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The Relationship between Health Behavior,  
Hardiness, Social Support, and Depression  
among NCAA Division I Student-Athletes at  
a Large Midwestern University

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Hardiness, Social Support, and Depression  
among NCAA Division I Student-Athletes at  
a Large Midwestern University**

A THESIS APPROVED FOR

THE DEPARTMENT OF KINESIOLOGY AND SPORT SCIENCES

A Thesis

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment

of the requirements for the

degree of

MASTER OF SCIENCE

BY

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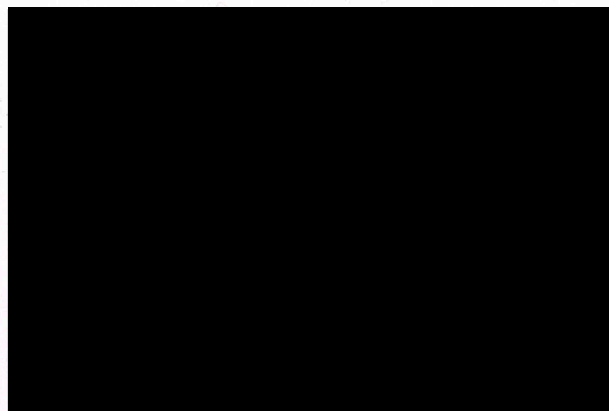
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## ACKNOWLEDGMENTS

First I would like to thank all my family and friends for their constant encouragement through this entire process. I would also like to formally thank my committee members who are not only great friends of mine, but wonderful teachers. They provided great inspiration at times that I really needed a guiding hand. I couldn't have finished my Tables without the help of Pauline!!! Thanks for always being there to make my constant Pauline. You are the best. I would like to say a special thanks to my team, who through this whole time, stood by me, and encouraged me. They were the inspiration into this study in the first place. Throughout my coaching career, I have seen many needs of the student-athlete be overlooked and misunderstood. So thank you to all the student-athletes that have touched my life in the past 20 years. Thank you for helping me to look at the big picture. A very special thank you goes to my parents, who believe I can accomplish anything I set my mind to doing. My final thank you goes to God, who continues to bless me all the days of my life. Thank you God.

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ABSTRACT

**TITLE OF THESIS: The Relationship between Health Behavior, Hardiness, Social Support, and Depression among NCAA Division I Student-Athletes at a Large Midwestern University.**

**Carol Ludvigson, Master of Science, 1997**

Since the beginning of the 1990's, athletic departments have become more aware of the specific needs of the student-athlete related to their overall health status. This is in contrast to the past when the specific needs on which the athletic administrators centered their attention were usually in the areas of athletic, academic, and social demands. There is evidence that student-athletes are at risk for developmental and psychological distress. Participation in college sports can cause emotional, physical, and mental stress. Factors that have been documented to contribute to the student-athlete's psychological problems include, the fear of success, identity conflict, social isolation, academic problems, poor athletic performance, career problems, anorexia or bulimia, depression and anxiety, and athletic injury. The purpose of this study was to assess the health risk behaviors among student-athletes and identify specific needs for health-related programming for these student-athletes. It has been found that because of all the pressures student-athletes experience they may attempt to cope by using a number of maladaptive lifestyle patterns. These patterns could include alcohol use, tobacco use, marijuana use and other types of drug use, abnormally high sexual activity, and violence. Certain personality components which may be related to a healthy life style were also measured in this study. These included hardiness, social support



and depression. Student-athletes (N=245) participated in this study by filling out the data packet which included: consent form, demographic sheet, National College Health Risk Behavior Survey, Hardiness Scale, Beck Depression Inventory Scale, and Quality of Social Support Scale. Results from this study were: 1) differences were found in the health risks of male versus female athletes, and individual sport participants versus team participants; 2) health risk differences were also found between groups that were identified (group 1=male/team, group 2=female/team, group 3=male/individual, and group 4=female/individual); 3) moderate correlations were found between certain variables and the health behavior of the student-athletes; (e.g. *Alcohol use* and: marijuana, safety, sexual behavior, and tobacco. *Sexual behavior* and: tobacco. *Marijuana* and: safety, and tobacco.) and, 4) Hardiness scores, Beck Depression Inventory scores, and the Quality of Social Support scores were predictors of certain health behaviors of the student-athletes (e.g. *Alcohol Use* and: tobacco, marijuana, safety, and sexual behavior, *Tobacco Use* and: sexual behavior, marijuana, and alcohol use, *Marijuana use* and: alcohol use, drug use, safety, and sexual behavior).

The results of this study support that student-athletes are at risk for certain health behaviors. They also suggest that there are certain health risks for specific groups which need to be taken into consideration when looking at the well-being of the student-athletes of these teams or gender. Future research should focus on the specific needs of the male athletes versus the female athletes, as well as on any other group differences that were supported by this study. Development of programs for student-athletes should be established to help guide them in developing positive coping skills and a healthy lifestyle.

A study by Carmen (1968) showed that over a five year period, 7% of student-athletes went to counseling services as compared to 3.5% of the nonathlete population. More recent literature supports this fact (Bergantl, 1984). In addition, nonathletes returned for follow-up service at a rate of three times that of student-athletes. Both of these trends exist

## CHAPTER I:

despite the fact that school athletes are 10% more often than the nonathletes.

### INTRODUCTION

Since the beginning of the 1990's, athletic departments have become more aware of the specific needs of the student-athlete related to their overall health status. This is in contrast to the past when the specific needs on which the athletic administrators centered their attention were usually in the areas of athletic, academic, and social demands (Selby, Weinstein & Bird, 1990).

It has been reported that student-athletes are at risk for developmental and psychological distress (Pinkerton, Hinz & Barrow, 1989). There is evidence that student-athletes face more circumstances that create stress than other university students. Participation in sports on a college level often causes stress that is emotional, physical, and mental in nature (Nattiv & Puffer, 1991). Long practice hours, trips to athletic events, and separate living conditions, can all add to possible feelings of isolation and restriction (Pinkerton et al., 1989). In addition to the pressures of training and competition, the student-athlete has pressure from the coach, the institution, and the athlete's own drive to win (Selby et al., 1990). The demands on a student-athlete can, at times, become overwhelming. The student-athlete often feels the pressure to maintain an image of a "hero" or "star." Some athletes master these challenges, while others may experience much more distress (Silva, 1990).

A study by Carmen (1968) showed that over a five year period, 7% of student-athletes went to counseling services as compared to 8.5% of the nonathlete population. More recent literature supports this fact (Bergandi, 1984). In addition, nonathletes returned for follow-up service at a rate of three times that of a student-athlete. Both of these trends exist despite the fact that school authorities referred the athletes 10% more often than the nonathletes (Pinkerton et al., 1989). Some factors that have been documented to contribute to the student-athlete's psychological problems include, the fear of success, possible identity conflict, social isolation, poor athletic performance, academic problems, and career problems (Remer, Tongate, & Watson, 1978). Other factors that have been considered are anorexia, bulimia, depression and anxiety, and athletic injury (Gregory & Van Valkenburgh, 1991).

A number of maladaptive lifestyle patterns have been reported among student-athletes. Alcohol is still found to be the drug of choice for college students. Moreover, findings have been consistent that, when comparing the athletic and the nonathletic population, the athletes' alcohol use was similar or slightly above the level of alcohol use by nonathletes (Nattiv & Puffer, 1991). While much of the emphasis on health behavior to date has been on alcohol use, other areas also should be considered. For example, it has been reported that the increased frequency of eating disorders such as bulimia and anorexia nervosa may be related to the increased pressure (both intensity and number of sources of pressure) experienced by athletes (Selby et al., 1990). Also, the sexual behaviors of the athletes has become a concern. Higher frequency of sexually transmitted diseases and number of sexual partners, and less frequency of contraceptive use in the athlete group has

identify the stress they create for themselves. Positive coping mechanisms can be taught to

been found to be significant when compared to the normal student population (Nattiv & Puffer, 1991).

Until recently, athletic departments have given little attention to providing education and programming related to substance abuse, nutrition and eating disorders, sexually transmitted diseases, contraception, healthy exercise, and mental health. For their athletes this is unfortunate, since it has been noted in the literature that these health-related issues are the leading causes of morbidity and mortality among college athletes (Nattiv & Puffer, 1991).

In addition to behavior, it has been found that certain personality components may be related to a healthy lifestyle. These include hardiness (Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982), positive coping mechanisms (Epstein & Katz, 1992), and social support (Reifman & Dunkel-Schetter, 1990). Hardiness is a personality construct that has been shown to mediate stress. The hardy individual displays an attitude that is dynamic in nature, and is characterized by an openness to change and challenge, as well as a feeling of involvement and a sense of control. Kobasa found that individuals that remain healthy in spite of the stress they are experiencing in their lives, measure higher in hardiness than those who respond to stress with unhealthy behaviors (Kobasa, 1982). This suggests that those athletes who have positive attitudes regarding the control they have in their sport, are challenged by their experiences, and are committed to doing their best in their sport and academics, are more likely to be successful in their college careers. Findings have shown that stressors to some extent can be self-produced, and it is important that individuals begin to identify the stress they create for themselves. Positive coping mechanisms can be taught so

that individuals can learn how they produce their own stress, and can begin to reduce this stress by use of constructive thinking, emotional coping techniques, behavioral coping techniques, and optimism (Epstein & Katz, 1992). Surrounding oneself with a strong social network, can serve as a buffering effect, which will give the individual greater health while under stress than an individual with low social support (Reifman & Dunkel-Schetter, 1990). This finding suggests that athletes who associate with other students in a positive activity are more likely to have a greater sense of well-being.

This study is based on the findings just discussed, specifically on how these personality traits and behaviors present themselves in a student-athlete population. If education and coping skills programs can be designed and implemented to encourage development of these personality traits and related health behaviors among student-athletes, they may help to reduce the risk of student-athletes for the development of some of the diseases/lifestyle risk factors previously mentioned.

#### BASIC PURPOSE AND RATIONALE FOR STUDY

Many NCAA Division I athletic departments are developing Student Life Skill Programs or similar student development and wellness programs which focus on health risks, including: nutrition, drug/alcohol education, stress management, and disease and injury prevention. However, a review of current literature revealed that there has been limited study of the existing health and risk behaviors of these student-athletes. The primary purpose of this study was to assess health risk behaviors among student-athletes using the National College Health Risk Behavior Survey (NCHRBS), in order to identify target group specific

needs for health-related programming for student-athletes. In addition, several potential predisposing and enabling factors, which may be antecedent to identified health risk behaviors were also measured (Green, 1991). This study included psychometric measurements of hardiness, social support, and depression among student-athletes in addition to the measurement of health behavior status.

This study is designed to examine the health and risk behaviors of student-athletes. Some student-athletes may participate in a team sport or an individual sport. In either case, the student-athlete is faced with pressures from the team, the coach, and the his/her own self-imposed expectations. To date, there has been little research and focus on the specific health risks of the student-athlete. It is important that these risks be identified so that health-related programming can be developed to meet the identified needs of these individuals.

To discover some of the specific health risk behaviors and related psychosocial factors reported by student-athletes, the study instruments included the following:

1. 1995 National College Health Risk Behavior Survey (NCHRBS)- The National College Health Risk Behavior Survey was designed and used to yield self-reported data on personal patterns of participation in a variety of health behaviors (CDC, 1995).

2. Hardiness Scale (AKA Personal Views Survey)- The Hardiness Scale was used to measure three psychosocial constructs: challenge, commitment, and control (Kobasa, 1979).

3. Beck Depression Inventory (BDI)- The Beck Depression Inventory was used to measure the attitudes and symptoms frequently displayed by depressed individuals (Steer & Beck, 1961).

4. Quality of Social Support Scale (QSSS)- The Quality of Social Support Scale was used to measure the extent of the student-athlete's support system.

The second purpose of this study was to investigate relationships among risk variables and psychosocial variables. For example, what is the relationship between alcohol use and tobacco use, or drug use and sexual behaviors among study subjects. These relationships between variables were investigated for the sample group as a whole, as well as by gender, sport and group (group 1= male/team, group 2= female/team, group 3= male/individual, group 4= female/individual). The variables that were studied included: alcohol use, tobacco use, marijuana and other drug use, sexual behaviors, AIDS and HIV Testing/Education, Health Education, Total Risk, safety, Grade Point Average (GPA), Beck Depression Inventory scores, Total Hardiness and Hardiness subscale scores, and the Quality of Social Support scores.

## RESEARCH QUESTIONS

Following are the research questions that were investigated in this study:

**RESEARCH QUESTION 1:** What is the basic health risk profile of the total sample of student-athletes and by group membership -- gender, sport, gender and sport? (NOTE: group 1= male/team, group 2= female/team, group 3= male/individual, group 4= female/individual)

## **RESEARCH QUESTION 2:**

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale of student-athletes who participate in an individual sport versus a team sport?

## **RESEARCH QUESTION 3:**

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale reported by male and female athletes?

## **RESEARCH QUESTION 4:**

Are there differences in the types of health risks and psychosocial variables reported by group? (male/team, female/team, male/individual, female/individual).

## **RESEARCH QUESTION 5:**

What is the relationship between Hardiness subscale scores, the Beck Depression Inventory scores, and the Quality of Social Support Scale scores and the health behavior of the student-athlete?

## **RESEARCH QUESTIONS 6:**

Are Hardiness subscales, the Beck Depression Inventory, and the Quality of Social Support Scale scores predictors of the student-athlete's self-reported health behaviors?



## KEY DEFINITIONS

1. **Hardiness:** a constellation of personality characteristics that function as a resistance resource in the encounter with stressful life events; the personality dispositions of hardiness are challenge, commitment and control (Kobasa, 1979).
  - a) **Challenge:** the belief that change rather than stability is normal in life and that the anticipation of changes provides interesting incentives of growth rather than threats to security;
  - b) **Control:** a tendency to feel and act as if one is influential, rather than helpless, in the face of the varied contingencies of life; and
  - c) **Commitment:** a tendency to involve oneself in, rather than experience alienation from, whatever one is doing or encounters.
2. **Social Support:** an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient (Shumaker & Brownell, 1984). Social Support serves to reduce uncertainty during times of stress, provides resources and companionship, and aids in mental and physical recovery (Albrecht & Adelman, 1984).
3. **Depression:** a significant mood change extending into helplessness and despair (Ogilvie, 1981).

4. Stress: the nonspecific response of the body to any demand whether that demand is positive or negative in nature (Selye, 1984).

#### ASSUMPTIONS OF STUDY

There were three assumptions made from this study. The first assumption is that participants responded to all questionnaires in an accurate manner. The second assumption is that all measurement tools used provided valid and reliable data for student-athletes. The third assumption is that the varied times at which questionnaires were completed did not influence the responses given in the questionnaires.

#### DELIMITATIONS OF STUDY

Delimitations of the study are based on the demographics of the sample. Specifically, this study surveyed representative numbers of male and female student-athletes from all Division I NCAA sports at a large Midwestern University. The ages of these student-athletes ranged from 17-25.

#### LIMITATIONS OF STUDY

A few limitations were noted in this study. The first limitation was that some student-athletes were unable to participate in this study due to scheduling conflicts. Second, student-athletes completed the material for this study during different segments of their season. Some were in season while others may have just finished or were getting prepared to start their season. Since this was a volunteer sample, findings may not be generalizable to other groups. The findings of this study may give insight to other populations that are similar, but should

not be generalized to other athletic populations. The fourth limitation is that the validity for the measurement instruments has been established with college students in general, but not with student-athletes. In addition the combination of these instruments has never been used before, so it is uncertain how each instrument might have effected the other. The final limitation of this study is that participation and accuracy might be threatened by the perception that health risk behaviors are sensitive and personal issues. Participants may have feared that anonymity would not be maintained, or they may have perceived that such research data is unimportant. Each of these threats could compromise the validity and/or representativeness of the data collected. Specifically, responses related to risks such as drug abuse or sexual promiscuity may have been reported inaccurately.

#### SIGNIFICANCE OF THE STUDY

This study will contribute to what is known about prevalence of health risk behaviors and the impact of certain psychosocial factors on student-athletes. This study will also add further insight into any existing differences in health risk behaviors based on gender or between the type of sport that could significantly affect the student-athletes' well-being. Should Hardiness and Hardiness Subscales, the Beck Depression Inventory , or the Quality of Social Support Scale show significant relationships to the health behaviors of this sample, this research could suggest the need for the implementation of certain programs that help develop hardiness, social support, and/or healthy coping skills.

To date, Hardiness and Hardiness Subscales, the Beck Depression Inventory and the Quality of Social Support Scale have not been used to test a student-athlete sample. The

National College Health Risk Behavior Survey has been used with the college student population and is currently being used as a measuring tool in other studies with student-athletes. This study made up of 245 student-athletes ( 145 males; 100 females), will add to what is currently known about student-athletes and these behavioral and psychosocial factors.

Finally, this data will also help in gaining insight into any measurement differences that are prevalent in the various groups that were studied (i.e.; male/team, female/team, male/individual, female/individual).

#### RISK BEHAVIOR AMONG STUDENT-ATHLETES

Some of the issues and risk behaviors that have been identified in the college student population are; alcohol and drug abuse, eating disorders, depression, anxiety, self-harm, sexual preoccupation, identity conflict, social withdrawal, and substance use (e.g., alcohol). Participation in sports on the college level can create additional challenges, stressors, and mental stresses (Nancy & Public, 1991). Student-athletes are a group that experience pressure to meet the expectations of their team, which can lead to stressors, and they are not to mention their personal expectations and goals (Parker, 1998). The stressors associated with athletic, academic and social demands, which are often experienced by student-athletes

## CHAPTER II:

### LITERATURE REVIEW

University students who participate in intercollegiate athletics experience the usual pressures of college life as well as additional pressures of training and competition (Selby et al., 1990). Athletic Directors and coaches put so much emphasis on eligibility and winning, that certain counseling and health needs of the athlete are often overlooked. Members of athletic departments (i.e., athletic administration and coaches) need to be educated so they see the importance of developing health-related programs as well as utilizing counselors who can deal with some of these delicate issues. It has previously been reported in various studies that there is an under-utilization of counseling services by student-athletes when compared to other students (Pinkerton et al., 1989).

#### **RISK BEHAVIOR AMONG STUDENT-ATHLETES:**

Some of the issues and risk behaviors that have been identified for the student-athlete population are: alcohol and drug abuse, eating disorders, depression, anxiety and anger, sexual preoccupation, identity conflict, social conflicts, and isolation (Pinkerton et al., 1989). Participation in sports on the college level can cause additional emotional, physical, and mental stresses (Nattiv & Puffer, 1991). Student-athletes, as a group, feel tremendous pressure to meet the expectations of their team, their coaches, their parents, and the fans, not to mention their personal expectations and goals (Anshel, 1990). The athlete has to contend with athletic, academic and social demands. Some situations experienced by student-athletes

create a restricted and somewhat isolated atmosphere: long practice hours, trips to athletic events, and separate living arrangements (Pinkerton et al., 1989). The student-athlete has a special commodity that separates him/her from the nonathlete -- athletic talent. Unfortunately, while the student-athlete may benefit from this special attention, they also may be isolated from the "normal" student development by the aforementioned segregation (Pinkerton et al., 1989). Therefore, it is of utmost importance that the student-athlete starts to view himself/herself as an individual who happens to be an athlete.

Athletes have been identified with sport for most of their adolescent years. This creates a problem of identity conflict. In the past the focus has been on the athlete as a performer, and not necessarily as a unique individual with unique needs (Lanning, 1982). The athlete may have a difficult time viewing himself/herself apart from sport or athletics. An injury can be a very pivotal occurrence in an athlete's life (Gregory & Van Valkenburgh, 1991). The sense of identity crisis and isolation may cause anxiety when the athlete has to deal with a severe injury, especially a career ending injury. The athlete may also have to deal with the reality that the talent they have is not adequate to advance them onto professional sports. It is not realistic for most athletes to believe they can make a living based solely on their athletic skills (Barnett & Wright, 1994). Fewer than 2% of collegiate athletes ever actually make it in the professional arena in athletics (Lanning, 1982). Because of this, these athletes have to try and identify themselves as something other than athletes, and find a new avenue of competition (Pinkerton et al., 1989). They may lose a part of their self-concept tied to their athletic image. Reality also may demand that they form a whole new basis for their

social interactions (Barnett & Wright, 1994). For many athletes, sport is their only focus of identity. When talent is no longer enough, what will they have left? If this does occur, they will have no adoring fans, nor glory, nor coaches to intervene for them. Because of the high probability that these athletes will not continue athletics as their primary occupations after college, social, academic, and coping skills need to be taught along the way in an effort to aid these athletes to be more successful in the world outside of athletics (Barnett & Wright, 1994). For example, with the help of a counselor, the shock of being average in athletics need not be so devastating. By means of such an educational process, student-athletes may explore and discover new talents they never knew they had (Lanning, 1982).

Implications drawn from the literature suggest the following specific needs should be addressed (Selby et al., 1990): 1) counseling in dealing with trauma of injury; 2) health education dealing specifically with drug and alcohol abuse; 3) consultation and education in clinical nutrition; and, 4). psychological counseling resources for athletes on campus, related to the specific health risk behaviors reported by student-athletes.

Areas of concern from Selby's study fall in area of injury, nutrition, academic stress, anxiety, and depression (Selby et al., 1990). Athletes and coaches need more education related to the needs of this particular population. It appears that student-athletes view their coaches as highly significant people in their lives (Selby et al., 1990). Coaches were found to be the most desirable helping resources for both male and female student-athletes in this study. It was reported that 70% of student-athletes wanted assistance from their coach; 46% said they would desire help from a sport psychologist; and, 41% said they would seek help

from a trainer. In this same study, it was noted that one quarter of the student-athletes said they would seek help from the counseling services, but fewer than 5% had done so in the past 6 months. Professionals who have interest or expertise in athletics are likely to have the most impact when a student-athlete is troubled. This is the very reason why coaches should be involved in the educational process.

The athlete is at high risk for developmental and psychological distress because of the increased stress-producing situations compared to the typical university student (Crowley, 1989). It also has been noted that the student-athlete's alcohol consumption is consistent with that of the general college population (Blanken, 1993). Alcohol is the drug of choice for college students, and Selby found that the alcohol consumption was not linked to stress or competitive pressure, rather the student-athletes are using it for relaxation purposes and to also fit in with peers (Selby et al., 1990). College is a time that students are attempting to establish their freedom from adult control, and drinking is one way of doing just that (Crowley, 1989). Even though alcohol consumption is a norm for college students, the student-athlete population in the study done by MacDonald and others it was found that approximately 73% of the students surveyed were classified as having a drinking problem, although only 1% of those students considered themselves as problem drinkers (MacDonald et al., 1991). MacDonald and his colleagues reported that 50% of the male problem-drinking college students continued their drinking behavior after a 5 year follow-up (1991). The literature suggests that early alcohol abuse, family depression, childhood antisocial behaviors, and deviant behavior in an adolescent, could be predisposing factors in the development of alcohol abuse (MacDonald et al., 1991). Alcohol abuse can be used as a

Alcohol abuse among college students is an increasing concern on college campuses (MacDonald, Fleming, & Barry, 1991). Alcohol has been reported to be more pronounced in the off season for the male athletes, which is consistent with the current statistics of males in their college years (Selby et al., 1990). It has been consistently noted in the literature, that there is a significant correlation between alcohol abuse and low GPA's among college



students (Crowley, 1989). Studies have also indicated that women drink less than men, and that minorities are more likely to abstain than are whites (Crowley, 1989). According to the findings of Crowley's study, blacks drink lightly, and less often than whites. It was suggested that college is perceived to be more important to the future success of the black student, and poor classroom performance could be detrimental to their future. Therefore, the black student may be less likely to look at college as a social event, and be more focused on his/her studies (Crowley, 1989). It also has been noted that the student-athlete's alcohol consumption is consistent with that of the general college population (Blanken, 1993). Alcohol is the drug of choice for college students, and Selby found that the alcohol consumption was not linked to stress or competitive pressure, rather the student-athletes are using it for relaxation purposes and to also fit in with peers (Selby et al., 1990). College is a time that students are attempting to establish their freedom from adult control, and drinking is one way of doing just that (Crowley, 1989). Even though alcohol consumption is a norm for college students, problem drinking needs to be at the forefront of the counselor's mind when dealing with the student-athlete population. In the study done by MacDonald and others, it was found that approximately 25% of the students surveyed were classified as having a drinking problem, although only 1% of those students considered themselves as problem drinkers (MacDonald et al., 1991). Mac Donald and his colleagues, reported that 50% of the male problem-drinking college students continued their drinking behavior after a 6 year follow-up (1991). The literature suggests that family alcohol abuse, family depression, childhood antisocial behaviors, and deviant behavior as an adolescent, could be predisposing factors in the development of alcohol abuse (MacDonald et al., 1991). Alcohol abuse can be used as a

maladaptive coping method for various stresses in the athlete's life (Overman & Terry, 1991). If this is indeed the case, it is necessary that a program be put in place where the problem drinker can be identified, and worked with in a supportive environment (Heck, 1991). Heck identified the CAGE questionnaire as one of the brief screening instruments that has been successful in identifying problem drinkers in a college population.

Some reported primary reasons for other drug abuse in sport include: competitiveness, increasing strength, reducing pain, relaxation, controlling weight, curiosity, and coping with stress (Anshel, 1990). To win at any cost is the mentality related to these causes. Female athletes cited that the reason for taking drugs for pain was related to not disappointing their coach; whereas, the reasoning for the male athletes was primarily to avoid losing one's starting position (Anshel, 1990). Some psychological and emotional causes of drug use include fear of failure, low self-confidence, the "macho" image, societal pressures, and coping with pain or injury (Werch, Ross, Anzalone, & Meers, 1994).

Recent concern has been expressed about the health risks of smokeless tobacco, and its heavy use among student-athletes. College students, and mainly student-athletes, have been the target for marketing strategies as tobacco companies attempt to encourage the use of tobacco among this population (Levenson-Gingess, Morrow, & Dratt, 1989). Levenson-Gingess has reported that the majority of students that are unlikely to be users of tobacco include females and nonwhite students. Late adolescence, and early adulthood were the times of active change in the practices of tobacco use for the college population (Gray & Donatelle, 1990). The majority started after the age of 15, and the age 18 was found to be the high risk

age for initiation into tobacco use (Kann, Warren, Collins, Ross, Collins, & Kolbe, 1993). In the study by Levenson-Gingess, it was reported that tobacco use was significantly higher among baseball players than football players. Football coaches usually discouraged tobacco use, whereas, in contrast, baseball coaches did not actively discourage tobacco use. The frequent use of tobacco among the professional baseball players must be taken into consideration here, because they provide such intense role modeling for the younger baseball players. When varsity players were asked when they used tobacco, 70% reported during participation in their sport, 54% reported using tobacco when relaxing by themselves, 39% reported using tobacco when they were with friends and family or when they were studying, and 35% reported using tobacco when they were preparing to play (Levenson-Gingess et al., 1989). Given the influence that coaches and staff have with the student-athletes, their support in an educational program specifically targeted toward this group, would be an essential part of a successful program (Levenson-Gingess et al., 1989).

The literature has also suggested great concern with the sexual behaviors of student-athletes. It was found that sexually transmitted diseases, frequency of different sexual partners, and a lack of contraceptive use, were more evident in the student-athlete population compared to the general college population (Nattiv & Puffer, 1991). Many researchers have found that women with high communication skills were more likely to practice safe sex (Baffi, Schroeder, Redican, & McCluskey, 1989). This suggests that health educators need to encourage partners to talk with one another about contraception. Males reported thinking that the use of a condom was unpleasant, but also reported that if their partner suggested the

use of a condom, they would not object (Baffi et al., 1989). More than 20% of AIDS cases are diagnosed among persons in their 20's (MacNair-Semands & Simono, 1996). Research has indicated that students have a high level of knowledge about AIDS/HIV but they continue to engage in risky sexual behaviors. Research shows that students tend to continue the sexual behavior patterns that they have begun at the ages of 15 or 16 (MacNair-Semands & Simono, 1996). These risk behaviors tend to increase with age. In the study done by MacNair-Semands, it was reported that there was no significant correlation between condom use and alcohol use. The changes reported in this study were that college students were becoming more selective about their partners, and they were engaging in discussions about safer sex with these potential partners. According to the literature, college students fail to practice safe sex because of the perception that AIDS is associated with high risk groups such as homosexuals and intravenous drug users (Simkins, 1994). In the study done by Simkins, it was reported that slightly over half of the sample (50.9%), never used condoms, and only 17% used condoms consistently. Over a seven year period, despite all the information that is publicized about AIDS and other sexually transmitted diseases, college students have not made significant changes in their sexual behavior, especially in their number of partners and condom use. On a more positive note, the concern of AIDS did motivate more college students to take the AIDS test during these seven years.

**HARDINESS**

It has been shown that certain personality and health components lead to a healthy lifestyle (Nagy & Nix, 1989). If these components are developed, the risk for unhealthy behaviors will be reduced. Three of these components are hardiness, social support, and depression.

Hardiness is a measure of commitment, high control, and a desire for challenge, which are all characteristics that create the ability to cope in a positive and healthy manner (Nagy & Nix, 1989). Hardiness involves a greater sense of internal control which leads to the person taking responsibility for their health, and eventually practicing preventive behaviors (Nagy & Nix, 1989). In theory, hardy athletes will be able to turn stressful events into positive ones due to their attitude of seeking to learn from their environment, and also by knowing which resources to use to respond to a given situation or solve a given problem (Kobasa, 1982). A hardy athlete should be able to control the stress in his/her life, as well as engage in a healthier lifestyle. This suggests that a hardy athlete would be less likely to be involved in the risk behaviors that the literature mentions. By studying the relationship between the risk behavior, and the student-athlete's level of hardiness, we can gain insight into what coping mechanisms may need to be developed, in order to reduce the impact of stressors and minimize risk behavior (Roth, Weibi, Fillinghim, & Shay, 1989). The goal of the athletic department should be to administer programs that will identify the level of hardiness in the athletes and assist the athletes in developing their level of hardiness.

## **SOCIAL SUPPORT**

Since athletes experience a greater amount of stress and societal pressure than their non-athlete counterparts, social support is a primary need of the student-athlete (Pinkerton et al., 1989). Social support can be provided from various resources such as parents, coaches, friends, teammates, or teachers. The most important aspect of social support is that the athlete feels a sense of support and acceptance (Sarason, Sarason, & Pierce, 1990). An important ingredient of social support is that the person believes that they have people that value and care about them, and who are willing to try and help them if they need assistance or support. Social support serves as an avenue so that one can feel the freedom to vent their feelings and receive reassurance (Rosenfeld, Richman, & Hardy, 1989). According to the study done by Rosenfeld, social support can also serve to reduce uncertainty during times of stress, and provide companionship and help aid in mental and physical recovery. Social support can be emotional support, listening, advice or clarification, empathy, and/or performance feedback. The quality of social support does not automatically happen within the student-athlete's environment (Richman, Hardy & Rosenfeld, 1989). Social support is much broader than what many realize, and needs to be purposefully developed and nurtured. It goes far beyond the pep talk or the awards and recognition. The environment for the athlete's social support needs to provide a wide range of support to help assure the student-athlete's well-being (Richman et al., 1989). It is important that the environment of social support fosters the feelings that the person is worthwhile, capable, and valued as a member

of the group or team. When this is established, the sense of acceptance and personal control are heightened and anxiety is decreased (Sarason et al., 1990).

Research has shown that certain strategies for enhancing social support networks have made a great impact on the long-term physical and psychological well-being of the student-athlete (Richman et al., 1989). There are many forms of social support that can be creatively provided in the student-athlete's environment. Social support has been found to make a significant difference on the effect of stress, well-being, and physical health of the student-athlete (Ganster & Victor, 1988). The social support model is most efficient when the student-athlete assumes responsibility for recognizing his/her individual support needs and takes the initiative to satisfy these needs (Richman et al., 1989).

Social structure may be different depending on the type of team, whether it be individual or team (King & Chi, 1976). Research has found that there are definite differences dependent on the team structure of the sport, but that overall the athletic social structure was a tightly knit group with a high sense of loyalty and values (King & Chi, 1976). The athletic hard work and achievement were very evident in the athletic arena as opposed to the normal student population (King & Chi, 1976). The pressure to achieve and the demand for conformity for the student-athlete is extremely high. The findings of King and others complemented the work that was done by Ogilvie and others in 1971. Both studies found that athletic competition limits personality growth in some areas. They attributed this to the intense pressure that the athlete may feel. In the King study, the results showed the

student-athletes who lettered two or more years were less emotionally stable, and more tense going into the next year than those lettering only one year (King & Chi, 1976).

Social support needs to be viewed as an ongoing preventative program instead of a crisis intervention technique. Findings have indicated that even though student-athletes will turn to their coaches for support and appreciation, coaches in particular are not providing the listening support or the emotional support that the athlete needs (Anshel, 1990). This is evidence enough that the support structure for the student-athlete needs to be one of team work among the coaches, teammates, counselors, and athletic trainers ( Masson & Jacobs, 1980). Two significant differences were reported in the social support study done by Rosenfeld and others (1989). High stressed males and low stressed females reported receiving more support from their coaches. The low stressed female athletes also reported receiving more listening from their friends than other athletes. The high levels of support from the coach were associated with gender differences in response to support. Male athletes reported that when they were singled out by the coach, even for praise, this heightened anxiety because of future expectations. The females who experienced this support, in contrast, perceived it as indicative of a good athlete/coach relationship (Rosenfeld et al., 1989). Consequently, the low stressed male is left alone because it is perceived he is unmotivated, whereas the high stressed female athlete is ignored because the coach is unsure of how to approach her and work with her. Female athletes with a great amount of stress reported seeking out support either from friends, coaches, or teammates, in order to help buffer their stress (Rosenfeld et al., 1989).



There also is evidence that there are differences in the behaviors of student-athletes according to which segment of the athletic social structure they participate (i.e., different sports). Much of this difference seems to be associated with the team structure, that is, if it is a team or individual atmosphere (King & Chi, 1976). Since sports create such strong dynamics including competitiveness, jealousy, dependence, ability to handle success and failure, development of self-doubt and self-confidence, cooperation, and toleration of defeat, there are tremendous opportunities for personal growth and self discovery for the student-athlete. However, the athlete, because of many of these factors happening all at once, may require assistance from a counseling/educational staff (Barnett & Wright, 1994). This staff should create a climate of trust so that there will be an atmosphere where the athlete can openly express his/her feelings (Gunnison, 1985).

## **DEPRESSION**

Other studies have shown that athletes tend to show levels of negative mood swings, depression, anger, fatigue, and confusion, but they score extremely high on their levels of vigor, drive, and work ethic (Morgan, 1980). This evidence supports the need for organized programming for the student-athletes to develop certain coping skills that may have not been developed because the athletes were so focused on their sport. Coping skills and an effective support structure are important to a balanced lifestyle (Barnett & Wright, 1994). Current research has found that student-athletes with effective problem-solving and coping skills, will engage in more adaptive healthy behaviors and will be less likely to take part in health-compromising behaviors (Elliott, Johnson, & Jackson, 1997). It is essential that these health

behaviors be addressed so that the athlete can learn to maintain the many roles of athlete, man or woman, and most importantly, an individual person (Barnett & Wright, 1994).

Research has shown that the common emotional problem among athletes is depression, followed by abuse of alcohol or other drugs (Ogilvie, Morgan, Pierce, Marcotte, & Ryan, 1981). Women, when under times of duress, experience development of depression, whereas males may ingest more alcohol and drugs at this time (Elliott et al., 1997). Anxiety, marital problems, and the threat of the termination of career are also common problems (Ogilvie et al., 1981). A student-athlete's mental and emotional frames of mind are of utmost importance. Some externalizations that were identified from emotional instability were: decrease in performance, isolation or bizarre behavior, a change in sleeping patterns, and a change in communication patterns (Ogilvie et al., 1981). These problems can be complicated by the pressure that the athlete has to maintain the "macho image" or the "All-American Woman" image. Another complication is that sometimes bizarre behavior is accepted and even encouraged in certain sports. This behavior could also be ignored so that the student-athlete can stay on the team.

In addition to the risk behaviors that are a concern for student-athletes, students also report a great amount of stress in the classroom, and in their future career plans (Whitmer, Bosak, Phillips, & Waters, 1981). Top academic stressors come from tests/finals, grades/competition, professor/environment, career and future success, studying, and time demands (Murphy & Armer, 1996). Student-athletes experience a greater amount of stress in these areas due to the amount of traveling they do during a season. This can cause the professor/student relationship to be strained if it is not handled correctly. This is a crucial

It has been observed that a state of positive mental health was significant in athletes as opposed to non-athletes at the beginning of their college careers (Ogilvie et al., 1981). Literature has shown that belonging to groups, the frequency of socializing, and spending time with other students gives stability to the student-athlete ( Riefman & Dunkel-Schetter, 1990). Interacting with others will create a sense of greater well-being. The benefits of belonging to a group are great as long as the student-athlete feels a commitment and a sense

of ownership to the group (Cornelius, 1995). If the student-athlete experiences this ownership, it will help outweigh any predisposing factors that could influence depression symptoms of the student-athlete. The denial of needing help and avoidance of giving into "weakness" were the reasons student-athletes gave for not seeking counseling. According to the literature, there is a great denial of the need for help until the problem has grown profound and at a point of serious psychological crisis (Pinkerton et al., 1989). Current studies have found similar associations between stressful life events and depression (Damush, Hays, & DiMatteo, 1997). These researchers found negative family life, sexuality events, and distressful life events to be predisposing factors that could be associated with depression. Depression is highly prevalent in injured student-athletes and student-athletes whose performance may be down. In a study done by Smith (1990), it was reported that depression was the highest emotional response to the athlete's injury. The most seriously injured showed the greatest mood swing.

## **OTHER FACTORS AFFECTING STUDENT-ATHLETES**

In addition to the risk behaviors that are a concern for student-athletes, students also report a great amount of stress in the classroom, and in their future career plans (Wittmer, Bostic, Phillips, & Waters, 1981). Top academic stressors come from tests/finals, grades/competition, professor/environment, career and future success, studying, and time demands (Murphy & Archer, 1996). Student-athletes experience a greater amount of stress in these areas due to the amount of traveling they do during a season. This can cause the professor/student relationship to be strained if it is not handled correctly. This is a crucial

time for the student-athlete to learn to manage their stress, and learn how to cope with issues like time management and assertiveness.

There are several possibilities to look at as to why athletes are at greater risk for unhealthy behavior patterns than that of the nonathletes. Sports psychologists have described athletes as having a predisposing type of personality. This is referred to as a "type T" personality (Nattiv & Puffer, 1991). This personality is characterized as a thrill seeking behavior, one that thrives on excitement and physical activity as an outlet. Ogilvie et al. (1981) has done studies looking into this personality type, and reported possible correlations between the athlete's behavior and personality. Personal beliefs as to the extent an athlete feels in control of their life (internal vs external locus of control), has also been examined as a possible predictor for certain risk behaviors (Walston, 1989). It has been suggested that student-athletes who tend to have more of an external locus of control, may be expected to display behaviors that put them at a higher risk (Nattiv & Puffer, 1991).

## **CURRENT PROBLEMS FOR STUDENT-ATHLETES**

As the literature has reported, athletic participation at the college level creates major personal and emotional demands on the student-athlete (Constantine, 1995). Many accommodate and successfully overcome the variety of stress-producing circumstances they may face. For those that successfully master this time period, the rewards are substantial. For those less fortunate, the results could be detrimental to their personal experience and future success (Pinkerton et al., 1989).

Programs are currently being developed and already in progress in an attempt to meet some of the counseling needs of the student-athletes. A program at the University of Wyoming was developed to provide specialized training for counselors in the athletic department (Lanning, 1982). The CATS (Center for Athletes' Total Success) program was developed at the University of Arizona to help aid the student-athletes in the areas of nutrition, media relations, drugs and alcohol, acquaintance rape, safer sex, eating disorder prevention, booster interaction, etiquette, and personal image enhancement. The NCAA has developed the Life Skills program that is being put in place on many campuses across the nation. This program covers the following areas: 1) developing academically, socially, and personally; 2) creating an identity; 3) developing and nurturing personal relationships; 4) establishing a set of beliefs, morals and values; and, 5) establishing career goals. Other areas of concern are balancing athletic and academic demands, isolation, managing success or the lack thereof, attending to health, satisfying multiple relationships, and the termination of the athletic career (Murray, 1997).

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale of student-athletes who participate in an individual sport versus a team sport?

#### RESEARCH QUESTION 3:

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale reported by male and female athletes?

## RESEARCH QUESTION 4: CHAPTER III:

### METHODOLOGY

This chapter includes a presentation of the methodological procedures used in this study. It begins with the research questions, followed by a description of the study sample, the description of the measurement instruments used, and data collection and analysis procedures.

### RESEARCH QUESTIONS

**RESEARCH QUESTION 1:** What is the basic health risk profile of the total sample of student-athletes and by group membership -- gender, sport, gender and sport? (NOTE: group 1= male/team, group 2= female/team, group 3= male/individual, group 4= female/individual)

#### **RESEARCH QUESTION 2:**

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale of student-athletes who participate in an individual sport versus a team sport?

#### **RESEARCH QUESTION 3:**

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale reported by male and female athletes?

**RESEARCH QUESTION 4:**

Are there differences in the types of health risks and Psychosocial variables reported by group? (male/team, female/team, male/individual, female/individual).

**RESEARCH QUESTION 5:**

What is the relationship between Hardiness subscale scores, the Beck Depression Inventory scores, and the Quality of Social Support Scale scores and the health behavior of the student-athlete?

**RESEARCH QUESTION 6:**

Are Hardiness subscales, the Beck Depression Inventory, and the Quality of Social Support Scale scores predictors of the student-athlete's self-reported health behaviors?

**DESCRIPTION OF SAMPLE**

The sample for this study included both male and female student-athletes from all Division I NCAA sports at a large Midwestern state university. Efforts were made to survey all of the student-athletes who volunteered to participate, which resulted in representativeness in terms of academic classification, gender, ethnicity, and sport. Two hundred and sixty-five questionnaires were distributed and two hundred and forty-five questionnaires were returned, yielding a 92.5% response rate.

The entire survey packet (Cover letter, Release Form, Demographic sheets, the National College Health Risk Behavior Survey, the Hardiness Survey, the Beck Depression Inventory, and the Quality of Social Support Survey) were administered to 245 student-

athletes. These students-athletes were currently enrolled and participating on one of the collegiate teams.

## **DESCRIPTION OF INSTRUMENTS**

Four survey instruments were used for this study. All student-athletes that volunteered to participate in this study filled out the four instruments. The instruments used were The National College Health Risk Behavior Survey (NCHRBS), the Hardiness Survey (AKA: Personal Views Survey), the Beck Depression Inventory (BDI), and the Quality of Social Support Survey (QSSS). A description of each scale follows below.

### **DEMOGRAPHICS**

The demographic sheet was divided into two sections. The first section included general information about the student-athlete: age, gender, weight, height, family status, and year in school. The second section included information related to the type of sport in which the student-athlete participated, and the level of scholarship received. The type of sport was divided into two categories. The team sports included: football, basketball, volleyball, wrestling, baseball, softball, and soccer. The individual sports included: track, tennis, golf, and gymnastics. The scholarship categories included: full scholarship, partial scholarship, and non-scholarship.

### **NATIONAL COLLEGE HEALTH RISK BEHAVIOR SURVEY**

The National College Health Risk Behavior Survey (NCHRBS) is designed to yield self-reported data on personal patterns of participation in a variety of health behaviors. The



NCHRBS is divided into six categories of behaviors that contribute to the leading causes of mortality and morbidity in the United States. The six categories are as follows: 1) behaviors that result in unintentional and intentional injuries; 2) tobacco use; 3) alcohol and other drug use; 4) sexual behaviors that contribute to unintended pregnancy and STDs, including HIV infection; 5) dietary behaviors; and, 6) physical activity.

Since the National College Health Risk Behavior Survey was taken from the original instrument, The Youth Risk Behavior Survey, the reliability and validity will be reported from this original instrument. A kappa statistic was computed for each of the 53 items. Kappa is the most commonly used method to measure inter-rater reliability for behavioral questions. The majority of the items measured in this instrument, were found to have substantial kappas (70-88%). For tobacco use, alcohol use and marijuana use, the mean kappas ranged from 68-88%. In the area of sexual behaviors the kappas increased and ranged from 86.9 to 97.1%. The item that had an extremely low kappa was on injected drug use. This value was 14.5%, indicating further need for field testing to improve these items. As a whole this instrument yielded a kappa of 90%. The external validity with health behavior measures was demonstrated by high positive correlations (Brener, Collins, Kann, Warren, & Williams, 1995). See Appendix B for a copy of this survey.

### **HARDINESS SCALE**

The Hardiness Scale is a 50-item paper and pencil questionnaire. Three aspects of hardiness are measured. These are: Challenge, Commitment, and Control.

1. Challenge was measured by 17 items that describe the belief of the student-athlete that change rather than stability is normal in life.
2. Commitment was measured by 16 items that describe involvement in activities rather than alienation from activities in the life of the student-athlete.
3. Control was measured by 17 items that describe the belief that the student-athlete can influence the events in their life.

The first component of Hardiness, Commitment, was developed from items on the Alienation from Work and Alienation from Self scales of the Alienation Test (Maddi, Kobasa & Hoover, 1979). The items of the Control subscale were obtained using the External Locus of Control Scale (Maddi, Kobasa & Hoover, 1979). The items of the Challenge subscale were obtained from the Security Scale of the California Life Goals Evaluation Schedule (Hahn, 1966). Through the procedures developed by Kobasa and others (1982), a hardiness index was standardized using these three dimensions. A high score indicates a high level of hardiness in the individual.

Estimates of internal consistency have yielded coefficient Alpha's in the .90's for a Total Hardiness score, and in the .70's for Commitment, Control and Challenge scores. (Kobasa, "Fact sheet for Third Generation Hardiness Test"). See Appendix B for a copy of this instrument.

## BECK DEPRESSION INVENTORY SCALE

The Beck Depression Inventory (BDI) was used to measure the attitudes and symptoms frequently displayed by depressed individuals. The clinical observations were consolidated into 21 symptoms and attitudes that are rated from 0 to 3 in terms of intensity. The 21 symptoms and attitudes are: 1) mood, 2) pessimism, 3) sense of failure, 4) lack of satisfaction, 5) guilt feelings, 6) sense of punishment, 7) self-dislike, 8) self-accusations, 9) suicidal wishes, 10) crying, 11) irritability, 12) social withdrawal, 13) indecisiveness, 14) distortion of body image, 15) work inhibition, 16) sleep disturbance, 17) fatigability, 18) loss of appetite, 19) weight loss, 20) somatic preoccupation, and 21) loss of libido. Even though all of these symptoms and attitudes can be measured independently of depression, general depression was the only construct that was measured in this study. the sample was 82. See

Appendix B for a copy of this instrument.

The BDI was not originally developed as a screening instrument to detect depressive symptoms in normal adult populations, but over the years there has been considerable interest in using this instrument for such purposes. The current consensus is that scores >18 are indicative of possible depressive symptomatology.

A data collection packet was distributed to all student-athletes during the Fall semester at team meetings. All packets included the following: 1) a consent form for study participation. Concurrent validity efforts of the BDI, support a high correlation with other instruments that are either self-reports or clinical rating scales of depression (Beck & Steer, 1984). The BDI contains three distinctive depression factors: 1) negative attitudes toward self; 2) performance difficulties; and, 3) somatic complaints. With respect to the internal consistency of the BDI, the mean coefficient Alpha for normal populations is .87 (Steer, Beck, & Garrison, in press). See Appendix B for a copy of this instrument. the most recent

## **QUALITY OF SOCIAL SUPPORT SCALE**

The Quality of Social Support Scale (QSSS) was used to measure the extent of the student-athlete's support system. Seventeen Questions are designed to identify on whom a student-athlete can rely and trust. This social support can come from a variety of sources such as family, teammates, coaches, and/or friends. Because the origin of the questionnaire could not be found, existing reliability and validity could not be identified. To establish reliability, pretest and posttest scores of a nonsample group were correlated to document stability over time. This group consisted of a group of students (n=35) who were enrolled in a summer school class. Test/Retest reliability of the QSSS was found to be .88 for this group. Estimates of internal consistency were established by Cronbach Alpha which was calculated from sample responses. The mean coefficient Alpha for the sample was .82. See Appendix B for a copy of this instrument.

## **DATA COLLECTION PROCEDURES**

A data collection packet was distributed to all student-athletes during the Fall semester at team meetings. All packets included the following: 1) a consent form for study participation, 2) a demographic sheet, 3) a release form for the student-athlete's GPA to be revealed, 4) the National College Health Risk Behavior Survey, 5) the Hardiness Scale, 6) the Beck Depression Inventory, and 7) the Quality of Social Support Scale. Copies of all these forms and surveys are included in Appendix B. All forms were numbered (i.e., packet 1-600), but numbers had no association with individual student-athletes (ID numbers were never recorded by the researcher). The Student Life Office provided the most recent

retention GPA for all student-athletes who allowed for the release of this information to the researcher. After transfer of this information, all forms with students' names and identifying numbers were destroyed. GPA was recorded on a form which had the individual's packet number, but no other personal data, so that the GPA could be matched to other responses.

Participants were asked to complete survey forms during a designated team meeting and to place them into an envelope. Participants then took the envelope and placed it in a sealed box. All consent forms and release forms for GPA were collected in a second box so that the researcher could not associate responses with individual study participants. The researcher collected all of the survey responses on site so that participants were assured that no one other than the researcher had access to the raw data. There were two exceptions to this process. There was extreme difficulty in the researcher meeting with two of the college teams (mens basketball and wrestling), so the packets were given to Assistant Coaches to administer. In these cases, an Assistant Coach administered the surveys because there was concern that if the Head Coach administered the surveys, there could be inaccurate information reported due to the sensitive issues that were being studied. The Coaches separated the consent forms, and the release forms, and put those items in one box and the surveys in a sealed box. All the data was returned to the researcher in a timely manner.

## **DATA ANALYSIS**

Responses were analyzed using the SPSS version 6.1.3 and presented in aggregate form. Descriptive data is reported by team and gender whenever a large enough subsample existed so that individual responses could be protected. Frequencies and percentages were

calculated for all the demographic variables. Means and standard deviations were calculated for all continuous variables. Mean group comparisons were made for each of the continuous dependent variables by team and gender. Mean differences were identified using independent t-tests or ANOVA depending on the number of levels of the group variable. ANOVA was used to make between group comparisons. The groups were defined as follows: group 1 - male/team sport, group 2 - female/team sport, group 3 - male/individual sport, and group 4 - female/individual sport. The analysis of relationships between predictor variables and all dependent variables was accomplished by stepwise multiple regression and correlations. Multiple regression is used to identify variables which have a relationship with a dependent variable. When using a stepwise entry procedure, variables are entered into the regression model one step at a time in order of their power of prediction. The result is a variable by variable record of the portion (partial  $r^2$ ) of overall model variance (adjusted  $r^2$ ) accounted for in the dependent variable by each predictor variable. Correlations were also used to determine the direction and strength of relationships between variables.

into the computer by the researcher and was reviewed for accuracy by visual inspection after entry.

#### GENERAL DEMOGRAPHICS/DESCRIPTIVE STATISTICS

The age and gender of the sample is representative of the student-athletes of the population. The sample consisted of 245 student-athletes with a mean age of 19.7 years. The percentage of male athletes in this study was 59% ( $n=145$ ) and 41% ( $n=100$ ) of the sample was female. The team sport participation in this study included 63% ( $n=155$ ) of the sample;

## CHAPTER IV:

### RESULTS

#### **INTRODUCTION**

This chapter is the presentation of the results from the statistical analysis of data gathered. After the collection of the data using the demographic sheet, the National College Health Risk Behavior Survey, the Hardiness Scale (AKA the Personal Views Survey), the Quality of Social Support Scale, and the Beck Depression Inventory Scale, several statistical procedures were used to explore the research questions. Means, standard deviations and percentages are used to describe the sample. Mean group comparisons were done using t-tests to identify differences based on gender and type of sport participation. Analysis of Variance (ANOVA) was used to identify group differences based on gender and sport. Associations between variables were evaluated using the correlations and stepwise multiple regression. SPSS 6.1.3 was the data analysis program used in this study. All data was entered into the computer by the researcher and was reviewed for accuracy by visual inspection after entry.

#### **GENERAL DEMOGRAPHICS/DESCRIPTIVE STATISTICS**

The age and gender of the sample is representative of the student-athletes of the population. The sample consisted of 245 student-athletes with a mean age of 19.7 years. The percentage of male athletes in this study was 59% (n=145) and 41% (n=100) of the sample was female. The team sport participation in this study included 63% (n=155) of the sample;

37% (n=90) participated in individual sports. This distribution in percentages was expected because team sports and male athletes usually have larger numbers determined by the nature of their sports. Additional descriptive statistics related to marital status, class rank, and scholarship status are presented in Table 1.

**Table 1: General Demographic Information**

General Information	Sample Size	Percentage
<b>Family Status</b>		
single	235	95.9
married	5	2.0
separated	1	.4
divorced	3	1.2
<b>Year in School</b>		
redshirt freshman	25	10.2
freshman	61	24.9
sophomore	66	26.9
junior	64	26.1
senior	23	9.4
fifth year senior	5	2.0
graduate school	0	---
<b>Scholarship</b>		
full scholarship	91	37.13
partial scholarship	81	31.00
non-scholarship	72	29.4



## RESULTS BY RESEARCH QUESTION

**RESEARCH QUESTION 1:** What is the basic health risk profile of the total sample of student-athletes and by group membership -- gender, sport, gender and sport? ( NOTE: group 1= male/team, group 2= female/team, group 3= male/individual, group 4= female/individual)

This question was answered by finding the means and standard deviations of non-categorical variables (see Table 2). Reported in the text are the significant responses for categorical variables. (For all research questions, only significant results are presented within the chapter. Complete tables are located in Appendix C).

From the data that was reported, some questions from the NCHRBS showed high percentages which may indicate health risk behavior that may be of concern when dealing with college student-athletes. The behaviors of concern are: (NOTE: Behaviors are not listed in any particular order.)

- 1) safety and violence,
- 2) alcohol use,
- 3) tobacco use,
- 4) sexual behavior,
- 5) condom use/safe sex practices,
- 6) forced sex/ sex abuse
- 7) AIDS/HIV testing, and

8) participation in Health Education/Sexuality Education.

**TABLE 2: Means and Standard Deviations of Study Variables (Total Sample)**

Variable	Mean (SD)	Max Poss.Score	Min	Max
Age	19.7 (1.29)	25.00	17.00	25.00
Alcohol	4.7 (3.3)	12.00	.00	12.00
Beck Depression	6.7 (7.1)	63.00	.00	36.00
Challenge	31.8 (6.3)	51.00	16.00	44.00
Commitment	30.4 (5.2)	48.00	15.00	40.00
Control	35.00 (5.8)	51.00	17.00	46.00
Drug Use	6.2 (2.1)	47.00	.00	28.00
Eating Disorder	.06 (.25)	2.00	.00	2.00
Equality with others	2.2(.9)	3.00	.00	3.00
Food	10.7 (2.8)	21.00	2.00	18.00
GPA	2.95 (.6)	4.00	1.00	4.00
Health Education	5.0 (3.6)	10.00	.00	10.00
Height	69.32 (6.03)	n/a	56.00	79.00
Marijuana	.97 (2.0)	11.00	.00	11.00
Safety	14.6 (7.5)	65.00	.00	41.00
Sexual Behavior	11.6 (5.5)	39.00	4.00	25.00
Social Support	56.1 (8.1)	68.00	33.00	68.00
Suicide	.09 (.4)	6.00	.00	3.00
Tobacco	4.3 (3.3)	20.00	1.00	17.00
Total Risk	53.1 (16.2)	223.00	18.00	114.00
Weight	172.79 (45.45)	n/a	98.00	320.00

## **Safety and Violence**

A high number of all respondents (77.7%) reported never having a physical fight. Of the number that reported having a physical fight, 9.4% of those occurred with a stranger. The results show that 14.5% of the male athletes reported a physical fight versus 2% of the female athletes. There was quite a difference in response to this question by members of team versus individual sports. Nearly 12% (11.6%) of team sport participants reported fighting with a stranger versus 5.6% of individual sport participants.

## **Alcohol Use**

Results of this study show that 23.7% of the respondents started using alcohol before they entered college. By the age of 12, 24.1% of the male athletes had already used alcohol. During their college career, this number increased to 45.3%. Even though many began alcohol use prior to college, there still is a substantial percentage that began their use of alcohol in college. The percentage of the males who began use from the ages of 17-24 was 32.4%, whereas, for the females, the percentage during those years was 66%. The females were much more inexperienced before college, but during the ages of 17-18, 32% of the females experimented with alcohol for the first time. This indicates that, especially for the females in this sample, alcohol prevention programs are much needed. The team and individual sports had similar findings. At the ages of 17-18, 20.6% participants in the team sports had reported their first use of alcohol, whereas for individual sports 28.9% of athletes reported trying alcohol for the first time. There still was a large percentage in both categories who reported experiencing alcohol during the ages 17-24 for the first time. The team sports

percentage for those ages was 46.3% and the individual sports percentage for the 17-24 age group was 44.4%.

### **Tobacco Use**

Approximately 45% of all respondents reported never smoking. However, a substantial number (48.2%), reported age of first smoking a whole cigarette between the ages of 12-18. This would indicate a large percentage of student-athletes at least try smoking prior to arrival at college. Another 6.5% reported smoking for the first time during their college years. When looking at smoking onset by group, 39.3% of males reported never smoking versus 33% of females, and 50.3% of team athletes reported never smoking versus 36.7% of athletes in individual sports. Of the female athletes, 10% reported onset of smoking during their college years. The health risk for onset of smoking occurring during the college years, appears to be more of a risk for the female athletes and the athletes of the individual sports. With alcohol and tobacco use becoming so prevalent among college students, education in both of these areas needs to be instituted.

### **Sexual Behavior**

Approximately 27% of all respondents in this study reported never having sexual intercourse. Out of this percentage, the breakdown was as follows: 20% males, 38% females, 25.8% team sport participants, and 30% individual sport participants. During the years of 15-16, it was reported that there was a high percentage of student-athletes who had experienced sexual intercourse: 28.3% of males, 26% of females, 28.4% of team sport participants, and 25.6% of individual sport participants. Results also indicated that 33% of females, and 28.2%

of males experienced sexual intercourse for the first time during the ages of 17-20. A larger percentage of individual sport participants (35.6%) reported having sexual intercourse for the first time during this time period versus 27.1% of the team sport participants. These findings indicate that many participating student-athletes were sexually active before entering college, but they also show that a high percentage of the student-athletes experience sexual intercourse for the first time during the first two-three years of their college career, and especially during their freshman year. It would be beneficial for this entire group to receive sexuality education, since data indicates that student-athletes are at high risk for participating in these activities early in their college careers.

### **Condom Use/Safe Sex Practices**

In this study 15.9% of the respondents reported never using a condom during intercourse. Subgroup breakdowns indicated that 17.2% of males versus 14% of females and 19.4% of team sport participants versus 10% of individual sport participants never used a condom. An inconsistent pattern of condom use was reported when adding the responses of never, rarely, and sometimes together. When these categories are combined, inconsistent condom use is reported especially among the male athletes. The following are the percentages in each group for inconsistent condom use: males 35.2%, females 20%, team sport 34.9%, and individual sport 18.9%. These percentages show that there is significant infrequent condom use among males, and especially team sport males.

individual sport athletes were found to be at highest risk in this area depending upon their level of sexual activity.

### **Forced Sex/Sexual Abuse**

In the question regarding the age an athlete was first forced to have sex against their will, some interesting percentages were reported. The results showed that 3.2% of the respondents were forced to have sex during the years of 19-24. Males reported 2.8%, females reported 5%, participants in team sports reported 3.2%, and participants in individual sports reported 3.3%. These percentages were consistent with the next question the respondents were asked, " How old were you when you were last forced to have sex?" The percentages reported for incidents of forced sexual activity during college years were as follows: males 2.1%, females 5%, team sports 2.5%, and individual sports 3.3%.

### **AIDS/HIV Testing**

Approximately 48.6% of the respondents have not been tested for HIV infection. Of the male athletes 46.9% reported not having been tested, versus 51% of the female athletes. For team versus individual sport participants, 46.5% and 52.2% were reported, respectively. This is an interesting statistic, since percentages show that 66.9% of this sample reported having been taught about AIDS and HIV in at least one of their college classes. Males reported that 63.4% had received AIDS and HIV education, whereas the females reported 72% had received education on this issue. The team sport participants reported that 65.2% received AIDS and HIV education in a college class as compared to 70% of individual sport participants. According to these results, the female athletes and individual sport athletes were found to be at highest risk in this area depending upon their level of sexual activity.

## RESEARCH QUESTION 2:

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale of student-athletes who participate in an individual sport versus a team sport?

This question was answered by using independent t-tests to compare mean scores for team sport participants to those of individual sport participants (see Table 3). The only significant differences found between the team and individual sports were for alcohol use, GPA, sexual behavior, hardiness (and challenge subscale), and social support. See Appendix C for t-test results for other comparisons.

**Table 3: Results of t-tests by Sport**

Variable	Mean (SD) team	Mean (SD) individual	t	p=
Alcohol Use	4.4 (3.3)	5.3 (3.3)	-2.09	.02
Challenge	32.4(6.1)	30.7(6.6)	1.89	.03
GPA	2.87 (.60)	3.06 (.56)	-2.29	.011
Hardiness	98.8 (14.5)	95.1 (16.2)	1.68	.04
Sex Behavior	12.0 (5.7)	10.7 (5.1)	1.74	.042
Social Support	55.3 (8.7)	57.5 (6.7)	-2.17	.02

Mean alcohol use scores of individual sport participants were statistically significantly higher than those of the team sport participants. As a whole, both of the scores for the individual and team participants were moderate since the max score on the alcohol use was a total of 12.

In the category of challenge, the participants in team sports scored significantly higher than participants in individual sports. This indicates that team sport athletes seem to handle change in their lives better than the individual sport athletes. Team sport participants also scored higher on the total hardiness variable, but this may only reflect differences in the area of challenge.

It was found that the individual sport participants had a higher GPA than the team sport participants. This has been the historical trend for many years. It should be noted that all GPA's for both the individual sport participants and the team sport participants were relatively high.

In the category of sexual behavior, the team sport athletes scored statistically significantly higher than the participants of individual sports. This indicated a higher level of sexual behavior reported among team sport participants. In this study the team sample had a higher percentage of male athletes which could be related to this difference. (See next section for reporting of results by gender.) These scores were moderate to low for both the individual and team participants. The max score on sexual behavior totaled 39.

In regards to the social support reported, individual sport participants reported a statistically significant higher level of social support than the team sport participants. Both of the scores were very high for both groups, considering that the max score on social support totaled 68.



### RESEARCH QUESTION 3: Results of t-tests by Gender

Are there differences in the mean scores of health risks between Hardiness, the Beck Depression Inventory, and the Quality of Social Support Scale reported by male and female athletes?

This question was answered by using independent t-tests to compare mean scores of male and female athletes (see Table 4). Significant differences were found between the male and female athletes were in the variables of Beck (depression), GPA, marijuana use, total risk, safety, sexual behavior, tobacco use, challenge, control, hardiness, and social support.

The female athletes scored statistically higher than the male athletes on the Beck Depression Inventory scale. It should be noted that both of these groups had low scores in this area. The Beck Depression Inventory scale measures depression and anxiety and also covers many other areas which include: distortion of body image and self-dislike. In the area of challenge, control, and hardiness, the male athletes scored significantly higher than the female athletes. This indicates that the level of commitment in the athletes is the same even though the female athletes reported feeling less control of events in their lives. This may suggest that regardless of how the female student-athlete feels with regards to control and challenge, they are still committed to their sport, indicating that commitment is not dependent on perceived control or challenge. Even though the male athletes reported higher scores in these components of Hardiness, both male and female athletes scored very high on all aspects of the Hardiness scale.

**TABLE 4: Results of t-tests by Gender**

Variable	Mean(SD) - male	Mean(SD) - female	t	p=
Beck Depression	5.8 (6.5)	7.99 (7.8)	-2.29	.012
Challenge	32.4 (6.3)	30.8 (6.2)	1.86	.03
Control	35.5 (5.5)	33.9 (6.0)	2.04	.02
GPA	2.9 (.6)	3.04 (.6)	-1.97	.025
Hardiness	99.1 (14.5)	94.9 (16.0)	2.00	.02
Marijuana	1.2 (2.2)	.73 (1.6)	1.75	.041
Safety	16.12 (7.8)	12.5 (6.7)	3.78	.000
Sexual Behavior	12.5 (5.3)	10.1 (5.5)	3.38	.001
Social Support	54.6 (8.3)	58.3 (7.3)	-3.59	.000
Tobacco	4.72 (3.7)	3.7 (2.6)	2.46	.008
Total Risk	56.2 (16.7)	48.8 (14.8)	3.51	.001

**RESEARCH QUESTION 4:**

Are there differences in the types of health risks and psychosocial variables reported by group? (male/team, female/team, male/individual, female/individual).

To answer this question ANOVA procedures were used to show the differences between groups (see Table 5). The groups were categorized as follows: Group 1 = male/team sport; Group 2 = female/team sport; Group 3 = male/individual sport; Group 4 = female/individual sport.

**Table 5: Results of ANOVA by Group**

Variable	F - Value	P - Value	between group differences
Beck	3.8	.025	2>3, 4>3
Challenge	7.7	.0001	1>2, 1>3
Commitment	3.8	.01	1>2
Control	5.7	.0009	1>2, 1>3
GPA	4.75	.0015	2>1, 3>1
Hardiness	7.1	.0001	1>2, 1>3
Safety	4.6	.0015	1>2
Sexual Behavior	5.9	.0008	1>2
Social Support	6.5	.000015	4>1, 2>1
Tobacco	2.6	.025	3>2
Total Risk	3.6	.0065	1>2

\* Note: means and standard deviations were reported previously in Table 2 on page 41.

Results of the ANOVA by group are discussed below. Only statistically significant results are included in this discussion.

**Group 1 (male/team)** reported significantly higher levels of risk behavior in three areas (safety, sexual behavior, total risk) while simultaneously scoring significantly higher on Total Hardiness, Challenge, Commitment, and Control than group 2 (female/team). Group 1 also scored significantly higher than group 3 (male/individual) in the areas of challenge, control, and commitment.

**Group 2 (female/team)** had a significantly higher GPA and Social Support score than group 1 (male/team). Group 2 also scored significantly higher than group 3 (male/individual) in the Beck depression score.

**Group 3 (male/individual)** had a significantly higher GPA than group 1 (male/team). Group 3 also scored higher in the area of tobacco use as compared to group 2 (female/team).

**Group 4 (female/individual)** scored significantly higher than group 3 (male/individual) in the Beck depression score and higher than group 1 (male/team) in social support.

**RESEARCH QUESTION 5:**

What is the relationship between Hardiness subscale scores, the Beck Depression Inventory scores, and the Quality of Social Support Scale scores and the health behavior of the student-athlete?

This question is answered by examining the correlations between the total risk scores, the Total Hardiness scale and Hardiness Subscale scores, the Beck Depression Inventory scale, and the Quality of Social Support Scale. The significant correlations for the total sample are shown below. Significant correlations for gender, sport, and group can be found in Appendix C. Note: Correlations (r) among variables are identified as strong, moderate or weak. If r is  $>.7$  this indicates a strong correlation, if r is  $>.35 - .69$  this indicates a moderate correlation, and if r is  $>.10-.34$  this indicates a weak correlation.

Alcohol and:	Drug Use -	r= .16,	p=.007
	Marijuana-	r= .45,	p=.000
	Safety -	r= .42,	p=.000
	Sexual Behavior-	r= .35,	p=.000
	Tobacco -	r= .54,	p=.000

Social Support and:	Total Risk -	r= .70,	p=.000
Beck Depression and:	GPA - Risk -	r= -.16,	p=.010
	Social Support-	r= -.30,	p=.000
	Total Risk -	r= .11,	p=.040
Challenge and:	Drug Use -	r= .15,	p=.013
	Sexual Behavior -	r= .15,	p=.014
	Social Support-	r= -.14,	p=.022
Commitment and:	Social Support-	r= -.13,	p=.030
Drug Use and :	Sexual Behavior -	r= .17,	p=.003
	Tobacco -	r= .19,	p=.001
	Total Risk -	r= .33,	p=.000
GPA and :	Safety -	r= -.20,	p=.002
	Sexual Behavior -	r= -.33,	p=.000
	Tobacco -	r= -.17,	p=.006
	Total Risk -	r= -.30,	p=.000
Hardiness and:	Social Support -	r= -.13,	p=.039
Marijuana and:	Safety -	r= .35,	p=.000
	Sexual Behavior -	r= .31,	p=.000
	Tobacco -	r= .38,	p=.000
	Total Risk -	r= .59,	p=.000
Safety and:	Sexual Behavior -	r= .26,	p=.000
	Social Support -	r= -.22,	p=.000
	Tobacco -	r= .34,	p=.000
	Total Risk -	r= .76,	p=.000
Sexual Behavior and:	Tobacco -	r= .37,	p=.000
	Total Risk -	r= .67,	p=.000

Social Support and: Total Risk -  $r = -.16$ ,  $p = .008$

Tobacco and: Total Risk -  $r = .66$ ,  $p = .000$

Strong correlations are shown with many of these variables and Total Risk because each of these variables were a part of the equation that was used to derive Total Risk. Other moderate correlations that were significant included: 1) *alcohol use* and: marijuana, safety, sexual behavior, and tobacco; 2) *sexual behavior* and: tobacco; and 3) *marijuana* and: safety, and tobacco.

### RESEARCH QUESTION 6:

Are Hardiness subscales, the Beck Depression Inventory, and the Quality of Social Support Scale scores predictors of the student-athlete's self-reported health behaviors?

Stepwise Multiple Regression analysis was used to identify significant predictors of GPA, total risk, alcohol use, tobacco use, drug use, and marijuana use. The predictor variables that were regressed on to the dependent variables were Beck depression scores, challenge, commitment, and control, social support score, and risk scores (i.e., alcohol use, drug use, tobacco use, marijuana use, safety, sexual behavior, and suicide) other than the one being used as the dependent variable in each analysis.

### Alcohol Use

Four variables (marijuana, safety, social support, and tobacco) were identified as statistically significant predictors of alcohol use. This model produced an adjusted  $r^2 = .40$ .

### Stepwise Regression Model for Alcohol Use:

Model Statistics:  $r^2 = .41$   $F = 33.3$  Sig. F = .0000  
 adjust.  $r^2 = .40$

Variable Statistics:	partial $r^2$	T	Sig. T
tobacco use	.29	5.64	.0000
marijuana use	.07	4.09	.0001
safety	.03	3.44	.0007
social support	.01	2.28	.0236

Although all four variables make statistically significant contributors to the variance in the alcohol use score, tobacco use is by far the strongest predictor.

### Drug Use

Two variables (tobacco use and marijuana use) were identified as statistically significant predictors of drug use. This model produced an adjusted  $r^2 = .22$ .

### Stepwise Regression Model for Drug Use:

Model Statistics:  $r^2 = .23$   $F = 28.7$  Sig. F = .0000  
 adjust.  $r^2 = .22$

Variable Statistics:	partial $r^2$	T	Sig. T
marijuana use	.21	5.75	.0000
tobacco	.02	1.98	.0487

Although both variables are statistically significant contributors to the variance in the drug use score, marijuana use is by far the strongest predictor.

## **Tobacco Use**

Three variables (sexual behavior, marijuana use, and alcohol use) were identified as statistically significant predictors of tobacco use. This model produced an adjusted  $r^2 = .34$ .

### **Stepwise Regression Model for Tobacco Use:**

Model Statistics:  $r^2 = .35$   $F=35.19$  Sig. F = .0000  
adjust.  $r^2 = .34$

Variable Statistics:	partial $r^2$	T	Sig. T
alcohol use	.29	5.67	.0000
marijuana use	.04	2.81	.0054
sexual behavior	.02	2.67	.0055

Although all three variables are statistically significant contributors to the variance in the tobacco use score, alcohol use is by far the strongest predictor.

## **Marijuana Use**

Four variables (alcohol use, drug use, safety, and sexual behavior) were identified as statistically significant predictors of marijuana use. This model produced an adjusted  $r^2 = .38$ .

### **Stepwise Regression Model for Marijuana Use:**

Model Statistics:  $r^2 = .39$   $F=31.19$  Sig. F = .0000  
adjust.  $r^2 = .38$

Variable Statistics:	partial $r^2$	T	Sig. T
alcohol use	.23	3.80	.0002
drug use	.11	5.97	.0000
safety	.04	3.20	.0016
sexual behavior	.01	2.02	.0447



Although all four variables are statistically significant contributors to the variance in the marijuana use score, drug use is by far the strongest predictor.

**Safety**

Five variables (alcohol use, drug use, social support, tobacco and marijuana use) were identified as statistically significant predictors of safety. This model produced an adjusted  $r^2 = .25$ .

**Stepwise Regression Model for Safety:**

Variable Statistics:	partial $r^2$	T	Sig. T
Model Statistics:	$r^2 = .27$	F=14.44	Sig. F = .0000
	adjust. $r^2 = .25$		
alcohol use	.17	3.58	.0004
social support	.04	-3.31	.0011
marijuana use	.03	2.93	.0037
drug use	.02	-2.44	.0154
tobacco	.01	1.97	.0495

Although all five variables are statistically significant contributors to the variance in the safety score, alcohol use is by far the strongest predictor. Note that drug use and social support have a negative correlation to safety. Consequently, when drug use and social support is low, safety is high.

## **Sexual Behavior**

Three variables (alcohol use, tobacco, and commitment) were identified as statistically significant predictors of sexual behavior. This model produced an adjusted  $r^2 = .18$ .

### **Stepwise Regression Model for Sexual Behavior:**

Model Statistics:	$r^2 = .19$ adjust. $r^2 = .18$	F=15.48	Sig. F = .0000
Variable Statistics:	partial $r^2$	T	Sig. T
tobacco	.14	3.28	.0012
alcohol use	.03	2.91	.0040
commitment	.02	2.25	.0257
Beck (depression)	.02	-2.14	.0279

Although all three variables are statistically significant contributors to the variance in the sexual behavior score, tobacco use is by far the strongest predictor.

## **Suicide**

One variable Beck (depression) was identified as statistically significant predictors of suicide. This model produced an adjusted  $r^2 = .12$ .

### **Stepwise Regression Model for Suicide:**

Model Statistics:	$r^2 = .12$ adjust. $r^2 = .12$	F=27.45	Sig. F = .0000
Variable Statistics:	partial $r^2$	T	Sig. T
Beck	.12	5.23	.0000

The variable Beck was the only statistically significant contributor to the variance in the suicide score, and is the strongest predictor.

**GPA**

Two variables (sexual behavior and Beck) were identified as statistically significant predictors of GPA. This model produced an adjusted  $r^2 = .14$ .

**Stepwise Regression Model for GPA:**

Model Statistics:	$r^2 = .15$	$F = 14.96$	$\text{Sig. } F = .0000$
	adjust. $r^2 = .14$		
Variable Statistics:	partial $r^2$	T	Sig. T
sexual behavior	.13	-4.85	.0000
Beck (depression)	.02	-2.14	.0279

Although both variables are statistically significant contributors to the variance in the GPA score, sexual behavior is by far the strongest predictor. Note that both of these variables have a negative correlation to GPA, consequently, when GPA is high, sexual behavior and depression are low.

## CHAPTER V:

### DISCUSSION/CONCLUSIONS

In looking at all the health risk behaviors that may affect the student-athletes, it should be noted that when looking at the difference between what is statistically significant and what is practically significant findings, all risk behaviors as well as an indication of depression, must be considered potentially dangerous regardless of the number reported. Even if the incidence rate is reported low with a particular health risk, it still must be of concern because of the age group of this sample. In contrast statistically significant differences in some of the more positive psychosocial component, for example Hardiness and Social Support, may not be considered as practically significant especially since these scores were high for the sample and all groups studied.

The main question in this study was what are the health risk behaviors of these student-athletes based on gender and type of sport in which they participated. This study indicated that there are differences in the health behaviors of the student-athletes in several areas. All student-athletes struggle with frustration, depression, and tension from many sources, not just from their athletics. In the literature it was found that the student-athletes thought health practices were important, and they didn't want to continue their parents' unhealthy practices (Heck, 1991). Researchers have indicated that providing health-related information via reading material wasn't the most beneficial to the student-athletes, but that the greatest impact came from behavioral intervention which needed to be integrated into the

student-athlete's demanding life (Heyman, 1986). These two findings reinforce the need for a more comprehensive approach to health promotion and health behavioral intervention.

Data from this study indicated several areas of specific concern for the student-athlete including : safety and violence, alcohol use, tobacco use, sexual behavior, condom use/safe sexual practices, forced sex/sexual abuse, and AIDS/HIV Testing. This is consistent with the previous research done with student-athletes ( e.g. Heyman, 1986).

### DIFFERENCES BY SPORT

Differences were found between team sport and the individual sport participants in the areas of alcohol use, GPA, sexual behavior, hardiness, and social support. The alcohol use for the individual sport participants was higher than that of the team sport participants. However the alcohol use among all team sport participants and individual sport participants was still relatively low, scoring 4.4 and 5.3, respectively. This was on a total point scale of 12. This risk, even though low, should be of concern in dealing with student-athletes. So often in the individual sports, athletes perceive a great amount of pressure related to individual performance. This puts a great amount of stress and tension on them mentally and emotionally. This stress may affect how the athlete may choose to handle the pressure they are feeling. More positive approaches to coping should be encouraged as alternatives to ant drug use motivated by a need to cope.

In the area of hardiness, the team sport participants scored higher than the individual sport participants. The team sport student-athletes may be able to cope with change better than the individual sport just because of the nature of their sport. Stability rather than change

may be more critical to the individual sport athlete than the team sport athlete. When an athlete has to perform individually, stability and routine can be very important factors in his/her frame of mind. In a team sport there may be more interaction with other athletes, even in the course of the game; more change may occur that a team athlete must somehow learn how to handle. This reality may strengthen the team sport athlete's abilities to find and embrace challenge and control. An individual sport athlete's focus is usually on himself/herself and getting himself/herself ready for competition, whereas the athletes on a team sport may have to focus more on their team's preparation rather than personal preparation. This may help team athletes develop better coping skills and a higher level of hardiness as compared to an individual athlete. It should be noted that even though there is a significant statistical difference found in Hardiness between individual and team sport participants, both groups scored relatively high on the Hardiness scale.

With regards to the findings on social support (i.e., individual greater than team) there is a possibility that athletes on individual sport teams feel as if they receive more support from their coach, primarily because the focus is more on the individual in these sports. Athletes on an individual sport team may also receive more social support away from their team, whereas athletes on a team sport usually cluster around their teammates. These team sport athletes may look to their teammates more often for social support, even though the social support one receives from outside the team may be more beneficial. According to the literature, the social support given to a teammate may fluctuate depending on the win-loss column (Rosenfeld et al., 1989). Generally, one would believe that, based on the size of the

team and the assumed level of camaraderie, they would experience a great amount of social support. This belief was not supported by the study findings. It should be pointed out again that Social Support was high in both of the individual sport participants and the team participants.

Individual sport athletes scored significantly higher in the area of GPA than team sport athletes. Athletes in a team sport, may be more likely to believe that they have a chance at a pro career than individual sport athletes. Consequently, the team sport athletes' concern may be on just staying eligible so that they can continue to compete on the college level, whereas individual sport athletes may be looking more into their other career and vocational options for the future. So many student-athletes believe they will have a career in professional athletics. For many student-athletes whose identity has been drawn more or less from their athletic performance (e.g.; football, basketball, and baseball players), it may be difficult to embrace this new role as a "student"-athlete. In addition, the individual sport athlete may just be able to focus on the task at hand better, since pursuit of GPA is an individual effort. The individual sport athlete is more accustomed to handling such pursuits.

The peer pressure that team athletes experience may be greater than the individual athletes which could be a factor in the higher sexual activity indicated in this population. Both the team and individual sports reported a high level of AIDS and HIV education in a college class, yet the AIDS/HIV Testing percentages were low. This brings up several questions. Is the opportunity for testing available on the college campus, or are the athletes

afraid that they will be stigmatized if someone hears they are being tested? Are these athletes really being educated as to their risk and the severity of this disease?

#### DIFFERENCES BY SPORT/GENDER

There were interesting findings related to the tobacco use of the student-athletes. Tobacco use was found to be high among male athletes and it was interesting to find the rate of onset of tobacco use. At risk groups targeted in this study need to be identified and tobacco education programs should be developed for these student-athletes. For example, in this study the highest incidence of smokeless tobacco use was with males in the team sports.

Literature shows that female athletes are more prone to depression than male athletes (Ogilvie et al., 1981). Both the female athletes on the team and individual sports reported significantly higher Beck scores than the male individual and team groups. This is not surprising because females may be more at risk for some of the perceptions that are tested in the BDI, such as body image and self-esteem. Through the literature, it has been noted that female athletes have a tendency to equate their self worth with body image (Constantine, 1995). This shows that the female athletes, regardless of the sport they participate in, may need some help in coping with certain aspects of depression. These related constructs were not measured in this study; only general depression was measured. Though females scored significantly higher than the males in the Beck Depression scale, scores for both groups were still overall relatively low.

According to the results there were significant differences in GPA between some of the groups compared to the male/team which had the lowest GPA. This may begin to change



with all the resources Athletic Departments are investing in academic support programs. Individual sports will probably always have higher GPA's than team sports, but team sport GPA's should begin to rise. It also goes back to the old thought that the athlete that is high profile, seems to identify themselves with being an athlete and not so much as a "student-athlete." This image is beginning to change dramatically, and the more favorable image of the "student-athlete" is coming to the forefront.

The female team sport and female individual sport participants scored higher than the male team sport participants in social support. This may raise the question of where female athletes receive the main core of their social support as opposed to the male team sport members. Through the literature it has been found that female athletes tend to seek out social support more than the male athletes (Sarason, Sarason, Hacker, & Basham, 1985). The female athletes may get a greater sense of support through their own initiative and sense of responsibility to their support group. It has been reported that female athletes tend to seek most of their support from family and close friends. The social support on the particular team could be a factor; for instance, in this study the team sport scored lower in social support than the individual sport. The pressure the student-athletes may feel related to their individual performances as opposed to a team performance could contribute. It is important to remember that social support comes from many different avenues within the team as well as outside the team. This indicates that it should not be assumed that team membership automatically results in high levels of social support. As the literature shows, female athletes tend to seek out social support more than males do (Cornelius, 1995). This was reinforced

by the findings in this study. It also brings to light that females are better at seeking out social support than male athletes. In dealing with social support, the perceptions of the female athlete are different than those of a male athlete. When a female athlete is singled out by a coach for the good job she has done, it increases the level of social support that she feels. When a male athlete is singled out for his good performance, he tends to feel a greater amount of pressure to perform, and believes that the expectations are even higher after the feedback (Richman et al., 1989). Again, though Social Support was significantly higher in the females, both genders scored relatively high on the Social Support scale.

#### DIFFERENCES BY GENDER

In this study, differences were found to exist in a number of health risks by gender. Male athletes scored significantly higher than female athletes in areas of total risk, marijuana use, safety, sexual behavior, tobacco use. This general tendency toward risk behavior may be associated with an attitude of recklessness that encourages patterns such as driving while drinking, physical fights, other violent behavior, unprotected sexual activity, and substance abuse.

In the area of safety and violence there could be a difference in overall peer pressure that a male athlete experiences due to the number of teammates he has to coax him into a reported using alcohol for the first time during their college career. And, even though females have reported a higher risk of experimenting with alcohol for the first time during their college years, all college athletes appear to be at risk during 17-24 years of age. violence is much more prevalent among the male athletes than the female athletes. In the area of violence, male athletes and specifically male team athletes may be at higher risk to be

involved in a physical fight with another person because of the peer pressure and the image of the " macho" athlete (Pinkerton et al., 1989).

From the literature it has been shown that alcohol is the major health risk among college students (MacDonald et al., 1991). The results of this study indicated that college is a crucial time for student-athletes when they often experience their first drink. This is consistent with the previous findings of Heck (1991). According to the literature, when an athlete has a feeling of high anxiety and tension, he/she will tend to have a higher level of alcohol consumption. During the college years, therefore, becomes an opportune time for alcohol education, as well as for teaching stress management and coping skills. Throughout the literature it has been demonstrated that the drinking patterns are not significantly different between the general population of athletes and non-athletes. One difference that was documented was that female student-athletes tended to drink more than female non-athletes (Overman & Terry, 1991). The drinking patterns of the female athletes were more like the drinking patterns of the male athletes, whereas the drinking patterns of the female non-athletes were significantly different than those of the male non-athletes. From the results of this study, it is quite obvious that even though the male population has a high percentage that have already experienced alcohol before college, there still is a substantial percentage that reported using alcohol for the first time during their college career. And, even though females have reported a higher risk of experimenting with alcohol for the first time during their college years, all college athletes appear to be at risk during 17-24 years of age.

CORR The literature has noted that tobacco use and alcohol use go hand in hand (Gray & Donatelle, 1990). The literature also has supported the conclusion that health behavior risks sometimes accompany one another. For instance, a correlation has been found between tobacco use, marijuana use, and sexual activity (Nattiv & Puffer, 1991). This was reinforced by the findings of this study.

Tobacco From the literature, males are more likely to have experienced sexual intercourse before their college years and, consequently, they will be the ones that are more sexually active in college (Nattiv & Puffer, 1991). The percentages in this study show that there is infrequent condom use among males and more than likely, team sport males. This response can bring us back again to the overwhelming pressure that some male athletes have to maintain the "macho" image, as well as the fallacy that they are invincible. This attitude can bring forth a lack of responsibility. Even though male athletes and especially team athletes reported the highest percentage in inconsistent condom use, all athletes, because of the high percentage of sexual activity in the college years, need to be informed about safe sex. It is also important to recognize that even though female athletes reported a higher percentage of forced sex, that there are some male athletes who reported having to deal with the same problem. Since this population is sexually active during their college years, health education on all areas of sexual behavior needs to be provided to all members of the student-athlete population. Frequency of sexual behavior, safe sex practices or lack thereof, and other areas of sexuality education are definitely areas for further study and programming.

## CORRELATIONS AND PSYCHOSOCIAL VARIABLES

There were many combinations of variables in this study that were found to have moderate to high correlations. Some significant moderate correlations that are of importance to this study included: 1) Alcohol Use and: Marijuana Use, Tobacco Use, and Safety; 2) Marijuana Use and: Tobacco Use and Safety; and 3) Sexual Behavior and: Alcohol Use and Tobacco Use. The correlation that is of greatest concern is the correlation between alcohol use, tobacco use, and marijuana use. From a study done at Columbia University (National Public Radio, 1997), it has been shown that alcohol use leads to tobacco use which in turn leads to marijuana use. It has also been noted from the literature that Marijuana is no longer considered a soft drug, but a hard drug due to the strong indication that it's use leads to further drug use. Though alcohol use is of highest concern on college campuses today, these other drug-related health risk behaviors should be strongly considered in programming development.

It was found in this study that the psychosocial factors studied were not good predictors of the health risks of student-athletes. This is, in part, due to the high number of student-athletes sampled but small variance in these variables in the groups studied. Despite this unpredictability, the positive nature of these variables, specifically hardiness and social support, should encourage the development of programs that either serve to maintain or enhance these psychosocial components. At the same time, these programs should work to discourage depression, and/or identify those at risk.

## RECOMMENDATIONS

With alcohol use and tobacco use showing so much significance in all areas of this study, it is highly recommended that education be developed in these areas and targeted to the appropriate groups of student-athletes. The greatest concern still lies in the area of alcohol use, tobacco use, yet other areas of drug use cannot be ignored. Through this study some additional needs of the student-athlete were identified. These areas of concern are: sexual behavior, violence, depression and anxiety, sexual abuse, safe sexual practices, and AIDS/HIV Testing and Education. The NCAA is currently conducting a program called The Life Skills Program which emphasizes all of these areas. It is vital to the student-athlete's development that these challenges and demands not be overlooked or taken lightly. As early as in 1958 (Davies), studies pointed to the under-utilization of counseling services for college student-athletes. A recommendation of all programming for the student-athletes is that the foundation of each program consist of Social Support and Hardiness components. If Social Support and Hardiness are at the base of a program, the health risk behaviors can be identified and dealt with in a positive and supportive environment. It also would be ideal if all coaches, counselors, trainers, and administrators could be educated on the positive constructs of Social Support and Hardiness and given the skills to develop and nurture these components within the student-athletes environment.

Future research needs to be done in the development of measurement tools in studying student-athletes. Some recommendations for improvement would be a better way to identify issues of sexual orientation, sexual abuse, and a more global look at sexually

transmitted diseases.(i.e. herpes, chlamydia, etc.) This study targeted AIDS/HIV specifically more than it did STD's in general. This could be the reason why the student-athletes reported a lower number in testing of AIDS/HIV compared to their education they may have received on this subject. Student-athletes may consider themselves more at risk for other STD's. There needs to be a better measuring tool for this health risk behavior. Another recommendation related to instrumentation is to find a better measurement tool to identify other drug use among student-athletes. It was the researcher's feeling from this study that drug use was not reported accurately due to the sensitivity of this issue in college athletics. That was compounded by the presence of a very active drug testing policy. A possible solution could be to have peers report other peers' drug use on their team. In the literature it has been shown that the results are more accurate when a peer reports other peers' drug taking behaviors rather than their own. (Perkins, 1991)

Future research needs to be conducted in the following areas: 1) the particular needs of the male and female athletes in regards to social support and how the development of Social Support may differ by gender; 2) the correlation between sexual activity and sexual abuse; and 3) research into anxiety manifestation and certain related constructs to depression.(e.g., body image and self-esteem) among female student-athletes. It is important that athletic departments realize that student-athletes have a high level of vigor and ambition, but that they are also like the "normal" student in that they are young adults learning how to cope in today's society. This means they will need some guidance in developing their coping and life skills. Many athletic departments are doing an injustice to the student-athlete if all

of these health risk behaviors aren't addressed in their student life programs. These programs and related insights are vital to the personal development of the student-athlete and, specifically, to ensuring the development of a well-rounded individual.

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July 5, 1996

Smith, A.M., Scott, S.G., O'Fallon, W.M. & Young, M.L. (1990) Emotional Responses of Athletes to Injury. Mayo Clinic Proceedings. 65,38-50.

Dear Cosch,

Smith, R.H. & McCauley, C.R. (1991) Predictors of Alcohol Abuse Behaviors of Undergraduates. Journal of Drug Education. 21(2),159-166.

Health Promotion, which is a part of the curriculum of the Health Behavior and Health Promotion program.

Werch, C.E., Ross, C., Anzalone, D. & Meers, B.W. (1994) Stage of Alcohol and Drug Use Among Young Adults. The Journal of Health Behavior, Education and Promotion. 38(6),41- 49.

already discussed the importance of the Health Behavior and Health Promotion program.

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should be aware that the information you provide will be confidential and will be used only for the purpose of the study. I will be able to provide you with a copy of the study results at a time during the first week of school. You may be assured that no one will be able to identify you. The study will be anonymous and your name will not be used. The information will be confidential and will be used only for the purpose of the study. This is a very interesting project, and if you are interested in participating, I will be able to provide you with a copy of the study results.

I realize you may have a busy schedule, but I would like to get in contact with you to see if you are interested in participating in the study. If you are interested, please call me at 1-800-444-4444.

I greatly appreciate your time and effort in participating in this study. You are helping to advance the knowledge of student-athletes.

Sincerely,

Carol Ludvigson  
Women's Golf Coach

APPENDIX B  
Demographic Data Sheet

Please answer each question to the best of your ability. Give specific information or check which answer is appropriate. Then place all the surveys in the envelope provided.

APPENDIX A

July 5, 1996

GENERAL INFORMATION

Age \_\_\_\_\_ years \_\_\_\_\_

Dear Coach,

Gender (check one) male \_\_\_\_\_ female \_\_\_\_\_

Weight I am in the process of working on my thesis for my Master's Degree in the area of Health Promotion, which is in the Department of Health and Sport Sciences. I am researching the area of health risk behavior of student-athletes at the University of Oklahoma related to hardiness, social support, and depression. I realize this may not mean much to you at this time, but the purpose of this thesis is to see the correlation between the health risk behavior and these three areas I just mentioned. I need your help for this project to work. I already discussed this with Dr. Gurney, and he is totally supportive of this project. He also is a member of my thesis committee.

There will be four basic surveys that the student-athletes will have to fill out. This shouldn't take more than 20 minutes or so. What I would like to do is distribute these surveys at a time during the first week of school. Preferably after a team meeting so that I can be assured that no one will be missed. I will have to organize this with each one of you. All data will be anonymous and sealed so that no one will be able to be identified. All information will be confidential and no one will put their names on the surveys. This should be a very interesting project, and if you are interested in the results of the study, I will be able to provide you with a copy.

I realize you may have some questions about this study, so you can either wait until I get in contact with you to set up a time to meet with your team and we can talk about it then, or you can call me at 5-8343. It is usually easier to get a hold of me in the mornings.

I greatly appreciate your time and effort. By having your team participate in this study, you are helping Sooner Athletics as well as the knowledge base of literature on student-athletes.

\_\_\_\_\_ Team (includes: football, basketball, volleyball, wrestling, baseball)

Sincerely, \_\_\_\_\_ softball, soccer)

\_\_\_\_\_ Individual (includes: track, tennis, golf, gymnastics)

\_\_\_\_\_ Full Scholarship

Carol Ludvigson \_\_\_\_\_ Partial Scholarship

Women's Golf Coach \_\_\_\_\_ Scholarship

APPENDIX B  
Demographic Data Sheet

Please answer each question to the best of your ability. Give specific information or check which answer is appropriate. Then place all the surveys in the envelope provided.

GENERAL INFORMATION

Age \_\_\_\_\_ years \_\_\_\_\_

Gender (check one) male  female

Weight \_\_\_\_\_

Height \_\_\_\_\_

Family status (check one) single

married

separated

divorced

Year in school (check one) redshirt freshman

freshman

sophomore

junior

senior

fifth year senior

medical hardship

graduate school

In which type of sport do you participate? Please check all that apply.

\_\_\_\_\_ Team (includes: football, basketball, volleyball, wrestling, baseball, softball, soccer) \_\_\_\_\_ Date

\_\_\_\_\_ Individual (includes: track, tennis, golf, gymnastics) \_\_\_\_\_

\_\_\_\_\_ Full Scholarship \_\_\_\_\_ Date

\_\_\_\_\_ Partial-Scholarship \_\_\_\_\_

\_\_\_\_\_ Non-Scholarship \_\_\_\_\_

\_\_\_\_\_ Principal Investigator's Signature \_\_\_\_\_ Date

University of Oklahoma  
Department of Health and Sport Sciences

Informed Consent Form

**Title of Project:** The Relationship between Health Behavior, Hardiness, Social Support and Depression among NCAA Division I Student-Athletes

**Investigator:** Carol L. Ludvigson, graduate student, Department of Health and Sport Sciences, University of Oklahoma, 405-325-8343

**Faculty Sponsor:** Craig W. Hofford, Assistant Professor, Department of Health and Sport Sciences, University of Oklahoma, 405-325-5211

This is to certify that I, \_\_\_\_\_, agree to participate as a volunteer in a study investigating the relationship between health behavior, hardiness, social support and depression among NCAA Division I student athletes under the supervision of Carol L. Ludvigson and Dr. Craig W. Hofford (faculty sponsor).

The purpose of this study is to assess health risk behaviors among student athletes using the National College Health Risk Behavior Survey (NCHRBS). This study will also include a look at hardiness, social support, and depression related to the health risk behaviors of student-athletes. Participation will involve completion of a series of questionnaires. All answers will be anonymous -- there will be no way to identify your answers.

I understand that I do not have to answer questions that I don't want to answer and that I can discontinue participation at any time without prejudice to me. I also understand that by volunteering to participate in this study, I waive none of my rights. I understand that refusing to participate will result in no penalty or loss of benefits to which I am otherwise entitled.

All data will be collected anonymously and presented as group averages. Original surveys will be stored in a locked file cabinet that is accessible only to the principal investigator. After data entry, all surveys will be shredded and destroyed.

Although there is no direct benefit for participants, the information gained may be used to assist in the identification of special needs and problem behaviors among athletes. This information can then be used to develop a stronger support services for future athletes. There are no known risks to you if you participate. In case you become upset while completing any questions, counseling support will be available to you through the Counseling and Testing Center.

I understand that the principal investigator or faculty sponsor named above will answer any of my questions about the research process and my rights as a volunteer.

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness' Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Principal Investigator's Signature

\_\_\_\_\_  
Date



## PERSONAL VIEWS SURVEY

Please indicate how you feel about each statement by placing a number from 0-3 in the space provided, according to the scale below. Please answer each question.

HOW YOU FEEL: 0 = Not at all true

1 = A little true

2 = Quite a bit true

3 = Completely true

1. \_\_\_ I often wake up eager to take up my life where it left off the day before.
2. \_\_\_ I like a lot of variety in school.
3. \_\_\_ Most of the time, my coaches will listen to what I have to say.
4. \_\_\_ Planning ahead can help avoid future problems.
5. \_\_\_ I usually feel that I can help avoid most future problems.
6. \_\_\_ I feel uncomfortable if I have to make any changes in my everyday schedule.
7. \_\_\_ No matter how hard I try, my efforts will accomplish nothing.
8. \_\_\_ I find it difficult to imagine getting excited about school.
9. \_\_\_ No matter what you do, the "tried and true" ways are the best.
10. \_\_\_ I feel that it is almost impossible to change my boyfriend or girlfriend's mind about something.
11. \_\_\_ Most people who work for a living are manipulated by their bosses.
12. \_\_\_ New laws shouldn't be made if they hurt a person's income.
13. \_\_\_ When you marry and have children you have lost your freedom of choice.
14. \_\_\_ No matter how hard you work you never really seem to meet your goals.
15. \_\_\_ A person whose mind seldom changes can usually be depended on to have reliable judgment.
16. \_\_\_ I believe most of what happens in life is just meant to happen.
17. \_\_\_ It doesn't matter if you work hard at your sport, since only the school profits.
18. \_\_\_ I don't like conversations when others are unclear about what they are trying to say.
19. \_\_\_ Most of the time it just doesn't pay to try hard, since things never turn out anyway.
20. \_\_\_ The most exciting thing for me is my own fantasies.
21. \_\_\_ I won't answer a person's questions until I am very clear as to what he is asking.
22. \_\_\_ When I make plans I'm certain I can make them work.

23. \_\_\_\_ I really look forward to school and athletics.
24. \_\_\_\_ It doesn't bother me to step aside for a while from something I'm involved in, if I'm asked to do something else.
25. \_\_\_\_ It's exciting for me to learn something about myself.
26. \_\_\_\_ I enjoy being around people who are predictable.
27. \_\_\_\_ I find it's usually very hard to change a friend's mind about something.
28. \_\_\_\_ Thinking of yourself as a free person just makes you feel frustrated and unhappy.
29. \_\_\_\_ It really bothers me when something unexpected interrupts my daily routine.
30. \_\_\_\_ When I make a mistake, there's very little I can do to make things right again.
31. \_\_\_\_ I feel no need to try my best at school, since it makes no difference anyway.
32. \_\_\_\_ I respect rules because they guide me.
33. \_\_\_\_ One of the best ways to handle most problems is just not to think about them.
34. \_\_\_\_ I believe that most athletes are just born good at sports.
35. \_\_\_\_ I don't like things to be uncertain or unpredictable.
36. \_\_\_\_ People who do their best should get full support from society.
37. \_\_\_\_ Most of my life gets wasted doing things that don't mean anything.
38. \_\_\_\_ Lot's of times I don't really know my own mind.
39. \_\_\_\_ I have no use for theories that are not closely related to facts.
40. \_\_\_\_ Ordinary activities is just too boring to be worth doing.
41. \_\_\_\_ When other people get angry at me, it's usually for no good reason.
42. \_\_\_\_ Changes in routine bother me.
43. \_\_\_\_ I find it hard to believe people who tell me that the work they do is of value to society.
44. \_\_\_\_ I feel that if someone tries to hurt me, there's usually not much I can do to try and stop him.
45. \_\_\_\_ Most days life just isn't very exciting for me.
46. \_\_\_\_ I think people believe in individuality only to impress others.
47. \_\_\_\_ When I am reprimanded from my coach it usually seems unjustified.
48. \_\_\_\_ I want to be sure someone will take care of me when I get old.
49. \_\_\_\_ Politicians run our lives.
50. \_\_\_\_ When I am at school and I am performing a difficult task, I know when to ask for help.

## QUALITY OF SOCIAL SUPPORT SCALE

Please indicate how you feel about each statement by placing a number from 0-3 in the space provided, according to the scale below.

HOW YOU FEEL:      0 = Not at all true  
                                 1 = A little true  
                                 2 = Quite a bit true  
                                 3 = Completely true

1. \_\_\_ There is someone who will take care over my responsibilities when I am sick.
2. \_\_\_ There are people with whom I can expect to have unpleasant disagreements, people who make me angry and upset.
3. \_\_\_ The important people in my life accept me as I am, including both my worst and my best points.
4. \_\_\_ There is someone who will give me a hug or hold me when I need comforting.
5. \_\_\_ It's hard to find someone who will give me objective feedback on how I am handling problems.
6. \_\_\_ There is someone whose advice I really trust.
7. \_\_\_ I can count on someone to listen to my innermost feelings, even when I am angry at someone or depressed about something.
8. \_\_\_ Some of my friends or relatives are hard to get along with and seem like more trouble than they're worth.
9. \_\_\_ The people I am close to are willing to use their skills and abilities to help me out in my everyday life.
10. \_\_\_ The people I am close to treat me like a worthwhile person and make me feel I have something positive to contribute.
11. \_\_\_ When I need good information on how to get things done, I know that I can get it.
12. \_\_\_ I find it hard to be the sort of person I'd like to be when I'm around relatives and friends.
13. \_\_\_ The people I'm closer to are physically affectionate toward me.
14. \_\_\_ Someone would loan me money (\$) or loan me something else of value if I needed it.
15. \_\_\_ No one will really listen when I need to talk about personal problems.
16. \_\_\_ I can find someone to take me somewhere or run an errand for me if I need to.
17. \_\_\_ It is easy to talk to my friends and relatives about things going on in my life.

NATIONAL COLLEGE HEALTH RISK BEHAVIOR SURVEY - 1995

**IMPORTANT**

- Read each question carefully.
- Use a #2 pencil only.
- Make dark marks.
- Example:   ●
- Erase completely to change your answer.

1. How old are you?

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

2. What is your sex?

- 2  Female
- 1  Male

3. What is your class standing?

- 1  Freshman
- 2  Sophomore
- 3  Junior
- 4  Senior
- 5  Graduate student
- 6  Other

4. What is your current year in college?

- 1  1st year
- 2  2nd year
- 3  3rd year
- 4  4th year
- 5  5th year
- 6  6th year
- 7  7th year
- 8  8th year or beyond

5. Are you a full-time student?

- 1  Yes
- 2  No

6. How do you describe yourself?

- 1  White - not Hispanic
- 2  Black - not Hispanic
- 3  Hispanic or Latino
- 4  Asian or Pacific Islander
- 5  American Indian or Alaskan Native
- 6  Other (specify): \_\_\_\_\_

7. What is your marital status?

- 1  Never been married
- 2  Married
- 3  Separated
- 4  Divorced
- 5  Widowed

8. With whom do you currently live?  
(Select all that apply.)

- 1  Alone
- 2  Spouse/domestic partner
- 3  Roommate(s)/friend(s)
- 4  Parent(s)/guardian(s)
- 5  Other relatives
- 6  Your children
- 7  Other

9. Where do you currently live?

- 1  College dormitory or residence hall
- 2  Fraternity or sorority house
- 3  Other university/college housing
- 4  Off-campus house or apartment
- 5  Parent/guardian's home
- 6  Other

10. Are you a member of a social fraternity or sorority?

- 1  Yes
- 2  No

11. How many hours a week do you work for pay?

- 1  0 hours
- 2  1-9 hours
- 3  10-19 hours
- 4  20-29 hours
- 5  30-39 hours
- 6  40 hours
- 7  More than 40 hours

12. Do you have any kind of health care coverage, including health insurance or prepaid plans such as HMOs (health maintenance organizations)?

- 1  Yes
- 2  No
- 3  Not sure

13. How much education does your mother have?

- 1  She did not finish high school
- 2  She graduated from high school or attained a GED
- 3  She had some education after high school
- 4  She graduated from college
- 5  Not sure

14. How much education does your father have?

- 1  He did not finish high school
- 2  He graduated from high school or attained a GED
- 3  He had some education after high school
- 4  He graduated from college
- 5  Not sure

The next 15 questions ask about safety and violence.

15. How often do you wear a seat belt when riding in a car driven by someone else?

- 5  Never
- 4  Rarely
- 3  Sometimes
- 2  Most of the time
- 0  Always

16. How often do you wear a seat belt when driving a car?

- 0  I do not drive a car
- 5  Never wear a seat belt
- 4  Rarely wear a seat belt
- 3  Sometimes wear a seat belt
- 2  Most of the time wear a seat belt
- 0  Always wear a seat belt

17. During the past 12 months, how many times did you ride a motorcycle?

- 0  0 times
- 1  1 to 10 times
- 2  11 to 20 times
- 3  21 to 39 times
- 4  40 or more times

18. When you rode a motorcycle during the past 12 months, how often did you wear a helmet?

- 0  I did not ride a motorcycle during the past 12 months
- 5  Never wore a helmet
- 4  Rarely wore a helmet
- 3  Sometimes wore a helmet
- 2  Most of the time wore a helmet
- 0  Always wore a helmet

19. During the past 12 months, how many times did you ride a bicycle?

- 0 0 times
- 1 1 to 10 times
- 2 11 to 20 times
- 3 21 to 39 times
- 4 40 or more times

20. When you rode a bicycle during the past 12 months, how often did you wear a helmet?

- 0 I did not ride a bicycle during the past 12 months
- 5 Never wore a helmet
- 4 Rarely wore a helmet
- 3 Sometimes wore a helmet
- 2 Most of the time wore a helmet
- 0 Always wore a helmet

21. During the past 12 months, how many times did you go boating or swimming?

- 0 0 times
- 1 1 to 10 times
- 2 11 to 20 times
- 3 21 to 39 times
- 4 40 or more times

22. When you went boating or swimming during the past 12 months, how often did you drink alcohol?

- 0 I did not go boating or swimming during the past 12 months
- 0 Never drank alcohol
- 3 Rarely drank alcohol
- 4 Sometimes drank alcohol
- 5 Most of the time drank alcohol
- 6 Always drank alcohol

23. During the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?

- 0 0 times
- 1 1 time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 or more times

24. During the past 30 days, how many times did you drive a car or other vehicle when you had been drinking alcohol?

- 0 0 times
- 1 1 time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 or more times

25. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club? Do not count carrying a weapon as part of your job.

- 0 0 days
- 1 1 day
- 2 2 or 3 days
- 3 4 or 5 days
- 4 6 or more days

26. During the past 30 days, on how many days did you carry a gun? Do not count carrying a gun as part of your job.

- 0 0 days
- 1 1 day
- 2 2 or 3 days
- 3 4 or 5 days
- 4 6 or more days

27. During the past 12 months, how many times were you in a physical fight?

- 0 0 times - SKIP TO QUESTION 30
- 1 1 time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 or 7 times
- 5 8 or 9 times
- 6 10 or 11 times
- 7 12 or more times

28. During the past 12 months, with whom did you fight? (Select all that apply.)

- 0/1  A total stranger
- 0/1  A friend or someone I know
- 0/1  A boyfriend, girlfriend, or date
- 0/1  My spouse or domestic partner
- 0/1  A parent, brother, sister, or other family member
- 0/1  Other

29. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

- 0 0 times
- 1 1 time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 or more times

Sometimes people feel so depressed and hopeless about the future that they may consider attempting suicide, that is, taking some action to end their own life. The next four questions ask about suicide.

30. During the past 12 months, did you ever seriously consider attempting suicide?

- 1 Yes
- 0 No

31. During the past 12 months, did you make a plan about how you would attempt suicide?

- 1 Yes
- 0 No

32. During the past 12 months, how many times did you actually attempt suicide?

- 0 0 times
- 1 1 time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 or more times

33. If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

- 0 I did not attempt suicide during the past 12 months
- 2 Yes
- 1 No

The next eight questions ask about tobacco use.

34. Have you ever tried cigarette smoking, even one or two puffs?

- 1 Yes
- 0 No - SKIP TO QUESTION 41

35. How old were you when you smoked a whole cigarette for the first time?

- 1 I have never smoked a whole cigarette
- 2 12 years old or younger
- 3 13 or 14 years old
- 4 15 or 16 years old
- 5 17 or 18 years old
- 6 19 or 20 years old
- 7 21 to 24 years old
- 8 25 years old or older

DESCRIPT

36. During the past 30 days, on how many days did you smoke cigarettes?

- 0 0 days
- 1 1 or 2 days
- 2 3 to 5 days
- 3 6 to 9 days
- 4 10 to 19 days
- 5 20 to 29 days
- 6 All 30 days

37. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

- 0 I did not smoke cigarettes during the past 30 days
- 1 Less than 1 cigarette per day
- 2 1 cigarette per day
- 3 2 to 5 cigarettes per day
- 4 6 to 10 cigarettes per day
- 5 11 to 20 cigarettes per day
- 6 More than 20 cigarettes per day

38. Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?

- a Yes
- b No

39. How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?

- 0 I have never smoked cigarettes regularly
- 1 12 years old or younger
- 2 13 or 14 years old
- 3 15 or 16 years old *DESCRIPT*
- 4 17 or 18 years old
- 5 19 or 20 years old
- 6 21 to 24 years old
- 7 25 years old or older

40. Have you ever tried to quit smoking cigarettes?

- a Yes *DESCRIPT*
- b No

41. During the past 30 days, on how many days did you use chewing tobacco or snuff, such as Redman, Levi Garren, Beechnut, Skoal, Skoal Bandits, or Copenhagen?

- 0 0 days
- 1 1 or 2 days
- 2 3 to 5 days
- 3 6 to 9 days
- 4 10 to 19 days
- 5 20 to 29 days
- 6 All 30 days

The next three questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

42. How old were you when you had your first drink of alcohol other than a few sips?

- 0 I have never had a drink of alcohol other than a few sips - SKIP TO QUESTION 45
- 1 12 years old or younger
- 2 13 or 14 years old *DESCRIPT*
- 3 15 or 16 years old
- 4 17 or 18 years old
- 5 19 or 20 years old
- 6 21 to 24 years old
- 7 25 years old or older

43. During the past 30 days, on how many days did you have at least one drink of alcohol?

- 0 0 days
- 1 1 or 2 days
- 2 3 to 5 days
- 3 6 to 9 days
- 4 10 to 19 days
- 5 20 to 29 days
- 6 All 30 days



44. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

- 0 0 days
- 1 1 day
- 2 2 days
- 3 3 to 5 days
- 4 6 to 9 days
- 5 10 to 19 days
- 6 20 or more days

The next three questions ask about marijuana use.

45. During your life, how many times have you used marijuana?

- 0 0 times - SKIP TO QUESTION 48
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

46. How old were you when you tried marijuana for the first time?

- 0 12 years old or younger
- 1 13 or 14 years old
- 2 15 or 16 years old
- 3 17 or 18 years old
- 4 19 or 20 years old
- 5 21 to 24 years old
- 6 25 years old or older

DESCRIPT

47. During the past 30 days, how many times did you use marijuana?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 or more times

The next 10 questions ask about cocaine and other drug use.

48. During your life, how many times have you used any form of cocaine including powder, crack, or freebase?

- 0 0 times - SKIP TO QUESTION 52
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

49. How old were you when you tried any form of cocaine, including powder, crack, or freebase, for the first time?

- 0 12 years old or younger
- 1 13 or 14 years old
- 2 15 or 16 years old
- 3 17 or 18 years old
- 4 19 or 20 years old
- 5 21 to 24 years old
- 6 25 years old or older

DESCRIPT

50. During the past 30 days, how many times did you use any form of cocaine, including powder, crack, or freebase?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 or more times

DESCRIPT

51. During your life, how many times have you used the crack or freebase forms of cocaine?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

52. During your life, how many times have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

53. During your life, how many times have you taken steroid pills or shots without a doctor's prescription?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

54. During your life, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 to 99 times
- 6 100 or more times

55. During the past 30 days, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin?

- 0 0 times
- 1 1 or 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 or more times

56. During the past 30 days, how many times have you used any illegal drug in combination with drinking alcohol?

- 0 0 times
- 1 1 to 2 times
- 2 3 to 9 times
- 3 10 to 19 times
- 4 20 to 39 times
- 5 40 or more times

57. During your life, how many times have you used a needle to inject any illegal drug into your body?

- 0 0 times
- 1 1 time
- 2 2 or more times

The next 15 questions ask about sexual behavior. For the purpose of this survey, sexual intercourse is defined as vaginal intercourse, anal intercourse, or oral/genital sex.

58. How old were you when you had sexual intercourse for the first time?

- 0 I have never had sexual intercourse -  
**SKIP TO QUESTION 69**
- 1 12 years old or younger
- 2 13 or 14 years old
- 3 15 or 16 years old
- 4 17 or 18 years old
- 5 19 or 20 years old
- 6 21 to 24 years old
- 7 25 years old or older

DESCRIPT

59. During your life, with how many females have you had sexual intercourse?

- 0 I have never had sexual intercourse with a female
- 1 1 female
- 2 2 females
- 3 3 females
- 4 4 females
- 5 5 females
- 6 6 or more females

60. During the past 3 months, with how many females have you had sexual intercourse?
- 0 I have never had sexual intercourse with a female
  - 1 I have had sexual intercourse with a female, but not during the past 3 months
  - 2 1 female
  - 3 2 females
  - 4 3 females
  - 5 4 females
  - 6 5 females
  - 7 6 or more females
61. During your life, with how many males have you had sexual intercourse?
- 0 I have never had sexual intercourse with a male
  - 1 1 male
  - 2 2 males
  - 3 3 males
  - 4 4 males
  - 5 5 males
  - 6 6 or more males
62. During the past 3 months, with how many males have you had sexual intercourse?
- 0 I have never had sexual intercourse with a male
  - 1 I have had sexual intercourse with a male, but not during the past 3 months
  - 2 1 male
  - 3 2 males
  - 4 3 males
  - 5 4 males
  - 6 5 males
  - 7 6 or more males
63. During the past 30 days, how many times did you have sexual intercourse?
- 0 0 times
  - 1 1 time
  - 2 2 or 3 times
  - 3 4 to 9 times
  - 4 10 to 19 times
  - 5 20 or more times
64. During the past 30 days, how often did you or your partner use a condom?
- 0 I have not had sexual intercourse during the past 30 days
  - 1 Never used a condom
  - 2 Rarely used a condom
  - 3 Sometimes used a condom
  - 4 Most of the time used a condom
  - 5 Always used a condom
65. The last time you had sexual intercourse, did you or your partner use a condom?
- 0 Yes
  - 1 No
66. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
- 0 Yes
  - 1 No
67. The last time you had sexual intercourse, what method did you or your partner use to prevent pregnancy? (Select all that apply.)
- 0 No method was used to prevent pregnancy
  - 1 Birth control pills
  - 2 Condoms
  - 3 Withdrawal
  - 4 Some other method
  - 5 Not sure
68. How many times have you been pregnant or gotten someone pregnant?
- 0 0 times
  - 1 1 time
  - 2 2 or more times
  - 3 Not sure

69. During your life, have you ever been forced to have sexual intercourse against your will?

- Yes
- No - SKIP TO QUESTION 72

70. How old were you the first time you were forced to have sexual intercourse against your will?

- 4 years old or younger
- 5 to 12 years old
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years old or older

DESCRIPT

71. How old were you the last time you were forced to have sexual intercourse against your will?

- 4 years old or younger
- 5 to 12 years old
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years old or older

DESCRIPT

72. Have you ever had your blood tested for the AIDS virus/HIV infection?

- Yes
- No
- Not sure

DESCRIPT

The next eight questions ask about body weight.

73. How do you describe your weight?

- Very underweight
- Slightly underweight
- About the right weight
- Slightly overweight
- Very overweight

DESCRIPT

74. Which of the following are you trying to do about your weight?

- Lose weight
- Gain weight
- Stay the same weight
- I am not trying to do anything about my weight

DESCRIPT

75. During the past 30 days, did you diet to lose weight or to keep from gaining weight?

- Yes
- No

DESCRIPT

76. During the past 30 days, did you exercise to lose weight or to keep from gaining weight?

- Yes
- No

DESCRIPT

77. During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?

- Yes
- No

78. During the past 30 days, did you take diet pills to lose weight or to keep from gaining weight?

- Yes
- No

79. What is your height?

**HEIGHT**

FT.	IN.
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

80. What is your weight?

**WEIGHT**

POUNDS		
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

The next seven questions ask about food you ate yesterday. Think about all meals and snacks you ate yesterday from the time you got up until you went to bed. Be sure to include food you ate at home, on campus, at restaurants, or anywhere else.

81. Yesterday, how many times did you eat fruit?

- 3  0 times
- 2  1 time
- 1  2 times
- 0  3 or more times

82. Yesterday, how many times did you drink fruit juice?

- 3  0 times
- 2  1 time
- 1  2 times
- 0  3 or more times

83. Yesterday, how many times did you eat green salad?

- 3  0 times
- 2  1 time
- 1  2 times
- 0  3 or more times

84. Yesterday, how many times did you eat cooked vegetables?

- 3  0 times
- 2  1 time
- 1  2 times
- 0  3 or more times

85. Yesterday, how many times did you eat hamburger, hot dogs, or sausage?

- 0  0 times
- 1  1 time
- 2  2 times
- 3  3 or more times

86. Yesterday, how many times did you eat french fries or potato chips?

- 0  0 times
- 1  1 time
- 2  2 times
- 3  3 or more times

87. Yesterday, how many times did you eat cookies, doughnuts, pie, or cake?

- 0  0 times
- 1  1 time
- 2  2 times
- 3  3 or more times

The next six questions ask about physical activity.

88. On how many of the past 7 days did you exercise or participate in sports activities for at least 20 minutes that made you sweat and breathe hard, such as basketball, jogging, swimming laps, tennis, fast bicycling, or similar aerobic activities?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

DESCRIPT

89. On how many of the past 7 days did you do stretching exercises, such as toe touching, knee bending; or leg stretching?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

DESCRIPT

90. On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

DESCRIPT

91. On how many of the past 7 days did you walk or bicycle for at least 30 minutes at a time? (Include walking or bicycling to or from class or work.)

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

DESCRIPT

92. During this school year, have you been enrolled in a physical education class?

- Yes
- No

DESCRIPT

93. During this school year, on how many college sports teams (intramural or extramural) did you participate?

- 0 teams
- 1 team
- 2 teams
- 3 or more teams

DESCRIPT

The next three questions ask about AIDS education and health information.

94. Have you ever been taught about AIDS or HIV infection in your college classes?

- Yes
- No
- Not sure

DESCRIPT

THANK YOU!

NAME \_\_\_\_\_

CHOOSE ONE ANSWER FOR EACH LETTER THAT BEST DESCRIBES YOU FOR THE LAST STATEMENT. Write the number in the box of the statement you have chosen.

95. During this school year, where on your college campus did you receive information about avoiding AIDS or HIV infection? (Select all that apply.)

- College classes
- Residence hall or other campus housing
- Student clubs or organizations
- Student health center
- Health fair
- Pamphlets, brochures, or newsletters
- College newspapers
- Informal discussion with friends
- Other
- I was not provided with any information

DESCRIPT

96. On which of the following health topics have you ever received information from your college or university? (Select all that apply.)

- Tobacco use prevention
- Alcohol and other drug use prevention
- Violence prevention
- Injury prevention and safety
- Suicide prevention
- Pregnancy prevention
- Sexually transmitted disease (STD) prevention
- AIDS or HIV infection prevention
- Dietary behaviors and nutrition
- Physical activity and fitness

DESCRIPT

THANK YOU!

BECK INVENTORY

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

CHOOSE ONE STATEMENT UNDER EACH LETTER THAT BEST DESCRIBES YOU FOR THE LAST SEVEN DAYS. Circle the number to the left of the statement you have chosen.

- A. 0 I do not feel sad.  
 1 I feel sad.  
 2 I am sad all the time and I can't snap out of it.  
 3 I am so sad or unhappy that I can't stand it.
- B. 0 I am not particularly discouraged about the future.  
 1 I feel discouraged about the future.  
 2 I feel I have nothing to look forward to.  
 3 I feel that the future is hopeless and that things cannot improve.
- C. 0 I do not feel like a failure  
 1 I feel I have failed more than the average person has.  
 2 As I look back on my life, all I can see is a lot of failures.  
 3 I feel I am a complete failure as a person.
- D. 0 I get as much satisfaction out of things as I used to.  
 1 I don't enjoy things the way I used to.  
 2 I don't get real satisfaction out of anything anymore.  
 3 I am dissatisfied or bored with everything.
- E. 0 I don't feel particularly guilty.  
 1 I feel guilty a good part of the time.  
 2 I feel quite guilty most of the time.  
 3 I feel guilty all of the time.
- F. 0 I don't feel I am being punished.  
 1 I feel I may be punished.  
 2 I expect to be punished.  
 3 I feel I am being punished.
- G. 0 I don't feel disappointed in myself.  
 1 I am disappointed in myself.  
 2 I am disgusted with myself.  
 3 I hate myself.



- H. 0 I don't feel I am any worse than anybody else.  
 1 I am critical of myself for my weaknesses or mistakes.  
 2 I blame myself all the time for my faults.  
 3 I blame myself for everything bad that happens.
- I. 0 I don't have any thoughts of killing myself.  
 1 I have thoughts of killing myself but I would not carry them out.  
 2 I would like to kill myself.  
 3 I would kill myself if I had the chance.
- J. 0 I don't cry any more than usual.  
 1 I cry more now than I used to.  
 2 I cry all the time now.  
 3 I used to be able to cry but now I can't cry even though I want to.
- K. 0 I am no more irritated now than I ever am.  
 1 I get annoyed or irritated more easily than I used to.  
 2 I feel irritated all the time now.  
 3 I don't get irritated at all by the things that used to irritate me.
- L. 0 I have not lost interest in other people.  
 1 I am less interested in other people than I used to be.  
 2 I have lost most of my interest in other people.  
 3 I have lost all of my interest in other people.
- M. 0 I make decisions about as well as I ever could.  
 1 I put off making decisions more than I used to.  
 2 I have greater difficulty in making decisions than before.  
 3 I can't make decisions at all anymore.
- N. 0 I don't feel I look any worse than I used to.  
 1 I am worried that I am looking old or unattractive.  
 2 I feel that there are permanent changes in my appearance that make me look unattractive.  
 3 I believe that I look ugly.
- O. 0 I can work about as well as before.  
 1 It takes an extra effort to get started at doing something.  
 2 I have to push myself very hard to do anything.  
 3 I can't do any work at all.

- P. 0 I can sleep as well as usual.  
 1 I don't sleep as well as I used to.  
 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.  
 3 I wake up several hours earlier than I used to and cannot get back to sleep.

- Q. 0 I don't get more tired than usual.  
 1 I get tired more easily than I used to.  
 2 I get tired from doing almost anything.  
 3 I am too tired to do anything.

- R. 0 My appetite is no worse than usual.  
 1 My appetite is not as good as it used to be.  
 2 My appetite is much worse now  
 3 I have no appetite at all anymore.

- S. 0 I have not lost much, if any, weight lately.  
 1 I have lost more than 5 pounds.  
 2 I have lost more than 10 pounds.  
 3 I have lost more than 15 pounds.

- T. 0 I am no more worried about my health than usual.  
 1 I am worried about physical problems such as aches and pains, upset stomach, or constipation.  
 2 I am very worried about physical problems and it is hard to think of much else.  
 3 I am so worried about my physical problems that I cannot think about anything else.

- U. 0 I have not noticed any recent change in my interest in sex.  
 1 I am less interested in sex than I used to be.  
 2 I am much less interested in sex now.  
 3 I have lost interest in sex completely.

Variable	Mean (SD)	Max Poss. Score	Min	Max
Abuse	16.36(7.80)	65.00	.00	36.00
Alcohol	12.35(5.14)	39.00	4.00	23.00
Beck Depression Inventory	53.24(8.88)	68.00	33.00	68.00
Control	36.44(4.71)	51.00	24.00	46.00
Drug Use	4.42(3.40)	20.00	1.00	16.00
Equality with	2.11(1.05)	3.00	.00	3.00
Food	16.36(7.80)	65.00	.00	41.00
General Health	53.24(8.88)	68.00	33.00	68.00
Health	2.11(1.05)	3.00	.00	3.00
Education	16.36(7.80)	65.00	.00	41.00
Health	16.36(7.80)	65.00	68.00	79.00
Mental Health	16.36(7.80)	65.00	.00	41.00
Safety	16.36(7.80)	65.00	.00	41.00
Sexual Behavior	12.35(5.14)	39.00	4.00	23.00
Social Support	53.24(8.88)	68.00	33.00	68.00
Suicide	.09(.36)	6.00	.00	2.00
Tobacco Use	4.42(3.40)	20.00	1.00	16.00
Total Risk	55.49(17.3)	223.00	25.00	112.00
Weight	211.14(40.1)	n/a	130.00	320.00

## APPENDIX C

Table 7: Means and Standard Deviations of Group 2 (female/team)

Table 6: Means and Standard Deviations of Group 1 (male/team)

Variable	Mean (SD)	Max Poss. Score	Min	Max
Age	19.74(1.09)	25.00	18.00	25.00
Alcohol Use	4.11(3.52)	12.00	.00	12.00
Beck	6.65(7.36)	63.00	.00	36.00
Challenge	33.70(5.38)	51.00	17.00	44.00
Commitment	31.36(4.54)	48.00	20.00	40.00
Control	36.44(4.71)	51.00	24.00	46.00
Drug Use	6.26(3.15)	47.00	.00	28.00
Eating Disorder	.02(.14)	2.00	.00	1.00
Equality with others	2.11(1.03)	3.00	.00	3.00
Food	10.67(3.08)	21.00	2.00	17.00
GPA	2.73(.61)	4.00	1.00	4.00
Health Education	4.62(4.03)	10.00	.00	20.00
Height	72.67(2.9)	n/a	66.00	79.00
Marijuana	1.21(2.46)	11.00	.00	12.00
Safety	16.36(7.80)	65.00	.00	41.00
Sexual Behavior	12.35(5.14)	39.00	4.00	23.00
Social Support	53.24(8.88)	68.00	33.00	68.00
Suicide	.09(.36)	6.00	.00	2.00
Tobacco Use	4.42(3.40)	20.00	1.00	16.00
Total Risk	55.49(17.3)	223.00	25.00	112.00
Weight	211.14(40.1)	n/a	130.00	320.00

Table 7: Means and Standard Deviations of Group 2(female/team)

Variable	Mean (SD)	Max Poss. Score	Min	Max
Age	19.90(1.37)	25.00	18.00	23.00
Alcohol Use	4.79(2.85)	12.00	.00	11.00
Beck	7.82(7.00)	63.00	.00	31.00
Challenge	29.98(6.46)	51.00	17.00	44.00
Commitment	28.94(5.77)	48.00	15.00	38.00
Control	33.00(6.47)	51.00	17.00	43.00
Drug Use	6.21(.72)	47.00	6.00	10.00
Eating Disorder	.09(.18)	2.00	.00	1.00
Equality with others	2.28(.74)	3.00	1.00	3.00
Food	11.03(2.66)	21.00	4.00	18.00
GPA	3.03(.55)	4.00	2.01	4.00
Health Education	5.52(3.02)	10.00	.00	10.00
Height	69.28(2.98)	n/a	64.00	76.00
Marijuana	.71(1.57)	11.00	.00	7.00
Safety	12.53(6.47)	65.00	1.00	30.00
Sexual Behavior	9.24(5.04)	39.00	4.00	20.00
Social Support	58.33(7.48)	68.00	38.00	68.00
Suicide	.03(.18)	6.00	.00	1.00
Tobacco Use	3.55(2.5)	20.00	2.00	14.00
Total Risk	48.19(14.6)	223.00	18.00	93.00
Weight	148.14(27.3)	n/a	102.00	280.00

Table 8: Means and Standard Deviations of Group 3(male/individual)

Variable	Mean (SD)	Max Poss. Score	Min	Max
Age	19.57(1.37)	25.00	18.00	23.00
Alcohol Use	5.46(3.51)	12.00	.00	11.00
Beck	3.80(3.27)	63.00	.00	12.00
Challenge	29.12(6.82)	51.00	16.00	43.00
Commitment	29.08(5.45)	48.00	15.00	37.00
Control	33.48(6.54)	51.00	20.00	43.00
Drug Use	6.02(.75)	47.00	2.00	8.00
Eating Disorder	.11(.38)	2.00	.00	2.00
Equality with others	2.40(.78)	3.00	.00	3.00
Food	10.89(2.54)	21.00	4.00	17.00
GPA	3.09(.52)	4.00	2.00	4.00
Health Education	4.54(3.36)	10.00	.00	10.00
Height	69.28(2.56)	n/a	64.00	76.00
Marijuana	.93(1.60)	11.00	.00	6.00
Safety	15.39(7.81)	65.00	4.00	35.00
Sexual Behavior	11.02(4.57)	39.00	4.00	19.00
Social Support	57.07(6.28)	68.00	44.00	65.00
Suicide	.02(.15)	6.00	.00	1.00
Tobacco Use	5.28(4.16)	20.00	1.00	17.00
Total Risk	54.30(14.6)	223.00	22.00	86.00
Weight	162.35(21.8)	n/a	118.00	220.00

Table 10: Correlations by Sample Category

Table 9: Means and Standard Deviations of Group4(female/individual)

Variable	Mean (SD)	Max Poss. Score	Min	Max
Age	19.50(1.50)	25.00	17.00	24.00
Alcohol Use	5.09(3.06)	12.00	.00	11.00
Beck	8.12(8.57)	63.00	.00	33.00
Challenge	32.44(5.90)	51.00	21.00	44.00
Commitment	31.19(5.06)	48.00	17.00	39.00
Control	35.60(5.10)	51.00	23.00	43.00
Drug Use	6.14(1.27)	47.00	.00	11.00
Eating Disorder	.05(.21)	2.00	.00	1.00
Equality with others	2.26(.91)	3.00	.00	3.00
Food	10.05(2.74)	21.00	3.00	16.00
GPA	3.20(.60)	4.00	2.00	4.00
Health Education	5.68(3.26)	10.00	.00	10.00
Height	65.02(2.67)	n/a	59.00	71.00
Marijuana	.84(1.75)	11.00	.00	6.00
Safety	12.59(7.06)	65.00	1.00	30.00
Sexual Behavior	9.82(5.15)	39.00	4.00	19.00
Social Support	57.93(7.14)	68.00	41.00	68.00
Suicide	.20(.67)	6.00	.00	3.00
Tobacco Use	3.95(2.67)	20.00	1.00	11.00
Total Risk	48.73(14.6)	223.00	21.00	86.00
Weight	130.33(21.4)	n/a	98.00	215.00

**Table 10: Correlations by Sample Category**

Significant correlations for the male athletes were as follows:

Alcohol and :	Beck - $r = -.34, p = .000$ marijuana- $r = .44, p = .000$ safety - $r = .44, p = .000$ sex- $r = .41, p = .000$ tobacco- $r = .57, p = .000$
Drug Use and :	marijuana - $r = .32, p = .000$ sex - $r = .19, p = .011$ tobacco- $r = .17, p = .019$
Marijuana and:	safety - $r = .31, p = .000$ sex - $r = .29, p = .000$ tobacco- $r = .27, p = .001$ commitment- $r = -.18, p = .02$
Safety and :	Beck- $r = .28, p = .000$ GPA- $r = -.16, p = .04$ sex- $r = .18, p = .01$ Soc.Supp.- $r = -.18, p = .02$ tobacco- $r = .33, p = .000$ suicide- $r = .14, p = .05$ challenge- $r = -.17, p = .03$ commitment- $r = -.15, p = .04$ control- $r = -.19, p = .01$ hardiness - $r = -.17, p = .03$
Sex.behavior and:	GPA- $r = -.23, p = .009$ tobacco- $r = .31, p = .000$
Soc.Supp. and :	Beck- $r = -.34, p = .000$ challenge- $r = .37, p = .000$ commitment- $r = .4, p = .000$ control- $r = .52, p = .000$ hardiness - $r = .49, p = .000$

Beck and : suicide-  $r=.25, p=.001$   
challenge-  $r= -.31, p=.000$   
commitment-  $r= -.25, p=.000$   
control-  $r= -.40, p=.000$   
hardiness-  $r= -.35, p=.000$

Significant correlations for the female athletes are as follows:

Alcohol and : challenge-  $r=.19, p=.04$   
commitment-  $r=.22, p=.02$   
drug use-  $r=.39, p=.000$   
marijuana-  $r=.51, p=.000$   
safety-  $r=.46, p=.000$   
sex-  $r=.33, p=.000$   
tobacco-  $r=.50, p=.000$   
hardiness-  $r=.19, p=.04$

Drug Use and : challenge-  $r=.17, p=.05$   
commitment-  $r=.18, p=.04$   
control-  $r=.18, p=.04$   
safety-  $r=.29, p=.002$   
sex -  $r=.21, p=.02$   
tobacco-  $r=.33, p=.000$   
hardiness-  $r=.22, p=.02$   
marijuana-  $r=.45, p=.000$

Marijuana and : commitment-  $r=.30, p=.001$   
safety-  $r=.41, p=.000$   
sex-  $r=.33, p=.000$   
tobacco-  $r=.60, p=.000$

Safety and: GPA-  $r= -.21, p=.02$   
Sex and: sex-  $r=.29, p=.001$   
tobacco-  $r=.30, p=.001$

Sex and: challenge-  $r=.19, p=.03$   
GPA-  $r= -.42, p=.02$   
tobacco-  $r=.43, p=.001$



Tobacco and: commitment-  $r=.24$ ,  $p=.01$   
GPA-  $r=-.28$ ,  $p=.003$   
hardiness-  $r=.19$ ,  $p=.04$

Soc.Supp. and : Beck-  $r=-.37$ ,  $p=.000$   
commitment-  $r=-.22$ ,  $p=.02$   
hardiness-  $r=-.19$ ,  $p=.05$

Beck and: suicide-  $r=.39$ ,  $p=.000$

The significant correlations for the team sports are as follows:

Alcohol and: drug use-  $r=.13$ ,  $p=.05$   
safety-  $r=.46$ ,  $p=.000$

Drug Use and : sex-  $r=.37$ ,  $p=.000$   
tobacco-  $r=.53$ ,  $p=.000$   
marijuana-  $r=.44$ ,  $p=.000$

Drug Use and: challenge-  $r=.14$ ,  $p=.04$   
marijuana-  $r=.34$ ,  $p=.000$

Marijuana and : sex-  $r=.18$ ,  $p=.01$   
tobacco-  $r=.20$ ,  $p=.005$

Marijuana and : safety-  $r=.40$ ,  $p=.000$   
sex-  $r=.34$ ,  $p=.000$   
soc.supp.-  $r=-.16$ ,  $p=.03$   
tobacco-  $r=.38$ ,  $p=.000$

Safety and: Beck-  $r=.18$ ,  $p=.014$   
GPA-  $r=-.21$ ,  $p=.010$   
soc.supp.-  $r=-.25$ ,  $p=.001$

Sex and: challenge-  $r=.15$ ,  $p=.035$   
Soc.Supp. and : commitment-  $r=.17$ ,  $p=.021$   
control-  $r=.15$ ,  $p=.04$   
GPA-  $r=-.29$ ,  $p=.001$

Beck and : tobacco-  $r=.38$ ,  $p=.000$

Tobacco and: GPA-  $r=-.17$ ,  $p=.03$

Soc.Supp. and : Beck-  $r=-.30$ ,  $p=.000$   
 Alcohol and: challenge-  $r=-.25$ ,  $p=.002$   
 commitment-  $r=-.23$ ,  $p=.004$   
 control-  $r=-.19$ ,  $p=.013$   
 hardiness-  $r=-.23$ ,  $p=.005$

The significant correlations for the individual sports are as follows:

Alcohol and: drug use-  $r=.35$ ,  $p=.000$   
 marijuana-  $r=.51$ ,  $p=.000$   
 safety-  $r=.38$ ,  $p=.000$   
 sex-  $r=.39$ ,  $p=.000$   
 Marijuana and tobacco-  $r=.53$ ,  $p=.000$

Drug Use and : challenge-  $r=.25$ ,  $p=.014$   
 commitment-  $r=.19$ ,  $p=.05$   
 hardiness-  $r=.25$ ,  $p=.016$   
 Safety and marijuana-  $r=.34$ ,  $p=.001$   
 tobacco-  $r=.24$ ,  $p=.012$

Marijuana and : commitment-  $r=.25$ ,  $p=.101$   
 safety-  $r=.25$ ,  $p=.009$   
 sex-  $r=.24$ ,  $p=.011$   
 Sex and tobacco-  $r=.42$ ,  $p=.000$

Safety and and : tobacco-  $r=.28$ ,  $p=.004$   
 sex-  $r=.19$ ,  $p=.03$

Significant correlations for group 2 (female/team) are as follows:

Sex and and : GPA-  $r=-.38$ ,  $p=.000$   
 marijuana-  $r=.51$ ,  $p=.000$   
 Tobacco and : commitment-  $r=-.18$ ,  $p=.05$   
 GPA-  $r=-.23$ ,  $p=.017$   
 tobacco-  $r=.52$ ,  $p=.000$   
 Soc.Supp. and : Beck-  $r=-.27$ ,  $p=.005$   
 Drug Use and : control-  $r=.19$ ,  $p=.05$   
 GPA-  $r=.27$ ,  $p=.008$   
 Beck and : GPA-  $r=-.29$ ,  $p=.004$

**Significant correlations of Group 1 (male/team)**

**Alcohol and:** marijuana -  $r=.44, p=.000$

safety -  $r=.50, p=.000$

sex -  $r=.46, p=.000$

**Safety and** tobacco -  $r=.57, p=.000$

sex -  $r=.30, p=.012$

**Drug Use and :** marijuana-  $r=.34, p=.000$

**Sex and** sex -  $r=.21, p=.018$

tobacco -  $r=.21, p=.020$

challenge -  $r=.19, p=.034$

GPA-  $r=.43, p=.000$

**Marijuana and :** safety -  $r=.38, p=.000$

**Tobacco and** sex -  $r=.29, p=.002$

tobacco-  $r=.27, p=.004$

**Soc. Supp. and** soc. supp. -  $r=-.21, p=.024$

challenge-  $r=-.25, p=.033$

**Safety and :** Beck -  $r=.34, p=.000$

GPA -  $r=-.16, p=.04$

sex -  $r=.22, p=.02$

Soc. Supp.-  $r=-.22, p=.02$

The significant correlations (individual) are as follows:

**Alcohol and** drug use-  $r=.26, p=.030$

**Sex and :** tobacco -  $r=.31, p=.001$

safety -  $r=.36, p=.007$

**Soc. Supp. and :** Beck -  $r=-.34, p=.000$

tobacco-  $r=.57, p=.000$

**Significant correlations for group 2 (female/team) are as follows:**

**Alcohol and :** drug use-  $r=.33, p=.006$

marijuana -  $r=.51, p=.000$

safety -  $r=.51, p=.000$

**Safety and :** sex-  $r=.31, p=.008$

tobacco-  $r=.52, p=.000$

**Drug Use and :** marijuana-  $r=.46, p=.000$

safety -  $r=.25, p=.031$

tobacco-  $r=.31, p=.010$

**Tobacco and** GPA-  $r=-.27, p=.036$

Beck-  $r=.26, p=.040$

Marijuana and: safety -  $r=.40, p=.001$   
sex-  $r=.44, p=.000$   
tobacco-  $r=.74, p=.000$

Soc. Supp. and : control-  $r=.30, p=.023$

Safety and : tobacco-  $r=.34, p=.005$   
sex-  $r=.30, p=.012$

Beck and : hardiness-  $r=.28, p=.046$

Sex and : tobacco-  $r=.48, p=.000$

The significant correlations for group 3 (male/individual) are as follows:

Alcohol and : challenge-  $r=.28, p=.021$

GPA-  $r=-.43, p=.000$

safety -  $r=.41, p=.003$

Tobacco and : GPA-  $r=-.34, p=.006$

tobacco-  $r=.48, p=.001$

Soc. Supp. and : Beck-  $r=-.33, p=.006$

Marijuana and : challenge-  $r=-.25, p=.033$

commitment-  $r=-.37, p=.003$

GPA-  $r=-.26, p=.025$

hardiness-  $r=-.25, p=.043$

The significant correlations for group 3 (male/individual) are as follows:

Alcohol and : drug use-  $r=.28, p=.030$

marijuana -  $r=.52, p=.000$

safety -  $r=.36, p=.007$

sex-  $r=.52, p=.000$

Drug Use and : tobacco-  $r=.57, p=.000$

tobacco-  $r=.37, p=.007$

Marijuana and : sex-  $r=.30, p=.020$

tobacco-  $r=.33, p=.013$

Sex and : tobacco-  $r=.32, p=.017$

Safety and : tobacco-  $r=.26, p=.043$

Soc. Supp. and : Beck-  $r=.40, p=.005$

Sex and: tobacco-  $r=.45, p=.001$

GPA-  $r=-.34, p=.011$

Beck and : commitment-  $r=-.27, p=.04$

Tobacco and : GPA-  $r=-.27, p=.036$

Beck-  $r=.26, p=.040$

commitment-  $r=-.45$ ,  $p=.002$

hardiness-  $r=-.29$ ,  $p=.044$

Soc.Supp. and : control-  $r=.30$ ,  $p=.023$

hardiness-  $r=.33$ ,  $p=.026$

Beck and : hardiness-  $r=-.28$ ,  $p=.046$

The significant correlations for group 4 (female/individual) are as follows:

Alcohol and : drug use-  $r=.45$ ,  $p=.001$

marijuana -  $r=.52$ ,  $p=.000$

safety -  $r=.41$ ,  $p=.003$

sex-  $r=.27$ ,  $p=.040$

tobacco-  $r=.48$ ,  $p=.001$

Marijuana and : commitment-  $r=.49$ ,  $p=.000$

drug use-  $r=.43$ ,  $p=.002$

tobacco-  $r=.61$ ,  $p=.000$

safety-  $r=.46$ ,  $p=.001$

Safety and : drug use -  $r=.32$ ,  $p=.017$

GPA-  $r=-.31$ ,  $p=.026$

sex-  $r=.29$ ,  $p=.027$

tobacco-  $r=.26$ ,  $p=.042$

Drug Use and : challenge-  $r=.29$ ,  $p=.035$

tobacco-  $r=.37$ ,  $p=.007$

hardiness-  $r=.32$ ,  $p=.030$

Sex and : tobacco-  $r=.32$ ,  $p=.017$

GPA-  $r=-.42$ ,  $p=.004$

Soc.Supp. and : Beck-  $r=-.40$ ,  $p=.005$

GPA-  $r=.41$ ,  $p=.005$

Beck and : commitment-  $r=-.27$ ,  $p=.04$

## APPENDIX D

### SUBSCALE CONSTRUCTION FORMULAS

Subscale risk scores were calculated using the following formulas. Appendix B contains a copy of the National College Health Risk Behavior Survey which has been coded to indicate response scores. The numbers in the column to the left of responses indicates the value which was given to each question response.

SAFETY = (NCHRBS)

15+ 16+ 17+ 18+ 19+ 20+ 21+ 22+ 23+ 24+ 25+ 26+ 27+ 29

SUICIDE = (NCHRBS)

30+ 31+ 32

TOBACCO USE= (NCHRBS)

34+ 36+ 37+ 38+ 41

ALCOHOL USE= (NCHRBS)

43+ 44

MARIJUANA USE= (NCHRBS)

45+ 47

DRUG USE = (NCHRBS)

48+ 50+ 51+ 52+ 53+ 54+ 55+ 56+ 57

SEXUAL BEHAVIOR = (NCHRBS)

59+ 60+ 61+ 62+ 63+ 65+ 66+ 67A+ 67B+ 67C+ 67D+ 69

EATING DISORDER = (NCHRBS)

77+ 78

FOOD =(NCHRBS)

81+ 82+ 83+ 84+ 85+ 86+ 87

HED = (NCHRBS)

96 A+ B+ C+ D+ E+ F+ G+ H+ I+ J

BECK = (BDI)

1+ 2+ 3+ 4+ 5+ 6+ 7+ 8+ 9+ 10+ 11+ 12+ 13+ 14+ 15+ 16+ 17+ 18+ 19+ 20+ 21

SOCIAL SUPPORT = (QSSS)

1+ 2+ 3+ 4+ 5+ 6+ 7+ 8+ 9+ 10+ 11+ 12+ 13+ 14+ 15+ 16+ 17

EQUALITY = (QSSS)

3+ 6+ 9

RISK = (NCHRBS)

SAFETY+ SUICIDE+ TOBACCO USE+ ALCOHOL USE+ MARIJUANA USE+ DRUG USE+ SEXUAL BEHAVIOR+ EATING DISORDER+ FOOD

Ms. Carol Ludwigson  
Health and Sport Sciences

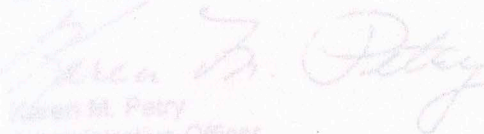
Dear Ms. Ludwigson:

Your research proposal, "The Relationship Between Health Behavior, Hardiness, Social Support and Depression among NCAA Division I Student Athletes," has been reviewed by Dr. E. Laurette Taylor, Chair of the Institutional Review Board, and found to be exempt from the requirements for full board review and approval under the regulations of the University of Oklahoma-Norman Campus Policies and Procedures for the Protection of Human Subjects in Research Activities. We ask that you provide the telephone number at the Counseling and Testing Center mentioned in the last sentence of the fifth paragraph of your informed Consent Form.

Should you wish to deviate from the described protocol, you must notify me and obtain prior approval from the Board for the changes. If the research is to extend beyond 12 months, you must contact this office, in writing, noting any changes or revisions in the protocol and/or informed consent form, and request an extension of this ruling.

If you have any questions, please contact me.

Sincerely yours,



Karen M. Petry  
Administrative Officer  
Institutional Review Board

KMP:so  
35-162

cc: Dr. E. Laurette Taylor, Chair, IRB  
Dr. Craig Hafford, Health and Sport Sciences

APPENDIX E  
IRB Approval Form



*The University of Oklahoma*

OFFICE OF RESEARCH ADMINISTRATION

June 28, 1996

Ms. Carol Ludvigson  
Health and Sport Sciences

Dear Ms. Ludvigson:

Your research proposal, "The Relationship Between Health Behavior, Hardiness, Social Support and Depression among NCAA Division I Student Athletes," has been reviewed by Dr. E. Laurette Taylor, Chair of the Institutional Review Board, and found to be exempt from the requirements for full board review and approval under the regulations of the University of Oklahoma-Norman Campus Policies and Procedures for the Protection of Human Subjects in Research Activities. We ask that you provide the telephone number at the Counseling and Testing Center mentioned in the last sentence of the fifth paragraph of your Informed Consent Form.

Should you wish to deviate from the described protocol, you must notify me and obtain prior approval from the Board for the changes. If the research is to extend beyond 12 months, you must contact this office, in writing, noting any changes or revisions in the protocol and/or informed consent form, and request an extension of this ruling.

If you have any questions, please contact me.

Sincerely yours,

A handwritten signature in cursive script that reads "Karen M. Petry".

Karen M. Petry  
Administrative Officer  
Institutional Review Board

KMP:so  
96-162

cc: Dr. E. Laurette Taylor, Chair, IRB  
Dr. Craig Hofford, Health and Sport Sciences



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