dado unicamente al que lo requiera.

Sinceramente,

Carla B. Collins
Estudiante Graduada,
Centro de Graduados del CUNY

_____ Yo dejare que mi hijo(a) participe en este estudio.

_____ Yo no permito que mi hijo(a) participe en este estudio.

Nombre del niño(a) _____ Clase _____

Firma del Padre _____ Fecha _____

Appendix E

Instructions for Administration

Appendix E

Instructions for Administration

Good morning, I am here today to gather some information about the way you, as a young adult react to different events, especially everyday events that may be considered annoying or stressful, how you feel about yourself and the decisions you make and how you feel about some of the people you deal with everyday.

Your answers combined with those of other teenagers will help me to understand how young people, in general, feel and react when they are confronted with similar situations. It will also help identify some of the consequences of these experiences as well as what type of person is more 'at risk' of reacting in a negative or self-defeating manner. Combined with other data, special programs can be designed to help those individuals who are not able to deal with stressful or undesirable events in a positive way.

Participation in this study is completely voluntary and all of your answers will be kept strictly confidential. However, because some of the questions concern your personal thoughts and feelings, please, do not mark your name on the questionnaire anywhere. If you would like a summary of the findings, you can sign your name on a separate piece of paper and give it to me as you leave.

Your cooperation is absolutely necessary for me to complete my work and make it worthwhile. so, please make sure that all questions are answered. Do not leave any blank.

Also, do not spend too much time on any one response. Simply mark down the first response off the top of your head. There is no need to think the question through too critically.

Are there any questions?

(Pass out the questionnaire and when the students pass it back check it to make sure all questions were answered).

Appendix F
Scales Administered in the Research Study

Appendix F

Scales Administered in the Research Study

Acquiescence

1. I readily sympathize with a person who is always doubting and unsure about things.
2. I feel that our thinking would be a lot better off if we would just forget about words like "probably", "approximately" and "perhaps".
3. I am annoyed when I see a picture hanging crooked in someone else's house.
4. I am not particularly bothered to have nothing to do at times.
5. I tend to stick my neck out.
6. I prefer to take matters of everyday life with proper seriousness rather than to "laugh and be merry".
7. I would prefer a teacher who neglect me and leaves me to my own devices over one who continually watches me and makes suggestions.
8. I often feel that I must discuss something I've read before I'll really understand or remember it.
9. I feel that I am more idealistic than most people.
10. Between the two, I would rather study physiology than astronomy.
11. I sometimes try to argue my way past a guard or doorman.
12. I would find it more difficult to work with someone who is continually disrespectful to older people than with someone who is prudish and strait-laced.

Social Desirability

1. I am quite able to make correct decisions on difficult questions.
2. I am never able to do things as well as I should.
3. My life is full of interesting activities.

Appendix F (continued)**Scales Administered in the Research Study**

Social Desirability (continued)

4. I believe people tell lies any time it is to their advantage.
5. If someone gave me too much change I would tell him.
6. I would be willing to do something a little unfair to get something that was important to me.
7. I get along with people at parties quite well.
8. I did many bad things as a child.
9. I am glad I am growing up the way I am.
10. I often question whether life is worthwhile.
11. I avoid criticizing others under any circumstances.
12. My daily life includes many activities I dislike.
13. I am one of the lucky people who could talk with my parents about my problems.
14. Many things make me feel uneasy.
15. I am careful to plan for distant goals.
16. I find it very difficult to concentrate.

Differential Personality Inventory (DPI)**Depression**

1. I never seem to be really happy.
2. I am happy in my present school.
3. I sometimes become saddened and think of killing myself.
4. I usually enjoy starting a new activity.

Appendix F (continued)**Scales Administered in the Research Study**

Depression (continued)

5. I live a dull life.
6. Life is very interesting to me.
7. I am depressed most of the time.
8. Each day has some event which holds my interest.
9. My present situation seems quite hopeless.
10. I am as happy as my friends.
11. I often think that I have very little to look forward to.
12. I do not feel very sad at the present time.
13. Others always seem to enjoy life more than I.
14. My future is bright.
15. My days seem gloomy and dull.
16. I enjoy almost everything I do.

Familial Discord

1. I get along very well with my mother.
2. Other members of my family often find fault with what I do.
3. I think my mother and father have a deep understanding of what love really means.
4. I do not enjoy the company of my family.
5. I do not fight a lot with my family.
6. My parents do not seem to understand me.

Appendix F (continued)
Scales Administered in the Research Study

Familial Discord (continued)

7. I enjoy talking to the members of my family.
8. I do not like bringing my friends home to meet my family.
9. My home is happy and free of fights.
10. My mother does not help me as much as she can.
11. I feel free to say what I think at home without fear of getting into an argument.
12. Some members of my family make my blood boil.
13. My family likes the way I behave at home.
14. The members of my family believe I am stubborn.
15. The members of my family show a great deal of love for me.
16. My family is always trying to tell me what to do.

Rebelliousness

1. People who try to control me are in for a lot of trouble.
2. I like people who are strict about the rules.
3. I like to do the opposite of what other people do.
4. I believe in having a lot of rules to keep people under control.
5. I generally do what I feel like doing without any interference from others.
6. Most people who are bosses are at least as smart as I am.
7. I don't like or believe in having too many laws.
8. People considered me obedient as a child.

Appendix F (continued)
Scales Administered in the Research Study

Rebelliousness (continued)

9. There is a saying that you can't "fight City Hall," but I'd still like to try.
10. I don't mind being told what to do.
11. I dislike working for a person who is strict about rules.
12. I think rebellion is hardly ever necessary or right.
13. I do not like having to follow a routine.
14. Even if I feel a law is not fair, I still obey it.
15. I hate to be some place where there are a lot of rules.
16. I don't think the government controls people too much.

Repression

1. In these times it is important for me to know about political events.
2. I don't see much point in traveling around when home is quite comfortable.
3. Parts of my childhood were very difficult for me.
4. I don't like much excitement.
5. At times I thought one or both of my parents were being quite unfair to me.
6. I am careful not to think about anything evil.
7. I sometimes enjoy being noisy.
8. Since I go to the movies for relaxation, I only like to see happy films.
9. Some of my childhood memories are not very happy.
10. At night I rarely think over what has happened to me during the day.

Appendix F (continued)

Scales Administered in the Research Study

Repression (continued)

11. I would like to read over a childhood diary of mine to find out how I felt and thought.
12. I have always felt equally close to both my parents.
13. I can often remember my dreams after waking up.
14. I was very happy when I was in school.
15. I like to think about difficult questions even if I can't find answers for them.
16. I think it is childish to "let yourself go."

Socially Deviant Attitudes

1. Even if a criminal is successful, I don't think he is worthy of praise.
2. As a teenager I do things that might get me into trouble.
3. Crime holds no interest for me.
4. I would like the work of a spy.
5. I think it is wrong to take advantage of someone of the opposite sex.
6. Sometimes I have been so impressed by the cleverness of a crook that I hoped he would get away with it.
7. I cannot imagine doing something which might lead to trouble just for the fun of it.
8. I think I could plan the perfect crime.
9. The so-called happy life of gamblers has no appeal to me.
10. If it were possible, I'd enjoy spending some time working in a carnival.
11. Even if I had the chance to steal a large sum of money without getting caught, I still wouldn't take it.

Appendix F (continued)

Scales Administered in the Research Study

Socially Deviant Attitudes (continued)

12. I think it would be great fun to cheat certain people.
13. No matter how daring a thief is, I think he should be caught and punished.
14. I enjoy taking the thrills of risks and gambles.
15. If I were caught doing something wrong, I'd probably tell the whole truth even if it hurt me.
16. I'd like to meet a famous criminal.

Somatic Complaints

1. I get short of breath easily.
2. My eyes usually don't bother me when I read a lot.
3. I sometimes have pains in my chest.
4. My feet are usually warm enough.
5. I often have pains that are so bad that I must go to bed.
6. I seldom have indigestion.
7. My eyes are often red and inflamed.
8. I do not suffer from backaches.
9. If I don't get enough sleep, I get sick.
10. I am usually able to eat any type of food without bad aftereffects.
11. Many foods upset my stomach.
12. It's easy for me to keep physically healthy.
13. Sometimes my legs feel so weak that I can't walk.

Appendix F (continued)

Scales Administered in the Research Study

Somatic Complaints (continued)

- 14. I seldom catch colds.
- 15. I often have an upset stomach.
- 16. My joints don't ache.

Defensiveness

- 1. Sometimes I use my friends to my own advantage.
- 2. I have never cheated in any manner.
- 3. Sometimes people disappoint me.
- 4. I always live up to my responsibilities.
- 5. Sometimes I get mad at my friends.
- 6. I admit my errors without ever trying to hide anything.
- 7. Sometimes I say bad things about my friends.
- 8. I put the good of the community and the country above my own interests.
- 9. When people tease me, I sometimes get angry even if it is meant in fun.
- 10. I cannot think of any way in which I failed a friend.
- 11. Sometimes I make up excuses in order to get out of doing a favor for someone.
- 12. I would go without lunch rather than borrow even small amounts of money.
- 13. When I can, I try to get out of doing jobs, I don't enjoy.
- 14. A promise of getting something for nothing would be no temptation to me.
- 15. I can remember at least one time when I damaged someone else's property and did not repair it.

Appendix F (continued)

Scales Administered in the Research Study

Defensiveness (continued)

16. I would not let being sick cause me to be cross with a loved one.

Self Esteem

1. Things usually don't bother me.
2. I find it very hard to talk in front of the class.
3. There are lots of things about myself I'd change if I could.
4. I can make up my mind without too much trouble.
5. I'm a lot of fun to be with.
6. I get upset easily when I am scolded.
7. It takes me a long time to get used to anything new.
8. I'm popular with kids my own age.
9. My parents usually consider my feelings.
10. I give in very easily.
11. My parents expect too much of me.
12. It's pretty tough to be me.
13. Things are all mixed up in my life.
14. Kids usually follow my ideas.
15. I have a low opinion of myself.
16. There are many times when I would like to leave home.
17. I often feel upset in school.
18. I'm not as nice looking as most people.

Appendix F (continued)**Scales Administered in the Research Study**

Self esteem (continued)

19. If I have something to say, I usually say it.
20. My parents understand me.
21. Most people are better liked than me.
22. I usually feel as if my parent are pushing me.
23. I often get discouraged in school.
24. I often wish I were someone else.
25. I can't be depended on.

Perceived Stress**DURING THE PAST MONTH:**

1. I worked under a great deal of strain.
2. I felt that difficulties were piling up so high I couldn't overcome them.
3. My sleep was restless and disturbed.
4. Once I found the time, it was hard for me to relax.
5. My school day was made up of many deadlines.
6. I worried beyond reason about things that did not really matter.
7. I was more nervous than most people.
8. I found it difficult to concentrate on what I'm doing because of worrying about other things.
9. I had headaches or pains in my neck and shoulders.
10. I was under more stress than my friends appeared to be.

Appendix F (continued)**Scales Administered in the Research Study**

Perceived stress (continued)

11. Nervousness interfered with my ability to face a difficult situation or make an important decision.
12. I felt tense, anxious or had nervous indigestion.
13. I couldn't turn off my thoughts at night or on weekends long enough to feel relaxed and refreshed the next day.
14. I had difficulty finding enough time to relax.

Youth Adaptation Rating Scale (Stressful Life Events Scale)

1. Starting to go to weekend parties/rock concerts
2. Receiving a special award
3. Death of a parent/guardian
4. Not getting promoted to next grade
5. Getting caught using drugs
6. Trying to get a job/job interview
7. Making a team (debate, drill, athletic)
8. Losing your bus/train pass
9. Getting married
10. Getting beat up by parents
11. Getting attacked/raped/assaulted
12. Pressure to have a boyfriend/girlfriend
13. Parents getting a divorce/separated

Appendix F (continued)**Scales Administered in the Research Study**

Youth Adaptation Rating Scale (continued)

14. Having bad rumors spread about you/being stereotyped/discriminated
15. Pressure to wear certain kinds of clothes
16. Graduation
17. Fights with parents
18. Getting expelled/suspended
19. Going into debt
20. Getting fired from a job
21. Getting pressure about having sex
22. Fear of Getting AIDS
23. Death of a close family member
24. Death of a boy/girl friend/close friend
25. Getting V.D.
26. Getting someone pregnant/getting pregnant
27. Taking subject tests/ Regents' exams
28. Fear of getting caught using drugs
29. Being sent to the principal's office
30. Getting acne/warts
31. Trouble getting a date when it was not a problem before
32. Having problems with the law/police
33. Not getting along with teachers or employers

Appendix F (continued)**Scales Administered in the Research Study**

Youth Adaptation Rating Scale (continued)

- 34. Making career decisions (HS choice, courses, training, etc.)
- 35. First day of school
- 36. Breaking up with boy/girl friends
- 37. Getting a minor illness (cold, flu) and having to stay in the house
- 38. Arguments with friends/brothers/sisters
- 39. Starting to speak or perform in front of a lot of people
- 40. Living in or next to a building where drugs/crack is sold
- 41. Going to jail/reform school
- 42. Losing a home due to fire or eviction
- 43. Getting braces
- 44. Having relatives with AIDS
- 45. Losing or gaining weight
- 46. Having friends with AIDS
- 47. Living in a drug ridden neighborhood
- 48. Moving/being asked to move out of the house
- 49. Falling in love
- 50. Moving to a welfare hotel/shelter
- 51. Getting pressure to take drugs
- 52. Getting a bad report card
- 53. Family members moving out

Appendix F (continued)

Scales Administered in the Research Study

Youth Adaptation Rating Scale (continued)

- 54. Things getting stolen at school
- 55. Not being prepared for classes
- 56. Having teachers that expect too much

Demographics

School Name/Number _____

School District _____

How many years have you attended this school? _____ years

1. How old are you? _____

2. Birthdate: _____
 month day year

3. Sex: Male _____ Female _____

4. Which of the following ethnic groups best describes you?

White (non-Hispanic) _____
 American Black _____
 Caribbean Black _____
 Hispanic _____
 Native American _____
 Oriental _____
 Other (please indicate) _____

Appendix F (continued)

Scales Administered in the Research Study

Demographics (continued)

5. What grade are you in?

7th grade	_____	10th grade	_____
8th grade	_____	11th grade	_____
9th grade	_____	12th grade	_____

Other (please indicate) _____

6. Which best describes your family? (Please indicate by checking the response that comes closest to your family.)

Live with single parent _____
 Parent works _____ Parent does not work _____

Live with two parents _____
 Both work _____ One works _____ Neither works _____

Live with single guardian _____
 Guardian works _____ Guardian does not work _____

Live with two guardians _____
 Both work _____ One works _____ Neither works _____

Live alone _____

7. Were you born in the United States? Yes _____ No _____

If no, how many years have you lived here? _____

8. How many times a week do you exercise?

- a) most or all of the time (6 - 7 days)
- b) occasionally (3 - 5 days)
- c) some or a little of the time (1 - 2 days)
- d) rarely or none of the time

Appendix F (continued)

Scales Administered in the Research Study

Demographics (continued)

9. For each of the following reasons, please indicate the number of times you visited a doctor or clinic in the past 6 months.

- a) physical checkup _____
- b) minor colds _____
- c) allergies _____
- d) flu, viruses _____
- e) broken bones or
major injuries _____
- f) major illnesses,
such as diabetes,
heart problems, etc. _____
- g) other, please name _____

10. Overall, how healthy do you consider yourself to be?

extremely	fairly		fairly	extremely
good	good	good	poor	poor
_____	_____	_____	_____	_____

11. Overall, how good are your eating habits?

extremely	fairly		fairly	extremely
good	good	good	poor	poor
_____	_____	_____	_____	_____

12. Overall, how satisfied are you with the way you look?

extremely			extremely
satisfied	satisfied	unsatisfied	unsatisfied
_____	_____	_____	_____

Appendix F (continued)

Scales Administered in the Research Study

13. How many times a month do you use:

	0	1 - 2	3 - 4	5 - 7	8 or >
Cigarettes	_____	_____	_____	_____	_____
Liquor	_____	_____	_____	_____	_____
Beer	_____	_____	_____	_____	_____
Wine/Wine Coolers	_____	_____	_____	_____	_____
Crack/Cocaine	_____	_____	_____	_____	_____
Marijuana	_____	_____	_____	_____	_____

14. How many times have you been absent from school since September?

- 0 - never
- 1 - a few days
- 2 - once or twice a month
- 3 - once or twice a week
- 4 - three or four times a week
- 5 - weeks at a time

Appendix G

Factor Loadings of Items on Each of the Three Factors of the Psychological Adjustment Outcome Measure

Appendix G

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III

<u>Factor I Items - Affective Reaction</u>			
I never seem to be really happy.	.69	.13	.14
I am depressed most of the time.	.63	.10	.12
I sometimes become saddened and think of killing myself.	.61	.04	.19
I live a dull life.	.61	.03	-.04
I often think that I have very little to look forward to.	.58	.07	.09
My present situation seems quite hopeless.	.58	.11	.13
Others always seem to enjoy life more than I.	.56	.26	-.03
Other members of my family often find fault with what I do.	.55	-.03	.29
My days seem gloomy and dull.	.52	.04	.03
The members of my family show a great deal of love for me.	-.51	.31	-.07
My parents do not seem to understand me.	.48	-.11	.28
My future is bright.	-.47	.19	.14
I am as happy as my friends.	-.47	.15	.04

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor I Items - Affective Reaction (continued)</u>			
My mother does not help me as much as she can.	.46	-.06	.11
I get along very well with my mother.	-.46	.31	-.04
Some of my childhood memories are not very happy.	.45	.08	.22
I enjoy talking to the members of my family.	-.43	.32	-.19
I do not enjoy the company of my family.	.43	-.27	.21
My family likes the way I behave at home.	-.43	.26	-.09
I think my mother and father have a deep understanding of what love really means.	-.42	.19	-.03
Life is very interesting to me.	-.41	.13	.03
The members of my family believe I am stubborn.	.40	.04	.35
My family is always trying to tell me what to do.	.39	-.07	.20
Parts of my childhood were very difficult for me.	.37	.20	.21

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor I Items - Affective Reaction (continued)</u>			
I feel free to say what I think at home without fear of getting into an argument.	-.37	.28	.02
My home is happy and free of fights.	-.37	.24	-.20
I enjoy almost everything I do.	-.34	.23	-.02
I do not like bringing my friends home to meet my family.	.33	-.08	.17
I have always felt equally close to both my parents.	-.31	.19	-.11
I do not fight a lot with my family.	-.30	.29	-.17
Each day has some event which holds my interest.	-.29	.08	.18
I do not feel very sad at the present time.	-.28	.25	.09
I don't like much excitement.	.28	-.00	-.13
If it were possible, I'd enjoy spending some time working in a carnival.	.19	.18	.03
I don't mind being told what to do.	-.16	.15	-.09
At night I rarely think over what has happened to me during the day.	.08	.06	-.04

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor II Items - Behavioral Adjustment - General Principals</u>			
I don't see much point in traveling around when home is quite comfortable.	.05	.04	.02
I cannot imagine doing something which might lead to trouble just for the fun of it.	-.13	.52	-.18
Even if a criminal is successful, I don't think he is worthy of praise.	.03	.45	.02
Crime holds no interest for me.	-.03	.45	.05
No matter how daring a thief is, I think he should be caught and punished.	.04	.44	.02
Even if I had the chance to steal a large sum of money without getting caught, I still wouldn't take it.	-.01	.43	-.12
I think it is wrong to take advantage of someone of the opposite sex.	-.07	.43	.01
I like to think about difficult questions even if I can't find answers for them.	-.19	.37	.15
If I were caught doing something wrong, I'd probably tell the whole truth even if it hurt me.	-.16	.37	-.27

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor II Items - (continued)</u>			
I would like to read over a childhood diary of mine to find out how I felt and thought.	-.10	.36	.13
I am careful not to think about anything evil.	-.05	.36	.00
People considered me obedient as a child.	-.01	.35	.01
I think rebellion is hardly ever necessary or right.	.05	.34	-.06
Even if I feel a law is not fair, I still obey it.	-.00	.33	-.10
I believe in having a lot of rules to keep people under control.	-.04	.32	-.03
I usually enjoy starting a new activity.	-.28	.32	.08
I can often remember my dreams after waking up.	-.04	.31	.10
I am happy in my present school.	-.26	.30	.02
The so-called happy life of gamblers has no appeal to me.	-.06	.28	-.10
I like people who are strict about the rules.	-.08	.27	-.15
I was very happy when I was in school.	-.18	.26	-.01

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor II Items - (continued)</u>			
I don't think the government controls people too much.	.11	.24	.08
In these times it is important for me to know about political events.	-.19	.20	.06
I think it is childish to "let yourself go."	.11	.12	-.06
Since I go to the movies for relaxation, I only like to see happy films.	.01	.09	-.07
<u>Factor III Items - Behavioral Adjustment - Deviant Responses</u>			
Some members of my family make my blood boil.	.25	.08	.52
As a teenager I do things that might get me into trouble.	.15	-.11	.51
I hate to be some place where there are a lot of rules.	.06	-.05	.50
I enjoy taking the thrills of risks and gambles.	-.04	-.20	.47
At times I thought one or both of my parents were being quite unfair to me.	.23	.21	.44
I would like the work of a spy.	.05	-.19	.42
I think it would be great fun to cheat certain people.	-.00	-.31	.42

Appendix G (continued)

Factor Loadings of Items on Each of the Three Factors
of the Psychological Adjustment Outcome Measure

	Varimax Factor Loadings		
	I	II	III
<u>Factor III Items - Behavioral Adjustment - Deviant Responses</u>			
People who try to control me are in for a lot of trouble.	.21	.14	.41
I sometimes enjoy being noisy.	-.05	.00	.39
I dislike working for a person who is strict about rules.	.08	.03	.37
I think I could plan the perfect crime.	.01	-.32	.37
I generally do what I feel like doing without any interference from others.	-.02	.07	.34
I'd like to meet a famous criminal.	-.02	-.31	.34
I do not like having to follow a routine.	.08	-.06	.34
Sometimes I have been so impressed by the cleverness of a crook that I hoped he would get away with it.	.07	-.20	.34
There is a saying that you can't "fight City Hall," but I'd still like to try.	-.10	-.00	.34
I don't like or believe in having too many laws.	.08	.04	.33
I like to do the opposite of what other people do.	.11	.05	.32
Most people who are bosses are at least as smart as I am.	.01	.21	.27

Appendix H

Factor Loadings of Items on Each of the Two Factors of the Composite Strain Outcome Measure

Appendix H

Factor Loadings of Items on Each of the Two Factors
of the Composite Strain Outcome Measure

	Oblique Factor Loadings	
	I	II
<u>Factor I - Subjective Stress</u>		
I was under more stress than my friends appeared to be.	.73	.04
I felt that difficulties were piling up so high I couldn't overcome them.	.67	.06
I was more nervous than most people.	.65	-.06
I had difficulty finding enough time to relax.	.64	-.04
Once I found the time, it was hard for me to relax.	.62	.01
I found it difficult to concentrate on what I'm doing because of worrying about other things.	.60	-.21
I felt tense, anxious or had nervous indigestion.	.60	-.07
I worked under a great deal of strain.	.58	.14
I worried beyond reason about things that did not really matter.	.56	.01
I had headaches or pains in my neck and shoulders.	.50	-.14
My sleep was restless and disturbed.	.49	-.05
Nervousness interfered with my ability to face a difficult situation or make an important decision.	.48	-.19

Appendix H (continued)

Factor Loadings of Items on Each of the Two Factors
of the Composite Strain Outcome Measure

	Oblique Factor Loadings	
	I	II
<u>Factor I - Subjective Stress (continued)</u>		
I couldn't turn off my thoughts at night or on weekends long enough to feel relaxed and refreshed the next day.	.47	-.15
My school day was made up of many deadlines.	.35	-.00
I seldom have indigestion.	.23	.18
I seldom catch colds.	.16	-.01
<u>Factor II - Somatic Complaints</u>		
I often have pains that are so bad that I must go to bed.	.06	-.60
I often have an upset stomach.	.11	-.60
Many foods upset my stomach.	-.04	-.49
If I don't get enough sleep, I get sick.	.09	-.44
Sometimes my legs feel so weak that I can't walk.	.12	-.42
My feet are usually warm enough.	.06	.36
I do not suffer from backaches.	.11	.32
I sometimes have pains in my chest.	.26	-.32
It's easy for me to keep physically healthy.	-.06	.31

Appendix H (continued)

Factor Loadings of Items on Each of the Two Factors
of the Composite Strain Outcome Measure

	Oblique Factor Loadings	
	I	II
<u>Factor I - Somatic Complaints (continued)</u>		
I get short of breath easily.	.15	-.31
My joints don't ache.	-.01	.29
My eyes usually don't bother me when I read alot.	-.10	.26
My eyes are often red and inflamed.	.12	-.23
I am usually able to eat any type of food without bad aftereffects.	.04	.18

Appendix I
Frequency of Drug Use per Month

Appendix I
Frequency of Drug Use per Month

Drug	0	1 - 2	3 - 4	5 - 7	8 or More	No Response	Total
Cigarettes							
N	182	9	4	3	10	15	223
%	81.6	4.0	1.8	1.3	4.4	6.7	100.0
Liquor							
N	172	26	3	0	5	17	223
%	77.1	11.7	1.3	0.0	2.2	7.6	100.0
Beer							
N	167	26	5	4	5	16	223
%	74.9	11.7	2.2	1.8	2.2	7.2	100.0
Wine							
N	165	26	6	5	5	16	223
%	74.0	11.7	2.7	2.2	2.2	7.2	100.0
Cocaine							
N	204	1	0	0	1	17	223
%	91.5	0.4	0.0	0.0	0.4	7.6	100.0
Marijuana							
N	193	7	3	1	3	16	223
%	86.5	3.1	1.3	0.4	1.3	7.2	100.0

Appendix J-1

**Multidimensional Outcome Measures Regressed on
Stressful Life Events, Personality, and the Hardiness-Stress Interaction
with Social Desirability Restricted**

Appendix J-1

Multidimensional Outcome Measures Regressed on Stressful Life Events,
Personality, and the Hardiness-Stress Interaction with Social Desirability Restricted

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>Affective Reaction</u> (N = 88)						
main effects	SLE	.26	.10	.07	6.41	.013
	hardiness	-.29	.10	.08	7.58	.007
interaction	HS	-1.37	.55	.06	6.22	.015
<u>Aberrant Behavior</u> (N = 79)						
main effects	SLE	.22	.11	.05	4.10	.046
	hardiness	-.27	.11	.06	5.38	.023
interaction	HS	1.56	.57	.08	7.53	.008
<u>Strain</u> (N = 91)						
main effects	SLE	.32	.10	.10	10.10	.002
	hardiness	-.23	.10	.05	5.10	.026
interaction	HS	.19	.55	.00	.12	NS
<u>School Absence</u> (N = 99)						
main effects	SLE	.11	.10	.01	1.26	NS
	hardiness	.01	.11	.00	.01	NS
interaction	HS	-.06	.57	.00	.01	NS
<u>Drug Use</u> (N = 91)						
main effects	SLE	.26	.10	.07	6.63	.012
	hardiness	-.22	.11	.04	4.24	.042
interaction	HS	-.44	.54	.01	.67	NS

Appendix J-2

**Multidimensional Outcome Measures Regressed on
Stressful Life Events, Personality, and the Hardiness-Stress Interaction
for Respondent's with High Social Desirability Scores**

Appendix J-2

**Multidimensional Outcome Measures Regressed on
Stressful Life Events, Personality, and the Hardiness-Stress Interaction
for Respondent's with High Social Desirability Scores**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction</u> (N = 50)						
main effects	SLE	.28	.14	.08	4.10	.048
	hardiness	-.59	.11	.34	28.18	.000
interaction	HS	.51	.72	.01	.50	NS
<u>Aberrant Behavior</u> (N = 61)						
main effects	SLE	.13	.13	.02	.96	NS
	hardiness	-.46	.12	.20	15.31	.000
interaction	HS	-.93	.77	.02	1.48	NS
<u>Strain</u> (N = 59)						
main effects	SLE	.15	.13	.02	1.26	NS
	hardiness	-.34	.13	.11	7.11	.010
interaction	HS	-.68	.85	.01	.64	NS
<u>School Absence</u> (N = 67)						
main effects	SLE	.17	.12	.03	1.97	NS
	hardiness	-.09	.12	.01	.54	NS
interaction	HS	-.73	.83	.01	.77	NS
<u>Drug Use</u> (N = 65)						
main effects	SLE	.08	.12	.01	.46	NS
	hardiness	-.16	.13	.03	1.73	NS
interaction	HS	-.02	.85	.00	.00	NS

PLEASE NOTE:

Page(s) not included with original material
and unavailable from author or university.
Filmed as received.

U·M·I

Appendix K-1

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
with Social Desirability Restricted**

Appendix K-1

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
with Social Desirability Restricted**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>Affective Reaction</u> (N = 87)						
main effects						
	SES	.10	.10			NS
	sex	.29	.10			.006
	age	-.01	.10			NS
	Sociodemographic Block			.10	3.01	
	SLE	.27	.10	.07	7.07	.009
	hardiness	-.33	.10	.10	10.95	.001
interaction						
	HS	-1.08	.52	.04	4.27	.042
<u>Aberrant Behavior</u> (N = 77)						
main effects						
	SES	.07	.11			NS
	sex	-.30	.11			.010
	age	-.05	.11			NS
	Sociodemographic Block			.09	2.43	
	SLE	.16	.11	.03	2.09	NS
	hardiness	-.21	.12	.04	3.06	NS
interaction						
	HS	1.45	.59	.07	5.98	.015
<u>Strain</u> (N = 89)						
main effects						
	SES	.16	.11			NS
	sex	.16	.11			NS
	age	.12	.11			NS
	Sociodemographic Block			.06	1.79	
	SLE	.30	.10	.09	9.23	.003
	hardiness	-.26	.10	.06	6.25	.014
interaction						
	HS	.00	.56	.00	.34	NS

Appendix K-1 (continued)

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
with Social Desirability Restricted**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>School Absence (N = 97)</u>						
main effects						
	SES	.03	.10			NS
	sex	-.09	.10			NS
	age	.18	.10			NS
	Sociodemographic Block			.05	1.49	
	SLE	.12	.10	.01	1.39	NS
	hardiness	-.00	.11	.00	.00	NS
interaction						
	HS	-.28	.58	.00	.23	NS
<u>Drug Use (N = 89)</u>						
main effects						
	SES	.12	.11			NS
	sex	-.04	.11			NS
	age	.20	.11			NS
	Sociodemographic Block			.05	1.62	
	SLE	.26	.10	.07	6.39	.013
	hardiness	-.26	.11	.06	5.85	.018
interaction						
	HS	-.74	.54	.02	1.91	NS

Appendix K-2

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
for Respondents with High Social Desirability Scores**

Appendix K-2

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
for Respondents with High Social Desirability Scores**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction</u> (N = 50)						
main effects						
	SES	-.15	.14			NS
	sex	-.14	.14			NS
	age	-.13	.14			NS
	Sociodemographic Block			.05	.84	
	SLE	.26	.14	.07	3.41	NS
	hardiness	-.59	.11	.33	27.25	.000
interaction	HS	.59	.75	.01	.61	NS
<u>Aberrant Behavior</u> (N = 61)						
main effects						
	SES	-.21	.12			NS
	sex	-.34	.12			.008
	age	-.18	.12			NS
	Sociodemographic Block			.17	4.07	
	SLE	.05	.12	.00	.18	NS
	hardiness	-.42	.11	.16	13.95	.000
interaction	HS	-.85	.75	.02	1.29	NS
<u>Strain</u> (N = 59)						
main effects						
	SES	.30	.13			.023
	sex	-.22	.13			NS
	age	-.02	.13			NS
	Sociodemographic Block			.12	2.65	
	SLE	.13	.13	.02	.95	NS
	hardiness	-.31	.12	.09	6.50	.014
interaction	HS	-.44	.85	.00	.27	NS

Appendix K-2 (continued)

**Multidimensional Outcome Measures Regressed on Sociodemographics,
Stressful Life Events, Hardiness and the Hardiness-Stress Interaction
for Respondents with High Social Desirability Scores**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>School Absence (N = 67)</u>						
main effects						
	SES	-.03	.12			NS
	sex	-.09	.12			NS
	age	-.25	.12			NS
	Sociodemographic Block			.06	1.33	
	SLE	.15	.12	.02	1.12	NS
	hardiness	-.07	.13	.01	.34	NS
interaction	HS	-.47	.85	.00	.31	NS
<u>Drug Use (N = 65)</u>						
main effects						
	SES	-.05	.12			NS
	sex	-.17	.13			NS
	age	.19	.13			NS
	Sociodemographic Block			.08	1.79	
	SLE	.10	.13	.01	.60	NS
	hardiness	-.16	.12	.02	1.69	NS
interaction	HS	-.38	.85	.00	.19	NS

Appendix L-1

**Multidimensional Outcome Measures Regressed on Esteem,
Stressful Life Events, Personality, and the Interaction Terms
with Social Desirability Restricted**

Appendix L-1

**Multidimensional Outcome Measures Regressed on Esteem,
Stressful Life Events, Personality, and the Interaction Terms
with Social Desirability Restricted**

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction</u> (N = 79)						
main effects						
	esteem	-.75	.07	.57	101.68	.000
	SLE	.10	.08	.01	1.70	NS
	hardiness	-.14	.08	.02	3.17	NS
interaction						
	ES	-.68	.26	.03	6.79	.011
	HS	-.70	.44	.01	2.53	NS
<u>Aberrant Behavior</u> (N = 71)						
main effects						
	esteem	.13	.12	.02	1.24	NS
	SLE	.32	.12	.09	6.74	.012
	hardiness	-.39	.11	.13	12.00	.001
interaction						
	ES	.77	.37	.05	4.24	.043
	HS	1.98	.65	.09	9.15	.004
<u>Strain</u> (N = 82)						
main effects						
	esteem	-.43	.10	.19	18.80	.000
	SLE	.19	.11	.03	3.28	NS
	hardiness	-.18	.11	.03	2.85	NS
interaction						
	ES	-.55	.36	.02	2.25	NS
	HS	.61	.65	.01	.87	NS
<u>School Absence</u> (N = 87)						
main effects						
	esteem	-.17	.11	.03	2.67	NS
	SLE	.07	.11	.00	.38	NS
	hardiness	-.01	.12	.00	.01	NS
interaction						
	ES	.10	.40	.00	.06	NS
	HS	-.08	.70	.00	.01	NS
<u>Drug Use</u> (N = 82)						
main effects						
	esteem	-.17	.11	.03	2.44	NS
	SLE	.31	.11	.08	7.49	.008
	hardiness	-.22	.11	.04	3.77	NS
interaction						
	ES	.12	.37	.00	.10	NS
	HS	-.85	.64	.02	1.72	NS

Appendix L-2

**Multidimensional Outcome Measures Regressed on
Esteem, Stressful Life Events, Personality, and the Interaction Terms
for Respondent's with High Social Desirability Scores**

Appendix L-2

Multidimensional Outcome Measures Regressed on
Esteem, Stressful Life Events, Personality, and the Interaction Terms
for Respondent's with High Social Desirability Scores

		Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>Affective Reaction</u> (N = 43)						
main effects						
	esteem	-.66	.12	.44	32.82	.000
	SLE	.06	.13	.00	.22	NS
	hardiness	-.36	.13	.09	7.22	.010
interaction						
	ES	.73	.58	.02	1.56	NS
	HS	-.76	.92	.01	.68	NS
<u>Aberrant Behavior</u> (N = 52)						
main effects						
	esteem	-.11	.14	.01	.59	NS
	SLE	.09	.15	.01	.35	NS
	hardiness	-.50	.16	.16	9.28	.004
interaction						
	ES	-.58	.77	.01	.56	NS
	HS	.36	1.19	.00	.09	NS
<u>Strain</u> (N = 51)						
main effects						
	esteem	-.50	.12	.25	16.82	.000
	SLE	.05	.13	.00	.13	NS
	hardiness	-.05	.15	.00	.10	NS
interaction						
	ES	.05	.74	.00	.00	NS
	HS	-2.24	1.10	.06	4.12	.048
<u>School Absence</u> (N = 57)						
main effects						
	esteem	-.19	.13	.03	2.02	NS
	SLE	.11	.14	.01	.60	NS
	hardiness	-.00	.16	.00	.00	NS
interaction						
	ES	-.53	.81	.01	.43	NS
	HS	-1.34	1.19	.02	1.28	NS
<u>Drug Use</u> (N = 55)						
main effects						
	esteem	.02	.14	.00	.03	NS
	SLE	.13	.14	.02	.89	NS
	hardiness	-.14	.17	.01	.70	NS
interaction						
	ES	-.27	.84	.00	.10	NS
	HS	1.33	1.22	.02	1.20	NS

Appendix L-3

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
with Social Desirability Restricted**

Appendix L-3

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
with Social Desirability Restricted**

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>Affective Reaction (N = 78)</u>					
main effects					
esteem	-.75	.08	.57	100.72	.000
age	-.06	.08			NS
sex	.13	.08			NS
SES	.01	.08			NS
Sociodemographic Block			.02	1.27	
SLE	.11	.08	.01	2.05	NS
hardiness	-.18	.08	.02	4.53	.037
interaction					
ES	-.63	.26	.03	5.88	.018
HS	-.51	.44	.01	1.35	NS
<u>Aberrant Behavior (N = 70)</u>					
main effects					
esteem	.15	.12	.02	1.51	NS
age	-.02	.12			NS
sex	-.28	.12			.024
SES	.14	.12			NS
Sociodemographic Block			.10	2.41	
SLE	.25	.12	.05	4.17	.045
hardiness	-.36	.12	.10	8.46	.005
interaction					
ES	.78	.38	.05	4.22	.044
HS	1.73	.66	.07	6.88	.011
<u>Strain (N = 81)</u>					
main effects					
esteem	-.43	.10	.19	18.38	.000
age	.04	.10			NS
sex	.09	.10			NS
SES	.12	.10			NS
Sociodemographic Block			.02	.65	
SLE	.18	.11	.03	2.92	NS
hardiness	-.20	.11	.03	3.29	NS
interaction					
ES	-.51	.37	.02	1.87	NS
HS	.69	.67	.01	1.09	NS

Appendix L-3 (continued)

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
with Social Desirability Restricted**

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R ²	Incremental F	p
<u>School Absence (N = 86)</u>					
main effects					
esteem	-.18	.11	.03	2.85	NS
age	.21	.11			NS
sex	-.06	.11			NS
SES	.02	.11			NS
Sociodemographic Block			.05	1.45	
SLE	.08	.11	.01	.54	NS
hardiness	-.02	.12	.00	.02	NS
interaction					
ES	.01	.40	.00	.00	NS
HS	-.10	.69	.00	.02	NS
<u>Drug Use (N = 81)</u>					
main effects					
esteem	-.16	.11	.03	2.23	NS
age	.21	.11			NS
sex	-.09	.11			NS
SES	.16	.11			NS
Sociodemographic Block			.08	2.18	
SLE	.29	.11	.07	6.92	.010
hardiness	-.23	.12	.04	3.78	NS
interaction					
ES	.10	.37	.00	.07	NS
HS	-1.05	.62	.03	2.81	NS

Appendix L-4

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
for Respondents with High Social Desirability Scores**

Appendix L-4

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
for Respondents with High Social Desirability Scores**

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>Affective Reaction (N = 43)</u>					
main effects					
esteem	-.66	.12	.44	32.82	.000
age	.13	.12			NS
sex	-.19	.12			NS
SES	-.07	.12			NS
Sociodemographic Block			.06	1.45	
SLE	.06	.13	.00	.20	NS
hardiness	-.31	.14	.06	5.00	.031
interaction					
ES	.69	.63	.01	1.19	NS
HS	-.86	.95	.01	.82	NS
<u>Aberrant Behavior (N = 51)</u>					
main effects					
esteem	-.11	.14	.01	.63	NS
age	-.15	.14			NS
sex	-.33	.14			.020
SES	-.06	.14			NS
Sociodemographic Block			.12	2.25	
SLE	.02	.15	.00	.03	NS
hardiness	-.48	.16	.14	8.90	.005
interaction					
ES	-.57	.72	.01	.62	NS
HS	.68	1.11	.01	.38	NS
<u>Strain (N = 50)</u>					
main effects					
esteem	-.50	.12	.25	16.52	.000
age	.13	.13			NS
sex	-.16	.12			NS
SES	.24	.12			.044
Sociodemographic Block			.11	2.64	
SLE	.06	.12	.00	.21	NS
hardiness	.02	.16	.00	.02	NS
interaction					
ES	-.24	.68	.00	.12	NS
HS	-2.25	1.01	.07	4.98	.031

Appendix L-4 (continued)

**Multidimensional Outcome Measures Regressed on Esteem, Sociodemographics,
Stressful Life Events, Hardiness and the Interaction Terms
for Respondents with High Social Desirability Scores**

	Standardized Coefficient (Beta)	Standard Error (Beta)	Incremental R2	Incremental F	p
<u>School Absence (N = 56)</u>					
main effects					
esteem	-.19	.13	.03	1.97	NS
age	-.30	.14			.035
sex	.03	.13			NS
SES	.03	.13			NS
Sociodemographic Block			.09	1.72	
SLE	.12	.14	.01	.76	NS
hardiness	-.09	.17	.00	.28	NS
interaction					
ES	-.28	.76	.00	.14	NS
HS	-.75	1.14	.01	.43	NS
<u>Drug Use (N = 54)</u>					
main effects					
esteem	.02	.14	.00	.02	NS
age	.31	.14			.032
sex	-.06	.14			NS
SES	.01	.14			NS
Sociodemographic Block			.10	1.92	
SLE	.09	.14	.01	.38	NS
hardiness	-.07	.17	.00	.15	NS
interaction					
ES	-.67	.79	.01	.72	NS
HS	-.74	1.17	.01	.40	NS

Bibliography

- Achenbach, T. M., and Edelbrock, C. S. (1981). Behavioral problems and competencies reported by the parents of normal and disturbed children aged 4 through 16. Monographs of the Society for Research in Child Development, 46 (1, Serial No. 188).
- Adelson, J. (Ed.) (1980). Handbook of adolescent psychology. New York: Wiley.
- Allred, K. D. and Smith, T. W. (1989). The hardy personality: Cognitive and physiological responses to evaluative threat. Journal of Personality and Social Psychology, 56, 257-266.
- Antonovsky, A. (1979). Health, stress and coping. San Francisco: Jossey-Bass.
- Averill, J. R. (1973). Personal control over aversive stimuli and its relationship to stress. Psychological Bulletin, 80, 286-303.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.
- Bartone, P. T. (1984). Stress and health in Chicago Transit authority bus drivers. Unpublished doctoral dissertation. University of Chicago.
- Beall, S. and Schmidt, G. (1984). Development of a youth adaptation rating scale. Journal of Occupational School Health, 54(5), 197-200.
- Berry, W. D. and Feldman, S. (1985). Multiple regression in practice. Beverly Hills: Sage.
- Brooks-Gunn, J. and Warren, M. P. (1989). Biological and social contributions to negative affect in young adolescent girls. Child Development, 60, 40-55.
- Bolton, C. and Christensen, C. (1986). Stress: Kid's stuff? A measurement of adolescent stress in the high school student. Unpublished manuscript.
- Block, J. H. and Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W. A. Collins (Ed.), Development of cognition, affect and social relations: The Minnesota symposia on child psychology (Vol. 13). Hillsdale, NJ: Lawrence Erlbaum.
- Bush, D. M. and Simmons, R. (1987). Gender and coping with entry into early adolescence. In R. C. Barnett, L. Biener and G. K. Baruch (Eds.), Gender and stress. (pp. 185-218), New York: The Free Press.
- Cannon, W. B. (1939). The wisdom of the body. New York: Norton.

Bibliography (continued)

- Caplan, G. (1981). Mastery of stress: Psychosocial aspects. American Journal of Psychiatry, 138, 413-420.
- Carver, C. S. and Scheier, M. F. (1987). The optimism scale. Journal of Personality, 55(2), 219-247.
- Coddington, R. D. (1972a). The significance of life events as etiologic factors in the diseases of children, I: A survey of professional workers. Journal of Psychosomatic Research, 16, 7-18.
- Coddington, R. D. (1972b). The significance of life events as etiologic factors in the diseases of children, II: A study of a normal population. Journal of Psychosomatic Research, 16, 205-213.
- Coelho, G. V., Hamburg, D. A. and Adams, J. F. (Eds.) (1974). Coping and adaptation. New York: Basic Books.
- Cohen, J and Cohen, P. (1983). Applied multiple regression/correlation for the behavioral sciences. Hillsdale, N.J.: Lawrence Erlbaum.
- Compas, B. E., Davis, G. E., Forsythe, C. J. and Wagner, B. M. (1987). Assessment of major and daily stressful events during adolescence: The adolescent perceived events scale. Journal of Consulting and Clinical Psychology, 55(4), 534-541.
- Compas, B. E., Davis, G. E. and Forsythe, C. J. (1987). Characteristics of life events during adolescence. American Journal of Community Psychology, 13, 677-691.
- Contrada, R. J. (1989). Type A behavior, personality hardiness and cardiovascular responses to stress. Journal of Personality and Social Psychology, 57, 895-903.
- Contrada, R. J., Wright, R. A. and Glass, D. C. (1986). Psychophysiologic correlates of Type A behavior: Comments on Houston (1983) and Holmes (1983). Journal of Research in Personality, 117-123.
- Coopersmith, S. (1981). Manual for the Self-Esteem Inventories. Palo Alto, CA: Consulting Psychologists.
- Coopersmith, S. (1967). The antecedents of self-esteem. Palo Alto, CA: Consulting Psychologists, 3-10.

Bibliography (continued)

- Costa, P. T. Jr. and McCrae, R. R. (1985). Hypochondriasis, neuroticism and aging: When are somatic complaints unfounded? American Psychologist, 40, 19-28.
- Costa, P. T. Jr. and McCrae, R. R. (1987). Neuroticism, somatic complaints and disease: Is the bark worse than the bite? Journal of Personality, 55, 299-316.
- Craig, G. J. (1986). Human development. Englewood Cliffs, N.J.: Prentice-Hall.
- Cronbach, L. J. (1946). Response set and test validity. Educational Psychology Measurement, 6, 475-494.
- Csikszentmihalyi, M. (1975). Beyond boredom and anxiety. San Francisco: Jossey-Bass.
- Damarin, F. and Messick, S. (1965). Response styles as personality variables: A theoretical integration of multivariate research. Research Memorandum 65-10. Princeton, N.J.: Educational Testing Service.
- Daniel, E. L. (1986). An investigation into the relationship between hardiness, attitudes toward self-aging and present health practices. Dissertation Abstracts International.
- Dembroski, T. M., Weiss, S. M., Shields, J. L., Haynes, S. G. and Feinleib, M. (Eds.) (1978). Coronary-prone behavior. New York: Springer-Verlag.
- Dermatis, H. (1989). Hardiness in nurses: Relation to stress, social support, coping and illness. Unpublished doctoral dissertation, Graduate Center of the City University of New York.
- Dohrenwend, B. S. (1973). Life events as stressors: A methodological inquiry. Journal of Health and Social Behavior, 14, 167-175.
- Dohrenwend, B. S. and Dohrenwend, B. P. (1981). Stressful life events and their contexts. New York: Wiley.
- Dohrenwend, B. S. and Dohrenwend, B. P. (1974). Stressful life events: Their nature and effects. New York: Wiley.
- Dohrenwend, B. S. and Dohrenwend, B. P. (1978). Some issues in research on stressful life events. Journal of Nervous and Mental Disease, 166, 7-15.

Bibliography (continued)

- Dohrenwend, B. S., Dohrenwend, B. P., Dodson, M. and Shrout, P. E. (1984). Symptoms, hassles, social supports and life events: The problem of confounded measures. Journal Abnormal Psychology, 93, 222-230.
- Dusek, J. B. (1977). Adolescent development and behavior. New York: St. Martin's.
- Dusek, J. B. (1991). Adolescent development and behavior (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Elias, M. J., Gara, M. and Ubriaco, M. (1983). Sources of stress and support in children's transition to middle school: An empirical analysis. Journal of Clinical Child Psychology, 2, 112-118.
- Epstein, S. (1973). The self concept revisited: Or a theory of a theory. American Psychologist, 28, 404-416.
- Erikson, E. (1959). Identity and the Life Cycle. New York: Norton.
- Erikson, E. (1968). Identity : Youth and crisis. New York: Norton.
- Friedman, M. and Rosenman, R. H. (1974). Type A behavior and your heart. New York: Fawcett-Crest.
- Garmezy, N. (1981). Children under stress: Perspectives on antecedents and correlates of vulnerability and resistance to psychopathology. In A. I. Rabin, J. Aronoff, A. M. Barclay and R. A. Zucker (Eds.), Further explorations in personality. New York: Wiley-Interscience, p. 196-269.
- Garmezy, N. (1987). Stress, competence and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology and the search for stress - resistant children. American Journal of Orthopsychiatry, 57(2), 159-174.
- Garmezy, N. and Nuechterlein, K. (1972). Invulnerable children: The fact and fiction of competence and disadvantage. American Journal of Orthopsychiatry, 42, 328-329.
- Garmezy, N. and Rutter, M. (1983). Stress, coping and development in children. New York: McGraw-Hill.
- Gersten, J. C., Langner, T. S., Eisenberg, J. G. and Orzeck, L. (1977). An evaluation of the etiologic role of stressful life-change events in psychological disorders. Journal of Health and Social Behavior, 18, 228-244.

Bibliography (continued)

- Glass, D. (1977). Behavior patterns, stress and coronary disease. Hillsdale, N.J.: Erlbaum.
- Glass, D. and Singer, J. E. (1972). Urban stress: Experiments on noise and social stressors. New York: Academic.
- Glass, D., Singer, J. E. and Friedman, L. N. (1969). Psychic cost of adaptation to an environmental stressor. Journal of Personality and Social Psychology, 12, 200-210.
- Grannis, J. C., Fahs, M. E. and Bethea, W. L. (1988). The moderation of stress in the lives of the students of an urban intermediate school: A project to coordinate research and environmental intervention. Summary of Reports to the William T. Grant Foundation (1983-1988). New York: Public Education Association.
- Greenberger, E., Steinberg, L. D. and Vaux, A. (1982). Person-environment congruence as a predictor of adolescent health and behavioral problems. American Journal of Community Psychology, 30(5), 511-526.
- Hannah, T. E. and Morrissey, C. (1987). Correlates of psychological hardiness in Canadian adolescents. Journal of School Psychology, 27(4), 339-344.
- Harter, S. (1989). Processes underlying adolescent self concept formation. In R. Montemayor (Ed.). Advances in adolescent development: Vol. 2. The transition from childhood to adolescence. New York: Russell Sage Foundation.
- Hess, M. and Maddi, S. R. (1990). Personality hardiness and success in basketball. Unpublished manuscript, University of California, Irvine.
- Hinkle, L. E. (1973). The concepts of "stress" in the biological and social sciences. Scientific Medicine Manual, 1, 31-48.
- Hoatling, G. T., Atwell, S. G., and Linksky, A. S. (1978). Adolescent life changes and illness: Comparison of three models. Journal of Youth and Adolescence, 7, 393-403.
- Holmes, T. and Rahe, R. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 212-218.

Bibliography (continued)

- Holmes, T. and Masuda, M. (1974). Life change and illness susceptibility. In B. S. Dohrenwend and B. P. Dohrenwend (Eds.). Stressful life events: Their nature and effects. New York: Wiley.
- Howard, S. M. and Kubis, J. F. (1964). Ego identity and some aspects of personal adjustment. Journal of Psychology, 58, 459-466.
- Hull, J. G., Van Treuren, R. R., and Virnelli, S. (1987). Hardiness and health: A critique and alternative approach. Journal of Personality and Social Psychology, 53, 518-530.
- Jackson, D. N. (1974). Personality Research Form Manual. Goshen, NY: Research Psychologists Press.
- Jackson, D. N. (1985, August). Development of the Differential Personality Inventory. Presented at a symposium on Development and Standardization of the Differential Personality Inventory, Lee B. Sechrest, Chair, 93rd Annual Convention of the American Psychological Association, Los Angeles, CA.
- Jackson, D. N. (1975). The Differential Personality Inventory Manual. Goshen, NY: Research Psychologists Press.
- Jackson, D. N. (1971). The dynamics of structured personality tests. Psychological Review, 78, 229-248.
- Jackson, D. N. and Carlson, K. A. (1973). Convergent and discriminant validation of the Differential Personality Inventory. Journal of Clinical Psychology, 29, 214-219.
- Jackson, D. N. and Messick, S. (1961). Acquiescence and desirability as response determinants on the MMPI. Educational and Psychological Measurement, 21, 771-790.
- Jackson, D. N. and Messick, S. (1962). Response styles and the assessment of psychopathology. In S. Messick and J. Ross (Eds.). Measurement in personality and cognition. New York: Wiley.
- Jacobs, L., Berscheid, E. and Wallster, E. (1971). Self esteem and attraction. Journal of Personality and Social Psychology, 17, 84-91.
- Johnson, J. (1986). Life events as stressors in childhood and adolescence. Sage series in Developmental Clinical Psychology and Psychiatry (Vol. 8). Beverly Hills: Sage.

Bibliography (continued)

- Kelly, J. G. (1968). Towards an ecological conception of preventive interventions. In J. W. Carter, Jr. (Ed.), Research contributins from psychology to community mental health, (pp. 75-99). New York: Behavioral Publications.
- Keniston, K. (1976). Youth as a stage of life. In R. J. Havighurst and P. H. Dreyer (Eds.), Youth: The 74th yearbook of the NSSE. Chicago: University of Chicago.
- Kim, J. and Mueller, C. W. (1978). Factor analysis: Statistical methods and practical issues. Beverly Hills: Sage.
- Kobasa, S. C., (1982). Commitment and coping in stress-resistance among lawyers. Journal of Personality and Social Psychology, 42, 707-717.
- Kobasa, S. C. (1985). Longitudinal and prospective methods in health psychology. In P. Karoly (Ed.), Measurement Strategies in Health Psychology. New York: John Wiley.
- Kobasa, S. C., (1979). Personality and resistance to illness. American Journal of Community Psychology, 7(4), 413-423.
- Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.
- Kobasa, S. C., (1979). The hardy personality: Toward a social psychology of stress and health. In G. S. Sanders and J. Suls (Eds.), The Social Psychology of Health and Illness, Hillsdale, N.J.: Lawrence Erlbaum, 3-32.
- Kobasa, S. C. and Maddi, S. R. (1977). Existential personality theory. In R. Corsini (Ed.), Current Personality Theories. Itasca, IL: T.F. Peacock.
- Kobasa, S. C. and Maddi, S. R., and Courington, S. (1981). Personality and constitution as mediators in the stress-illness relationship. Journal of Health and Social Behavior, 22, 368-378.
- Kobasa, S. C. and Maddi, S. R., and Kahn, S. (1982). Hardiness and health: A prospective study. Journal of Personality and Social Psychology, 42, 168-177.
- Kobasa, S. C., Maddi, S. R., and Pucetti, M. C. (1982). Personality and exercise as buffers in the stress-illness relationship. Journal of Behavioral Medicine, 5(4), 391-404.
- Kobasa, S. C., Maddi, S. R., Pucetti, M. C., and Zola, M. A. (1985). Effectiveness of hardiness, exercise, and social support as resources against illness. Journal of Psychosomatic Research, 29(5), 525-533.

Bibliography (continued)

- Kobasa, S. C., Maddi, S. R., and Zola, M. A. (1983). Type A and hardiness. Journal of Behavioral Medicine, 6, 41-51.
- Kobasa, S. C. and Pucetti, M. C. (1983). Personality and social resources in stress resistance. Journal of Personality and Social Psychology, 45, 839-850.
- Kokenes, B. (1974). Grade level differences in factors of self-esteem. Developmental Psychology, 10, 954-958.
- Krantz, D. S., Glass, D. C. Schaeffer, M. A. and Davia, J. R. (1982). Behavior patterns and coronary disease: A critical evaluation. In J. T. Cacioppo and R. E. Petty (Eds.), Perspectives on cardiovascular physiology. New York: Guilford, 315-346.
- Krause, N. (1985). Stress, control beliefs, and psychological distress. Journal of Human Stress, 11(1), 11-19.
- Lawler, K. A. and Schmied, L. A. (1987). The relationship of stress, Type A behavior and powerlessness to physiological responses in female clerical workers. Journal of Psychosomatic Research, 31, 555-563.
- Lawrence, D. B. and Russ, S. W. (1985). Mediating variables between life stress and symptomatology among young adolescents. Paper presented at the Annual Meeting of the American Psychological Association, Los Angeles, CA.
- Lazarus, R. S. (1966). Psychological stress and the coping process. New York: McGraw-Hill.
- Lazarus, R. S. (1975). The self regulation of emotions. In L. Levi (Ed.), Emotions - Their parameters and measurement. (pp. 47-67), New York: Raven.
- Lazarus, R. S., Averill, J. R. and Opton, E. M. Jr. (1970). Toward a cognitive theory of emotion. In M. Arnold (Ed.), Feelings and emotions. New York: Academic.
- Lazarus, R. S. and Cohen, J. B. (1977). Environmental stress. In I. Altman and J. F. Wohlwill (Eds.), Human behavior and the environment: Current theory and research. New York: Plenum.
- Lazarus, R. S. and Launier, R. (1978). Stress-related transactions between person and environment. In L. A. Pervin and M. Lewis (Eds), Perspectives in interactional psychology. New York: Plenum.

Bibliography (continued)

- Lefcourt, H. M. (1978). Locus of control: Current trends in theory and research. Hillsdale, NJ: Erlbaum.
- Lerner, R. M. and Busch-Rossnagel, N. A. (1981). Individuals as producers of their development: A life span perspective. New York: Academic.
- Lewis, C. (1988). Personality and the stress-adjustment relationship during adolescence and the early adult transition: A longitudinal epidemiologic perspective. Unpublished doctoral dissertation. Graduate Center of the City University of New York.
- Maddi, S. R. (1990). Issues and interventions in stress mastery. In H. S. Friedman (Ed.), Personality and disease. New York: Wiley.
- Maddi, S. R. (1981). Roundtable discussion: Current research and conceptualizations on stress responsivity. In C. Dickinson Moore (Ed.) Adolescence and stress: Report of a NIMH conference. U. S. Department of Health and Human Services, Public Health Service-Alcohol, Drug Abuse and Mental Health Administration.
- Maddi, S. R. and Kobasa, S. C., (1984). The Hardy Executive: Health under Stress. Homewood, IL: Dow Jones-Irwin.
- Mason, J. W. (1975). A historical view of the stress field, Part 1. Journal of Human Stress, 1(1), 6-12.
- McCandless, B. R. (1970). Adolescents: Behavior and development. Hinsdale, IL: Dryden.
- Mecca, F A., Smelser, J. L. and Vasconcellos, M. (Eds.). (1989). The social importance of self esteem. Los Angeles: University of California.
- Messick, S. (1967). Psychology of acquiescence: An interpretation. In I. A. Berg (Ed.), Response Set in Personality Assessment. New York: John Wiley.
- Messick, S. (1989). Validity. In R. Linn (Ed.), Educational Measurement. (pp. 13-103), New York: Macmillan.
- Moos, R. H. (1976). The human context: Environmental determinants of behavior. New York: Wiley.
- Moos, R. H. (1984). Context and coping: Toward a unifying conceptual framework. American Journal of Community Psychology, 12, 5-36.

Bibliography (continued)

- Morrissey, C. and Hannah, T. E. (1987). Measurement of psychological hardness in adolescents. Journal of Genetic Psychology, 48(3), 393-395.
- Mueller, D., Edwards, D. W. and Yarvis, R. M. (1977). Stressful life events and psychiatric symptomatology: Change or undesirability. Journal of Health and Social Behavior, 18, 307-316.
- Murphy, L. B. (1962). The widening world of childhood. New York: Basic.
- Murphy, L. B. and Moriarity, A. E. (1976). Vulnerability, coping and growth: From infancy to adolescence. New Haven: Yale.
- Mussen, P., Conger, J. J. and Kagan, J. (1963). The Psychological Development of the Child. Englewood Cliffs, N.J.: Prentice-Hall.
- Muuss, R. (1982). Theories of Adolescence. New York: Random House.
- Newcombe, M. D. and Harlow, L. L. (1986). Life events and substance use among adolescents: Mediating effects of perceived loss of control and meaninglessness in life. Journal of Personality and Social Psychology, 51(3), 564-577.
- Newman, B. M. and Newman, P. R. (1979). An introduction to the psychology of adolescence. Homewood, IL: Dorsey.
- Newman, P. R. and Newman, B. M. (1981). Living: The process of adjustment. Homewood, IL: Dorsey.
- Nunnally, J. C. (1978). Psychometric theory. New York: McGraw-Hill.
- Ouelette Kobasa, S. C., (1985b). Personality and health: Specifying the conceptual links. In P. Shaver (Ed.) Review of personality and social psychology. (pp. 291-311).
- Paykel, E. S. (1974). Life stress and psychiatric disorder: Applications of the clinical approach. In B. S. Dohrenwend and B. P. Dohrenwend (Eds.), Stressful life events: Their nature and effects. New York: Wiley.
- Pedhazur, E. J. (1973). Multiple regression in behavioral research: Explanation and Prediction. New York: Holt, Rinehart and Winston.
- Petersen, A. C. and Spiga, R. (1983). Adolescence and stress. In G. L. Cooper (Ed.), Stress research: Issues for the eighties. New York: Wiley.

Bibliography (continued)

- Petersen, A. C. and Taylor, B. (1980). The biological approach to adolescence: Biological change and psychological adaptation. In J. Adelson (Ed.), Handbook of adolescent psychology. New York: Wiley.
- Pfeffer, C. (1986). The suicidal child. New York: Guilford.
- Quinn, R. P. and Lichtenstein, E. (1965). Convergent and discriminant validities of acquiescence measures. Journal of General Psychology, 73, 93-104.
- Rabkin, J. G. and Streuning, e. L. (1976). Life events, stress and illness. Science, 194, 1013-1020.
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.
- Renne, K. S. (1970). Correlates of dissatisfaction in marriage. Journal of Marriage and the Family, 32, 54-67.
- Rhodewalt, F. and Agustsdottir, S. (1984). On the relationship of hardiness to the Type A behavior pattern: Perception of life events vs. coping with life events. Journal of Research in Personality, 18, 212-223.
- Rhodewalt, F. and Zone, J. (1989). Appraisal of life change, depression and illness in hardy and nonhardy women. Journal of Personality and Social Psychology, 51, 1218-1223.
- Rogers, C. R. and Dymond, R. F. (Eds.) (1954). Psychotherapy and personality change: Coordinated studies in the client-centered approach. Chicago: University of Chicago.
- Rosenberg, M. (1986). Self concept from middle childhood through adolescence. In J. Suls and A. G. Greenwald (Eds.) Psychological perspectives of the self (Vol 3). Hillsdale, NJ: Lawrence Erlbaum.
- Roskies, E. and Lazarus, R. S. (1980). Coping theory and the teaching of coping skills. In P. O. Davidson and S. M. Davidson (Eds.), Behavioral Medicine: Changing Health Life Styles. New York: Bruner/Mazel.
- Ross, C. E. and Mirowsky, J. (1979). A comparison of life-event weighting schemes: Change, undesirability, and effect - proportional indices. Journal of Health and Social Behavior, 20, 166-177.

Bibliography (continued)

- Roth, D. L., Wiebe, D. J., Fillingim, R. B., and Shay, K. A. (1989). Life events, fitness, hardiness, and health: A simultaneous analysis of proposed stress-resistance effects. Journal of Personality and Social Psychology, 57, 136-142.
- Rummel, R. J. (1970). Applied factor analysis. Evanston: Northwestern University.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent and J. E. Rolf (Eds.), Primary prevention of psychopathology: Social competence in children (Vol. 3). Hanover, NH: University Press of New England.
- Rutter, M., Cox, A., Tupling, C., Berger, M. and Yule, W. (1975a). Attainment and adjustment in two geographical areas: I. The prevalence of psychiatric disorder. British Journal of Psychiatry, 126, 493-509.
- Rutter, M., Yule, B., Quinton, D., Rowlands, O., Yule, W. and Berger, M. (1975b). Attainment and adjustment in two geographical areas: III. Some factors accounting for area differences. British Journal of Psychiatry, 126, 493-509.
- Rutter, M. (1983). Stress, coping and development. In N. Garmezy and M. Rutter (Eds.), Stress, coping and development in children. New York: McGraw-Hill.
- Saunders, D. R. (1955). Some preliminary interpretive material for the PRI. Research Memorandum 55-15. Princeton, NJ: Educational Testing Service.
- Scheier, M. F., and Carver, C. S. (1985). Optimism, coping and health: Assessment and implications of generalized outcome expectancies. Health Psychology, 4, 219-247.
- Schlosser, M. B. (1986, August). Anger, crying and health among females. Presented at the 94th annual convention of APA, Washington, D. C.
- Schmidt, G. and Beall, S. (1984). Development of a youth adaptation rating scale. Journal of School Health, 54(5), 197-200.
- Schmeid, L. A. and Lawler, K. A. (1986). Hardiness, Type A behavior and the stress-illness relation in working women. Journal of Personality and Social Psychology, 51, 1218-1223.
- Seligman, M. (1975). Helplessness. San Francisco: Freeman.

Bibliography (continued)

- Selman, R. L. (1976). Toward a structural analysis of developing interpersonal relations concepts: Research with normal and disturbed preadolescent boys. In A. D. Pick (Ed.) Minnesota Symposia on Child Psychology, Vol. 10. Minneapolis: University of Minnesota.
- Selye, H. (1956). The stress of life. New York: McGraw-Hill.
- Swearingen, E. M. and Cohen, L. H. (1986). Life events and psychological distress: A prospective study of young adolescents. Journal of Community Psychology, 13, 329-337.
- Tanner, J. M. (1971). Sequence, tempo and individual variation in growth and development of boys and girls aged twelve to sixteen. In J. Kagan and R. Coles (Eds.) Twelve to sixteen: Early adolescence. New York: Norton.
- Theorell, T. (1976). Selected illnesses and somatic factors in relation to two psychosocial stress indices - a prospective study on middle-aged construction building workers. Journal of Psychosomatic Research, 20, 7-20.
- Thoits, P. A. (1981). Conceptual methodological and theoretical problems in studying social support as a buffer against life stress. Journal of Health and Social Behavior, 23, 145-159.
- Thoits, P. A. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H. B. Kaplan (Ed.) Psychosocial stress: Trends in theory and research, (pp. 51-72), New York: Academic.
- Thoits, P. A. (1985). Social support processes and psychological well-being: Theoretical possibilities. In I. J. Sarason and B. R. Sarason (Eds.) Social support: Theory, research and application. Hague: Martinus Nijhof.
- Vaux, A. (1981). Adolescent life change, work stress and social support. Unpublished doctoral dissertation. University of California, Irvine.
- Vinokur, A., and Selzer, M. L. (1975). Desirable versus undesirable life events: Their relationship to stress and mental distress. Journal of Personality and Social Psychology, 32, 329-337.
- Walster, E. (1965). The effect of self-esteem on romantic liking. Journal of Experimental and Social Psychology, 64, 142-146.
- Watson, D. and Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. Psychological Bulletin, 96, 465-490.

Bibliography (continued)

- Watson, D. and Pennebaker, J. W. (1989). Health complaints, stress, and distress: exploring the central role of negative affectivity. Psychological Review, 96(2), 234-254.
- Werner, E. E. and Smith, R. S. Vulnerable but invincible: A Study of resilient children. New York: McGraw-Hill.
- Westman, M. (1987). Success and failure in military officer candidates. Unpublished doctoral dissertation, Tel Aviv University.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. Psychological Review, 66, 297-333.
- Wiebe, D. J. and McCallum, D. M., (1986). Health practices and hardiness as mediators in the stress-illness relationship. Health Psychology, 5(5), 425-438.
- Wiebe, D. J. (1991). Hardiness and stress moderation: A test of proposed mechanisms. Journal of Personality and Social Psychology, 60(1), 89-99.
- Wills, T. A. (1988). Personal communication.
- Wills, T. A. (1986). Stress and coping in early adolescence: Relationships to substance use in urban school samples. Health Psychology, 5(6), 503-529.
- Wylie, R. C. (1961). The self-concept: A critical survey of pertinent literature. Lincoln: University of Nebraska.