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An examination of the effects of stress, hardiness, and health beliefs on the health risk-taking behaviors of Black adolescents

Ridgeway Stevens, Celeste Amanda, Ph.D.

City University of New York, 1991

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A

An Examination of the Effects of Stress, Hardiness, and Health Beliefs on the Health Risk-Taking Behaviors of Black Adolescents

by

Celeste Ridgeway Stevens

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

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

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Abstract

An Examination of the Effects of Stress, Hardiness, and Health Beliefs on the Health Risk-taking Behaviors of Black Adolescents

by

Celeste Ridgeway Stevens

Advisior: Professor Irwin Katz

This study explored the effects of stress, hardiness, and health beliefs on health risk-taking behaviors. The focus was economically disadvantaged minority youth (mostly Blacks) 12-15 years of age. It investigated in this population the extent to which stress, hardiness and health beliefs influenced their health behaviors. Two groups of Black adolescents were administered a questionnaire. One group was designated as not adjusted based on attendence record and teacher identification of behavioral problems in the classroom. The comparison group consisted of students who had good attendence and were not identified as behavioral problems by teachers. The effect of these variables on the health risk-taking behaviors of Black adolescents has not been previously assessed in the literature.

Prior research suggests that these three variables are significant factors in whether or not one engages in health risk-taking behaviors. Two types of stressors are noted in the literature with regards to Black adolescents, peer pressure and mundane extreme environmental stress. Peer pressure is associated with various normative developmental stages and tasks that are typical during adolescence. Mundane extreme environmental stress refers to the stress Blacks face as a result of living in a racially disadvantaged environment. Racism creates stressful living environments that include crowding, disease, crime, and personal injury, prevalence of substance abuse, and high incidence of adolescent pregnancy.

The results revealed the Black adolescents who were designated as not adjusted differed significantly from the adjusted group on all health risk behavior indicators with the exception of crack cocaine use. The not adjusted group engaged in more cigarette smoking, alcohol consumption, drug use and sexual risk behaviors. Black female adolescents in the not adjusted group held significantly riskier sexual, cigarette and drug use beliefs. Environmental stress interacted with health beliefs to facilitate cumulative alcohol risk. Over 75 percent of the sample was found to be low in the proposed hardiness construct. Sex differences in hardiness indicated that Black female adolescents were hardier than Black male adolescents. Future research should be directed toward the development and refinement of a

hardiness instrument for adolescents and well as the further identification of environmental factors indicative of mundane extreme environmental stress.

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I. INTRODUCTION

Statement of the Problem

Adolescents are increasingly engaging in behaviors that put their health at risk. Among the behaviors reported in the literature are substance use (cigarettes, marijuana,and other drugs). Also cited is teenage sexual promiscuity, often combined with failure to use contraception to prevent births and sexually transmitted diseases such as AIDS (acquired immune deficiency syndrome).

A review of the literature on the developmental aspects of health psychology points to a serious dearth of research in the area of adolescence. Numerous studies have been conducted to assess child and adult perceptions of illness and disease (Natapoff,1982; Kalnins, et al., 1982; Kister & Patterson, 1980); health services utilization (Anderson, 1968; Wolinsky, 1982); and maintenance of health care regimens. However, very few studies have examined these variables with regards to adolescence which usually covers the age range from 12 to 17 years (Kovar, 1978). The studies that have looked at this age group have often failed to include important adolescent developmental concerns, personality, and psychosocial variables that may account for differences in this group's health behaviors. Further, the research that has been conducted suggests that there is a sharp increase in health risk-taking behavior during this developmental period (Maddux et al., 1986; Kovar, 1978).

Despite the widespread acceptance of this assertion, little research has been conducted regarding the factors involved in the health risk-taking behaviors of Black adolescents.

Some researchers (e.g., Erikson, 1967; Kenniston, 1971; Coleman, 1978) maintain that adolescence is a particularly stressful life period. Stress as defined by Kaminoff & Proshansky (1983) refers to that pattern of psychological, behavioral and physiological responses of the individual to the demands of the physical and social environment that exceeds his/her capacity to cope effectively, i.e., to carry out activities, to realize goals and to experience satisfactions. Among the reasons cited for the stress are developmental tasks that need to be accomplished, such as achievement of separateness from parents and formation of separate identity. Peer pressure has been found by many researchers to have a significant impact on the health risk-taking behaviors of Black adolescents (e.g., Evans, 1979; McAllister, et al., 1979; Wills, 1986).

For Black adolescents an insidious yet important stressor that may impact on their health behaviors is mundane extreme environmental stress (Pierce, 1975). Pierce refers to mundane extreme environmental stress as the stress,sometimes subtle, sometimes overt, which Blacks face because of their race. Mundane extreme environmental stress can then be viewed as an additional or confounding source of stress for Black adolescents. The proposed study

assessed the role of stress (in the form of peer pressure and mundane extreme environmental stress) on the health risk-taking behaviors of Black adolescents.

In addition, due to the suggested relationship between stress and health, adolescent health behaviors may also be affected by a style of stress resistance referred to as "hardiness" (Kobasa, 1979). Hardiness, essentially, is a personality style used to assess how the individual mediates stress in his or her environment. Kobasa (1982) suggests that hardiness is a style of stress resistance that is found in stressed but otherwise healthy persons. This study examined whether hardiness as a style of stress resistance has any effect upon the health risk-taking behaviors of Black adolescents.

Health beliefs are also thought to have a significant impact on the health risk-taking behaviors of individuals (Becker & Maiman, 1974; Becker, 1974). Maiman & Becker (1974) suggest that health beliefs are a significant determinant of whether or not an individual engages in health action. The health belief model is largely based on motivational principles and views health behaviors as goal directed. This model consists of three essential elements: (1) susceptibility to illness and perception of the severity of illness, (2) benefits and barriers to health action and (3) cue to action. The cue or trigger to health action can be either internal, in the form of symptoms, or external, in

the form of media campaigns.

The study examines the effects of stress, hardiness and health beliefs on the health risk-taking behaviors of Black adolescents. It has both methodological, empirical, and practical significance. Methodologically, it recognizes the advisability of investigating patterns among variables. It is more likely that patterns of factors are actively involved in our behavioral choices. Therefore, information about patterns should lead to better understanding of behavior than would a single variable approach (Leavy, 1983).

The empirical significance of the study is in its systematic assessment of health behaviors and possibly related psychological factors in a relatively large sample of poor inner city minority youth about whose health behaviors we know little. There is also a practical contribution to be made by the proposed study. It will assist educators who are interested in the early identification of students at risk for health problems that may effect their school attendance and academic performance. It should help identify direct health intervention strategies for Black adolescents.

Review of Previous Research

The focus of this study is on the health risk-taking behaviors of Black adolescents. This review examines

research on health behaviors,in general, as well as those health behaviors that put the adolescent at risk for negative health and social outcomes. In addition, developmental factors believed to be influential to the health risk-taking behaviors are discussed. This review also considers research on the effects of stress, hardiness and health beliefs on health risk-taking behaviors.

Background

The period of adolescence has come to be regarded in the United States as a separate life stage with its own symbols and traits (Keniston, 1971; Brown, 1979). The traits of adolescence include marked physical changes: puberty and the growth spurt among them. There are also changes in emotional and cognitive attributes and in life style and interpersonal relationships. As a group, adolescents are a healthy segment of our society. The death and illness rates for this group are lower than for both infants and adults (Brown, 1979; Califano, 1979). Nonetheless, adolescents experience their own unique burdens of anxiety, illness and premature death-- often from causes that are closely associated with adolescent development and maturation, both physical and psychosocial. Prominent adolescent health problems include accidents, suicide, homicide, mental illness, and the abuse of alcohol and other drugs. Other problems such as adolescent pregnancy, although not typically life threatening, are burdensome as much for

their psychosocial impact as for their threat to physical health. A trait central to adolescence is experimentation with behavioral and interpersonal styles without considering their relevance to health consequences (Califano, 1979). Adolescence is a time of introduction to tobacco, alcohol, and other drugs, when sexual experimentation is prevalent, and attitudes towards health and health professionals become set (Wolinsky, 1982; Radius, 1981). Some of this behavior affects health immediately, as when venereal diseases are contracted or trauma is suffered after drug use. One should not underestimate the importance of personal health habits and lifestyle in the prevention of illness and the maintenance of good health. Many of the risky behaviors that threaten adolescent health are a central part of American culture: alcohol and other drug consumption, fast and careless driving, interpersonal violence, smoking, and an overemphasis on sexuality. Moreover, many of the health compromising activities of adolescents serve important developmental functions. For example, it has been suggested (Kovar, 1978; McAllister, et al., 1979; Evans, 1979) that some health compromising behaviors, such as smoking and drug use, help adolescents cope with feelings of boredom, isolation, hopelessness, and self image, and can increase the sense of group cohesiveness. The challenge of maintaining and improving health in this group is therefore complex (Matarrazzo, 1982).

Developmental Concerns

There is a growing interest in the developmental aspects of adolescent health psychology (Maddux, 1986). In addition, the cognitive and psychological aspects of adolescence are central to an understanding of adolescent behaviors.

Cognitive Development. Evidence is accumulating that indicates that adolescent cognitive development is important to the person's understanding of the relation between behavior and health and illness (Neuhauser,et al, 1977; Caradang,et al.,1979; Natapoff, 1982; Maddux, 1986; Kister,et al., 1980) This influence appears to occur in two ways. First, increasing cognitive sophistication leads the adolescent toward a greater ability to engage in self protective behavior and to assume responsibility for preventing problems and promoting health and safety. Second, cognitive development influences the adolescent's psychological and behavioral responses to illness, injury and their treatment (Maddux,et al, 1986).

Kister & Patterson (1980) and Bibace & Walsh (1979) employed a Piagetian model to investigate children's perceptions of contagion.

Those researchers found that changes in health and illness conceptions that occur in the child's progression through the stages of cognitive development contribute to an increased sense of autonomy and personal control and thus an

increased ability to engage in preventive health behaviors.

Psychosocial Development. Research (Maddux,et al., 1986; Kalnins & Love, 1982) suggests that psychosocial development,especially the child's ability to behave autonomously,is critical to the issue of individual responsibility in health behavior -- the child's ability to assume control of his or her health care. Psychosocial development influences behavior related to health promotion and prevention and the child's psychological responses to illness and injury (Maddux, et al.,1986).

In defining the field of behavioral health, Matarazzo (1982) stressed the importance of "individual responsibility in the application of behavioral and biomedical knowledge and techniques to the maintenance of health and the prevention of illness and dysfunction". The responsibility for child health more often than not, lies with an adult rather than with the child himself or herself. Therefore, individual responsibility must be addressed on two fronts--with the adult and with the child.

The increases in the number of single parent families and families in which both parents work may mean that children already are being forced by default to assume greater personal responsibility for their own nutrition, personal hygiene, and leisure activities (e.g., exercise), areas that have important implications for health (Paterson, 1984). The child's assumption of personal responsibility

for health care may depend largely on the development of self regulatory skills (Maddux, 1986).

Adolescent Pregnancy

Adolescents are becoming sexually active at younger ages. Once they have done so they are less likely to use contraceptives, thus risking venereal diseases and pregnancy. According to recent data from the Alan Guttmacher Institute (1982), the United States leads nearly all other developed nations of the world in rates of teenage pregnancy, abortion, and child bearing, even though it has comparable rates of sexual activity. Data show that this top-ranked status is not due to the high rates of pregnancy and parenthood among minority students alone. Pregnancy rates for white teenagers in the United States are twice as high as rates in Canada, France and England. Adolescent pregnancy has resulted in numerous problems that have far reaching implications (Goodwin, 1986). The costs of adolescent parenthood fall disproportionately on those least able to support themselves, teens from low-income/minority families with poor employment potential. They initiate sexual activity earlier than more advantaged teens and have poorer access to information and services of critical importance. These teens also lack compelling reasons to delay parenthood (Edelman & Pittman, 1986).

Research on adolescent pregnancy indicates that race and socioeconomic status are major predictors of

"unintended" childbearing (Moran, 1986; Goodwin, 1986. However, unplanned pregnancy is not a phenomenon unique to economically disadvantaged adolescents. The basic difference between poor and non-poor pregnant adolescents is that the non-poor pregnant adolescents have more options and a stronger support system available to them (Goodwin, 1986).

Johnson (1986) suggests that too often the problem of the pregnant adolescent is approached as if it existed in isolation, disconnected from the remainder of the adolescent's biological and psychosocial environment. Such an approach fails to recognize the interconnectedness of all issues within the adolescent's world, therefore impeding a successful therapeutic response.

Adolescent Substance Use

Several surveys of drug use have been conducted during the past decade. These surveys include the National Household Surveys (1980) (a series of six studies of the general population conducted since 1971). Three subgroups were included: youth aged 12 to 17 years, young adults, 18 to 25 years and adults aged 26 and older. This survey compares smoking, drinking, and marijuana-use patterns of youths and adults. The findings suggest that young adults (18 - 25 years) were the most frequent users (68%), followed by youths aged 12 - 17 years (31%), and adults aged 26 years and older (20%). Within the youth group (12 - 17 years) the following trends emerged: females were more likely than

males to be current cigarette smokers, while marijuana use was high among young males.

A second major set of surveys of American youth is that conducted by Bachman, et al.,(1981) during the 1970's. It is referred to as the Monitoring the Future Project. This study design was longitudinal and students were interviewed as they progressed through school.The study examined the usage of cigarettes, alcohol, and marijuana for the years 1975 - 1982. Their findings indicated that there was an increase in the use of all substances over the study period. Males exceeded females in alcohol and marijuana use, but the reverse was true for cigarettes. Family background such as parents' educational level and the number of parents living at home showed only a weak association with drug use. Finally, those students who showed less successful adaptation to the educational environment (by low grades and truancy) showed above-average drug use. These investigators concluded that "the kinds of young people most at risk remained much the same while the types and amounts of substances they used shifted somewhat from year to year".

Both these major national surveys omit an important segment of American youth, namely those not living at home or attending school.

Brunswick (1980) surveyed a representative sample of Harlem youth twice, first when they were 12 to 17 years old and again when they were 18 to 23 years old. Brunswick

contacted respondents at their homes rather than in school because their truancy rate was exceptionally high. Lifetime prevalences for three or more episodes of use of alcohol (80%), marijuana (79%), cocaine (33%) and heroin (15%) were higher than those reported in a national probability sample in 1977 (Abelson, 1979). Brunswick's research suggests that drug use among Black adolescents is higher than that of their white contemporaries.

In summary, these epidemiologic surveys suggest that: (1) drug use increases throughout adolescence; (2) there are more male than female drug users; and (3) there is no consistent association between drug use and socioeconomic status.

A Psychosocial Perspective on Adolescent Substance Use

Jessor (1983) after an examination of the research on adolescent substance abuse, suggests that adolescent drug use should be viewed from a psychosocial perspective as opposed to a biological, medical, or psychiatric perspective. A psychosocial perspective emphasizes the learned meanings, both social and personal, that drug use has acquired for young people, it's symbolic functions in the psychological economy of youth and the role it plays in adolescent development and adaptation (Jessor, 1977). Jessor draws four major generalizations from psychosocial research conducted on adolescent substance abuse. The first generalization that needs emphasis has to do with the

epidemiology of adolescent substance use. For certain substances--especially three that are major social concern, namely, alcohol, tobacco, and marijuana -- adolescent experience with them is now statistically normative (Donovan & Jessor, 1978). The wide prevalence of exposure to and involvement with drugs among today's adolescent is a fact of life in American society, and the use of drugs can no longer be seen as unusual, abnormal, or restricted to some small subgroup of "problem youths" (Jessor, 1977). Even the historically expected demographic variation has diminished, and the pattern of prevalence tends to cut across gender, ethnic, regional and rural-urban lines.

Considering the prevalence data as a whole, it appears that coming to terms with alcohol and other drugs is best viewed as a new developmental task that adolescents face as part of growing up in contemporary American society (Jessor, 1979). The use of drugs seems sufficiently institutionalized to require all adolescents to confront choices and decisions about whether, when and how to use drugs.

A second generalization that has emerged from the body of psychosocial research is that the use of drugs by adolescents is goal directed and psychologically functional rather than arbitrary or fortuitous or reflective of some youthful perversity (Brunswick, 1980). Indeed, just as it is true for many other behaviors in the adolescents

repertoire, the use of drugs can serve a wide range of goals and purposes, some of them clearly central to the entire process of adolescent adaptation and development.

Engaging in drug use in adolescence can serve various functions. It can be a way of attaining independence from parental control and regulation; a means of expressing opposition to adult authority and conventional society; a coping mechanism for dealing with anxiety, frustration,and feelings of inadequacy and failure; a means of gaining acceptance by the peer group; a means of confirming important attributes of personal identity; and a symbol of having made a developmental transition from less mature to more mature status or of having a "claim" on a more mature status.

The third generalization concerns drug use as a part of a syndrome of problem behaviors. Drug use is rarely an isolated behavior in adolescence, on the contrary, the use of substances by young people is systematically linked to a larger constellation of problem behaviors,i.e., other behaviors that are considered inappropriate or undesirable by the larger society. Research suggests that there is substantial covariation between involvement in substance use and involvement in other problem behaviors, that is, they tend to co-occur within the same adolescent.

The fourth generalization worth brief attention is that there is a pattern of personality and social

antecedents and correlates of adolescent drug use that can be characterized by psychosocial unconventionality (Jessor & Jessor, 1977; Jessor,Chase,& Donovan, 1980; Kandel, 1980, and Bachman, 1981).

The existence of a pattern of psychosocial unconventionality associated with variation in drug use means that the use of drugs is a systematic and integral part of the adolescent's adaptation rather than merely an opportunistic or circumstantial occurrence.

Consideration of some of these psychosocial risk factors can be organized in terms of three categories: personality factors, environmental factors, and behavioral factors. Among personality risk factors, a few of the key characteristics that differentiate adolescents who use drugs from those who do not, or adolescents who use heavily from those who are less heavily involved are the following: The former youths place higher value on independence and autonomy (some investigators have characterized this as "rebelliousness"), lower value on academic achievement, and higher value on independence relative to achievement.

Among social environmental risk factors related to adolescent substance use are lower perceived support and less strictness from parents, less compatibility between the expectations their parents have and the expectations their friends have for them, lower influence on them from their parents relative to the influence of their friends. Users

also perceive less parental disapproval of their drug use, greater approval from friends, and a higher prevalence of models for drug use among their parents and their friends.

Among behavioral risks factors related to drug use, users show higher involvement in other problem behaviors, including precocious sexual activity and protodelinquent behaviors such as lying, stealing, and aggression, and manifest relatively less involvement with conventional behavior related to school and church.

Adolescent Stress: Peer Pressure

Adolescence is a fruitful stage in which to examine stress (Petersen & Spiga, 1982). Although no theories have specifically addressed stress during adolescence, some theories have implications for understanding stress at this time.

Peer pressure to think or behave along certain peer prescribed guidelines is regarded as a prominent feature of adolescence. Peer-group relations form an integral component of adolescent socialization (Hartup, 1983) and facilitates individual development of a sense of identity (Erikson, 1968). Peer pressure is a primary mechanism of transmitting group norms and maintaining loyalties among group members (Asch, 1951). Although people assume that peer pressure is an influential component of adolescent development, few empirical studies have investigated the nature and extent of its influence. The research in this area has looked at

perceptions of changing influences of parents and peers, peer conformity dispositions and perceptions of peer pressure.

Theoretically, adolescence has been viewed as a time of increasing peer influence (Berndt, 1979). Some researchers view these peer influences as replacing earlier parental influence (Ausubel, et al.,1977). Others argue that levels of parental and peer influence vary throughout adolescence (Chassin, Presson, Sherman, Montello & McGrew, 1986; Biddle, Bank,& Marlin, 1980; Krosnick & Judd, 1982). Many researchers have pointed to the significance of peer and parent influences on a wide range of behaviors during adolescence. For example, peers and parents have been found to influence adolescent "problem behaviors" (Jessor & Jessor, 1977). In the field of substance abuse, previous research indicates both peer and parent influence are important and that their relative importance varies with the use of different substances.Studies supporting this conclusion have been conducted by Chassin & Presson, et al.,(1986)); Biddle, et al.(1980); Dielman, Campanelli, Shope & Butchart (1987); Brown(1982); Brown & Classen, (1985);Schmidt & Beall (1984); Evans, (1979); and Oetting & Beauvais (1986). Environmental Stress

The impact of a stressful social environment has been amply demonstrated (e.g., Kamanioff & Proshansky,1983; Kobasa, 1982). Two major strands in this growing body of

literature concern the effects on well being of dramatic life events (Holmes & Rahe, 1967) and of persistent lack of person-environment fit or lack of congruence (Kaimanoff & Proshansky,1983).

The two lines of research assume a common causal path: dramatic alteration of one's life situation or chronically insufficient opportunities relative to personal resources or needs, both trigger a syndrome of stress that takes characteristic forms.

Among the typical physiological sequelae of stress are elevated blood pressure, and increased frequency of somatic complaints; among the common psychological manifestations are anxiety, depression,and insomnia; and among the characteristic behavioral symptoms are absenteeism, impaired performance and increased use of substances. This study examines behavioral symptoms of stress in an adolescent population. It views health risk-taking behavior as one of many behavioral indicators of stress.

Life Events Research. The research in this area is extensive. However, most research on life events has focused on adults despite the fact that adolescence has been characterized as a period in which stressors are particularly likely to disrupt functioning and even to affect the course of subsequent development (Holmes & Rahe, 1967; Rutter & Garmezy,1983). Other studies have examined adolescents perceptions of the severity of stress

experienced during particular life events (Coddington,1972; Schmidt and Beall, 1984).

In the past ten years, however, several researchers have demonstrated a relation between significant life events and health among adolescents(Hotaling, Atwell & Linsky ,1978; Vaux, 1981; Gersten, 1974).

Mundane Extreme Environmental Stress. Pierce (1975) a clinical psychologist, used the term "mundane extreme environmental stress" to describe the pattern of behavioral dysfunction he observed in individuals living in an extreme environment such as the South Pole. The universal attributes of an extreme environment include forced socialization, spatial isolation, time elasticity, biological dysrythmia, sociological dysrhythmia, increased free time, noise/silence extremes, and inability to escape (Pierce, 1975). These stressors produce effects such as depression, loneliness, fear of abandonment, anxiety, panic, information fractionalization, and boredom.

The inner city resident has more of these attributes to contend with both in quality and in quantity. Pierce compares the stress on Blacks in the United States with the harsh physical stress of those who live in extreme climates. Just as the day to day demands of coping with severe cold and scarce food supply defined life for Eskimo people in the Artic, so severe racial prejudice defines life for Blacks. In this case, the extreme environment is not a physical

geographic one, but a social one; it provides the entire context for peoples' lives and expectations (McAdoo, 1983). The "extreme" difficulties which white society imposes on Black people by denying their identity and their values, and limiting their economic opportunity are not unusual or extraordinary but "mundane" daily pressures for Blacks.

Peters & Massey (1983) examined mundane extreme environmental stress from the framework of family stress theory. They compare Black families to "refugees" whose total lives unfold within a uniquely oppressive environment. They suggest that mundane extreme environmental stress is pervasive in American society. Blacks' lives are encumbered by the constant threat and periodic occurrences of intimidation, discrimination or denial because of their race. These researchers conducted a study of nine black families and what coping strategies they employed to deal with mundane extreme environmental stress, as well as other stressful life events that occur within families. The concept of a mundane extreme environment suggests vividly how racism is a pervasive daily reality for Black families.

Although only a limited number of studies have been conducted which operationalizes this theoretical concept, they suggest that mundane extreme environmental stress affects the lives of Blacks in a debilitating way which is viewed as ordinary and expected by those who experience it.

Hardiness

Numerous studies indicate that there is a relation between stress and illness (cf. Sarason & Sarason, 1984). Although the correlation between stress and illness is sometimes small (varying from .20 to .70), most researchers concede that it is reliable (see Kobasa, 1979). One recent strategy to study the relation between stress and illness is to separate individuals into those who are and those who are not susceptible to illness under conditions of stress. The theoretical basis of such a strategy is that (a) stress cannot be conceived in terms of an external event independent of the individual's appraisal of the event and (b) some individuals are more likely than others to appraise events in such a way that they evoke a stress response (Hull, Van Turen, & Virnelli, 1987).

Kobasa (1979) advanced the notion of psychological hardiness as the first hypothesized global personality construct that could moderate stress-health relationships. According to Kobasa, psychologically hardy individuals are less likely than non-hardy individuals to fall ill as a consequence of stressful life events. Hardiness is a composite construct consisting of three components: commitment, control and challenge. Commitment is the belief in the truth, 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; it entails the responsibility to act. Challenge is based on the belief that

change rather than stability is the normative mode of life; change therefore is anticipated as an opportunity and an incentive for personal growth (Kobasa, 1982).

The pioneer work on the hardiness construct was undertaken with a large sample of middle-aged American male executives who worked in a public utility firm. Within this population, Kobasa (1979) was able to show that the likelihood of individuals remaining healthy or falling ill was related to their scores on measures of commitment, challenge and control. Although this research involved a retrospective design, subsequent work by Kobasa, Maddi, & Courington (1981) and Kobasa, et al., (1982) used a prospective design to demonstrate that hardiness predicts both concurrent and future health. Additional work has demonstrated that hardiness remains a significant predictor of health even when prior illness (Kobasa, et al., 1982), constitutional predisposition, (Kobasa, et al., 1981)., type A coronary-prone behavior pattern (Kobasa, Maddi & Zola, 1983) and social support (Kobasa & Puccetti, 1983) are included as independent predictors.

The research in this area suggests that hardiness is predictive of health in adults. Research needs to be conducted on an adolescent population. There is a relation between health behaviors and hardiness that needs to be further examined. Present methods of hardiness need to be re-assessed, placing greater emphasis on the components

(i.e., commitment,control and challenge).

Health Beliefs

The Health Belief Model (HBM) Maiman, & Becker,1974) postulates that the likelihood of undertaking a health action is a function of the individual's beliefs along four subjective dimensions (1) perceived level of personal susceptibility to a particular condition; (2) perceived degree of severity of the consequences which might result from contracting the condition; (3) estimation of the recommended health action's potential benefits or efficacy in preventing or reducing susceptibility and/or severity; and (4) views of possible psychological and other costs or barriers related to the proposed action. In addition the model stipulates that a stimulus or, "cue to action," is necessary to trigger appropriate health behavior by making the individual consciously aware of his/her feelings about the condition.

The original model, which was oriented solely toward the desire to avoid a specific disease threat, has since been reformulated to include a dimension of general health motivation, based on measures of health concerns and practices that are seen as relatively nonspecific and stable across situations.

Social scientists have devoted little systematic scrutiny to adolescent health beliefs. Radius et al., (1980) conducted a survey to establish the health beliefs and

practices of adolescents aged 12 years and older. The sample consisted of 259 white adolescents from varying socioeconomic strata. More than 1/2 of the boys and girls in this sample were found not to be concerned about health. Additionally, despite their recognition of potentially dysfunctional behaviors few youths accepted responsibility for their own health. Only about 1/3 of these adolescents (across all ages) acknowledged any personal accountability. The study suggests that by age 12 certain beliefs are largely established and continue at least through age 18.

O'Rourke, Smith & Nolte (1984) conducted a survey of 5411 students in grades 7-12 to identify trends with respect to their attitudes, beliefs and behaviors related to smoking and weight. Their results revealed that students believed smoking was a real health problem, However, the strength of that belief decreased with age. Similar findings were reported for weight.

Eisen & Zellman (1986) as part of a 15 hour Health Belief Model (HBM) based sex education program, interviewed 203 teenagers (aged 13-17) of both genders regarding preintervention sexual and contraceptive knowledge, attitudes towards pregnancy and contraception and prior sex education and sexual activity experiences. Across specific knowledge areas, HBM-based attitudes (e.g., perceived serious consequences of teen pregnancy) were consistent significant predictors of knowledge scores. Interestingly,

neither previous sex education nor personal sexual experiences were significantly associated with specific knowledge areas (e.g., venereal disease) although they were related to total knowledge scores. Age and gender were poor predictors of specific areas of knowledge, but minority ethnic status was consistently associated with less sexual and contraceptive knowledge.

These studies suggest the importance of considering the various dimensions of the Health Belief Model when assessing the health beliefs of adolescents.

Hypotheses

The findings of the research that has just been reviewed suggest the following hypotheses.

(1) Black adolescents designated as not adjusted will report that they engage in more health risk-taking behavior than Black adolescents designated as adjusted.

Rationale: Research suggests that adolescent risk-taking behaviors reflect a pattern of problem-prone behaviors Jessor & Jessor, 1977).

(2) Black adolescents designated as not adjusted will report that they experience more peer pressure than Black adolescents designated as adjusted.

Rationale: Research suggests the problem-prone adolescents tend to interact with peer clusters that encourage their health risk taking behaviors.

(3) Black adolescents designated as not adjusted by

will report that they experience more environmental stress than Black adolescents designated as adjusted.

Rationale: Research suggests that stress affects adjustment. The more stress experienced the worse the adjustment.

(4) Black adolescents designated as not adjusted will be less hardy than Black adolescents designated as adjusted.

Rationale: Research suggest (Kobasa,1979) that hardy individuals are better able to manage the stress in their lives and are better adjusted to their environment.

(5) Black female adolescents will hold different health beliefs about sexual behavior than Black male adolescents. Specifically, Black female adolescents will believe more in the use of birth control, anti-venereal disease devices, less promiscuity, and more selectivity with regards to regular sex partners.

Rationale: Research indicates that males and females have differential beliefs regarding health (Califano, 1979; Radius, et al., 1980; Eisen & Zellman, 1987).

(6) The effects of peer pressure on the health risk-taking behaviors of Black adolescents will be mediated by their health beliefs.

Rationale: The tendency for peer pressure to effect health risk-taking behavior will be weaker for subjects with favorable as compared to unfavorable health beliefs.

(7) The effects of environmental stress on the health

risk-taking behaviors of Black adolescents will be mediated by health beliefs.

Rationale: The tendency for environmental stress to effect health risk-taking behavior will be weaker for subjects with favorable as compared to unfavorable health beliefs.

(8) The interaction of peer pressure, environmental stress, and health beliefs will have a significant effect on the health risk-taking behaviors of Black adolescents.

Rationale: The combined effects of peer pressure, environmental stress, and health beliefs will increase subjects tendencies toward health risk-taking behaviors.

II. METHOD

Sample

A total sample of 200 seventh grade students were drawn from two intermediate inner city schools in the New York City public school system. Seventh grade was selected for inclusion in this study because seventh grade has been identified as the grade level most at risk for health risk-taking behavior (SHAPE study, 1980). Subjects were approximately 12-15 years old. Subjects comprised two groups. The "at risk" group consisted of students identified by number of school absences and teacher identification as behaviorial problems. This group included students who were in the Attendence Improvement Program because of excessive absence. Students who were disruptive to the teacher in the classroom, who were persistently late coming to school or absent,and who left the classroom without permission (see Appendix Q for Criteria for "At-Risk" Subject Selection,p.146). The control group consisted of students not identified as attendence or behavioral problems. The questionnaire was completed over two class sessions. Subjects were provided instructions regarding the questionnaire (see Appendix R, p. 148). Because of the age of the students, parental consent forms were required to be submitted (Appendix N, p.139).

Setting

The use of two intermediate schools increased the

generalizibility of the results obtained. Schools were as comparable as possible. Comparability was measured by size of school, type of students, size of pupil population, size of faculty, and ethnic composition and social economic level of the surrounding community.

Research Design

A health questionnaire was administered to approximately 250 pupils in groups of 15 - 20 students. Administration of the health questionnaire was conducted over two class sessions. Small groups were selected due to the nature of the subject matter of the questionnaire. Also previous experience suggested that subjects of this age group are more focused or attentive when in small groups. The health questionnaire was administered in two parts since it is a composite of some instruments which are self administrable and other items that needed the supervision of the researcher when responding. The questionnaire sections were counterbalanced in order to reduce the effects of exposure and/or fatigue on subjects. The final questionnaire included measures of peer pressure, environmental stress, self esteem, locus of control, optimism, and social desirability. In addition, specifically devised items were used to assess health beliefs, demographics and outcome measures. Part 1 of the questionnaire consisted of the outcome measures, the Youth Adaptation Rating Scale, the Rosenberg Self-Esteem Scale, the Nowiciki-Strickland Locus

of Control Scale, Fisher & Lientenberg's adaptation of the Generalized Expectancy for success Scale, Reynold's short form of the Marlowe-Crowne Social Desirability Scale and specially devised peer pressure items. Part 2 of the questionnaire consisted of demographics and health belief items. These measures are described below.

Instruments

Peer Pressure Measure

A five item measure was designed to assess the developmental stressor peer pressure. Subjects responded to each item using a four point response format that ranges from "strongly agree" to "strongly disagree". Each item reflected the subject's perception of peer pressure ,e.g., "I do things so others will like me" or "My friends can usually get me to do things I don't want to do." The expertise of teachers and guidance counselors and personal experience was employed in developing these items. A cumulative peer pressure score was generated by summing across the five items.

Environmental Stress

Eight items were included in the study which reflected the kinds of environmental stressors which subjects experienced. Only two of the eight items were found to be statistically reliable indicators of environmental stress. These items were "Do you live in a drug ridden neighborhood " or "Do you live in a crime ridden neighborhood?". An

environmental stress score was derived by summing these two items.

The Youth Adaptation Rating Scale

The Youth Adaptation Rating Scale was used to measure objective developmental stressors experienced by subjects. The scale was developed by Schmidt and Beall (1984) to provide a measure of stressful life events for an adolescent population just as Holmes and Rahe's (1967) Social Readjustment Rating Scale was designed for adults. Both instruments measured the type of stressful events occurring in people's lives and the amount of adaptation required. However, unlike the Social Readjustment Rating Scale, the Youth Adaptation Rating Scale was not designed to predict illness. The test-retest reliability of the instrument was found to be .86. The Youth adaptation Rating scale was selected by the researcher for inclusion in this study rather than the more widely used Coddington et.al., (1972) scale because the YARS includes items that were more developmentally appropriate for the junior high or intermediate school population (see appendix, p. 91). The YARS consisted of a list of 62 possible situations that may cause stress in the developing adolescent. The respondent was asked to choose those situations which have been experienced within a specified time period. In its original form, each event has a numerical value corresponding to the degree of severity. The sum of these values indicated the

total amount of stress experienced by the respondent. For the purpose of this study, respondents were asked only to indicate whether or not a particular event has occurred to them. A total stress score was devised by summing the items. This provided the researcher with an objective measure of stress experienced by subjects. Higher scores indicated higher stress. Score norms have not yet been developed for low, medium, and high levels of stress in the adolescent.

Hardiness

The results of a pilot study undertaken in November, 1987, indicated that Kobasa's(1979) measure of hardiness, the Personal Views survey, was not appropriate in its present form to use with an adolescent population. After several attempts to make modifications of the scale, it was suggested that a measure of hardiness suitable for adolescents be devised by examining its components and finding pre-existing standardized measures that would assess these components (commitment, control, and challenge). For the purposes of this study, hardiness was measured as follows: commitment (to self) was measured by the Rosenberg (1968) Self Esteem Scale; control was measured by the Nowicki-Strickland (1973) Locus of Control Scale, a generalized measure of locus of control; Challenge was measured by Fibel & Hale's (1978) Generalized Expectancy of Success Scale; which has been modified as a children's

measure of optimism-pessimism.

Rosenberg Self Esteem Scale. This scale consisted of 10 items. The scale was designed for ease of administration and economy of time. The Guttman method of scale construction insured a unidimensional item continuum. The adequacy of each item is determined primarily not by its relation to the total score but by its patterned relation with all other items on the scale. The reproducibility of this scale is 92 percent and its scalablity is 72 percent; these coefficients are satisfactory in terms of the criteria established by Guttman and Mendezel. "Positive" and "negative" items are presented alternately in order to reduce the effect of respondent set. Items are summed to produce a self esteem score with higher scores indicating higher self esteem.

Nowicki-Strickland Locus of Control Scale. This is a paper-and-pencil measure consisting of 40 questions that are answered either yes or no by placing a mark next to the question. The items describe reinforcement situations across interpersonal and motivational areas such as affiliation, achievement, and dependency. Items are readable at the fifth-grade level. An abbreviated scale version for grades 7 - 12 consisting of 20 items will be used in this study. Internal consistency derived via the split-half method, corrected by the Spearman-Brown formula is r=.68 (for grades 6, 7, 8).

I preferred the Nowicki-Strickland scale to other

measures of locus of control such as Bialer's(1961) scale, Rotter's (1963) measure and Crandall's (1965) scale, because those instruments either suffer from response format problems (e.g., half the items consecutively keyed in one direction),present difficulty when administering to large groups or are
specifically constructed for academic rather than general situations.

Fisher & Leitenberg's adaptation of the Generalized Expectancy for Success Scale. Fibel & Hale (1978) originally developed the Generalized Expectancy for Success scale to measure adults' expectations of attaining distant goals in a variety of realms. Their questionnaire consists of 30 statements, each containing the same stem: "In the future I expect that I will...". Seventeen items are phrased in the direction of success and 13 in the direction of failure. Fischer & Leitenberg (1986) adapted this measure for children, utilizing its focus on the distant future. I preferred The Fibel & Hale scale to others possible measures of optimism-pessimism such as Stipeck, et al.'s (1981) OPTI and Beck, et al.'s (1974) Hopelessness scale, because those instruments either focus on immediate outcomes, fail to ask subjects directly about their own expectancies, or do not contain many optimistic items.
The questionnaire was originally designed by Fibel & Hale for response on a five point scale scored 1 (highly

improbable) to 5 (highly probable). To simplify the measure for use with young children,the Fischer & Leintenberg version employs a true or false response format. Cronbach's alpha was .79 for the optimism factor and .65 for the pessimism factor indicating adequate internal consistency for each factor.

The optimism and pessimism scales are scored so that a high score, indicates high optimism or pessimism. The optimism scale has a possible range of 0-16. The pessimism scale has a possible range of 0-12. Reynolds'short form of the Marlowe-Crowne Social Desirability Scale

The need to examine social desirability as a response tendency on self report measures has been well documented and continues to be a methodological consideration in research. A major use of the Marlowe-Crowne scale in research has been as an adjunct measure to assess the impact of social desirability on self-report measures specific to the primary purpose of the investigation. Short forms of the Marlowe-Crowne Social Desirability Scale were developed by Reynolds (1982) on the basis of responses from 608 undergraduates students to the 33-item Marlowe-Crowne Social Desirability Scale. The 13-item short form was selected for inclusion in this study because it correlates highly with the full scale (r= .93) and has an acceptable amount of internal reliability (r =.76).

Demographics

The following demographic items were incorporated into The Adolescent Health Questionnaire: sex. age, grade, family size and structure, race, and ethnicity (see Appendix F,p.104).

Health Belief Items

Following a model used by Eisen & Zellman (1986) and Wills (1986) subjects were asked to respond to questions that assess their health beliefs regarding adolescent substance use and sexuality. For example, subjects were asked, "If you or your partner used no birth control, how likely is it the you/your partner will get pregnant?". Other questions asked subjects to indicate their degree of agreement with statements such as, " Using a condom to prevent A.I.D.S. is a good thing to do." Additional items can be found in Appendices H (sexuality items), I (drugs items), J (cigarette) and K (alcohol items) on pages 108-119, respectively. A cumulative score for each health risk-taking behavior was derived by summing across items that related to participation and frequency of use. A total of eleven dependent variable scales were generated.

Adjustment Groups

School absences was used as an objective indictator of adjustment. Subjects with more than three absences in a given month and who were identified by teachers as behavioral problems were assigned to the not adjusted group. Subjects with three absences or less and not considered behavioral problems were assigned to the adjusted group.

Outcome Measures

In view of the scant research on the relations between social-environmental stressors and adolescence, the following two sets of dependent variables were selected for inclusion in this study: (a) use of substances such as cigarettes, alcohol, marijuana, and other drugs and (b) unprotected sexual activity including behaviors that increase the risk of contracting AIDS and other diseases.

Substance use. Subjects were asked if they used each of the respective substances (cigarettes, alcohol marijuana and other drugs). An example of a substance use item is,"Please indicate how many times a week you use cigarettes."). See Appendix L, . Respondents were then asked how often during the past week they have used these substances. In each case, the outcome measure was scored on a six point scale ranging from zero to five (with a score of "0" indicating non use of a substance, "1" indicating having tried that substance, and "2" through "5" indicating the range of increasing usage). This scoring enabled each health risk taking measure to be scaled according to its health behavior category . Higher scores were indicative of higher risk. The cumulative risks for alcohol use, drug use and total health behavior risk were also determined. A cumulative alcohol risk score was generated by summing across scores for each alcohol behavior indicator. Cumulative drug risk was determined by adding scores for marijuana and crack use scales. Finally, total

health risk was determined by adding scores for all health behavioral indicators.

Sexual activity. Subjects were asked if they have had sexual intercourse. Respondents were then asked how often during the past week they have engaged in sexual activity, including unprotected sexual intercourse. In each case, frequency of sexual activity or unprotected intercourse was recorded on a five point scale from zero to four (e.g.,"Have you ever had sexual intercourse? If yes, how often during a week?). See Appendix L for additional items, page . Sex risk was assessed using two types of beliefs: sexual susceptibility and sexual health behavior .

Data Collection

Questionnaires were precoded and prenumbered for ease of administration. Additionally, questionnaires were pretested on a pilot sample of students who were seen in small groups, so that problematic items can be identified by the investigator. The questionnaire completion time averaged 35-40 minutes. This instrument was administered by the researcher to groups of students in a special classroom located at each school. Approximately 250 children from two separate schools filled out the questionnaire over a six week period.

Analysis

The analysis of the data was consistent with the aims of the study. It consisted of determining what effects

stress, hardiness, and health beliefs had on the health risk-taking behaviors of Black adolescents. The statistical analysis included t-tests, zero-order correlations, and analysis of variance.

Specifically, the following statistical tests were utilized. A t-test was used to assess Hypothesis 1, that is, whether there are significant differences between Black adolescents designated as not adjusted and those designated as adjusted such for the various health behavior indicators. Hypothesis 2 assessed via a t-test whether there are any significant differences between peer pressure scores for Black adolescents designated as not adjusted and those designated as adjusted. T-tests were also used to assess hypotheses 3 and 4, respectively. Hypothesis 3 examined whether or not there were significant differences between environmental stress scores of the two groups. While hypothesis 4 examined the respective hardiness scores for the two groups of Black adolescents. Male and female differences in health beliefs, hypothesis 5, were assessed via a t-test. Hypotheses 6 ,7, and 8 were evaluated using an analysis of variance. Here the effects of four independent variables (peer pressure, environmental stress, health beliefs and adjustment) were assessed. Peer pressure, environmental stress, and health beliefs were dichotomized into high and low groups via a median split. Dichotomizing the independent variables results in a loss of some data but

allows us to isolate just where a particular interaction effect is occurring. Subjects were classified into adjusted and not adjusted groups based on number of school absences within a given month and teacher identification as a behavior problem. (see Appendix Q). Subjects with greater than three absences during the last month and who were identified by teachers as behavioral problems were assigned to the not adjusted group and subjects with three or fewer absences were assigned to the adjusted group. Hypothesis 6 predicted that the effects of peer pressure on health risk-taking behavior will be mediated by health beliefs. Hypothesis 7 predicted that the effects of mundane extreme environmental stress on health risk taking behavior would be mediated by health beliefs. Hypothesis 8 predicted a three-way interaction for the combined effects of peer pressure, mundane extreme environmental stress and health beliefs on health risk-taking behavior.

III. RESULTS

Descriptive Statistics

In Table 1 the characteristics of the final sample are summarized. The sample consisted of two hundred Black subjects, 89 girls and 111 boys from two intermediate schools in a single school district in Brooklyn, New York. The subjects were primarily seventh and eighth grade students who ranged in age from 12 to 15 years. Sixty-two percent came from single parent or single guardian homes and half had a parent or guardian who works. Table 2 presents information about the number of subjects who had tried various health risk-taking behaviors at least once. The respondents had experimented with an interesting array of risky health behaviors. More than a third of the sample reported having tried cigarettes ("Have you ever smoked cigarettes?"), and over fifty percent reported having tried alcohol ("Have you ever drunk alcohol?"). Subjects use of marijuana was slightly over twenty percent ("Have you ever tried marijuana?") and less than ten percent had experimented with major drugs like crack cocaine ("Have you ever tried crack?"). Finally, over forty percent of the sample reported that they had experienced sex ("Have you ever had sexual intercourse?") at least once by junior high or intermediate school. Table 3 shows the numbers and percentages of respondents who report some level of regular engagement in health risk taking behaviors. Here we see that

twenty-three percent of the subjects reported presently smoking at least one or two cigarettes a week. In terms of alcohol use forty-six percent of subjects reported drinking beer, forty-three percent reported drinking wine coolers,forty-seven percent drank wine and thirty-nine percent drank hard liquor. Nineteen percent of the sample reported having smoked a marijuana cigarette and seven percent reported crack cocaine use. Approximately thirty percent of the adolescents sampled also reported having sex "regularly". Table 4 presents the frequency distributions of subjects engaging in health risk taking behaviors during the course of a week.

Table 1. Characteristics of Subjects

Variables	N	%
Age in Years		
12	37	18.5
13	67	33.5
14	59	29.5
	200	100.0
Gender		
Males	111	55.5
Female	89	44.5
	200	100.0
Grade		
seventh	83	41.5
eighth	109	54.5
ninth	3	1.5
missing	5	2.5
	200	100.0
Family Type		
Single Parent	102	51.0
Two Parents	71	35.5
Single Guardian	22	11.0
Two Guardians	1	.5
Missing	4	2.0
	200	100.0
Family Employment Status		
One Adult works	100	50.0
Two Adults work	2	1.0
Neither Adult works	91	45.5
Missing	7	3.5
	200	100.0

Table 2. Number and Percent of Subjects Who Have Tried A Health Risk Taking Behavior At Least Once

Behavior	Yes		No		Missing	
	N	%	N	%	N	%
Cigarettes	95	47.5	104	52.0	1	.5
Alcohol	118	59.0	75	37.5	7	3.5
Marijuana	39	16.5	137	68.5	25	12.5
Crack	20	10.0	172	86.0	8	4.0
Sex	88	44.0	87	43.5	25	12.5

Note: Subjects were asked "Have you ever tried____?"

Table 3. Number and Percent of Subjects Presently Engaged In Health Risk Taking Behavior

Behavior	Yes		No		Missing	
	N	%	N	%	N	%
Cigarettes	47	23.5	150	75.0	3	1.5
Drink Beer	93	46.5	103	51.5	4	2.0
Wine Cooler	87	43.5	104	52.0	9	4.5
Drink Wine	95	47.5	93	46.5	12	6.0
Hard Liquor	79	39.5	110	55.0	11	5.5
Marijuana	39	19.5	137	68.0	25	12.5
Smoke Crack	14	7.0	160	80.0	26	13.0
Have Sex	59	29.5	73	36.5	68	34.0
Use Condoms	48	24.0	48	24.0	104	52.0

Note: Subjects were asked,"Do you (behavior) now?"

Table 4. Frequency Distribution of Subjects Engaging In Health Risk Taking Behavior

Amount of Cigarettes Smoked (N=47)	N	%
One or two cigarettes per week	24	51.1
A half pack a week	19	40.4
One pack per week	4	8.5
More than one pack per week	0	0.0
Amount of Beer Drunk (N=93)		
One can of beer or less per week	43	46.2
Two or three can per week	47	50.6
Four or five can per week	3	3.2
One or more can per day	0	0.0
Amount of Wine Cooler Drunk (N=87)	**N**	**%**
One wine cooler per week	42	48.3
Two or three wine coolers per week	27	31.0
Four or five wine cooler per week	18	20.7
one wine cooler or more per day	0	0.0
Amount Wine (N=95)	**N**	**%**
One glass of wine per week	49	51.6
Two or more glasses of wine per week	41	43.2
Four or five glasses of wine per week	5	5.3
One glass of wine per day	0	0.0
Amount Hard Liquor (N=78)	**N**	**%**
One drink per week	29	37.2
Two or three drinks per week	42	53.8
Four or five drinks per week	7	9.0
One drink per day	0	0.0
Amount Marijuana (N=29)	**N**	**%**
one marijuana cigarette per week	6	20.7
two or three joints per week	19	65.5
four or five joints per week	2	6.9
one joint or more per day	2	6.9
Amount Crack (N=14)	**N**	**%**
One vial or less per week	9	63.3
Two or three vials per week	5	35.7
Four or five vials per week	0	0.0
One vial per day	0	0.0
Use of Birth Control (N=58)	**N**	**%**
Every time I have Sex	17	29.3
Most of the time I have Sex	28	48.3
I never use any type of birth control	13	22.4

Note: "Use of birth control" includes other than condom use. Lower N for "amount of marijuana" is due to missing cases.

Table 5 presents frequency distributions of reported school absences the previous month. Approximately 30% of the subjects were absent more than three days in the past month.

Table 5. Frequency Distribution for the Number of School Absences the Previous Month

Number of Days	N	%
0-1 days	66	33.8
2-3 days	72	36.9
4-5 days	24	12.3
6 or more	33	16.9

The results of the Pearson correlations among the various health behaviors are indicated in Table 6. All results represent two-tailed probability levels. Uneven N's reflect pairwise deletion of cases where one of the two scores might be missing. The results show that every health risk behavior indicator is significantly related except cigarette smoking was not predictive of crack use and cumulative drug risk. Crack use is only predicted by marijuana use, which is predicted by cigarettes, beer, wine cooler, wine and hard liquor. Finally, sex risk and crack use were unrelated.

Scale Reliabilities

Hardiness

Table 7 presents the reliability coefficients for the scales used in this study. All scale reliabilities obtained were adequate for use in this study with the exception of the alpha obtained for the Crown-Marlowe Social Desirability Scale (r= .22).

The hardiness construct was operationalized through the use of three scales measuring self esteem, locus of control, and optimism-pessimism. These measures were thought to be representative of the components commitment, control and challenge. Individual reliabilities for each composite measure and the total hardiness construct are indicated in Table 7.

Table 6. Intercorrelations Among Health Risk-taking Behaviors

	2	3	4	5	6	7	8	9	10	11
1. Cigarettes	.40***	.44***	.36***	.42***	.47***	.24***	-.04	.14	.18**	.50***
2. Beer	---	.78***	.67***	.68***	.89***	.39***	0.11	.36***	.40***	.82***
3. Wine Cooler		---	.79***	.74***	.93***	.34***	.06	.35***	.36***	.89***
4. Wine			---	.66***	.89***	.39***	.06	.31***	.25***	.81***
5. Liquor				---	.87***	.53***	.13	.34***	.34***	.86***
6. Cumulative Alcohol Risk					---	.48***	.11	.41***	.39***	.97***
7. Marijuana						---	.34***	.97***	.44***	.54***
8. Crack							---	.54***	.14	.20***
9. Cumulative Drug Risk								---	.37***	.53***
10. Sex Risk										.45***
11. Total Risk										---

Note: Ns=93 to 193; *p<.05; **p <.01; ***p <.001

Table 7. Scale Reliabilities

Scale	# of Items	Coeff. Alpha
Rosenberg		
Self Esteem (a)	10	.66
Norwicki-Strickland		
Locus of Control (b)	20	.60
Optimism (c)	17	.82
Pessimism (d)	13	.57
Hardiness (composite of		
a,b ,c & d)	60	.68
Crowne-Marlowe	13	.22
Constructed Scales		
Cigarette Beliefs	13	.52
Alcohol Beliefs	7	.67
Drug Beliefs	10	.76
Sex Susceptibility	3	.55
Sex Beliefs	10	.72
Environ. Stress	2	.53
Peer Pressure	5	.68
Youth Adaptation Rating		
Scale	37	.81

Note: Reliabilities were computed using Cronbach's Coefficient Alpha.

Health Belief Scales

Five health belief scales were developed from individual questionnaire items felt to be indicators of the same underlying attitude or beliefs. These items were then summed into a single index. Through the process of item analysis, questions were deleted from the individual scales based on whether they detracted from scale reliability. The criteria used for inclusion in the scale was that the individual items at least correlated $r = .35$ with the total scale. The five health belief scales employed in the study were cigarettes, alcohol, drugs, sexual susceptibility, and sexual health risk.

Cigarette scale. This scale consisted of thirteen items (see questions 7,8,41,42,43,44,45,46,47,49,50,51, and 52 in Appendix J,p.114).

Alcohol Beliefs. The alcohol scale consisted of seven items (see questions 54,55,56,57,58,59,60, Appendix K, p.117).

Drug Beliefs. The drug scale consisted of 10 items (see questions 5,6,27,29,30.31,32,33,and 34 , Appendix I, p.111).

Sex Beliefs. The sex belief items were divided into two scales. One scale assessed sexual susceptibility and the other sexual health beliefs attitudes. The sex susceptibility scale consisted of three items (see questions 1,2,and 3 , Appendix H, p. 108).

Sexual health belief were assessed using 10 items (see questions 14,15,17,18,21,22,23,24,25,and 26, Appendix H,p.108.

Stress Scales

Mundane extreme environmental stress. Environmental stress was measured using a two item scale, consisting of a "yes" or "no" response as to whether subjects (1) lived in a crime ridden neighborhood and (2) lived in or next to a building where drugs like crack were sold.

Peer pressure. The second type of stress , peer pressure was assessed using an index of five questions (see Appendix G, p. 106).

Youth Adaptation Rating Scale. This scale was utilized to obtain some additional information about the types of stressors experienced by subjects (see Appendix A, p. 91).

Test of Hypotheses

Hypothesis 1.

Hypothesis 1 stated that Black adolescents designated as not adjusted would report that they engaged in more health risk-taking behavior than would Black adolescents designated adjusted. This hypothesis was evaluated by means of *t*-tests. The results, as shown in Table 8, indicated that the not adjusted group differed significantly from the adjusted group on of all the dependent variables with the exceptions of marijuana use and crack cocaine smoking and

Table 8. Risky Behavior Mean Scores for the Two Adjustment Groups

Variables	Poorly Adjusted N	Mean	Sigma	Not Poorly Adjusted N	Mean	Sigma	Diff.	t	p.
Cigarettes	56	1.73	1.80	136	0.44	1.25	1.2	4.86	.000***
Beer	56	2.57	1.70	137	1.29	1.74	1.2	4.70	.000***
Wine Cooler	53	2.94	1.85	130	1.11	1.72	1.82	6.17	.000***
Wine	53	2.73	1.58	129	1.32	1.76	1.41	5.27	.000***
Liquor	55	2.41	1.84	128	1.09	1.75	1.32	4.52	.000***
Cumulative Alcohol Risk	52	10.61	6.13	126	4.67	6.10	5.94	5.88	.000***
Marijuana	37	0.62	1.44	117	0.42	1.36	0.19	0.72	.472
Crack	48	0	0	112	0.02	0.28	-0.02	1.00	.319
Cumulative Drug Risk	34	0.54	1.35	104	0.15	0.94	0.38	1.57	.123
Sex Risk	31	2.98	1.95	93	1.10	2.08	1.82	3.19	.003***
Total Risk	34	10.88	7.33	94	3.87	5.42	7.58	5.52	.000***

Note: Higher scores mean greater amounts. *p <.05; **p <.01: ***p <.001.

cumulative drug risk. The not adjusted group engaged in significantly more cigarette smoking (t=4.86, p=.000), beer drinking (t=4.70, p=.000), wine cooler drinking (t=6.17, p=.000), wine drinking (t=5.27, p=.000), hard liquor drinking (t=4.52,p=.000), had a higher cumulative alcohol risk (t=3.16, p=.003) and had a significantly higher total health risk (t=5.12, p=.000) than adjusted group.

Hypotheses 2,3, and 4

These hypotheses stated that subjects designated as not adjusted would have less favorable scores on peer pressure, environmental stress, and hardiness, respectively than would subjects not designated adjusted. The hypotheses were evaluated by means of a t-test and the results are presented in Table 9. It can be seen that none of the hypotheses were supported.

Hypothesis 5

Hypothesis 5 stated that Black female adolescents would hold different health beliefs about sexual behavior than Black male adolescents. Table 10 presents a comparison of male and female means for sex health beliefs. Specifically, Black female adolescents held more risky sexual susceptibility beliefs regarding the likelihood of pregnancy and acquiring AIDS than Black males (t=-3.07, p=.002). This finding supported the hypothesis. There was also a marginally significant trend for Black male adolescents to have more risky sexual activity health beliefs (t=1.89,

Table 9. Peer Pressure, Environmental Streess, Hardiness and Personality Variable Means for the Two Adjustment Groups

Variables	Males N	Mean	Sigma	Females N	Mean	Sigma	Diff	t	p.
Peer Pressure	56	13.66	3.82	139	14.15	3.11	.49	.85	.397
Environmental Stress	54	.85	.81	139	.78	.80	.06	.52	.603
Hardiness	56	51.37	8.15	139	51.10	6.79	.23	.19	.847
Optimism	56	12.51	3.83	133	11.28	3.94	1.23	1.96	.053
Pessimism	53	4.61	2.57	132	4.92	2.59	- .32	- .76	.447
Self Esteem	56	25.11	4.51	139	26.12	3.17	-1.01	-1.54	.128
Locus of Control	56	9.38	3.75	139	8.75	3.57	.63	1.06	.294
Social Desirability	56	6.21	2.07	139	7.01	1.93	-1.01	-2.45	.016*
Youth Adapt. Rating Scale	56	15.86	4.51	139	12.68	5.30	3.20	4.04	.000***

Note: *p <.05; **p <.01: ***p <.001.

Table 10. Health Beliefs Means for Males and Females

Belief	Males N	Mean	Sigma	Females N	Mean	Sigma	Diff.	t	p.
Cigarette Beliefs	108	128.42	63.57	87	145.82	51.75	-17.39	- 2.11	.037*
Alcohol Beliefs	107	23.19	4.40	88	23.29	5.03	- .09	- .14	.885
Drug Beliefs	109	22.56	5.78	81	20.44	5.94	2.12	2.46	.015*
Sexual Suscept. Beliefs	111	8.72	2.04	89	9.62	2.10	- .90	- 3.07	.002***
Sexual Beliefs	87	24.81	5.21	87	23.29	5.83	1.52	1.89	.061

Note: Higher scores mean riskier beliefs. *p <.05; **p <.01; ***p <.001.

p.061). This finding supported theoretical expectations.

No predictions were made for gender differences in health beliefs regarding cigarettes and drugs. However it was found that Black females held significantly riskier cigarette smoking beliefs (t=-2.11,p=.037) and drug beliefs (t=2.46,p=.015).

Hypothesis 6,7 and 8

These hypotheses were all tested by means of four-way analysis of variance, in which the independent variables were high vs. low peer pressure, high vs. low environmental stress, favorable vs. unfavorable health beliefs,and adjusted vs. not adjusted. (The first three variables were dichotomized by median splits.). Favorable beliefs are those that are usually support good health behaviors. For example, agreement with the statement that "Drugs are bad for you." Whereas disagreement with that statement would indicate an unfavorable belief,i.e., drugs are good. The results of the ANOVAS are shown in Tables 11 -15).

Hypothesis 6. The prediction for Hypothesis 6 was that there would be an interaction effect of peer pressure and health beliefs on each of the risk taking behaviors, such that high peer pressure and unfavorable health beliefs would result in greater health risk taking behavior. The results were not confirmed. Perceived peer pressure did not significantly interact with health beliefs for any of the health risk taking behaviors.

Table 11. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Cigarette Health Beliefs, and Adjustment Group on Cigarette Smoking

Source of Variation	Sum of Sq	Df.	Mean Sq.	F.	P
Peer pressure (a)	4.14	1	4.14	2.94	0.089
Environ. Stress (b)	2.34	1	2.34	1.66	0.199
Cigarette beliefs (c)	1.67	1	1.67	1.19	0.277
Adjustment group (d)	9.90	1	9.90	7.04	0.009***
2-Way Interactions					
A x B	0.72	1	0.72	0.51	0.475
A x C	1.01	1	1.01	0.71	0.398
A x D	0.02	1	0.22	0.01	0.901
B x C	1.88	1	1.88	1.33	0.250
B x D	0.58	1	0.58	0.41	0.520
C x D	0.04	1	0.04	0.02	0.866
3-Way Interactions					
A x B x C	2.36	1	2.36	1.68	0.197
A x B x D	0.95	1	0.95	0.68	0.412
A x C x D	0.18	1	0.18	0.12	0.721
B x C x D	0.16	1	0.16	0.12	0.729
4-Way Interactions					
A x B x C x D	1.53	1	1.53	1.09	0.298
Explained	30.00	15	2.00	1.42	0.148
Residual	167.47	119	1.40		
Total	197.48	134	1.47		

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

Table 12. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Alcohol Health Beliefs, and Adjustment Group on Cumulative Alcohol Health Risk

Source of Variation	Sum of Sq	Df.	Mean Sq.	F.	P
Peer pressure (a)	72.52	1	72.52	2.32	0.130
Environ. Stress (b)	38.11	1	38.11	1.22	0.272
Alcohol beliefs (c)	30.01	1	30.01	.96	0.329
Adjustment group (d)	160.37	1	160.37	5.13	0.025**
2-Way Interactions					
A x B	0.06	1	0.06	.00	0.964
A x C	1.04	1	1.04	.03	0.856
A x D	53.71	1	53.17	1.72	0.192
B x C	196.18	1	196.18	6.28	0.014*
B x D	100.99	1	100.99	3.23	0.075
C x D	174.57	1	174.57	5.59	0.020*
3-Way Interactions					
A x B x C	18.89	1	18.89	0.60	0.438
A x B x D	23.70	1	23.70	0.76	0.385
A x C x D	42.93	1	42.93	1.37	0.243
B x C x D	106.66	1	106.66	3.41	0.067
4-Way Interactions					
A x B x C x D	55.36	1	55.36	1.77	0.186
Explained	1231.17	15	82.07	2.62	0.002***
Residual	3434.48	110	31.22		
Total	4665.65	125	37.32		

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

Table 13. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Drug Health Beliefs, and Adjustment Group on Cumulative Drug Risk

Source of Variation	Sum of Sq	Df.	Mean Sq.	F.	P
Peer pressure (a)	0.05	1	0.05	.06	0.797
Environ. Stress (b)	0.36	1	0.36	4.25	0.516
Drug beliefs (c)	3.45	1	3.45	4.05	0.047*
Adjustment group (d)	1.00	1	1.00	1.17	0.282
2-Way Interactions					
A x B	3.17	1	3.17	3.72	0.057
A x C	0.24	1	0.24	0.29	0.592
A x D	0.15	1	0.15	0.17	0.676
B x C	0.82	1	0.92	0.96	0.329
B x D	0.03	1	0.03	0.03	0.849
C x D	0.77	1	0.77	0.89	0.346
3-Way Interactions					
A x B x C	4.51	1	4.51	5.29	0.024
A x B x D	0.59	1	0.59	0.69	0.406
A x C x D	0.22	1	0.22	0.26	0.607
B x C x D	1.32	1	1.32	0.15	0.695
Explained	16.53	15	1.10	1.29	0.223
Residual	75.00	88	75.00	0.85	
Total	91.53	103	0.89		

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

Table 14. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Sexual Susceptibility Beliefs, and Adjustment Group on Sexual Health Risk.

Source of Variation	Sum of Sq	Df.	Mean Sq.	F.	P
Peer pressure (a)	0.92	1	0.92	.20	0.656
Environ. stress (b)	0.30	1	0.30	.06	0.799
Suscept. beliefs	0.88	1	0.88	.19	0.663
Adjustment group (d)	2.66	1	2.66	.57	0.451
2-Way Interactions					
A x B	6.96	1	6.96	1.50	0.224
A x C	2.57	1	2.57	.55	0.458
A x D	0.71	1	0.71	.15	0.696
B x C	9.03	1	9.03	1.95	0.167
B x D	0.53	1	0.53	.01	0.915
C x D	2.46	1	2.46	0.53	0.468
3-Way Interactions					
A x B x C	6.56	1	6.56	1.41	0.237
A x B x D	0	1	0	0	0.969
A x C x D	3.11	1	3.11	0.67	0.415
B x C x D	0.29	1	0.29	0.06	0.800
Explained	37.34	14	2.68	0.579	0.873
Residual	361.34	78	4.63		
Total	398.92	92	4.33		

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

Table 15. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Sexual Health Beliefs, and Adjustment Group on Sexual Health Risk.

Source of Variation	Sum of Sq	Df.	Mean Sq.	F.	P
Peer pressure (a)	1.00	1	1.00	0.22	0.634
Environ. Stress (b)	0.37	1	0.37	0.08	0.774
Sexual beliefs (c)	0.32	1	0.32	.07	0.788
Adjustment group (d)	2.41	1	2.41	0.54	0.461
2-Way Interactions					
A x B	5.65	1	5.65	1.28	0.260
A x C	6.73	1	6.73	1.53	0.220
A x D	1.11	1	1.11	0.25	0.616
B x C	0	1	0	0	0.981
B x D	0.26	1	0.26	0.06	0.806
C x D	4.63	1	4.63	1.05	0.308
3-Way Interactions					
A x B x C	8.21	1	8.21	1.86	0.176
A x B x D	5.79	1	5.79	1.31	0.255
A x C x D	25.96	1	25.96	5.89	0.017
B x C x D	6.60	1	6.60	1.50	0.224
Explained	55.59	14	3.97	.90	0.560
Residual	343.33	78	4.40		
Total	398.92	92	4.33		

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

Hypothesis 7. This hypothesis predicted that there would be an interaction effect of mundane extreme environmental stress and health beliefs. Specifically that high environmental stress and unfavorable health beliefs would result in a greater amount of health risk taking behavior. This hypothesis was confirmed only for cumulative alcohol risk (F=6.28,p=.014). (See Table 12, p.60). An examination of the cell means (Table 12a,p.65) shows that the effect of environmental stress depended upon the level of health beliefs. When health beliefs were unfavorable the effect of stress was much stronger than when health beliefs were favorable. Risky health behaviors occurred when stress was high and beliefs were unfavorable.

Hypothesis 8. Hypothesis 8 predicted that there would be a three-way interaction of peer pressure, environmental stress and health beliefs, such that high peer pressure, high environmental stress and unfavorable health beliefs would result in greater amounts of risk-taking behavior. This interaction hypothesis was only partially confirmed for cumulative drug risk (F=5.29,p=.024) (Table 13,p.61). An examination of the cell means for this interaction shows that cumulative drug risk was greatest when peer pressure was high, environmental stress was low and subjects held unfavorable drug health beliefs (see Table 13b,p.73).

Other Findings of Interest

Other interesting findings included significant and

Table 12a. Means for the Two-Way Interaction of Environmental Stress and Alcohol Health Beliefs on Cumulative Alcohol Risk

	Alcohol Health Beliefs	
	Favorable	**Unfavorable**
Environmental Stress		
Low	4.80 (40)	2.18 (22)
High	3.67 (30)	7.03 (34)

marginally significant main effects, two-way effects,and three-way interaction effects, as well as significant differences in health risk taking behavior due to gender of subject and friend's health behavior.

Cigarette Smoking

Table 11,(p.) shows a highly significant main effect for adjustment group on cigarette smoking (F=7.04, p=.000) indicating that the major proportion of the variation in cigarette smoking was due to adjustment group. There was also a marginally significant main effect for peer pressure (F= 2.95, p=.089) suggesting that peer pressure also accounted for some of the variation in cigarette smoking.

Cumulative Alcohol Risk

Table 12 (p.60) shows a significant main effect for adjustment group on cumulative alcohol risk (F=5.14, p=.025). Adjustment group accounted for the major proportion of the variation in cumulative alcohol risk. Table 12 also presents a significant two-way interaction of alcohol beliefs and adjustment group (F=5.59, p=.020). An examination of the means for this interaction (Table 12b) shows that the effect of alcohol beliefs varied by adjustment group. The greatest alcohol risk occurred when alcohol beliefs were unfavorable and the group was not adjusted.Although there was no prediction made, this finding is clearly consist with theoretical expectations. A marginally significant interaction was also noted for

Table 12b. Means for the Two-Way Interaction of Alcohol Health Beliefs and Adjustment Group on Cumulative Alcohol Risk

		Adjustment Group	
		Adjusted	**Not Adjusted**
Alcohol Beliefs			
	Favorable	4.45 (33)	4.19 (37)
	Unfavorable	2.34 (29)	8.11 (27)

environmental stress and adjustment group (F=3.24, p=.075). Here an examination of the cell means (Table 12c, p.69) shows that the combination of high environmental stress and poor adjustment resulted in the greatest cumulative alcohol risk (supporting theoretical expectation.) Finally, Table 12 (p.60.) shows there was a marginally significant three-way interaction of environmental stress, alcohol health beliefs and adjustment group (F=3.42, p=.067). Table 12d,p.70, presents the cell means for this interaction. In the adjusted group the greatest amount of cumulative alcohol risk occurred when environmental stress was low and alcohol health beliefs were favorable (contradicting theoretical expectation.) In the not adjusted group greater amounts of cumulative drug risk occurred when the environment was stressful and alcohol beliefs were unfavorable (supporting the theoretical expectation).

Cumulative Drug Risk

Table 13 (p.61) shows a significant main effect for drug health beliefs on cumulative drug risk (F= 4.06,p=.047). Drug beliefs explained a major proportion of the variation in cumulative drug risk. A marginally significant two-way interaction was found for peer pressure and mundane extreme environmental stress (F=3.72,p=.057). An examination of the means for this interaction Table 13a, p.71) indicates that the greatest amount of drug risk occurred in the high peer pressure and low environmental

Table 12c. Means for the Two-way Interaction of Environmental Stress and Adjustment on Cumulative Alcohol Risk

	Adjustment	
	Adjusted	**Not Adjusted**
Environmental Stress		
Low	3.74 (34)	4.Ø4 (28)
High	3.14 (28)	7.25 (36)

Table 12d. Means for Three-Way Interaction of Peer Pressure, Environmental Stress, and Adjustment Group on Cumulative Alcohol Risk

Adjusted Group

	Alcohol Health Beliefs	
	Favorable	**Unfavorable**
Environmental Stress		
Low	6.20 (20)	.21 (14)
High	1.77 (13)	4.33 (15)

Not Adjusted Group

	Alcohol Health Beliefs Stress	
	Low	**High**
Environmental Stress		
Low	3.40 (20)	5.63 (8)
High	5.17 (17)	9.16 (19)

Table 13a. Means for the Two-Way Interaction of Peer Pressure and Environmental Stress on Cumulative Drug Risk

		Environmental Stress	
		Low	**High**
Peer Pressure			
	Low	.00 (21)	.21 (33)
	High	.39 (23)	.00 (27)

stress cell. This finding is not consistent with theoretical expectation. There was also a significant three way interaction of peer pressure, environmental stress and drug health beliefs. An examination of the cell means for this interaction (Table 13b,p.73) indicates that in the adjusted group there was no variation in drug use across cells. However in the not adjusted group, high peer pressure and low environmental stress accounted for most of the drug risk contrary to theoretical expectation.

Sexual Health Risk

Sexual health risk was examined using two types of health beliefs: sexual susceptibility and sexual health behavior beliefs. Table 14 shows the results of an ANOVA for effect of a peer pressure, environmental stress, and sexual susceptibility beliefs. There were no main or interaction effects. Table 15, p.63 , presents the results of the three-way interaction of peer pressure, sexual health beliefs, and adjustment group (F= 5.90, p=.017). An examination of the cell means (Table 15a,p.74) indicates that the greatest amount of sex risk occurred in the low peer pressure and favorable sexual health belief cell for the adjusted group. The not adjusted group had the greatest amount of sex risk occurring in the low peer pressure and unfavorable sexual health beliefs cell. These finding were contrary to theoretical expectations.

Sex Differences

Table 13b. Means for the Three-Way Interaction of Peer Presure, Environmental Stress,and Drug Health Beliefs on Cumulative Drug Risk

Favorable Drug Health Beliefs

	Environmental Stress	
	Low	**High**
Peer Pressure		
Low	Ø.ØØ (11)	Ø.ØØ (19)
High	Ø.ØØ (16)	Ø.ØØ (14)

Unfavorable Drug Health Beliefs

	Environmental Stress	
	Low	**High**
Peer Pressure		
Low	Ø.ØØ (1Ø)	Ø.5Ø (14)
High	1.29 (7)	Ø.ØØ (13)

Table 15a. Means for the Three-Way Interaction of Peer Pressure, Sexual Health Beliefs, and Adjustment Group on Sex Risk

Adjusted Group

	Sexual Health Beliefs	
	Favorable	**Unfavorable**
Peer Pressure		
Low	1.79 (14)	Ø.ØØ (13)
High	Ø.44 (9)	1.33 (12)

Not Adjusted Group

	Sexual Health Beliefs	
	Favorable	**Unfavorable**
Peer Pressure		
Low	1.19 (16)	2.ØØ (1Ø)
High	1.ØØ (9)	1.ØØ (1Ø)

Table 16 presents t-test comparisons of male and female subject scores on the predictor variables. Girls experienced significantly more peer pressure (t=4.06, p.=.000), were significantly more hardy (t=-3.12, p.=.002) were significantly more optimistic (t=-2.18,p=.030) and had significantly higher self esteem (t=-2.07,p=.039).

Friend's Health Behaviors

Table 17 shows t-test comparisons of male and female subjects scores on friends health risk taking behaviors. The results revealed that boys had significantly more friends that smoked cigarettes (t=2.55, p=.012). Table 18 presents t-test comparisons of the two adjustment groups' scores friend's health risk taking behaviors. The poorly adjusted group had friends who engaged in significantly more health risk taking behavior of every kind with the exception of crack use . The poorly adjusted group had more friends who used cigarettes (t=4.51, p=.000), who have had sexual intercourse (t=3.92,p=.000), who drank more alcohol (t=4.20, p=.000), and smoked marijuana (t=3.59, p=.000).

Additional Analyses

Results of ANOVAS for each individual health risk taking behavior can be found in Tables 19-24 , located in Appendix S, p. 150. These tables show where interaction effects occurred in individual health risk taking behaviors. Most interesting are the four-way interactions between peer pressure, environmental stress and adjustment group.

Table 16. Peer Pressure, Environmental Streess, Youth Adaptation Rating Scale, Hardiness, and Social Desirability Means for Males and Females

	Males			Females					
Variables	N	Mean	Sigma	N	Mean	Sigma	Diff.	t	p.
Peer Pressure	111	13.23	3.59	89	15.04	2.71	-2.21	-4.06	.000***
Environmental Stress	111	.81	.81	87	.80	.81	.01	.05	.957
Youth Adapt. Rating Scale	111	14.08	5.19	89	12.96	5.44	1.11	1.47	.14
Hardiness	111	49.57	7.90	89	52.68	6.17	- .29	-3.12	.002***
Optimism	111	10.99	4.11	89	12.21	3.63	-1.22	-2.18	.030*
Pessimism	111	4.86	2.67	89	4.73	2.50	.13	.35	.726
Locus of Control	111	8.49	3.72	89	9.31	3.48	- .81	-1.60	.111
Self Esteem	111	25.32	3.94	89	26.35	3.13	-1.03	-2.07	.039*
Social Desirability	111	6.67	2.04	89	6.88	1.98	- .21	- .74	.436

Note: Higher scores indicates greater amounts. *p <.05; **p <.01: ***p <.001.

Table 17. Friend's Risky Behavior Mean Scores for Males and Females

Variables	Males N	Mean	Sigma	Females N	Mean	Sigma	Diff	t	p.
Cigarettes	103	.97	1.02	81	.60	.91	.36	2.55	.000***
Sex	105	.83	.73	85	.85	.78	.02	-.19	.853
Number of Friends having Sex	108	3.53	1.19	87	3.31	1.08	.24	1.39	.167
Alcohol	109	.81	1.02	85	.84	.94	.03	-.21	.835
Marijuana	109	.69	1.01	85	.55	.94	.46	1.02	.308
Crack	109	.36	.79	87	.37	.85	.01	-.10	.917

Note: Higher scores means greater risk. *p <.05; **p <.01; ***p <.001.

Table 18. Friend's Risky Behavior Mean Scores for the Two Adjustment Groups

Variables	Poorly Adjusted N	Mean	Sigma	Not Poorly Adjusted N	Mean	Sigma	Diff	t	p.
Cigarettes	52	1.34	1.06	131	.59	1.06	.05	4.51	.000***
Sex	56	1.12	.54	134	.73	.08	.38	3.92	.000***
Number of Friends having Sex	56	3.98	.98	139	3.21	1.41	.75	4.70	.000***
Alcohol	56	1.35	1.21	137	.61	.83	.74	4.20	.000***
Marijuana	56	1.07	1.17	137	.45	.84	.61	3.59	.001***
Crack	56	.50	1.02	139	.31	.71	.18	1.22	.225

Note: Higher scores mean greater risk. *p <.05; **p <.01: ***p <.001.

Personality Variables

The adjustment groups were also analyzed in terms of possible differences in reported perceptions of optimism, pessimism, locus of control, self esteem, social desirability, and the perception of stress. Table 9 (p.56) presents the results of this *t*-test analysis. There was a marginally significant difference in the optimism experienced by the two groups. The poorly adjusted group was found to be more optimistic than the adjusted group. There was also a highly significant difference between the groups in terms of social desirability. The adjusted group gave more socially desirable responses.

IV. DISCUSSION

The results of this study suggest that Black adolescents at the junior high or intermediate school level are involved in a variety of behaviors that put their health at risk. Further, these behaviors most probably directly result in school absences. Thus, a group most in need of the benefits of an education re-creates the self-fulfilling prophecy that confines its members to the underclass and poverty. Peer pressure, environmental stress, health beliefs and adjustment act separately and jointly to affect the health risk-taking behaviors of Black adolescents. In addition, each health risk-taking behavior has its own pattern of how these variable interact. This is especially true of those Black adolescents who are considered to be not adjusted. Adjustment to school reflects in a broader sense adjustment to life. Black adolescents in this study have shown a clear tendency towards the use of substances (alcohol and drugs). Although the reported amount of use was not very high it was consistent and predictive of other health risk-taking behaviors or equal or greater magnitude. Early identification and intervention with Black adolescent groups is needed to offset the potentially damaging effects of having younger and younger drug users who lack an education and are bearing drug addicted children. Engaging in health risk-taking behaviors during early adolescence significantly reduces the health and social choices of the

individual. Since both the adjusted and not adjusted groups showed usage patterns with the health risk-taking indictators, it becomes important to determine in what other ways do these two groups differ. The proposed construction of hardiness did little to eluicidate our understanding of what is occurring within and between these two groups.

Of special interest to researchers and policy makers are the gender differences in health beliefs that influenced their health behaviors. Adolescent girls in this sample held significantly riskier, less favorable drug beliefs than adolescent boys. In addition, girls held riskier cigarette and sexual susceptibility beliefs. This, first of all, suggests that girls are at greater risk than boys for cigarette smoking, drug use, and sex risk. Attention needs to be paid to these findings. The general assessment of the literature on Black adolescent girls' sexual behaviors has painted a picture in which girls are viewed as more responsible sex partners than males. However, with the added risk of substance use, the assessment must be reevaluated. Efforts need to be considered to combat what is fast becoming a problem: Black teenage mothers addicted to drugs. Secondly,-- it suggests that more attention should be given to the identification of the role of adolescent health beliefs and how they affect health behaviors. Also it suggests that cognitive modification of these attitudes and beliefs is possible.

The measurement of hardiness needs to be further refined with the adolescent population. Presently, the construct has been defined and assessed in differing ways within this population. The lack of standardization in the measurement and assessment of this concept with an adolescent population makes it difficult to compare results across studies and to obtain a pattern of how hardiness may be operating within this population.

The present study attempted to provide empirical validity for the concept of mundane extreme environmental stress. It succeeded in illustrating the importance of environmental factors in Black adolescent health risk taking behaviors. Black adolescent's perception of crime and drug activity greatly influenced their own health behaviors. McAddo (1983) and Peters and Massey (1983) interpreted Pierce's (1975) work on mundane extreme environmental stress in terms of social not physiological consequences. One could argue that respondents' reports of perceived environmental stress in the present study constitute a weak measure of the extreme form of stress that may impact their lives and influence their health behaviors. Another line of thinking would suggest that these perceptions do not constitute mundane extreme environmental stress. Those who support this view would then point to the methodological limitations of using a two-item scale. Further research needs to be conducted to determine other environmental factors that

affect the health behaviors of Black adolescents.

There were significant gender differences in the degree of peer pressure experienced by Black adolescents. Black adolescents girls reported more peer pressure than Black adolescent boys. This finding seems to suggest that Black adolescent girls are at greater risk for the consequences of peer pressure than are boys.

There was a significant gender difference for hardiness. Black female adolescents were more hardy than Black male adolescents. This finding supports the literature, which suggests that females are more hardy than males (Kobasa, 1982; Hannah & Morrissey, 1987). Black females were also found to be more optimistic. This finding seems to suggest that Black adolescent females see themselves as having a brighter outlook with regards to their future than Black adolescent males. An alternate interpretation is that perhaps Black adolescent females do not have a realistic view of their future, especially in light of this study's finding that they are "at risk" for cigarette, drug, and sexual health behaviors.

The results revealed that Black males had more friends who smoke cigarettes than Black females. This finding seems to support research which suggests that peer pressure may be a critical factor in cigarette smoking onset (Chassin et al. 1986). An examination of the adjustment groups revealed that the not adjusted group had more friends who engaged in

health risk taking behaviors than the adjusted group. This finding provides support for the "peer cluster" theory (Oetting & Beauvais, 1986) and the "problem prone" theory (Jessor, 1983).

Theoretical Implications

The present study contributes to the literatures on adolescent development, peer pressure, hardiness, environmental stress, health beliefs, and the health behaviors of Black adolescents.

First, it adds to research on peer pressure and its measurement. This study presents a viable five-point scale that can assess global perception of peer pressure in an adolescent population.

Second,this study contributes to research on hardiness and examines alternative methods of assessing the hardiness construct in other than an adult population.

Third, this study is the first to provide some empirical justification for the concept of mundane extreme environmental stress and its place in environmental stress literature. Other researchers (e.g., Peters and Massey (1983) have made a clinical assessment of this concept.

Fourth, the results of this study contribute to the growing literature on the role of health beliefs in determining adolescent health behaviors. Further, this study is the first to attempt to generate and assess a range of developmentally appropriate health belief scales usable for

the adolescent population.

Fifth, the study adds to the literature on gender differences in behavior. Black adolescents differed not only in the types of behaviors they engaged in but also in terms of hardiness.

Finally, this study contributes to the understanding of the health behaviors of Black adolescents, a group we know little about.

Methodological Implications

The research instruments used in this study were designed to facilitate the aims of the study. Several of the scales were developed specifically for this study, while the hardiness instrument was a composite of several recognized scales. The hardiness instrument was devised to measure the three components comprising the original measure, namely, commitment, control and challenge. It was very difficult to interpret the results of the hardiness scale. There are presently no baseline studies which would enable one to assess the reliability of alternate hardiness constructions. Collins's (1991) measurement of hardiness differs from the original instrument (Kobasa, 1979) in that it was specially designed for an adolescent population and reflects developmental issues. Morrissey and Hannah (1987) used a slightly modified version of the original hardiness instrument with a Canadian population of high school students. Results obtained from the different ways of

assessing hardiness make it difficult to determine if hardiness is really being assessed.

The study utilized a constructed five-point scale that measured global perception of peer pressure. Perhaps the constructed scale is better described as a conformity scale. The direction of peer pressure (positive or negative) is not assessed. Nevertheless, this scale had good reliability and presents a new and brief means of measuring adolescent conformity to prescribed modes of interacting and responding among age peers. Presently peer pressure is assessed by examining peer conformity dispositions to specific developmental situations where group influence may have an effect (e.g.,Hartup,1983). The vignettes that are scored are situationally based. This gives subjects a framework for responding but it does not give an indication of global perceptions of peer pressure.

The measurement of mundane extreme environmental stress may more accurately be called a measure of perceived environmental stress. This instrument contained only two items, which looked at perception of crime and drug activity in the respondent's neighborhood. More environmental stress items need to be identified and included in future research to provide a more varied range of stressors that may determine the effects of the environment on the behaviors of the Black population.

The respective health belief scales were found to be

reasonably reliable. However, the types of items included in the scales need to be refined. Further effort should be directed toward the identification and selection of health belief items that reflect Health Belief Model components. Efforts were made to do this in the present study but not all items lent themselves to a single scale. For example, sexual health beliefs were divided into sexual susceptibility beliefs and sexual activity health beliefs. The original model from which the health belief items were drawn (Eisen and Zellman ,1986) selected items based on subjects' participation in a specially designed sexual health education program. The item format, though appropriate for their study was difficult to apply to the present study.

One interesting question that this dissertation brought up concerned the applicability of instruments such as the Marlowe-Crowne Social Desirability Scale to a Black adolescent population. Perhaps what appears here as a lack of differences between adjustment groups, is in fact just a refeection of the inadequacy of the instrument when use with a population for whom the questionnaire items have no meaning. Certainly, the somewhat low Cronbach alphas suggest that something out of the ordinary is occurring with this population. Further, research should be conducted to assess the current reliability of this instrument for measuring social desirability response bias, especially in light of

changing social mores.

Policy Implications

The results of this study suggest that educators and policy makers should consider intervention strategies that will yield both a systemic and an individual impact upon health education.

Intervention strategies for schools should focus on ways of dealing with the combined effects of both environmental stress and peer stress. In addition, the role of health beliefs in health risk taking behavior needs to be further examined. Appropriate health beliefs should be incorporated and reinforced in customized curricula for each health behavior. Also, hardiness development as a strategy for handling developmental and environmental stress needs to be considered. The components-- commitment, control and challenge-- can be operationalized and made an integral part of curricula for students. Hardiness training may assist adolescents in handing the stressors in their lives without resorting to health risk taking behaviors.

The study suggests that school-based programming or interventions strategies need to redirect their focus from information giving to skills building, so that Black adolescents will begin to develop appropriate coping resources that will enable them to handle the onslaught of stressors in their daily lives. In addition, the role of the environment in the health-risk taking behaviors of Black

adolescents needs to addressed. Educators should strive to develop programs that assist students in identifing environmental stressors and coping with them. Black adolescents need interventions that emphasize the cognitive restructuring of their risky health beliefs and that are directed toward "inoculation" against the types of stressors that will encourage health risk taking behaviors. School absenteeism is seen as another possible avenue for identifying students "at risk".

On the individual level, school psychologists, educators, and other practitioners should focus on the early identification of students "at risk" for negative health behaviors. This would require that total integration and reinforcement of favorable health beliefs be introduced and implemented from grade to grade and school to school. In order to accomplish this teachers may need additional training.

Future Research

Future research should be directed at the measurement of hardiness with adolescents in general and Black adolescents in particular. This would require refinement of the present hardiness instrument with a larger sample of subjects. Research that examines hardiness and race is limited and is virtually nonexistent for the adolescent population. Future research should also seek to identify other environmental factors that are indicators of mundane

extreme environmental stress. Further effort need be made to identify the health beliefs of this population and the role of health beliefs in the identification of "at risk " adolescents. The results also suggest the need for more research that employs a multivariate approach to the understanding of health behaviors.

This study further implies that Black adolescent girls are at considerable risk for substance abuse and risky sexual behaviors. Efforts need to be made to offset the tendency for Black adolescent girls to become drug users and to drastically reduce the numbers at risk for teenage pregnancy and AIDS.

Appendix A

Youth Adaptation Rating Scale

Appendix B

Rosenberg Self Esteem Scale

Appendix C

Nowicki-Strickland Locus of Control Scale

Appendix D

Generalized Expectancy for Success Scale

Appendix E

Short Form of the Crowne-Marlowe Social Desirability Scale

Reynolds' short form of the Marlowe-Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is TRUE or FALSE as it pertains to you personally

___1. It is sometimes hard for me to go on with my work if I am not encouraged.

___2. I sometimes feel resentful when I don't get my way.

___3. On a few occasions, I have given up doing something because I thought too little of my ability.

___4. There have been times when I felt like rebelling against people in authority even though I knew they were right.

___5. No matter who I am talking to, I'm always a good listener.

___6. There have been occasions where I took advantage of someone.

___7. I'm always willing to admit it when I made a mistake.

___8. I sometimes try to get even rather than forgive and forget.

___9. I am always courteous, even to people who are disagreeable.

___10. I have never been irked when people express ideas that are different from my own.

___11. There have been times when I have been quite jealous of the good fortune of others.

___12. I am sometimes irritated by people who ask favors of me.

___13. I have never deliberately said something that hurt someone's feelings.

Appendix F

Demographic Items

This study is designed to find out about the health practices of teenagers living in an urban environment. The questions you will be asked concern your health, your feelings about your health and about the environment in which you live.

I. Let us begin with some questions about yourself.

1. How old are you?_____

2. Sex: Male_____ Female_____

3. Which of the following racial groups do you belong to?
   Hispanic_____
   American Black_____
   Caribbean Black_____
   White Non Hispanic_____
   Oriental/Asian_____
   American Indian_____
   Other_____

4. What grade are you in?:
   7th grade_____
   8th grade_____
   9th grade_____
   Other (please indicate)_____

5. Have you ever been skipped a 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?:
   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____
   Other (please indicate)_____

9. How many people over 18 years live in your house or apartment?_____

10. How many people under 18 years live in your house or apartment?_____

11. How many years have you lived in the United States?_____

Appendix G

Peer Pressure Items

For each item below please indicate your agreement or disagreement as accurately as you can.

SA = strongly agree
A = agree
D = disagree
SD = strongly disagree

1. I feel I am influenced by my friends.	SA	A	D	SD
2. I often do what others want so that they will like me.	SA	A	D	SD
3. I don't want to be different from kids my age.	SA	A	D	SD
4. I often find myself doing things so that I can fit in with the crowd.	SA	A	D	SD
5. My friends can usually get me to do things I don't want to do.	SA	A	D	SD

Appendix H

Sexual Health Belief Items

For the items below, please circle the letter of the response that best indicates your feelings.

1. If you or your partner used no birth control, how likely is it that you or your partner will get pregnant?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

2. How likely is it that most teenagers who do not use birth control will get pregnant?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

3. If you or your partner used no condoms, how likely is it that you or your partner will get A.I.D.S.?
___ very likely
___ somewhat likely
___ somehat unlikely
___ very unlikely

4. How likely is it that most teenagers who do not use condoms will get A.I.D.S.?
___ very likely
___ somewhat likely
___ somewaht unlikely
___ very unlikely

For each of the statements below ,please indicate your degree of agreement or disagreement as accurately as you can.

SA = strongly agree
A = agree
D = disagree
SD = Strongly disagree

11. With VD getting more common all the time, a teenager who worries about it is being realistic. SA A D SD

12. Most teenage couples who don't use birth control wind up pregnant. SA A D SD

13. Using a condom to prevent AIDS is a good thing to do. SA A D SD

14. If a teenage girl has an unplanned pregnancy, it is not a big problem since she can raise the baby alone . SA A D SD

15. Unplanned pregnancy can be taken care of pretty easily with an abortion. SA A D SD

16. I believe birth control is an important part of responsible sexual behavior. SA A D SD

17. If a guy gets a girl pregnant, it's not a big problem since the partners can always get married. SA A D SD

18. The use of birth control improves a relationship. SA A D SD

19. If a girl uses birth control, her partner will know she really cares about herself. SA A D SD

20. If a male uses a condom, his partner knows he really cares about her. SA A D SD

21. The side effects of good birth control methods are a real problem. SA A D SD

22. Having condoms with you makes it seem like your planning to have intercourse. SA A D SD

23. The use of birth control makes sexual intercourse seem dirty. SA A D SD

24. The whole idea of birth control is embarrassing. SA A D SD

25. It can sometimes be important to show your love by taking a chance on getting pregnant. SA A D SD

26. It can sometimes be important to show your love by taking a chance on getting AIDS. SA A D SD

Appendix I

Drug Health Belief Items

5. If you used drugs (like marijuana and crack) how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

6. How likely is it that most teenagers who use drugs (like marijuana and crack) become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

27. Using drugs for recreation is socially okay.	SA	A	D	SD
28. With drugs so available, a teenager who worries about becoming addicted is being realistic.	SA	A	D	SD
29. If a teenager uses drugs for fun it's not a big problem since they can always stop.	SA	A	D	SD
30. Drug addiction can be taken care of pretty easily by entering a drug rehabilitation clinic.	SA	A	D	SD
31. Using drugs helps people to relax.	SA	A	D	SD
32. Using drugs makes life seem exciting.	SA	A	D	SD
33. When one uses drugs they can put aside personal problems that bother them.	SA	A	D	SD
34. Using drugs makes one seem more grown-up.	SA	A	D	SD
35. Using drugs is a real health problem.	SA	A	D	SD
36. The side effects of drug us are a real problem.	SA	A	D	SD
37. Drugs are difficult to obtain.	SA	A	D	SD
38. Drugs like crack and cocaine can be very expensive in the long run.	SA	A	D	SD

39. The body's ability to fight disease is weaken by drugs. SA A D SD

40. People can become addicted to drugs like crack and cocaine fairly quickly. SA A D SD

Appendix J

Cigarette Health Belief Items

7. If you smoked cigarettes, how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

8. How likely is it that most teenagers who smoke cigarettes become addicted to it?
___ very likley
___ somewhat likely
___ somewhat unlikely
___ very unlikely

41. With cigarette related diseases becoming more common, a teenager who worries about it is being realistic.
SA A D SD

42. Most teenagers who smoke cigarettes don't die of cancer.
SA A D SD

43. If a teenager starts smoking cigarettes it's not a big problem since they can always stop.
SA A D SD

44. Cigarette addiction can be taken care of pretty easily by using will power.
SA A D SD

45. Cigarettes help people to relax. SA A D SD

46. Cigarette smoking makes kids feel more grown-up.
SA A D SD

47. Smoking cigarettes shows that your "in" with the crowd/group.
SA A D SD

48. Cigarettes are readily available for use by teenagers.
SA A D SD

49. Cigarettes smoking can lead to lung cancer and other fatal diseases.
SA A D SD

50. Cigarette smoking stains your teeth and makes your breathe smell bad.
SA A D SD

51. People can become addicted to

cigarettes fairly quickly.

SA A D SD

52. Medical evidence indicates that cigarette smoking shorten your life.

Appendix K

Alcohol Health Belief Items

9. If you drank alcohol, how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikley
___ very unlikley

10. How likely is it that teenagers who drink alcohol will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

53. Most teenagers who drink alcohol do not become addicted to it.
SA A D SD

54. With alcohol-related deaths becoming more common, a teenager who worries about it is being realistic.
SA A D SD

55. Most teenagers who drink alcohol don't become alcoholics.
SA A D SD

56. If a teenager starts drinking alcohol, it is not a big problem since they can always stop drinking.
SA A D SD

57. Alcohol addiction can be taken care of pretty easily by using will power.
SA A D SD

58. Drinking alcoholic beverages helps people to relax.
SA A D SD

59. Drinking alcoholic beverages makes one seem more grown-up.
SA A D SD

60. Drinking alcoholic beverages shows that your "in" with the crowd or group.
SA A D SD

61. Alcoholic beverages are readily available for use by teenagers.
SA A D SD

62. Drinking alcoholic beverages can lead to fatal illnesses.
SA A D SD

63. People can become addicted to alcohol fairly quickly.

SA A D SD

64. Drinking alcoholic beverages and driving can result in death.

SA A D SD

65. Drinking alcoholic beverages reduces your ability to reason and respond quickly in an emergency. SA A D SD

Appendix L

Outcome Items

Have you ever tried cigarettes? Yes___ No___
Do you smoke cigarettes now? Yes___ No___

How many cigarettes do you smoke?
a) one or two cigarettes a week
b) half a pack (i.e.,ten cigarettes a week)
c) one pack (i.e., twenty cigarettes a week)
d) more than one pack a week

Have you ever had an alcoholic drink? Yes___ No___
Do you drink
beer Yes___ No___
wine cooler Yes___ No___
wine Yes___ No___
hard liquor (scotch, gin, rum, whiskey) Yes___ No___

How much beer do you drink?
a) one beer can or less per week
b) two or three cans per week
c) four or five cans per week
d) one can or more per day

How many wine coolers do you drink?
a) one wine cooler per week
b) two or three wine coolers per week
c) four or five wine coolers per week
d) one wine cooler or more per day

How much wine do you drink?
a) one glass of wine per week
b) two or more glasses of wine per week
c) four or five glasses of wine per week
d) one glass of wine or more per day

How much hard liquor (scotch, gin, rum, whiskey) do you drink ?
a) one drink per week
b) two or three drinks per week
c) four or five drinks per week
d) one drink or more per day

Have you ever tried marijuana (reefer) Yes___ No___
Do you smoke marijuana now? Yes___ No___

How much marijuana (reefer) do you smoke?
a) one marijuana cigarette (joint) or less per week
b) two or three marijuana cigarettes (joints) per week
c) four or five marijuana cigarettes (joints) per week
d) one marijuana cigarette or more per day

Have you ever tried Crack? Yes___ No___
Do you smoke Crack now? Yes___ No___

How much Crack do you smoke?
a) one vial or less per week
b) two or three vials per week
c) four or five vials per week
d) one vial or more per day

Please indicate how many of your friends use cigarettes.
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use alcohol (e.g., wine, wine cooler, beer, hard liquor).
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use marijuana (reefer).
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use Crack.
___ none
___ a few
___ some
___ most

Do you think about having sexual intercourse?
Yes___ No___
Have you ever had sexual intercourse? Yes___ No___
If yes, do you have sex regularly? Yes___ No___
If yes, do you use condoms to protect you from unplanned pregnancy, venereal diseases and A.I.D.S.?
Yes___ No___
How often do you use birth control?
___ every time I have sex
___ most of the time I have sex
___ I never use any type of birth control

Have any of your friends ever had sexual intercourse?
Yes___ No___
Please indicate how many of your friends have sexual intercourse.
___ none
___ a few
___ some
___ most

Please indicate how many absences from school you have had in the last month:
Ø-1 2-3 4-5 6 or more

Appendix M

Adolescent Health Belief Questionnaire

Have you ever tried cigarettes? Yes___ No___
Do you smoke cigarettes now? Yes___ No___

How many cigarettes do you smoke?
a) one or two cigarettes a week
b) half a pack (i.e.,ten cigarettes a week)
c) one pack (i.e., twenty cigarettes a week)
d) more than one pack a week

Have you ever had an alcoholic drink? Yes___ No___
Do you drink
beer Yes___ No___
wine cooler Yes___ No___
wine Yes___ No___
hard liquor (scotch, gin, rum, whiskey) Yes___ No___

How much beer do you drink?
a) one beer can or less per week
b) two or three cans per week
c) four or five cans per week
d) one can or more per day

How many wine coolers do you drink?
a) one wine cooler per week
b) two or three wine coolers per week
c) four or five wine coolers per week
d) one wine cooler or more per day

How much wine do you drink?
a) one glass of wine per week
b) two or more glasses of wine per week
c) four or five glasses of wine per week
d) one glass of wine or more per day

How much hard liquor (scotch, gin, rum, whiskey) do you drink ?
a) one drink per week
b) two or three drinks per week
c) four or five drinks per week
d) one drink or more per day

Have you ever tried marijuana (reefer) Yes___ No___
Do you smoke marijuana now? Yes___ No___

How much marijuana (reefer) do you smoke?
a) one marijuana cigarette (joint) or less per week
b) two or three marijuana cigarettes (joints) per week
c) four or five marijuana cigarettes (joints) per week
d) one marijuana cigarette or more per day

Have you ever tried Crack? Yes___ No___
Do you smoke Crack now? Yes___ No___

How much Crack do you smoke?
a) one vial or less per week
b) two or three vials per week
c) four or five vials per week
d) one vial or more per day

Please indicate how many of your friends use cigarettes.
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use alcohol (e.g., wine, wine cooler, beer, hard liquor).
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use marijuana (reefer).
___ none
___ a few
___ some
___ most

Please indicate how many of your friends use Crack.
___ none
___ a few
___ some
___ most

Do you think about having sexual intercourse?
Yes___ No___
Have you ever had sexual intercourse? Yes___ No___
If yes, do you have sex regularly? Yes___ No___
If yes, do you use condoms to protect you from unplanned pregnancy, venereal diseases and A.I.D.S.?
Yes___ No___
How often do you use birth control?
___ every time I have sex
___ most of the time I have sex
___ I never use any type of birth control

Have any of your friends ever had sexual intercourse?
Yes___ No___
Please indicate how many of your friends have sexual intercourse.
___ none
___ a few
___ some
___ most

Please indicate how many absences from school you have had in the last month:
Ø-1 2-3 4-5 6 or more

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 things have happened to you in the past year by checking the "yes" or "no" column on the left-hand side of the list.

Happen? yes	no	
___	___	going to a new school
___	___	parent in hospital
___	___	did not achieve something you really wanted
___	___	death of a parent/guardian
___	___	not getting promoted to next grade
___	___	getting caught using drugs
____	___	pressure to dress like friends
___	___	fights with parents or adult relative
___	___	getting expelled or suspended
___	___	getting pressure to have sex
___	___	caught cheating or lying
___	___	had a major illness or injury or car accident
___	___	death of a close family member
___	___	death of a boy or girl friend orclose friend
___	___	getting V.D.
___	___	getting someone pregnant/getting pregnant
___	___	taking school examinations
___	___	being sent to the principal's office
___	___	pressure to have a boy or girlfriend
___	___	problems with the law/police

Happen? Yes	No	
___	___	getting beat up by parents
___	___	problems with teachers
___	___	first day of school
___	___	breaking up with boy or girl friends
___	___	arguments with friends or brothers and sisters
___	___	going to the dentist or doctor
___	___	going to jail/reform school
___	___	starting to use drugs
___	___	pressure to take drugs
___	___	fear of getting A.I.D.S.
___	___	getting kicked out of the house
___	___	getting a bad report card
___	___	family member moving out
___	___	getting attacked/raped/ assaulted
___	___	parents getting a divorce/separated
___	___	having bad rumors spread about you
___	___	having others treat you differently
___	___	losing home or apartment through fire/eviction
___	___	living in drug ridden neighborhood
___	___	moving to welfare hotel or shelter
___	___	moving in with relatives/friends
___	___	living in or next to a building where drugs/crack are sold
___	___	having relatives with AIDS
___	___	having friends with AIDS
___	___	living in crime ridden neighborhood

Please answer the following questions "Yes" or "No" in the space next to the question.

Yes No

___ ___ 1. Do you believe that most problems will solve themselves if you just don't fool with them?

___ ___ 2. Are you often blamed for things that just aren't your fault?

___ ___ 3. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?

___ ___ 4. When you get punished does it usually seem it's for no good reason at all?

___ ___ 5. Most of the time do you find it hard to change a friend's (mind's) opinion?

___ ___ 6. Do you feel that it's nearly impossible to change your parent's mind about anything?

___ ___ 7. Do you feel that when you do something wrong their's very little you can do to make it right?

___ ___ 8. Do you believe that most kids are just born good at sports?

___ ___ 9. Do you feel that one of the best ways to handle your problems is just not to think about them?

___ ___ 10. Do you feel that when a kid your age decides to hit you, there is little you can do to stop him or her?

___ ___ 11. Have you felt that when people were mean to you it was usually for no good reason at all?

___ ___ 12. Most of the time do you feel that you can change what might happen tomorrow by what you do today?

___ ___ 13. Do you believe that when bad things are going to happen they are going to happen no matter what you try to do to stop them?

___ ___ 14. Most of the time do you find it useless to try to get your own way at home?

___ ___ 15. Do you feel that when someone your age wants to be your enemy there is little you can do to change matters?

___ ___ 16. Do you usually feel that you have little to say about what you get to eat at home?

Answer "Yes" or "No" in the space next to the question.

___ ___ 17. Do you feel that when someone doesn't like you there is little you can do about it?

___ ___ 18. Do you usually feel that it's almost useless to try in school because other children are just plain smarter than you are?

___ ___ 19. Are you the kind of person who believes that planning ahead makes things turn out better?

___ ___ 20. Most of the time, do you feel that you have little to say about what your family decides to do?

Please answer true or false for each item listed below.

In the future I expect that I will...

___ 1. find that people don't seem to understand what I am trying to say.

___ 2. not be respect by others

___ 3. be a good parent

___ 4. not become what I want to be

___ 5. have a good marriage

___ 6. not be able to handle emergencies

___ 7. be unable to improve situations I don't like

___ 8. not get good grades at school

___ 9. be able to live up to my responsibilities

___ 10. find that there is more good in life than bad.

___ 11. handle unexpected problems successfully

___ 12. be rewarded for my successes

___ 13. succeed in the projects I undertake

___ 14. not make any major contribution to society

____15. find that my life is not getting much better

___ 16. be listened to when I speak

In the future I expect that I will...

___ 17. find that my plans don't work to well

___ 18. find out that no matter how hard I try things just don't work out too well.

___ 19. handle myself well in whatever situation I'm in.

___ 20. be able to solve my own problems

___ 21. succeed at most things I try

___ 22. be successful in the long run

___ 23. be very successful working out my personal life

___ 24. experience many failures in my life

___ 25. make good impressions on people I meet for the first time

___ 26. attain the current goals I have set for myself

___ 27. have difficulty getting along with my teachers

___ 28. have problems working with others

___ 29. be able to make the right decisions

___ 30. be noticed by others for doing a good job

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is TRUE or FALSE as it pertains to you personally

___1. It is sometimes hard for me to go on with my work if I am not encouraged.

___2. I sometimes feel resentful when I don't get my way.

___3. On a few occasions, I have given up doing something because I thought too little of my ability.

___4. There have been times when I felt like rebelling against people in authority even though I knew they were right.

___5. No matter who I am talking to, I'm always a good listener.

Indicate whether the statement is TRUE or FALSE as it pertains to you.

___6. There have been occasions where I took advantage of someone.

___7. I'm always willing to admit it when I made a mistake.

___8. I sometimes try to get even rather than forgive and forget.

___9. I am always courteous, even to people who are disagreeable.

___10. I have never been irked when people express ideas that are different from my own.

___11. There have been times when I have been quite jealous of the good fortune of others.

___12. I am sometimes irritated by people who ask favors of me.

___13. I have never deliberately said something that hurt someone's feelings.

For each statement below, please indicate your degree of agreement or disagreement as accurately as you can.

SA = strongly agree
A = agree
D = disagree
SD = strongly disagree

(1) On the whole I am satisfied with myself.	SA	A	D	SD
(2) At times I think I am no good at all.	SA	A	D	SD
(3) I feel that I have a number of good qualities.	SA	A	D	SD
(4) I am able to do things as well as most other people.	SA	A	D	SD
(5) I feel I do not have much to be proud of.	SA	A	D	SD
(6) I certainly feel useless at times.	SA	A	D	SD
(7) I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
(8) I wish I could have more respect for myself.	SA	A	D	SD

(9) All in all I am inclined to feel that I am a failure. SA A D SD

(10) I take a positive attitude towards myself. SA A D SD

For each item below please indicate your agreement or disagreement as accurately as you can.

SA = strongly agree
A = agree
D = disagree
SD = strongly disagree

1. I feel I am influenced by my friends. SA A D SD

2. I often do what others want so that they will like me. SA A D SD

3. I don't want to be different from kids my age. SA A D SD

4. I often find myself doing things so that I can fit in with the crowd. SA A D SD

5. My friends can usually get me to do things I don't want to do. SA A D SD

For the items below, please circle the letter of the response that best indicates your feelings.

1. If you or your partner used no birth control, how likely is it that you or your partner will get pregnant?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

2. How likely is it that most teenagers who do not use birth control will get pregnant?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

3. If you or your partner used no condoms, how likely is it that you or your partner will get A.I.D.S.?
___ very likely
___ somewhat likely
___ somehat unlikely
___ very unlikely

4. How likely is it that most teenagers who do not use condoms will get A.I.D.S.?
___ very likely
___ somewhat likely
___ somewaht unlikely
___ very unlikely

5. If you used drugs (like marijuana and crack) how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

6. How likely is it that most teenagers who use drugs (like marijuana and crack) become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

7. If you smoked cigarettes, how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

8. How likely is it that most teenagers who smoke cigarettes become addicted to it?
___ very likley
___ somewhat likely
___ somewhat unlikely
___ very unlikely

9. If you drank alcohol, how likely is it that you will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikley
___ very unlikley

10. How likely is it that teenagers who drink alcohol will become addicted to it?
___ very likely
___ somewhat likely
___ somewhat unlikely
___ very unlikely

For each of the statements below ,please indicate your degree of agreement or disagreement as accurately as you can.

SA = strongly agree
A = agree
D = disagree
SD = Strongly disagree

11. With VD getting more common all the time, a teenager who worries about it is being realistic. SA A D SD

12. Most teenage couples who don't use birth control wind up pregnant. SA A D SD

13. Using a condom to prevent AIDS is a good thing to do. SA A D SD

14. If a teenage girl has an unplanned pregnancy, it is not a big problem since she can raise the baby alone . SA A D SD

15. Unplanned pregnancy can be taken care of pretty easily with an abortion. SA A D SD

16. I believe birth control is an important part of responsible sexual behavior. SA A D SD

17. If a guy gets a girl pregnant, it's not a big problem since the partners can always get married. SA A D SD

18. The use of birth control improves a relationship. SA A D SD

19. If a girl uses birth control, her partner will know she

really cares about herself. SA A D SD

20. If a male uses a condom, his partner knows he really cares about her. SA A D SD

21. The side effects of good birth control methods are a real problem. SA A D SD

22. Having condoms with you makes it seem like your planning to have intercourse. SA A D SD

23. The use of birth control makes sexual intercourse seem dirty. SA A D SD

24. The whole idea of birth control is embarrassing. SA A D SD

25. It can sometimes be important to show your love by taking a chance on getting pregnant. SA A D SD

26. It can sometimes be important to show your love by taking a chance on getting AIDS. SA A D SD

27. Using drugs for recreation is socially okay. SA A D SD

28. With drugs so available, a teenager who worries about becoming addicted is being realistic. SA A D SD

29. If a teenager uses drugs for fun it's not a big problem since they can always stop. SA A D SD

30. Drug addiction can be taken care of pretty easily by entering a drug rehabilitation clinic. SA A D SD

31. Using drugs helps people to relax. SA A D SD

32. Using drugs makes life seem exciting. SA A D SD

33. When one uses drugs they can put aside personal problems that bother them. SA A D SD

34. Using drugs makes one seem more grown-up. SA A D SD

35. Using drugs is a real health problem. SA A D SD

36. The side effects of drug us are a real problem. SA A D SD

37. Drugs are difficult to obtain. SA A D SD

38. Drugs like crack and cocaine can be very expensive in the long run. SA A D SD

39. The body's ability to fight disease is weaken by drugs. SA A D SD

40. People can become addicted to drugs like crack and cocaine fairly quickly. SA A D SD

41. With cigarette related diseases becoming more common, a teenager who worries about it is being realistic. SA A D SD

42. Most teenagers who smoke cigarettes don't die of cancer. SA A D SD

43. If a teenager starts smoking cigarettes it's not a big problem since they can always stop. SA A D SD

44. Cigarette addiction can be taken care of pretty easily by using will power. SA A D SD

45. Cigarettes help people to relax. SA A D SD

46. Cigarette smoking makes kids feel more grown-up. SA A D SD

47. Smoking cigarettes shows that your "in" with the crowd/group. SA A D SD

48. Cigarettes are readily available for use by teenagers. SA A D SD

49. Cigarettes smoking can lead to lung cancer and other fatal diseases. SA A D SD

50. Cigarette smoking stains your teeth and makes your breathe smell bad. SA A D SD

51. People can become addicted to cigarettes fairly quickly.

SA A D SD

52. Medical evidence indicates that cigarette smoking shorten your life.

SA A D SD

53. Most teenagers who drink alcohol do not become addicted to it.

SA A D SD

54. With alcohol-related deaths becoming more common, a teenager who worries about it is being realistic.

SA A D SD

55. Most teenagers who drink alcohol don't become alcoholics.

SA A D SD

56. If a teenager starts drinking alcohol, it is not a big problem since they can always stop drinking.

SA A D SD

57. Alcohol addiction can be taken care of pretty easily by using will power.

SA A D SD

58. Drinking alcoholic beverages helps people to relax.

SA A D SD

59. Drinking alcoholic beverages makes one seem more grown-up.

SA A D SD

60. Drinking alcoholic beverages shows that your "in" with the crowd or group.

SA A D SD

61. Alcoholic beverages are readily available for use by teenagers.

SA A D SD

62. Drinking alcoholic beverages can lead to fatal illnesses.

SA A D SD

63. People can become addicted to alcohol fairly quickly.

SA A D SD

64. Drinking alcoholic beverages and driving can result in death.

SA A D SD

65. Drinking alcoholic beverages reduces your ability to reason and respond quickly in an emergency. SA A D SD

Appendix N

Parental Consent Form

Parental Consent Form

Dear Parent,

I am conducting a study into some of the reasons why there is an increase in cigarette smoking, drug use and teenage pregnancy among adolescents. I am requesting your permission so that your child may participate in a questionnaire study on health attitudes and behaviors. The questionnaire will be administered to your child during school hours. All questionnaires will be computer coded and results will be reported on group rather than individual characteristics.

I hope you will allow your child to participate in this research project. The findings from the study will help educators to better plan health education/prevention programs that specifically address the needs of adolescents. Please indicate your consent by signing below.

Sincerely,

Celeste Ridgeway

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

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

Child's Name_____Class_____

Parent's Signature_____Date_____

Appendix O

School Consent Form

School Consent Form

To Whom It May Concern:

In partial fulfillment of the requirements for the Doctor of Philosophy degree in the Psychology Program at the Graduate School of the City University of New York, I would like to conduct a study examining health attitudes and behaviors in the adolescent pupils at your junior high/intermediate school.

Through a previous assessment of seventh and eighth grade students, I identified some health attitudes specific to the adolescent population. Therefore, I would like to survey a sample of your student body. The data collection form and cover letter are enclosed for your consideration. The confidentiality of all participants will be maintained.

When approved by your institution and parental consent has been obtained, this survey will be distributed in the randomly chosen home rooms on a mutually agreed date. Prior to the distribution, I would schedule a short meeting with the participating home room teachers to explain the data collection process.

Parents will be contacted by a letter. Although parental consent may have been received, students will be given the option of participation at the time the survey is distributed. Students who do not have parental permission or those chosing not to participate will remain in the home room during the data collection period.

If you consent to this survey being conducted at your junior

high/intermediate school, please sign your name to this letter and and return one copy to me. A second copy should be retained for your files. The name of of your institution will remain confidential. If you have any questions, please feel free to contact me (718) 271-2318.

After I have received and compiled all the data from this study, I would be glad to share a summary of the findings with you and your staff.

Your cooperation and interest is greatly appreciated.

Sincerely,

Celeste Ridgeway

I (we) give our permission for this study to be conducted at

_____Junior High/Intermediate School.

Signature(s)_____

_____

Appendix P

Human Subjects Protection Form

Protection Of Human Subjects

The privacy of the students who fill out the questionnaire will be safeguarded through record keeping which protects their anonymity and confidentiality.

(a) Questionnaires will be identified by subject numerical codes rather than names.

(b) Records identifying individual schools will be kept under the control of the principal investigator for a period of three years to enable possible follow-up in future research. At the end to that time, all records will be destroyed.

(c) Data will be reported in terms of aggregate rather than individual characteristics.

Appendix Q

Criteria for Selection of "At Risk" Students

Criteria for Selection of "At Risk" Students

To: Teachers, Deans, etc.
From: Researcher, Celeste Ridgeway
Re: Criteria for Selection of Students "At Risk"

Please refer to the following criteria when selecting students for the "at risk" group.

1. Students who are repeatedly absent or truant (60 absences or more in the previous school year). This includes students selected for inclusion in the A.I.D.P. program (Attendance Improvement Drop-Out Prevention program).

2. Students suspected of possible substance use. For example, students who sleep in class, who are glassy-eyed or carry beepers to school. Also, those students selected for inclusion in the school drug prevention initiative.

3. Students who are chronically reported as behavior problems in the classroom. This includes students who are disruptive to the teacher in the classroom. Those who start fights in class and those who show no respect for authority.

4. Students who have been suspended from school twice since the start of the school year for cutting classes, carrying a weapon, etc.

* Ideally, I would like a total of fifty students from categories 1, 3, and 4. I would like at least 25 students from the possible substance abuse category (2). Thank you.

Appendix R

Student Instructions

Instructions to the Students

To: Students
From: Researcher, Celeste Ridgeway

The questionnaire you will complete over the next two class sessions will help me find out about the health practices of most teenagers. Very few people actually know what kind of health attitudes and behaviors teenagers have. Therefore You are the expert in this area. I am asking that you share your expertise with me so that I may accurately report what is going on in your lives.

There are no right or wrong answers to any questions. I am interested in your experiences only. Please answer all of the questions. Your honesty will be appreciated. Your answers are confidential. NO ONE other than myself will see the answers that you report. This means that NO parent, teacher or school official will be able to identify you from looking at the questionnaire.

PLEASE DO NOT PUT YOUR NAME ANYWHERE ON THE FORM.

Each person will be identified by their birthdate and their initials. This will allow me to match up the two parts of the questionnaire.

Please put your date of birth, including the month, day and year and your initials in the upper right hand corner of this sheet of paper.

Thank you for your cooperation.

Appendix S

Additional Analyses

Table 19. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Alcohol Health Beliefs, and Adjustment Group on Beer Drinking

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	.01	1	.01	.00	.943
Environ. stress (b)	2.05	1	2.05	.79	.375
Alcohol beliefs (c)	3.71	1	3.71	1.43	.233
Adjustment group (d)	14.41	1	14.71	5.69	.019***
2-Way Interactions					
A x B	1.06	1	1.06	.41	.521
A x C	.03	1	.03	.01	.911
A x D	6.08	1	6.08	2.35	.128
B x C	13.17	1	13.17	5.09	.026*
B x D	7.33	1	7.33	2.83	.095
C x D	19.51	1	19.51	7.55	.007
3-Way Interactions					
A x B x C	3.55	1	3.55	1.37	.243
A x B x D	.02	1	.02	.00	.926
A x C x D	.77	1	.77	.30	.585
B x C x D	14.51	1	14.51	5.61	.019*
4-Way Interactions					
A x B x C x D	.20	1	.20	.08	.777
Explained	101.71	15	6.78	2.65	.002
Residual	312.60	121	2.58		
Total	414.32	136	3.04		

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

Table 20. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Alcohol Health Beliefs, and Adjustment Group on Wine Cooler Drinking

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	.67	1	.67	.24	.621
Environ. stress (b)	5.02	1	5.02	1.82	.179
Alcohol beliefs (c)	2.57	1	2.57	.93	.335
Adjustment group (d)	8.26	1	8.26	3.00	.086
2-Way Interactions					
A x B	.05	1	.05	.02	.884
A x C	.25	1	.25	.09	.761
A x D	.27	1	.27	.09	.754
B x C	13.02	1	13.02	4.74	.032*
B x D	7.79	1	7.79	2.83	.095
C x D	6.87	1	6.87	2.50	.116
3-Way Interactions					
A x B x C	.18	1	.18	.00	.935
A x B x D	1.36	1	1.36	.49	.483
A x C x D	1.92	1	1.92	.70	.405
B x C x D	12.62	1	12.62	4.59	.034*
4-Way Interactions					
A x B x C x D	.50	1	.50	.18	.670
Explained	70.14	15	4.67	1.70	.060
Residual	313.12	114	2.74		
Total	383.26	129	2.91		

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

Table 21. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Alcohol Health Beliefs, and Adjustment Group on Wine Drinking

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	10.27	1	10.27	4.54	.035*
Environ. stress (b)	11.46	1	11.46	4.83	.030*
Alcohol beliefs (c)	13.23	1	13.23	5.57	.020*
Adjustment group (d)	3.61	1	3.61	1.52	.220
2-Way Interactions					
A x B	.62	1	.62	.26	.608
A x C	1.42	1	1.42	.60	.440
A x D	.99	1	.99	.42	.518
B x C	22.11	1	22.11	9.13	.003***
B x D	8.37	1	8.37	3.52	.063
C x D	11.83	1	11.83	4.98	.028*
3-Way Interactions					
A x B x C	4.17	1	4.17	1.75	.188
A x B x D	5.46	1	5.46	2.30	.132
A x C x D	5.25	1	5.25	2.21	.139
B x C x D	10.32	1	10.32	4.35	.039*
4-Way Interactions					
A x B x C x D	9.59	1	9.59	4.19	.043*
Explained	132.16	15	8.81	3.71	.000***
Residual	268.15	113	2.37		
Total	400.32	128	3.12		

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

Table 22. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Alcohol Health Beliefs, and Adjustment Group on Hard Liquor Drinking

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	9.12	1	9.12	3.41	.067
Environ. stress (b)	.01	1	.01	.00	.984
Alcohol beliefs (c)	.04	1	.04	.01	.902
Adjustment group (d)	18.30	1	18.30	6.82	.010*
2-Way Interactions					
A x B	4.89	1	4.89	1.82	.179
A x C	.06	1	.06	.02	.881
A x D	30.42	1	30.42	11.37	.001***
B x C	5.42	1	5.42	2.02	.157
B x D	.16	1	.16	.06	.804
C x D	11.32	1	11.32	4.23	.042*
3-Way Interactions					
A x B x C	.36	1	.36	.13	.712
A x B x D	.39	1	.39	.14	.700
A x C x D	3.50	1	3.50	1.31	.255
B x C x D	.09	1	.09	.03	.852
4-Way Interactions					
A x B x C x D	3.61	1	3.61	1.35	.247
Explained	91.27	15	6.08	2.27	.008
Residual	299.59	112	2.67		
Total	390.87	127	3.07		

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

Table 23. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Drug Health Beliefs, and Adjustment Group on Marijuana Smoking

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	2.31	1	2.13	1.27	.261
Environ. stress (b)	.24	1	.24	.13	.713
Drug beliefs (c)	3.39	1	3.39	1.84	.178
Adjustment group (d)	10.40	1	10.40	5.74	.018*
2-Way Interactions					
A x B	1.51	1	1.51	.83	.363
A x C	.03	1	.03	.01	.894
A x D	2.16	1	2.16	1.19	.278
B x C	.26	1	.26	.14	.701
B x D	.05	1	.07	.03	.859
C x D	.00	1	.00	.00	.961
3-Way Interactions					
A x B x C	8.89	1	8.89	4.90	.029*
A x B x D	.11	1	.11	.06	.799
A x C x D	.11	1	.11	.06	.799
B x C x D	.00	1	.00	.00	.952
4-Way Interactions					
A x B x C x D	1.07	1	1.07	5.92	.444
Explained	31.61	15	2.10	1.16	.313
Residual	183.02	101	1.81		
Total	214.63	116	1.85		

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

Table 24. Results of ANOVA for Effects of Peer Pressure, Environmental Stress, Drug Health Beliefs, and Adjustment Group on Crack Cocaine Use

Source of Variation	Sum of Sq	Df	Mean Sq	F	P
Peer pressure (a)	.07	1	.07	.93	.337
Environ. stress (b)	.03	1	.03	.41	.520
Drug beliefs (c)	.08	1	.08	1.10	.295
Adjustment group (d)	.07	1	.07	.94	.335
2-Way Interactions					
A x B	.03	1	.03	.45	.504
A x C	.10	1	.10	1.27	.262
A x D	.06	1	.06	.81	.368
B x C	.05	1	.05	.70	.404
B x D	.03	1	.03	.49	.486
C x D	.09	1	.09	1.20	.275
3-Way Interactions					
A x B x C	.06	1	.06	.85	.357
A x B x D	.04	1	.04	.56	.454
A x C x D	.10	1	.10	1.25	.266
B x C x D	.08	1	.08	1.04	.309
4-Way Interactions					
A x B x C x D	.07	1	.07	.83	.350
Explained	1.20	15	.08	1.00	.462
Residual	7.71	96	.08		
Total	8.92	111	.08		

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

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