RISK-TAKING BEHAVIORS AMONG DIVISION II MALE INTERCOLLEGIATE ATHLETES AND ATHLETIC TEAMS

by

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ABSTRACT

This study focuses on Division II male intercollegiate student athletes. Student athletes are under the constant scrutiny of many critics both on and off the field or arena of athletic competition. Student athletes' hectic athletic schedules and academic coursework leave them with little down time. This study assesses student athletes and their participation and engagement in high-risk behaviors pertaining to alcohol use, drug use, and sexual behavior. It also explores the presence of optimism bias within these athletes. Student athletes take the same courses and course load as non-athlete students and still have to manage their time to include practice, games, and road trips. Student athletes are expected to participate in many of the same academic activities as non-athlete students, while fulfilling their commitment to their respective athletic program. Through examination and comparison of these athletes and their behaviors, this study reveals how much and to what degree today's Division II male collegiate athletic teams are engaging in various risk-taking behaviors.

This study examines and focuses on the risk-taking behaviors of Division II male intercollegiate student athletes in a specific conference. In order to gain insight into the specific risk-taking behaviors of student athletes among multiple perspectives additional demographic information collection and analysis occurred. Data collection aimed to answer why student athletes take these risks, identify factors that influence decision-making, and focus on which groups engage in the most risk-taking behaviors. Variables focused on team versus individual sport affiliation, the amount of time affiliated with the athletic program, team leadership roles,

ages of student athletes, academic class, and scholarship level. This study attempted to find a relationship between participation in intercollegiate athletics and risk-taking behaviors, as well as, identifying specific risk-taking behaviors and factors that are statistically significant.

DEDICATION

This dissertation is dedicated to everyone who helped me fulfill my goals and those who have guided me throughout my personal and professional life. In particular, my loving wife, Cailin, my beautiful daughter, Anna, my ever-supportive parents, Frank and Ginger, and Ellie, as well as all the family and close friends who supported me along the way and guided me throughout my time writing this piece of academic research.

LIST OF ABBREVIATIONS, SYMBOLS, AND DEFINITIONS

df	Degrees of freedom
n	Number
M	Mean
SD	Standard Deviation
p	Probability
t	Computed value of *t* test
<	Less than
=	Equal to
>	Greater than
≥	Greater than or equal to
≤	Less than or equal to
β	Beta
Exp(β)	Odds ratio
S.E.	Standard Error
Wald	Wald test value
Optimism bias	Cognitive bias that enables individuals to feel invulnerable to negative consequences.

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CHAPTER I

INTRODUCTION

Intercollegiate student athletes face various challenges and obstacles in their daily lives and are under persistent scrutiny from critics both on and off the field or arena of athletic competition. Intercollegiate student athletes' hectic athletic schedules and academic coursework leave them with little down time. Student athletes gain support through their respective institutions of higher education and athletic programs regulated by the National Collegiate Athletic Association (NCAA).

The NCAA is comprised of 1,121 institutions and over 450,000 college student athletes (NCAA, 2016). The NCAA oversees athletic competition taking place at institutions of higher education across the country, and strives to provide student athletes with opportunities to learn and develop both as a student and as an athlete during their time attending institutions of higher education. Student athletes grow through academic achievements, personal exploration, athletic competition, and service to the community (NCAA, 2014). The NCAA strives to ensure fairness, equity, and consistency in providing student athletes safe environments to excel both in the classroom and while competing in athletics. Programs and policies help student athletes achieve academically while attending institutions of higher education. Athletes must adhere to and comply with rules and regulations for both their respective institution and the NCAA.

This study assessed specific attributes of Division II male student athletes in relation to their athletic team and certain demographic information. In this study, male student athletes'

risk-taking behaviors were studied in relation to alcohol use, substance use, and sexual behavior and the presence of the theoretical framework of optimism bias is assessed. Division II male student athletes can be awarded athletic scholarships and have a high level of competition. Division I athletic programs have not readily participated in studies that have analyzed student athletes and risk-taking behaviors. Division III athletic programs do not award athletic scholarships, but do award merit scholarships, need-based scholarships, and grants to students. Division II athletic programs contain a mixture of highly talented athletes and strong athletic competition that is ideal to study.

Division II institutions comprise over 300 of the 1,121 colleges and universities participating in NCAA athletics. There are approximately 119,066 Division II athletes consisting of 69,448 men (58.3%) and 49,618 women (41.7%) (NCAA, 2016). This study examined the risk-taking behaviors of male Division II student athletes, and revealed how much and to what degree male Division II student athletes engaged in behaviors related to alcohol use, drug use, and sex. When studying student athletes, it is important to understand the differences placed on the multiple levels of athletic competition. Division I and II athletes are heavily recruited and receive scholarships based primarily on athletic performance. Division II athletes are also awarded academic scholarships and merit-based aid. Division I and II athletes are highly sought after and recruited, and their scholarships pay for part or all of the cost of attending college. Division I and II athletes are student athletes that exhibit exceptional athletic skills and talent. Some athletes may not have the requisite academic achievement levels to attend a prominent Division I institution, and instead have to attend a Division II institution for academic reasons.

Division II athletics, while not as publicized and popular as Division I athletics, have standout athletes and high levels of competition that are similar to Division I institutions

(NCAA, 2014). Division III athletes differ from Division I and Division II athletes because their scholarships focus on academic achievements and individual needs (NCAA, 2014). Table 1 includes information Kilgo (2012) gathered on the various levels of athletic competition and detailed the differences between Divisions and support that is available to student athletes.

Table 1

Major Differences between NCAA Divisions

NCAA Division	Differences among Divisions
Division I	• Must offer 2 teams for each gender • Each gender must have participants in fall, winter, & spring • Must conduct minimum number of contests against Division I opponents • Must offer minimum in financial aid but may not exceed maximum
Football Bowl Subdivision	• Bowl determines national champion in football • Overall program must sponsor 16 teams • Minimum attendance at football games • Football, men's & women's basketball, women's gymnastics, volleyball, & tennis are head count sports; all others grant-in-aid total sum divided into smaller portions
Football Championship Subdivision	• NCAA playoff determines national champion in football
Division I	• Do not sponsor football
Division II	• Intermediate level of competition with strong focus on athletics • Must offer 10 sports (5 for each gender or 4 men's & 6 women's) • Must offer 4 sports in each gender • Nearly 50% of student-athletes receive some athletically related student-aid • Institutions for competition are selected based on geographical region
Division III	• Student athletes represent 20% of student body at these institutions • Must offer 5 sports for men & 5 for women • No athletically related student-aid

Note: Table information included from Kilgo (2012) dissertation (pg. 84).

Researchers have shown a connection between an individual's affiliation with an intercollegiate athletic program and the amount of risky behaviors in which they participate (Dworkin, 2005; Ford, 2007; Hildebrand, Johnson, & Bogle, 2001; Kaly, Heesacker, & Frost, 2002; Nattiv, Puffer, & Green, 1997; Nelson & Wechsler, 2001; Tricker, Cook, & McGuire, 1989; Wechsler, Davenport, Dowdall, & Grossman, 1997; Yusko, Buckman, White, & Pandina, 2008). The more an individual identifies with an athletic team, the more risk-taking behavior he tends to exhibit. Furthermore, the more involved a student athlete is with an athletic team, the more risk he or she is likely to seek (Leichliter, Meilman, Presley, & Cashin, 1998). Individuals placed into leadership roles within a team show increased risk-taking tendencies (Leichliter et al., 1998). These team leaders are role models to members of their respective athletic teams and may have a negative influence on their teammates. Findings demonstrated that team captains frequently engaged in significant risks as well. Individuals engaged in athletics are involved in more risk-taking behaviors than students who do not participate in intercollegiate athletics (Ford, 2007; Hildebrand et al., 2001; Leichliter et al., 1998; Noble, Madson, Mohn, & Mandracchia, 2013; Weaver et al., 2013; Wechsler et al., 1997; Wilson, Pritchard, & Schaffer, 2004).

This study identified and explored specific contributing factors pertaining to risk-taking behaviors among student athletes. When student athletes take risks, they place themselves, their athletic careers, and personal well-being in danger. They are sacrificing their education, athletics, and academics when they engage in risk-taking behaviors involving drugs, alcohol, and sex. These risks can cost student athletes their future if they are caught using and abusing drugs and alcohol. Excessive risk-taking can lead to student athletes being suspended from athletic teams and even place their academic futures in jeopardy.

In other cases, student athletes are placing their physical safety at risk by engaging in serious behaviors involving alcohol use, drug use, and sexual activity. It is imperative that evaluations of student athlete risk-taking behavior take place in order to identify if and why male student athletes are taking risks. In addition, the theoretical framework of optimism bias will determine if student athletes feel invincible and less susceptible to the negative consequences of risk-taking than their peers. The framework of optimism bias will highlight areas and variables that contribute to the presence of significant risk-taking behaviors among Division II intercollegiate male student athletes.

Further research regarding risk-taking behaviors and specific populations may help practitioners gain insight into how to target specific groups of students. These targeted efforts can better relate to students collegiate experiences. Examining a specific group of intercollegiate student athletes will provide a glimpse of what occurs within a sub-population on a college campus. There are currently no studies that focus exclusively on Division II male student athletes and their risk-taking behaviors associated with the studied variables. Therefore, this study focuses on the variables of team sport student athletes versus individual sport student athletes, age, leadership roles, time affiliated with the team, scholarship, and academic standing. Intercollegiate student athletes' experiences regarding specific risk-taking behaviors will be examined and evaluated by assessing their alcohol use, drug use, and sexual behavior.

Statement of Problem

Risk-taking behaviors such as alcohol use, drug use, and sexual activity frequently play a major role in students' college experiences. These risk-taking behaviors are important issues that face today's college students. Oftentimes, individuals feel the need to conform to peer pressure or to what they see as the *typical* college experience. Limited studies have drawn a connection

between college athletics and certain risky behaviors such as alcohol consumption, illegal drug use, and other behaviors that pose potential health risks. Empirical data suggest college student athletes have a higher likelihood of engaging in risk-taking behaviors and engaging in these behaviors more frequently than non-athlete students (Dworkin, 2005; Kaly et al., 2002; Nattiv et al., 1997; Nelson & Wechsler, 2001; Tricker et al., 1989; Wechsler et al., 1997; Yusko et al., 2008). Over the course of their collegiate experience, student athletes are exposed to many risk-taking behaviors, including behaviors that contribute to college student deaths each year.

Increasing knowledge of student risk-taking will aid in finding new ways to help students understand the impact of their decisions. Risk-taking behaviors can have a negative effect on college students when associated with alcohol use, drug use, and sex. In addition to athletic responsibilities that include practice, games, tutoring, and road trips, student athletes take the same courses and course loads as other non-athlete students. Balancing athletic and academic responsibilities are added factors that challenge athletes' daily activities and time management. Student athletes participate in many of the same academic activities as their peers while also fulfilling their commitments to their respective athletic program. These constraints do not allow student athletes to have the same amount of social interactions as other students. Most social interactions among athletes tend to occur within individual teams or with other student athletes. These interactions are so concentrated that in some instances student athletes become a sub-group within the demographics of the greater student body (Kissinger & Miller, 2009). Consequently, researchers suggest that college student athletes have different social experiences than their peers and engage in risk-taking behaviors more often than their non-athlete peers (Kissinger & Watson, 2009; Nattiv et al., 1997).

Significant costs are associated with student athletes taking these risks. Student athletes jeopardize their athletic careers, financial scholarships, and athletic eligibility when they take risks. Student athletes must maintain a certain level of academic achievement and standing in order to remain eligible to participate in athletics. Many student athletes attend Division II institutions on athletic scholarships or other need- and merit-based scholarships that help them afford the cost of attendance. Risk-taking behaviors are serious, and college athletes must understand how much they have to lose by engaging in such behaviors.

In many cases, student athletes have more to lose than other college students by engaging in risk-taking behaviors. If they were to take part in certain risk-taking behaviors such as alcohol or drug use, they could render themselves ineligible if they were to get into trouble with the police or found guilty of any code of conduct violations (NCAA, 2014). If student athletes were to fall out of good standing with an institution, they could risk losing their scholarships, becoming ineligible to compete athletically, and/or face suspension (NCAA, 2014).

Student athletes take risks for a variety of reasons, and there are costs associated with taking certain types of risk. When analyzing the risk-taking behaviors of today's college student athletes, many athletes identify their sport as an important reason to abstain or limit risk-taking behaviors (Nelson & Wechsler, 2001). In a 2001 NCAA research project, many athletes reported poor or inadequate performance in an intercollegiate athletic event because of the use of alcohol or drugs (NCAA, 2001). In this study, over half of the student athletes reported consuming alcoholic beverages following an athletic competition, and a small number of athletes reported consuming alcoholic beverages prior to an athletic competition (NCAA, 2001).

Weaver et al. (2013) found that the factors of competitiveness, winning orientation, and goal orientation, were highly correlated to alcohol use. Extremely competitive athletes were

inclined to drink larger quantities of alcohol at one time (Serrao, Martens, Martin, & Rocha, 2008). There was also a significant cost associated with the risk-taking behaviors of student athlete team leaders. As team leaders, other student athletes frequently look up to them. If these team leaders engage in certain risk-taking behaviors, they may have a negative influence on some of their teammates. After exploring the nature of risk-taking in general and athletic risk-taking behaviors, it is evident that there are significant costs associated with risk-taking behaviors and college athletics. Alcohol use, binge drinking, and negative consequences of substance use can negatively influence overall athletic performance. These risk-taking behaviors significantly affect how well student athletes perform on and off the athletic playing field. Leichliter et al. (1998) concluded that student athletes consumed larger quantities of alcoholic beverages more often than non-athlete students. In addition, student athletes engaged in binge drinking behaviors more often than non-athlete students.

Leichliter et al. (1998) also noted that student athletes experienced more negative consequences related to their alcohol use. Intercollegiate athletics are a conventional aspect of college life, and participation in athletics can have positive influences on an individual's life. However, because student athletes are taking on multiple roles as students and athletes, this makes them more susceptible to risky behaviors (Wechsler et al., 1997).

Purpose of the Study

This research strived to analyze risk-taking behaviors of Division II male student athletes, given the current research and prevalence of these behaviors among college students. Additional research can examine the risk-taking behaviors of intercollegiate student athletes who make up specific sub-groups of the total higher education student population. Division II athletics offer an alternative between the highly competitive world of Division I athletics and the non-athletic

scholarship world of Division III. Division II athletic programs offer insight into the world of competitive athletics and may be easier to assess than high profile Division I athletic programs.

Historically, Division II schools recruit students and student athletes primarily from local areas. Division II student athletes are awarded athletic scholarships, grants, and work-study programs to help pay for the cost of attendance (NCAA, 2015). Division II programs often reap the benefits of student athletes transferring from Division I programs. Transfer students are not required to sit out a season of competition when moving from one division to another, unlike transferring within a division where there is a requirement to sit out an academic year of competition (NCAA, 2015). Division II athletic programs have members across the country including members in Hawaii and Alaska. Since Division II has so many high quality athletes yet is not in the spotlight of elite Division I athletic programs, it was a prime target for this study. Division II athletic programs offer strong competition and have athletes that risk a significant amount each time they engage in these risk-taking behaviors.

Division II male student athletes were surveyed and assessed concerning individual alcohol and drug use, sexual behaviors, and optimism bias in order to better understand their actions. Through this study, specific risk-taking behaviors Division II male intercollegiate student athletes engaged in most frequently were identified. In addition, variable factors were assessed to determine areas of statistically significance. The study analyzed the risk-taking behaviors among team, age, academic class, duration of athletic involvement, leadership status, and scholarship level. Identifying trends in risk-taking behaviors is beneficial for future research and may explain why student athletes engage in certain behaviors over others. Currently, no empirical data exist exclusively regarding this sub-group (Division II male student athletes) in

reference to specific individual risk-taking behaviors and comparison among these demographic variables.

Research and analyses conducted inform the general population about the risk-taking behaviors of Division II male intercollegiate student athletes, and determine how to best serve this population of students. In addition, specially designed instruments were used to assess the levels of risk-taking behaviors present in student athletes. This research will help to evaluate which behaviors are most prevalent and the factors that most frequently influence student athlete decision making. This research contributes to an understanding of the extent to which athletics plays in student athletes' risk-taking decision making. Through this study, researchers will be able to identify areas of life in which Division II male student athletes take more risks.

Research findings are valuable for institutions of higher education, athletic departments, and other key administrators. They can help determine what risks student athletes are more susceptible to engage in, and identify factors and demographic characteristics that contribute to their behavioral tendencies. These findings help shape future studies of specific athletic programs and teams to better understand factors that influence risk-taking behaviors on an individual level.

The college environment frequently facilitates risk-taking behaviors due to an increased amount of freedom and decreased overall supervision (Dworkin, 2005). Even though there may be negative consequences associated with some student risk-taking behaviors, athletes have previously stated that they would not change their actions because of their educational influences (Dworkin, 2005). Researchers have demonstrated that college student athletes are exposed to risks more often than other students. Furthermore, student athletes engage in more risky behaviors such as drug use and alcohol consumption more often than non-athlete students

(Dworkin, 2005; Ford, 2007; Hildebrand et al., 2001; Kaly et al., 2002; Leichliter et al., 1998; Nattiv et al., 1997; Nelson & Wechsler, 2001; Noble et al., 2013; Tricker et al., 1989; Weaver et al., 2013; Wechsler et al., 1997; Wilson et al., 2004; Yusko et al., 2008). Intercollegiate athletics are an important part of college life, and participation in athletics can have positive influences on an individual's life such as promoting good health, advancing physical fitness, and aiding in personal development. However, research also suggests that because athletes are taking on roles as both students and athletes, they may become more susceptible to some forms of substance abuse (Wechsler et al., 1997). Today's college student athletes take on many responsibilities, and it can become difficult to balance the roles of being a college student and a college student athlete while still being able to manage a social life.

Significance of the Study

Alcohol use, drug use, and unsafe sex are all considered risky behaviors. Intercollegiate student athletes consume alcoholic beverages at a higher rate and frequency than their non-athlete collegiate peers (Dworkin, 2005; Kaly et al., 2002; Nattiv et al., 1997; Nelson & Wechsler, 2001; Tricker et al., 1989; Wechsler et al., 1997; Yusko et al., 2008). This behavior has significant negative consequences on the well-being of student athletes including dehydration, slower muscle recovery, and increased risk of injury (Weaver et al., 2013). In fact, the NCAA takes student-athlete wellness so seriously that it has developed a committee specifically to address issues related to student athlete well-being (French, 2004).

In general, the rates of alcohol abuse and use are higher among college students than individuals of the same age who do not attend an institution of higher education. Student athletes also perceived their peers as having consumed more alcohol than they actually did (Gfroerer, Greenblatt, & Wright, 1997; Grossbard et al., 2008; Hildebrand et al., 2001, Hingson, Heeren,

Zakocs, Kopstein, & Wechsler, 2002; Johnston, O'Malley, Bachman, & Schulenberg, 2004; Paschall & Flewelling, 2002).

Students' experiences and perceptions of social norms influence individual behaviors during college (Hildebrand et al., 2001). Student athletes also conform to social norms and have a false perception of peer drinking behaviors (Grossbard et al., 2008). These factors contribute to higher rates of student athlete alcohol related risk-taking behaviors. Olthuis, Zamboanga, Martens, and Ham (2011) also found that there is a strong connection between student athlete normative behaviors and the level of student athlete hazardous alcohol consumption.

Students' perceived norms and negative consequences of alcohol consumption had strong and significant correlations to athletic status (Andes, Poet, & McWilliams, 2012). Student athletes reported that it was normal for student athletes to drink as well an expectation that they engage in these behaviors. Competition level, competitive nature, athletic roles, perceptions, and opportunities to drink all contribute to student athletes taking more risks with alcohol than their non-athlete peers. In addition to the previous factors mentioned, Bovard (2008) stated that, many student athletes have a sense of invincibility. Many student athletes do not recognize that alcohol influences their abilities, influences their bodies, or negatively affects their performance athletically.

College student athlete drug use and abuse has received more attention in recent years. Tricker, Cook, and McGuire (1989) suggested that some athletes use drugs to enhance the level of competition in a sport, whereas, others may use drugs to cope with the effect of sport on their life. Ford (2008) observed that student athletes are less likely to indicate they use and/or abuse non-medical prescription drugs than non-athlete students. This proposes that if a student is involved in athletics there is less of a chance they will participate in some form of substance

abuse. Tricker and Connolly (1997) assessed factors that may influence an athlete's decision to use or abstain from drug use. Factors that dissuade individuals from using drugs included drug testing, peer pressure and influence, and fear of being detected or identified as a drug user (Tricker & Connolly, 1997).

Factors such as those mentioned above have a direct impact on a student athlete's decision about substance use or abstention. When compared to students who were not athletes, Wechsler et al. (1997) reported lower amounts of drug usage among college athletes than those not involved in athletics. The authors also found that college student athletes chewed tobacco and participated in binge drinking more frequently than their non-athlete peers; however, they were less likely to engage in marijuana and cigarette use. These findings indicate that risks such as marijuana use are lower in student athletes than non-athlete students. Furthermore, student athletes were aware of actions that could significantly impair their athletic performance and refrained from these activities (Wechsler et al., 1997).

Another area of risk-taking explored when dealing with college student athletes is their involvement in high-risk sexual behaviors such as unsafe sex, multiple sexual partners, and mixing sex with alcohol and drugs. Researchers have posited that student athletes are more likely to engage in risky sexual behavior such as engaging in unsafe sex more frequently than non-athlete students (Kaly et al., 2002). Kaly et al. (2002) noted that alcohol can affect an individual's risky sexual behaviors.

The authors examined possible connections between these behaviors. Other studies have assessed risky sexual behaviors associated with alcohol consumption and sex motives. Student athletes engage in more alcohol consumption, drinking before or during sexual activity, and have more sexual partners as compared to their non-athlete peers (Grossbard, Lee, Neighbors,

Hendershot, & Larimer, 2007). Student athletes also indicated they consumed alcohol for sexual enhancement purposes and had a lower level of intimacy related to their partners than non-athlete students. These findings suggest that student athletes are likely to engage in behaviors including sexual activity with multiple partners and high-risk sexual behaviors.

The research literature clearly establishes that student athletes exhibit more risk-taking tendencies than their non-athlete peers. Through the exploration of student athletes' ways of thinking, it can be determined how student athletes perceive and evaluate risk. If student athletes feel invincible and less susceptible to the negative outcomes of risk-taking behavior, they likely possess a high level of optimism bias. This framework can help identify the level of risk that student athletes feel they are likely to experience and the potential for negative outcomes based on behaviors (Shepperd, Carroll, Grace, & Terry, 2002). This framework can be present in both positive and negative outcome situations and can evaluate risk-taking tendencies.

This current study expanded the current body of knowledge by encompassing a large group of relevant and related studies analyzing student athletic risk-taking behaviors. A specific division of athletic competition provided an in-depth evaluation of the risk-taking motives present in specific intercollegiate student athletes. Future researchers could examine all divisions of athletic competition, and/or individual sports to see if risk-taking behaviors are consistent across the various divisions of competition (Divisions I, II, and III).

Research Questions

The purpose of the research study was to examine specific risk-taking behaviors of a sub-group of the total student athlete population. Division II male intercollegiate student athletes were surveyed and assessed concerning individual alcohol use, drug use, and sexual behaviors, and the presence of optimism bias in order to better understand their actions. The study utilized

intentional assessments designed to measure these specific areas of students' lives. When analyzing current research, there was a gap and limited empirical data regarding this sub-group of the total student athlete population concerning individual risk-taking behaviors. These risk-taking behaviors were also examined in relation to student athletes' sport type, age, leadership position, scholarship status, academic class, and time affiliated with the program.

The research in the study focused on Division II male intercollegiate athletes' risk-taking behavior in regards to alcohol use, drug use, sexual behavior, and optimism bias. Risk-taking behavior analyses determined which group of male student athletes exhibited more risk-taking behaviors. Athletic risk-taking factors included age, scholarship, duration of time affiliated with the team, academic class, age, and team. In order to determine team versus individual sports, Dr. Vincent of The University of Alabama, an expert in sport classification and sport management, was consulted (J. Vincent, personal communication, January 25, 2016). Of the 12 sports available to male athletes at the participating institutions, seven were considered team sports (basketball, baseball, football, lacrosse, soccer, water polo, and wheelchair basketball) and five were considered individual sports (golf, swimming/diving, tennis, wrestling, cross-country/track) (J. Vincent, personal communication, January 25, 2016). Multiple studies provided evidence and support for the research questions for this study. Research aimed to answer why student athletes took risks and identified factors that influenced student athlete decision-making. This study was guided by the following research questions:

1. What group of student athletes (individual sports vs. team sports) engage in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?
2. Does student athlete risk-taking behavior differ according to length of association with an athletic program?

3. Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?
4. Does student athlete risk-taking behavior differ according to age?
5. Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?

Limitations

Limitations for research include limiting the sample size solely to Division II population. Research can include athletic teams at several Division I, Division II, and Division III institutions, or specific conferences. This would allow future researchers to compare a larger group of student athletes. There is a limiting factor regarding who comprised the sample population. Athletic programs that were receptive to taking part in the study were limited. Participation from multiple athletic programs in the same conference was preferable to gain a cross section of a specific group of student athletes.

In this study, all participants were members of the same athletic conference. Since athletic conferences are usually geographically limited in nature and recruit heavily in the areas in which they are located, the population is most likely from the same geographic region in general. The conference selected to participate in the study had multiple athletic programs that agreed to participate. Programs and institutions participating in the study were confidential. Since the study was voluntary in nature, the participation rate was subject to the willingness of athletes at participating institutions to complete the survey. Participants were not required to participate and could opt out of the study at any point. This factor has a limiting effect on the total number of participants in the study.

Survey distribution to student athletes occurred in the fall semester. This could have led to higher completion rates because it was near the start of the academic year. It also could have an influence on the freshmen and 18 to 19-year-old responses since they were still relatively new to the college environment. Different results may be produced in the spring semester since new student athletes would have a longer adjustment time and may be exploring risk-taking behaviors later in the academic year. Expanding the study and comparing the differences between male and female athletes could also allow researchers to study gender differences between athletes in the future.

Once student athletes are educated about the risks they are engaged in, change may occur. It is essential to continue to expand upon the current research regarding athletics and risk-taking to help future researchers explain why college student athletes engage in these risky behaviors. This study assessed athletes' risk-taking behaviors when associated with alcohol, drugs, sex, and examined the presence of the optimism bias. Student athletes are a unique sub-population of the overall student body, and detailed studies should continue to identify factors related to specific sports.

Delimitations

This study was intentional in surveying a specific sub-population of the total student athlete group within the NCAA. Division II male intercollegiate student athletes participated because they are not as highly sought after as Division I athletes, but still receive some athletic-based scholarships as opposed to financial or merit scholarships like Division III student athletes. Division II student athletes were more likely to participate in the study and athletic departments in the programs may have been more receptive to the assessments and study.

Literature consisting of studies and data related to intercollegiate student athletes, athletics, college risk-taking behaviors, and athletic risks were included in this study. General risk-taking studies consisting of other groups outside collegiate or athletic settings were not included in the literature review. Literature pertaining to risk-taking behaviors were included if relevant connections could be made to the study. The study utilized a quantitative research design. Qualitative strategies would have produced a different set of data regarding individual experiences and perceptions of risk-taking behaviors.

Qualitative data collection could provide new detailed insights from interviews with student athletes that may further explain why student athletes take certain risks. While qualitative data may be helpful by going into detail about specific individual experiences, quantitative analysis was necessary in this particular study in order to accomplish a thorough examination of multiple Division II athletes and athletic programs and compare them to one another. Qualitative research may contribute in-depth perspectives of students' risk-taking behaviors and may uncover other underlying factors that contribute to students engaging in risk-taking behaviors associated with alcohol use, drug use, sexual behavior, and optimism bias.

The study was limited to male student athletes in an attempt to identify key characteristics specific to males. Females were not included in the study in an attempt to limit the amount of research and analysis regarding gender differences among intercollegiate student athletes. The study does not include other demographic characteristics that may explain variance in risk-taking behaviors. The models presented in the study explain a portion of the variance in the variables. If the variables explored account for only a portion of the variance, other characteristics must explain the differences between groups. Additional research could also assess the differences between athletic divisions, and male and female patterns of risk-taking

behaviors. This study attempted to examine factors related to the risk-taking behaviors of male Division II student athletes.

Conclusion

Chapter I discussed previous research related to the risk-taking behaviors of college students and intercollegiate student athletes and provided the reasoning necessary to validate further examination of the relationship between risk-taking behaviors and college student athletes. The chapter focused on the structure of the study and the research questions that assisted in the formation of the subsequent chapters and the completion of the research.

Chapter II discusses current research concerning the research topic and questions. Examples provided reinforce the research topic and exhibit student athletes' risk-taking tendencies. The studies included expand upon the concept that student athletes in general take more risks than non-athlete students. Chapter II will describe past research on all topics related to the study. This study will identify the areas in which male Division II intercollegiate student athletes exhibited higher risk-taking tendencies as related to athletic team involvement, age, affiliation, scholarship level, and leadership roles.

Chapter II explores the topics of college athlete risk-taking behaviors, and identifies specific factors that may influence the various athletic levels of competition. After synthesizing the research on general risk-taking behaviors and detailed findings on specific student athlete risk-taking studies it is evident that college student athletes take part in more risk-taking behaviors than the general student population (Dworkin, 2005; Ford, 2007; Hildebrand et al., 2001; Kaly et al., 2002; Nattiv et al., 1997; Nelson & Wechsler, 2001; Tricker et al., 1989; Wechsler et al., 1997; Yusko et al., 2008). Examples provided reinforce the research topic and exhibit college student athletes' risk-taking tendencies.

This study explores the current research of student athlete risk-taking behaviors. It is important for us to look into the research concerning specific risks, and this study isolated specific sports and analyzed them at the Division II level of athletic competition. Risks include athletic team (team sports vs. individual sports), age, affiliation, scholarship level, academic class, and leadership roles. Understanding the general background of the research regarding this topic will help frame the remainder of the research study and ultimately contribute to student affairs, athletics, as well as higher education in general.

Chapter III discusses the methodology of the research study. Methods of quantitative research used to collect data include an analysis of assessment instruments used to gather information and descriptions of the populations included in the study. Additionally, reliability and validity of the instruments is established and discussed, as well as, the appropriate measuring tests ensuring accurate representation of the data.

Chapter IV discusses the particular quantitative research data outcomes for the study. The study examined the relationship between male athletes' risk-taking behaviors and athletic level of competition (Division II) and their scores on the respective risk assessments. In the study, the dependent variables were individual risk-taking behavior scores analyzed across athletic participation and the identified variables.

Chapter V contains the conclusions from this research study along with recommendations for future research. This chapter summarizes key findings and discusses the importance of identifying factors that lead to or contribute to the risk-taking behaviors of specific groups of intercollegiate student athletes.

CHAPTER II

LITERATURE REVIEW

Researchers have shown an interest in college athletics and the potential health risks associated with the risk-taking behaviors of alcohol consumption, drug use, and sex. The NCAA is comprised of 1,121 institutions and includes nearly half a million college student athletes that are affiliated with the various athletic teams at their institutions (NCAA, 2016). College student athletes are exposed to risks more often than their peers. Researchers have stated that athletes in college take part in more riskier behaviors such as greater alcohol consumption and higher rates of substance use than non-athlete students (Dworkin, 2005; Ford, 2007; Hildebrand et al., 2001; Kaly et al., 2002; Leichliter et al.,1998, 2002; Nattiv et al., 1997; Nelson & Wechsler, 2001; Noble et al., 2013; Tricker et al., 1989; Weaver et al., 2013; Wechsler et al., 1997; Wilson et al., 2004; Yusko et al., 2008). Student athletes and non-athlete students both take part in risk-taking behaviors, but student athletes are more prone to engage in these behaviors.

This study focuses on male intercollegiate Division II athletes and compares their risk-taking behaviors among certain variables and factors. Collected data provides researchers insight into factors contributing to an individual's willingness to take risks. There are different ways in which the present college atmosphere has facilitated participation in many risk-taking behaviors. Today's young adults have unhealthy lifestyles, and many of these choices can lead to potentially increased amounts of risk (Dworkin, 2005). These decisions make college student athletes more susceptible to take risks than other college students. Dworkin (2005) suggested that it is today's culture that promotes many individuals to take part in risk-taking behaviors. The

atmosphere and environment that is present in today's colleges promote risk-taking behaviors among students. Drug use, alcohol use, and sexual behaviors are risks that are prevalent among students. While all students are prone to taking part in these activities, student athletes are more at risk to take engage in these types of behaviors.

Student athletes must budget time for practice, games, weight training, and workouts. In addition, they must have enough time to study for classes and have some free time for relaxation. Athletes are often given priority in institutional processes because of their involvement in athletics (Martens, Watson, Royland, & Beck, 2005). Most research does not consider college student athletes to be *average* college students. Student athletes are at an increased threat for specific risks such as binge drinking and injuries related to alcohol consumption. One motivating factor for student athletes to consume alcohol includes relieving stress directly related to athletic performance (Dziedzickiet al., 2013). Alcohol use, binge drinking, and negative consequences of substance use can negatively affect overall athletic performance. These risk-taking behaviors significantly influence how well student athletes perform on and off the athletic playing field.

Leichliter et al. (1998) found that intercollegiate athletes consume higher quantities of alcohol than non-athlete students. The author noted that both male and female student athletes were more likely to engage in frequent alcohol consumption (Leichliter et al., 1998). In addition, college athletes were more likely to take part in binge drinking behaviors. Due to their increased alcohol use, athletes were more likely to encounter negative consequences directly related to alcohol use and consumption (Leichliter et al., 1998).

Research shows that college student athletes engage in certain behaviors more than non-athlete students. Collegiate athletics are an important part of college life, and participation in athletics can have positive influences on an individual's life such as promoting good health,

promoting physical fitness, and aiding in personal development (Wechsler et al., 1997). However, research also suggests that because student athletes are taking on roles as both students and athletes they might become more susceptible to some forms of substance abuse (Wechsler et al., 1997). Today's college student athletes take on many responsibilities, and it can be difficult to balance both roles of being a college student and college student athlete while still being able to manage a social life.

Proper educational programs need to educate students about risk-taking behaviors. As stated by Tricker et al. (1989), more education for students will positively influence the effectiveness of drug abuse awareness programs and services. Currently, many institutions have one or two seminars a year that all student athletes are required to attend to maintain eligibility in their respective sports (Tricker et al., 1989). The NCAA mandates drug abuse and alcohol abuse education programs throughout the academic year for student athletes. Implementing programs that promote healthy lifestyle decisions could have a positive effect on athletic risk. Many of the studies on athletic risk-taking have primarily focused on the consumption of alcoholic beverages, prescription drugs, non-prescription drugs, or illegal drug usage.

Areas of risk found to be higher among student athletes included seatbelt and helmet use; unsafe sex; physical fights; driving with a person who is under the influence; and the use of alcohol, smokeless tobacco, and anabolic steroids (Nattiv et al., 1997). Another factor observed when assessing student athletes' likelihood to become involved in risky behavior was their involvement in fraternities, sororities, or other social organizations (Wechsler et al., 1997).

Since athletic teams are social organizations, some members may depend on others for success academically, socially, and athletically. Actual and perceived social norms vary when analyzing risk-taking rates and behaviors. These characteristics could figure into a scenario in

which peer pressure could act as a potential determining factor when gauging an individual's likelihood to engage in certain risky behaviors.

By examining and analyzing Division II male intercollegiate athletes' risk-taking trends, specific factors will be identified to determine which athletes are at higher risk to exhibit these tendencies. This literature review examines multiple bodies of literature regarding alcohol use, drug use, sexual behaviors, and the presence of optimism bias. A comprehensive evaluation of male Division II athletes can identify which risks are more prevalent among college student athletes.

Alcohol Use Risk-Taking

Intercollegiate student athletes consume alcohol at higher rates and frequencies than their non-athlete student peers (Ford, 2007; Hildebrand et al., 2001; Leichliter et al., 1998; Noble et al., 2013; Weaver et al., 2013; Wechsler et al., 1997; Wilson et al., 2004). Higher rates of alcohol use and abuse are exhibited and perceived among students who attend institutions of higher education as opposed to individuals who are not enrolled in college (Gfroerer et al., 1997; Hildebrand et al., 2001; Hingson et al., 2002; Johnston et al., 2004; Paschall & Flewelling, 2002). Student experiences related to social norms influence individual behaviors during college (Hildebrand et al., 2001). Student athletes also conform to social norms and overestimate peer drinking behaviors (Grossbard et al., 2008). Alcohol consumption has significant negative consequences on the well-being of student athletes including dehydration, slower muscle recovery, and an increase in overall risk of injury (Weaver et al., 2013). These factors are all strong contributors to the high rates of student athlete alcohol-related risk-taking behaviors. Student athletes exhibit a higher likelihood of partaking in risky alcohol consumption and their level of engaging in risk-taking behaviors can be attributed to these factors.

Intercollegiate student athletes consume more alcohol when drinking and consume alcohol more frequently than non-athlete students. Studies concerning specific drinking patterns of student athletes have confirmed that athletes engage in higher amounts of alcohol consumption than other students. Yusko et al. (2008) determined that a significant difference does not exist between the rate and frequency of athlete and non-athlete alcohol use during the week.

However, the authors determined that a significant difference was present between student athletes and non-athlete students' alcohol consumption on Saturdays. Yusko et al. (2008) identified Saturday as the day of the week that athletes consumed the most amount of alcohol. This conclusion suggests that student athletes may not seek out alcohol use regularly, but when they are able to consume alcohol, they drink large quantities of alcohol in short periods of time. Male intercollegiate student athletes are under the highest risk for heavy episodic drinking and heavy alcohol consumption. Athletic affiliation is also correlated to other risks such as drug usage and sexual behaviors (Locke & Mahalik, 2005; Yusko et al., 2008).

Frequency of Alcohol Consumption

Findings from various studies regarding the alcohol use of student athletes consistently indicate that student athletes consume alcohol more frequently than non-athlete students. Ford (2007) found that 70% of student athletes reported using alcohol in the past month. In addition, 52.4% of the student athletes surveyed reported engaging in binge drinking behaviors (binge drinking defined as consuming five or more drinks in one sitting) as compared to 42.6% of non-athlete students. Student athletes report overall binge drinking tendencies more often than non-athlete students (Ford, 2007). Nelson and Wechsler (2001) reported that student athletes have a tendency to consume alcohol in higher quantities and higher frequencies than other students.

This higher frequency of alcohol consumption increases student athletes' overall risk-taking behaviors significantly.

Researchers have attempted to find the reason why student athletes are at a heightened likelihood for taking part in binge drinking behaviors. According to Johnson et al. (2004), 66% of students surveyed indicated that they consumed alcohol in the past month, and 39% of these students reported binge-drinking behaviors. These numbers are higher than individuals not attending an institution of higher education. Of the students who did not attend college, 58% indicated that they consumed alcohol and 34% reported binge drinking (Johnston et al., 2004). These findings indicate college students are consuming larger quantities of alcohol and consuming alcohol more frequently.

Furthermore, Brenner and Swanik (2007) reported student athletes consume a greater quantity of alcohol and drink alcohol more frequently than non-athlete students. They also noted differences in athletic levels of competition and team affiliation. Weaver et al. (2013) observed that student athletes engage in higher rates of alcohol consumption, develop problems connected to their alcohol consumption, and encounter more negative consequences than non-athlete students. Overall, these intercollegiate athletes are more likely to participate in high-risk alcohol use and abuse and exhibit binge drinking tendencies and behaviors.

Binge Drinking Related to Social Alcohol Use and Consumption

Binge drinking behaviors increase as the level of athletic involvement increases (Brenner, J., Metz, & Brenner, C., 2009; Ford, 2007; Hildebrand et al., 2001; Leichliter et al., 1998; Wechsler et al., 1997). Brenner et al. (2009) concluded that both an individual's connectivity to campus and involvement can relate to student alcohol use. Student athletes that showed a higher sense of campus connection were more likely to exhibit binge drinking tendencies and consume

multiple drinks in one sitting (Brenner et al., 2009). The authors reported that student athletes had a lower level of overall campus involvement. This may suggest that through increased campus involvement and connection, student athletes' high-risk alcohol use may be reduced (Brenner et al., 2009). There is also a relationship present between individual sport achievement orientation and alcohol outcome, which is a determining factor indicating the more achievement individuals experience in their sport, the higher rate of alcohol consumption present among those student athletes.

Within the factors of competitiveness, winning orientation, and goal orientation, significant relationships relating to alcohol use appeared (Weaver et al., 2013). Competitiveness level relates to an increase in alcohol use among off-season male student athletes. Winning orientation is a contributing factor to increased alcohol use in off-season male student athletes as well. Goal orientation is a contributing factor to increased alcohol use by both male and female student athletes (Weaver et al., 2013). Higher amounts of alcohol consumption were associated with athletic competition levels (Serrao, Martens, Martin, & Rocha, 2008). Athletic competitiveness exhibited positive correlations with heavy episodic drinking. As previously stated, Serrao et al. (2008) suggested that highly competitive student athletes may be inclined to drink larger quantities of alcohol at one time.

Student athletes should be aware of the negative consequences of alcohol consumption, use, and abuse (O'Brien & Lyons, 2000). Injuries occurred in 54.8% of student athletes who reported consuming alcohol, while only 23.5% of student athletes who did not drink reported having injuries. Injuries, while not directly related to alcohol use, could have an association with negative physiological effects of alcohol on the human body (O'Brien & Lyons, 2000). In

addition, the hangover effect documented a reduction of 11.4% in athletic ability and athletic performance. This has a direct influence on a student's athletic performance.

Alcohol use is not only a problem for college athletes; alcohol is a banned substance in several Olympic sports (O'Brien & Lyons, 2000). Top athletic performers abstain or limit alcohol intake because of its effect on the human body. Alcohol has a correlation with risks associated with the use of drugs, sex, and other high-risk behaviors (Woolsey, Waigandt, & Beck, 2010). Alcohol is a gateway drug that eventually increases the risk-taking behaviors of individuals by increasing the likelihood that they will partake in other risk-taking behaviors like mixing alcohol and other activities such as drug use or risky sexual behaviors. Other situations that may present themselves include driving under the influence of alcohol, not using seatbelts when operating a motor vehicle, binge drinking, and other alcohol-related risky behaviors.

Troubling findings concerning longitudinal data related to binge drinking behaviors among the general college student population indicate a strong presence of alcohol risk-taking behaviors. Based on the findings from the College Alcohol Study, it was determined that the proportion of students who reported binge drinking behaviors and tendencies has remained relatively constant from 1993 to 2001 where 43.6% of student indicated binge drinking (Wechsler, Lee, Nelson, & Kuo, 2002). Underage students were also found to engage in binge drinking behaviors more often than legal age students. For males who took part in the study, 57.8% reported drinking five or more drinks when they consumed alcohol. This is higher than the 41.9% of legal age student who indicated they binge drink (Wechsler et al., 2002). This increase is troubling because students are drinking more alcohol in less time. These findings focus on the use and abuse of alcohol and identify the dangerous amounts of alcohol consumed by college students.

Nelson and Wechsler (2001) found that among male student athletes, 57% reported engaging in binge drinking behaviors over the course of the previous two weeks. In contrast, 48.8% of non-athlete students indicated that they had engaged in binge drinking in the previous two weeks. These findings were identified as being statistically significant at the $p < 0.001$ alpha level. Other areas of statistical significance identified by Nelson and Wechsler (2001) included male student athletes being less likely to abstain from alcohol consumption, indicating they are more inclined to report binge drinking when consuming alcohol and becoming intoxicated was a motivating factor for drinking. Findings suggest student athletes are consuming larger amounts of alcohol in shorter amounts of time. They further suggest that half of all college students who drink exhibit binge drinking behaviors. Since researchers have identified student athletes as being at an increased risk to binge drink, this places college student athletes at an elevated risk for engaging in high-risk alcohol consumption and binge drinking.

Leichliter et al. (1998) reported that alcohol usage is more prevalent in college student athletes than non-athlete students. There were also significant findings that suggested more student athletes are involved in binge drinking than other students. One finding noted that male team leaders or captains seemed to be at the highest risk for alcohol abuse and consumption when compared to their teammates. However, the study found females who are in role model positions showed little or no difference in alcohol consumption and usage when compared to their teammates.

Weaver et al. (2013) agreed that individual leadership roles influence drinking motives and increased alcohol use. In addition, factors of season status, athlete specific motives, and student athletic demographics are also significant factors to consider. Factors of college class and academic terms may also factor into the equation. Peer pressure and the need to conform also

factored into decision-making. Actual alcohol use differs from perceived use in various social settings in which student athletes participate.

Social Alcohol Use and Social Norms

College provides many opportunities for students to become social, develop relationships, and become engaged with other members of their campus community. Nelson and Wechsler (2001) suggested student athletes are more likely to have many close friends and spend more time socializing. Additionally, most of the people they considered friends are binge drinkers. Student athletes exhibit strong social connections to their athlete peers. These connections are associated with binge drinking tendencies among college student athletes. In addition, athletes have more opportunities to visit support services beyond the ones provided to the general student body (Nelson & Wechsler, 2001). Nelson and Wechsler (2001) also reported that student athletes are at a higher risk for behaviors such as: binge drinking, heavy alcohol use, and physical harm, even though they are offered alcohol prevention programs. Many student athletes interviewed stated that becoming intoxicated was a primary reason for them to drink alcohol.

Nelson and Wechsler (2001) identified other social factors that were key determinants of drinking motives. Athletes indicated being more social, having many close friends, placing value on parties and social gatherings, and spending longer amounts of time socializing. Additionally, student athletes are more likely to associate with other binge drinkers and individuals who consumed alcohol (Nelson & Wechsler, 2001). Student athletes are susceptible to peer pressure and peer influence. The structure of athletics and athletic teams fosters an environment where peer pressures can be prevalent and influence student athletes' decision-making abilities (Nelson & Wechsler, 2001).

Wechsler et al. (1997) concluded that 29% of male college student athletes had engaged in binge drinking behaviors multiple times in the recent past (three or more times). When comparing binge-drinking tendencies to non-athlete students, a significant difference appeared between student athletes (29%) and non-athlete students (18%). Nelson and Wechsler (2001) reported similar findings of 30.7% male student athletes engaging in binge drinking and 24% of students not participating in athletics engaging in binge drinking behaviors. Martin (1998) found that 56% of female student athletes had engaged in binge drinking when they were out of season and 35% of student athletes admitted to binge drinking during their athletic season of competition. Brenner and Swanik (2007) also reported that 81% of male student athletes surveyed reported that they consumed alcohol, of these male student athletes, 52% reported that they had engaged in binge drinking behaviors.

Andes et al. (2012) studied former high school student athletes who participated in formal and informal athletics in college. Former athletes joined club sports, intramural teams, Greek organizations, and other groups in an attempt to transition to life at college. These individuals were accustomed to being part of a particular group or team in high school. Former high school athletes sought the same form of cohesion in college (Andes et al., 2012). High school patterns such as drinking motives, drinking strategies, and attachment avoidance followed student athletes into college (Doumas, Turrisi, Coll, & Haralson, 2007). Students who were currently or had been involved in athletics consumed higher quantities of alcohol, consumed alcohol more frequently, and engaged in alcohol use and/or abuse earlier than non-athlete students (Hildebrand et al., 2001).

Students who have an athletic history are more likely to take part in high-risk alcohol use than students never affiliated with an athletic team (Hildebrand et al., 2001). Olthuis et al.,

(2011) found a strong connection between student athlete hazardous alcohol consumption and injunctive norms. Perceived norms and negative consequences of alcohol consumption have strong significant correlations to athletic status (Andes et al., 2012). Competition level, competitive nature, athletic roles, perceptions, and opportunities to drink all contribute to student athletes taking more risks associated with alcohol than their non-athlete peers.

In addition to the previous factors articulated, Bovard (2008) noted that many athletes feel a sense of invincibility and partake in increased amounts of risk-taking behaviors. Student athletes do not feel that alcohol will have an influence on them or that alcohol consumption will have a negative effect on their athletic performance. This sense of invincibility may cause student athletes to take additional risks associated with negative alcohol consumption, in conjunction with other risky behaviors, than non-athlete students.

Motivating Factors

Athletics was a prominent reason to abstain or limit drinking among athletes (Nelson & Wechsler, 2001). An NCAA research project revealed that many athletes self-reported poor or inadequate performance in an intercollegiate athletic event because of the use of alcohol or drugs. The NCAA found that over half of the student athletes surveyed stated they consumed alcohol after an athletic competition. However, a small number of student athletes reported consuming alcohol prior to an athletic competition (NCAA, 2001). Specific motivating factors related to student athletes included off-season status, individual athletic leadership roles, and specific motives directly associated with athletes. These factors contributed to an overall increase in athlete alcohol consumption (Weaver et al., 2013).

Individual athletic identity was a strong motivating factor that influences the level of student athlete alcohol use and consumption (Grossbard et al., 2008). Athletes also reported high

levels of athletic identity and encountered fewer negative consequences related to drinking and alcohol consumption (Grossbard et al., 2008). Athletic norms had a strong influence on levels of drinking among athletes who reported higher levels of athletic identity. This would indicate that the more involved individuals are with an athletic team or group, the more likely they are to engage in drinking behaviors; however, they are less likely to encounter negative consequences related to their choices to engage in alcohol consumption.

Noble et al. (2013) studied protective behavioral strategies which can be used by drinkers to monitor their drinking behaviors, resulting in lower negative alcohol-related consequences. Protective behavior strategies educate students about smart and controlled alcohol consumption (Noble et al., 2013).

Approximately 39% of students reported restricting calories when they anticipated drinking, and 67% restricted calories because of weight concerns. Other motivating factors among findings include a greater chance of getting drunk and a greater chance of male students engaging in physical altercations (Giles, Champion, Sutfin, McCoy, & Wagoner, 2009). Another correlating factor between student athletes and alcohol use is increased sensation seeking behaviors.

Grossbard et al. (2008) and Hildebrandet al. (2001) stated that student athletes have exaggerated perceptions of peer drinking behaviors. Yusko et al. (2008) identified student athletes as having a tendency for higher overall sensation seeking tendencies, especially when related to student athlete alcohol consumption. Student athletes were less likely to exhibit protective practices or behaviors while drinking. Student athletes were more likely to exhibit high rates of drinking motives that helped them cope. These factors were associated with higher

rates of heavy episodic drinking and frequently led to negative consequences of alcohol use and abuse (Yusko et al., 2008).

The researchers determined that brief intervention strategies might be best to implement in an attempt to influence risk-taking behaviors of student athletes. Strategies should focus on the topics of sensation seeking motivating behaviors and topics related to drinking. These factors help individuals cope with increased alcohol use and would benefit both student athletes and the rest of the campus community.

Alcohol Education Programming

Freshmen student athletes have higher alcohol risk-taking behaviors than their upperclass athlete peers (Doumas et al., 2007). Since student athletes are at the highest risk for alcohol use during their first year there is a special need for programs designed to educate students quickly after they begin classes. Doumas et al. (2007) also suggested that web-based feedback was found to be successful in educating freshmen athletes. Yusko et al. (2008) concluded that prevention and education programs designed around exploring new concepts allowed students to make beneficial informed decisions regarding their alcohol consumption. Intentional design of educational programs with the student athlete specifically in mind can occur (Yusko et al., 2008). Programs can take on multiple formats. As noted by Doumas, Haustveit, and Coll (2010), web-based programs showed a higher reduction in alcohol use than other groups receiving different interventions.

Doumas et al. (2007) indicated that alcohol consumption is higher in the spring semester. This is beneficial to institutional administrators as they have access to student athletes in a variety of educational settings. This time can prepare them for the various risk-taking behaviors they will encounter over the course of their collegiate experience. Educational programs can link

to other areas of the college experience to offer student athletes exclusive learning opportunities to grow and develop individual knowledge of the risk of alcohol use and abuse.

Wasesh, Milroy, Lewis, Orsini, and Wyrick (2013) identified a need for increased educational programs and trainings designed specifically for student athletes. Educational opportunities and training programs can aid in alcohol awareness among college student athletes. Martens, Kilmer, Beck, and Zamboanga (2010) suggested that personalized feedback designed specifically for student athletes may be beneficial. This personalized intervention approach actually lowered alcohol consumption, and was preferred over an education-only intervention program. Overall, there is a need for an increase in effective student athlete educational health programming and alcohol educational programming. These educational interventions and programs should be addressed on a broad spectrum of behaviors and encompass many risk-taking behaviors that affect student athletes (Bovard, 2008).

Studies evaluating current educational practices have identified effective trends and factors of successful interventions. Umbach, Palmer, Kuh, and Hannah (2006) discussed engagement levels of student athletes regarding various effective educational practices. Due to additional services that are available to student athletes, student athletes reported feeling supported and were able to succeed at higher rates. The NCAA conducts regular analysis of graduation and success rates of student athletes compared to their peers.

Among the 2009 freshman cohort, student athletes showed a 55% four year graduation rate as opposed to a 49% overall student body graduation rate (NCAA, 2016). The study also analyzed Division II male four-year graduation rates and found that the federal graduation rate was 48% in Division II male student athletes and 44% among the general student body (NCAA, 2016). Educational programs teaching the effects of alcohol on the body and proving the positive

relationship between alcohol abstinence and athletic performance can have a significant influence on drinking behaviors of intercollegiate student athletes (O'Brien & Lyons, 2000).

Factors Influencing Alcohol Usage

Student athletes are more likely to consume alcoholic beverages during off-season periods and may have specific motivating factors directly related to athletics (Weaver et al., 2013). Wasesh et al. (2013), however, reported that there was no difference between the drinking behaviors of intercollegiate student athletes from in-season to off-season. This finding is in contrast to other previously referenced studies.

Martin (1998) indicated that alcohol education had little effect on alcohol use among college student athletes. The author concluded that most athletes used alcohol to have a good time and to have fun. Alcohol consumption was higher during student athletes' off-season periods. Martin (1998) identified several common reasons why athletes chose not to drink alcohol, citing negative effects on the body, poor athletic performance, and coaches' attitudes. When student athletes provided specific reasons for partaking in alcohol consumption, the results were primarily social and group oriented in nature.

Pedrelli et al. (2010) made connections between alcohol consumption and drug use, indicating that when male student drinking increased, factors such as drug use, drug abuse, sexual activities, and gambling increased as well. Factors such as gambling had a higher frequency associated with alcoholic cross addiction (Weiss, 2010). Woolsey et al. (2010) studied the negative effects of alcohol, stimulants, and energy drinks on athletes. The authors noted that 78% of student athletes surveyed consumed alcohol, of those, 37% combined alcohol and energy drinks. Of the self-reported drinkers in the study, 92% participated in some form of binge drinking, and 61% were at higher risk because they consumed three or more energy drinks per

sitting. Woolsey et al. (2010) found that student athletes who combined alcohol and energy drinks exhibited higher risk-taking behaviors than student athletes who only consumed alcohol. Educational programs may consider adding sections relating to energy drink, caffeine, and stimulant consumption since this may become an increasing risk in the future.

Athletic trainers and college sports professionals should also be able to identify the signs of alcohol abuse (Dziedzicki et al., 2013). Athletic teams are similar to other social groups and organizations on campus. These groups are often more susceptible to binge drinking and peer pressures. Nelson and Wechsler (2001) found that student athletes' tendencies to drink to get drunk and binge drink were higher than non-athlete students. These individuals were also more likely to be drunk three or more times a week. Many student athletes identified involvement in athletics as a significant influencer not to drink. In conclusion, the study found that student athletes participated in binge drinking behaviors and exhibited binge-drinking tendencies at higher rates than non-athlete students (Nelson & Wechsler, 2001).

Alcohol in Combination with Other Drugs and Other Negative Consequences

These studies demonstrate that participation in college athletics does not provide immunity for the abuse of alcohol and risk-taking behaviors (Anderson, 2005). Today's college student athletes are susceptible to partake in high-risk behaviors. Individual sports have been highlighted in several of these studies. Martens et al. (2006) conducted a comprehensive study of multiple sports teams and compared student athletes to one another. The authors found that swimmers and divers were most likely to consume alcohol. However, when related to each other, there were no significant relationships reported between the groups (Martenset al., 2006).

Dziedzicki et al. (2013) found that student athletes were at an increased threat for binge drinking and injuries related to alcohol consumption. Motivating factors for student athletes to

consume alcohol included relieving stress directly related to athletic performance. The authors indicated that current educational programs do not have an influence on student athlete behaviors.

The effect that alcohol has on the body can be substantial; alcohol is a diuretic to the human body causing a series of events that can dramatically influence athletic performance in college athletes. Nelson and Wechsler (2001) did not find a relationship between exposure to educational interventions such as alcohol awareness classes and low levels of alcohol consumption in student athletes. The Lifestyle Assessment for Intercollegiate Athletics found student athletes are at a higher risk for exhibiting risk-taking behaviors than other college students. Nattiv et al. (1997) suggested that athletes are less likely to wear seat belts and helmets. They also found that athletes are more likely to drink higher quantities of alcohol in a single sitting and drink alcohol more often than other individuals.

Maddock, Laforge, Eossi, and O'Hare (2001) described both personal and social problems connected to alcohol use and alcohol-related problems. Figure 1 depicts that higher order structural model that Maddock et al. (2001) described in the College Alcohol Problems Scale−Revised (CAPS-r). By exploring both the areas of personal problems and social problems, the CAPS-r identifies areas related to alcohol consumption and abuse (Talbott, Umstattd, Usdan, Martin, & Geiger, 2009). Figure 1 illustrates the eight areas of focus for the study.

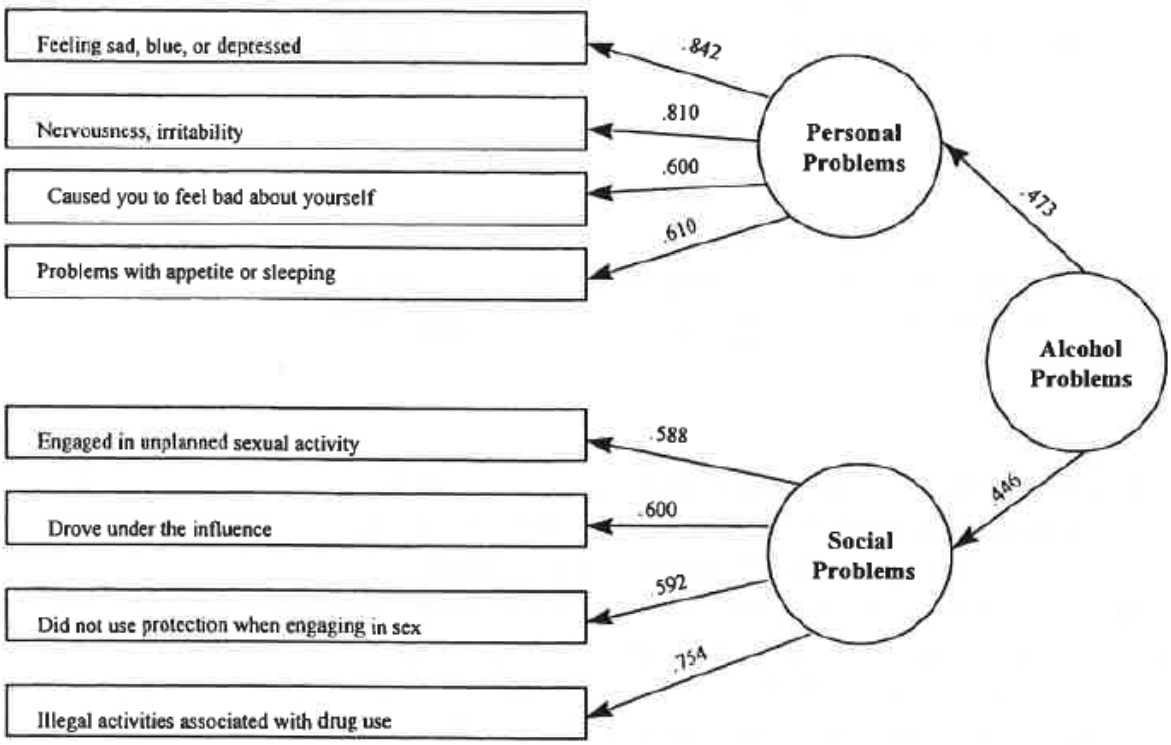

Figure 1. Higher order structural model of the CAPS-r found in Maddock, Laforge, Eossi, & O'Hare (2001). These data assist in identifying areas of both personal and social problems related to individuals' alcohol problems.

Hoover (1999) examined risky behaviors in which alcohol was involved among college athletic teams concerning initiation rites or hazing. About half of student athletes reported that alcohol was involved in their initiation onto the athletic team. Wilson, Pritchard, and Schaffer (2004) identified a difference between male and female alcohol consumption. They found that sociological influences were present among male athletes more than female athletes. These social influences motivated male student athletes to use alcohol at a higher frequency.

Competition Level

Brenner and Swanik (2007) studied various student athletes across all three divisions. Their research indicated that student athletes had a high rate of binge drinking tendencies. These behaviors were more prevalent in team sports than in individual sports. Alcohol usage was

higher among team sport student athletes placing them at a higher risk for negative consequences associated with alcohol risk-taking behaviors (Brenner & Swanik, 2007). Significant differences occurred among the various levels of competition indicating that there is a relationship present between individual drinking behaviors and level of competition (Brenner & Swanik, 2007).

Division I athletics (78%) had the highest percentage of student athletes that took part in alcohol related risk-taking behaviors. Division II student athletes reported 76% alcohol risk-taking behaviors, while Division III student athletes were slightly lower at 67.5%. Of these student athletes, 81% of male student athletes consumed alcohol; 52% indicated binge drinking when they consumed alcoholic beverages. This reaffirms the need for studies designed to analyze specific divisions of athletic competition and emphasizes the need for further exploration of male risk-taking behaviors.

Assessments

Scales and assessments exist to measure the alcohol consumption of college student athletes and college students. The Athlete Drinking Scale (ADS) helps evaluate individual athletes' alcohol use (Martens et al., 2005). Specific questions regarding athletes' attitudes toward alcohol consumption as well as assessing their level of consumption are effective in determining specific reasons for intercollegiate alcohol use (Martens et al., 2005). The ADS scale assesses student athlete drinking behaviors. This scale effectively represents the amount of alcohol consumption and alcohol-related risk-taking behaviors exhibited by student athletes. Reliability and validity were analyzed and it was determined that the ADS is effective in measuring alcohol consumption and reasons for consuming alcohol among college athletes (Martens et al., 2005).

Martens and Martin (2010) re-examined the ADS in a longitudinal study to reconfirm reliability and validity. Martens and Martin (2010) suggested college athletes possess a unique set of motives that are separate from non-athlete students. They further found that athletes' scores on the ADS increased during their season of athletic competition. Athletes' drinking motives were strongly dependent on their athletic teammates and team affiliation during in-season competition, whereas individual athletes' motives to engage in alcohol consumption were similar to non-athlete students during their off-season.

A variety of assessments are available that assess college student alcohol use and college athlete alcohol use. The National College Health Risk Behavioral Survey, the College Alcohol Study, the Core Institute, and the National Household Survey of Drug Abuse can assess the level of substance abuse that students exhibited. Survey results have been relatively consistent indicating that 70% of college students consumed alcohol in the past month, and 40% engaged in some level of binge drinking behavior (Ford, 2007). Longitudinal studies can determine if historical trends are present at the rate of alcohol consumption among college students.

Historically, Wechsler et al. (2002) analyzed findings from the College Alcohol Study reports and identified a downward trend in alcohol use among underage college students from 66.1% (underage) and 73.6% (legal age) in 1993 to 62.8% (underage) and 73.6% (legal age) in 2001. As previously stated, Wechsler et al. (1997) examined alcohol, tobacco, and drug use among intercollegiate athletes. Findings indicated that student athletes abstained from cigarette smoking and had a lower usage of illegal drugs than other students. The results also showed a higher percentage of athletes as binge drinkers than other college students.

Need for Additional Alcohol Use Research

Limited studies have focused on specific athletic teams in an attempt to identify factors influencing individual alcohol risk-taking behaviors. Ford (2007) noted that previous studies have not provided concrete reasons why intercollegiate student athletes take more alcohol-related risks than non-athlete students. According to Ford (2007), student athletes reported binge drinking more often because they viewed binge drinking as a normative behavior.

Overall, male hockey players reported substance abuse at higher levels than other male athletes (Ford, 2007). In addition, male basketball, cross country, and track athletes had lower overall levels of substance abuse. This study focused on a smaller number of athletes in each sport rather than larger number of athletes in specific sports (Ford, 2007).

Limited data have been collected and analyzed concerning specific divisions of competition and specific sports. Data collection regarding athletic programs would be beneficial to determine if trends remain consistent with the entire population of student athletes. In addition, studying a specific athletic division of competition that has had limited studies conducted upon them will help shed light into the world of Division II athletics.

In addition to alcohol risk-taking behaviors, researchers have found a connection to individual drug usage in combination with alcohol use. The areas of drug use risk-taking behaviors and sexual activity risk-taking behaviors are significantly related to student athletes. Exploration of these areas will identify factors related to student athlete risk-taking behaviors and provide explanations of risk-taking behaviors that are most prevalent among intercollegiate student athletes.

Drug Use Risk-Taking

In addition to alcohol use and abuse, there are other risk-taking factors and behaviors that are equally as dangerous for student athletes. Drug abuse and the college student athlete have received more attention in recent years. Athletic risk-taking combinations of alcohol and drugs are a potent risk that many student athletes take. Mixing drugs and alcohol can lead to severe negative consequences that can affect the athletic career of a student athlete and even threaten their life.

Social drug usage and mixing drugs with alcohol is a dangerous combination for student athletes. There are a variety of drugs that student athletes can be exposed to including: stimulants, hallucinogens, depressants, and performance enhancing drugs (Evans, Weinberg, & Jackson, 1992). Student athletes are under an increasing amount of pressure to perform well in the classroom and on the athletic field of competition. These pressures may make student athletes more susceptible to certain risk-taking behaviors associated with drug use and abuse (Evans et al., 1992).

Student athletes are more susceptible to experiencing negative behavioral and psychological consequences as a result of their high-risk drug use (Underwood, 2009). There is a need for increased awareness and education of the negative influence drugs have on the student athlete's body (Underwood, 2009). Drug abuse awareness campaigns attempt to decrease the amount of illegal drug usage among college student athletes. Tricker et al. (1989) suggested that some student athletes use drugs to enhance the level of competition in a sport while others may use drugs to cope with the effect a sport has on their lives.

Ford (2008) suggested that student athletes are engaged in non-medical prescription drug usage less than non-athlete students. The more involved a student is in athletics the less likely he

or she is to take part in substance abuse (Ford, 2008). Intercollegiate student athletes suffer more negative behavioral and psychological consequences due to an increase in drug usage as compared to non-athlete students (Underwood, 2009).

Tricker and Connolly (1997) discussed influences that may have an effect on a student athlete choosing to use drugs or abstaining from their use. Such factors presented include drug testing, peer pressure and influence, and a fear of identifying as a drug user. All of these factors have a direct influence on a student athlete's decision to use or abstain from using and/or abusing these substances. Ravert et al. (2009) determined that male student athletes used marijuana and hard drugs and misused prescription medication more often than their female student athlete peers.

Male student athlete marijuana use ($x^2 = 5.93$) and prescription medication misuse ($x^2 = 6.70$) were found to be significant at the $p < .01$ alpha level. Male student athletes were at a higher risk to abuse these types of illegal drugs and showed significant levels of sensation seeking behaviors and danger invulnerability when associated with prescription drug use, marijuana use, and hard drug usage (Ravert et al., 2009). Many accidents and injuries that occur in male student athletes originate from interactions between male testosterone and drugs in the bodies of athletes (Bovard, 2008).

Over the course of recent years, performance enhancing drugs (PEDs) have become an area of concern. Steroids and human growth hormone are two of the more common types of PEDs that athletes can obtain (Dixon, 2008). These substances increase student athletes' ability to gain muscle and allow athletes to become increasingly stronger very quickly. These substances enhance the user's athletic ability for non-medical purposes (Dixon, 2008). PEDs impose severe damage upon the human body and have negative effects on the user. Student

athletes, however, are most likely unaware of the long-term health effects that steroids and other PEDs have on the human body. Frequently, student athletes are more concerned with the instant gratification of increased size and strength that helps them athletically (Dixon, 2008).

The NCAA does not tolerate drugs that alter and enhance the student athlete. This ensures that athletes do not harm their bodies using steroids or performance enhancing drugs that may give them an unfair advantage while playing sports. Another area found to have significant drug misuse was student athletes' use of non-prescription analgesics to deal with pain management. Of the student athletes surveyed by Wolf, Miller, Pescatello, and Barnes (2011), 37% indicated that they took more than the directed amount to cope with their athletic-related pain management. These student athletes did not seem understand the recommendations for use and reported frequent overuse or misuse of the non-prescription medications.

Ford (2008) found that marijuana use by college students was higher than marijuana use by individuals not attending college. However, Wechsler et al. (1997) suggested that student athletes were not using marijuana as frequently as non-athlete students. Student athletes were also at a lower risk for abusing marijuana. In addition, the rate of actual marijuana use among college students has risen from 28% in 1993 to 33% in 2005. The amount of illicit drug usage among college students is also continuing to rise year to year. When analyzing the percentage of individuals who reported non-medical drug use and abuse, levels increased to 94%. There was an increase of 212% for individuals that are college-aged in this category.

Ford (2008) found that individuals who used non-medical prescription drugs were more likely to engage in using illegal drugs. Individuals engaging in non-medical prescription drug use often take drugs to alter their mental and physical state. The physical changes that many college students seek are altered mental states, increases in concentration, and pain reduction (Ford,

2008). There are several reasons college students choose to use non-medical prescription drugs, ranging from general use and abuse as well as an abundance of recreational users. Using Chi-square analysis, Ford (2008) concluded that student athletes were less likely to use illicit drugs with the exception of the use of stimulants.

Wechsler et al. (1997) reported a lower amount of drug usage among college student athletes than those not involved in athletics. Coaches' attitudes towards drugs were negative, and many attempted to intervene with student athletes struggling with drug usage (Horn, Maniar, Dino, Gao, & Meckstroth, 2000). Wechsler et al. (1997) found student athletes chewed tobacco more than non-athlete students. Student athletes were less likely to engage in marijuana and cigarette use (Grossman et al., 1997).

Risks such as marijuana use were identified as being lower among student athletes than non-athlete students. Student athletes were aware of which actions could significantly impair their athletic performance and refrain from these activities (Wechsler et al., 1997). These findings show that student athletes are less likely to use illegal drugs and illegal substances than college students not participating in intercollegiate athletics. Wolf et al. (2014) reported that 34% of student athletes who used pain medication used more than directed. While college student athletes do take more risks in general, they are not taking risks that they perceive as severe or risks that they feel have the potential to threaten their overall well-being.

Motivation for Drug Usage

Male student athletes are at a high risk for increased drinking behaviors and the use of performance enhancing drugs. There are significant shifts in the perceptions of student athletes concerning substance use from in-season and off-season (Yusko et al., 2008). Leichliter et al. (1998) found that student athlete team leaders exhibited increased risk-taking tendencies. This

finding is problematic since team leaders are expected to act as role models for their teammates. Team leaders can influence their teammates; engaging in high-risk behaviors places them at a heightened risk. Participation in team sports may also play a role in an individual's substance abuse. Student athletes participating in team sports were shown to be more likely to take risks than individual sport athletes. This was due in part to team sport athletes having closer social ties to their peers. This suggests that student athletes are extrinsically motivated to engage in physical activities or some type of athletic activity (Rockafellow & Saules, 2006).

Efforts have been made to decrease the amount of drug use and abuse among college student athletes; however, these efforts have left the rates of student athlete drug use consistent and unaffected (Underwood, 2009). Tricker and Connolly (1997) found several influencing factors related to the use and misuse of banned substances among student athletes. These factors include NCAA-regulated drug testing, social influences, and a fear of being a banned substance user (Tricker & Connolly, 1997).

Peer pressure was also a large determining factor in student athlete perceptions of drug usage. Student athletes who were not current drug users indicated that they would be more inclined to experiment with illegal drugs if they knew they would not get into trouble and/or if their peer group was experimenting with drug use (Diacin, Parks, & Allison, 2003). Teammates, peers, and coaches were significant influences on student athletes' decision-making related to drug use and abuse. The influence of student athletes' peer group had a significant effect on their decision-making concerning the use and abuse of illegal drugs, non-prescription medication, and performance enhancing substances.

Miller (2008) proposed that student athletes have developed their own unique identity in which the author referred to as the jock identity. Jock identity is defined as a sports-specific or

related identity that is primarily based upon certain risk-taking behaviors and the theory of hyper-masculinity (Miller, 2008). Miller (2008) identified several factors that combined to elevate male student athlete risk-taking behaviors; individual sport identity, tendency to engage in risk-taking behaviors, and one's level of masculinity combined to produce an individual's level of jock identity. The higher an individual's jock identity, the more risk he is likely to take in his daily activities (Miller, 2008).

Energy drinks and stimulating liquids are substances that many student athletes are ingesting in order to increase their level of energy and productivity. These substances can have a negative effect on the human body and cause complications in the bodies of student athletes (Miller, 2008). Evidence has shown a relationship between variables linking males with the jock identity to increased levels of energy drink consumption, mixing energy drinks and alcohol, and other risk-taking behaviors (Miller, 2008). These findings are consistent with other research studies in which researchers found that athletes were using drugs and stimulants for purposes outside of their athletic realm of competition.

Tricker et al. (1989) suggested that student athletes not only turn to drugs to enhance their athletic ability and allow them to get to the next level physically, but they also use drugs to cope with the effects sports have on them both physically and psychologically. Student athletes use drugs to influence to help them deal with stress, fatigue, injury, depression, and exhaustion. Student athletes may turn to these drugs to help them overcome the toll athletics has on their bodies and minds (Tricker et al., 1989).

Student athletes may turn to these drugs to help them maintain their level of competitiveness as well as to cope with the strenuous athletic experience of winning, losing, and constantly pushing their bodies to do more. Student athletes also face the fear of fatigue, failure,

and career-ending injuries. If student athletes do become injured or are physically unable to perform their sports they run the risk of falling into a deep depression where they may turn to drug use to ease physical and emotional stress and pain (Tricker et al., 1989).

Drug Education

Drug education programs are analyzed and depicted by researchers as being both short in length and too generalized instead of being detailed and comprehensive in nature. Programs must continue to emphasize overall health and wellness of intercollegiate student athletes rather than simply stating what not to do when faced with the temptation of drug and alcohol risk-taking pressures (Ticker et al., 1989). Targeted educational efforts are beneficial to student athletes since most current research suggests that student athletes are not gaining much knowledge from current programs already in place (Rockafellow & Saules, 2006). Programs designed specifically for intercollegiate athletes stressing the negative effects of drug and alcohol use and misuse would be beneficial to this audience (Yusko et al., 2008). Researchers have found that many educational programs currently in place have been unsuccessful in educating college students concerning the risks associated with the use of alcohol, drugs, and sexual behaviors (Martens et al., 2006).

Tricker et al. (1989) suggested that drug education programs could be implemented to help lower drug use among college athletes. Implementing a comprehensive drug education program would allow students athletes to become more aware of potential problems associated with drug use. Tricker et al. (1989) noted that a program such as this would be more beneficial and yield more results than the current drug awareness programs used in most colleges that consist of one or two lectures on drug usage each year. Athletic leadership should focus on

specific intercollegiate athletic issues and intentionally develop educational programs. In addition, Tricker et al. (1989) recognized the growing problem of drug use in collegiate athletics.

New educational programs can highlight real athletes who struggle with drug abuse and addiction. Prominent athletes have fallen victim to drug abuse and more than a few have lost their lives dealing with the struggles of drug addiction (Tricker et al., 1989). These stories educate current student athletes about dangers and pitfalls of drug use and abuse. There is now a call for more specific programs that span student athletes' careers to ensure that they have multiple avenues of drug education programs. Drug education programs and comprehensive education programs can focus on the total wellness of student athletes (Tricker et al., 1989). A comprehensive drug education program would provide student athletes with valuable information related to the negativity that drug use and abuse can have on ones' life as well as expose student athletes to information that can guide their future decision-making.

New NCAA policies and procedures regarding drug testing will have a positive outcome on institutions, athletics, and student athletes. These policies and guidelines will help standardize and report college athlete drug abuse trends to aid in athlete support. New programs can continue to increase the awareness of student athlete risk-taking behaviors specific to substance and drug use and abuse. Another area of concern for student athletes is their transition from student athlete to their next career or identity. This transition can be difficult for some student athletes to come to terms with since they are no longer an athlete. Tricker et al. (1989) explained that there is a significant void in student athletes' lives once they are in their off-season or their career is over.

Student athletes whose bodies were once accustomed to constant movement, strenuous physical activity, and busy schedules can find themselves bored and looking for experiences that will provide them with excitement and a sense of satisfaction. Some student athletes may turn to

drug use and abuse to gain these levels of excitement and intense needs for self-fulfillment (Tricker et al., 1989). Colleges and universities also provided abundant support for current drug testing policies and strong influences were present from peers, fellow athletes, and athletic coaches (Diacin et al., 2003). Student athletes indicated they viewed themselves as representatives of their institutions, and this had a major influence on their behaviors. In addition, they identified a fear of false accusation of using a banned substance through faulty drug testing results (Diacin et al., 2003). These scenarios are strong influencers and predictors determining the risk-taking behaviors student athletes face and choose to engage in associated with drug use and abuse.

Several recommendations exist for the future of drug education programs that can shape the ways in which student athletes experience these programs. Drug education programs stay current with pertinent information related to athletics and drug use and abuse. Programs can keep students engaged and involved while exploring the various ways that drug abuse and use may influence their lives. As previously stated, these programs should not be one-time programs but rather longitudinal. Student athletes can grow and develop throughout their time at the institution as they encounter new information and data over the course of the developmental program.

Social Norms and Perceived Norms

Student athletes take many risks associated with their daily lives. In addition, these risk-taking behaviors appear well-planned and goal-oriented. Many students actively seek out risk-taking behaviors due to the challenge and excitement of these activities (Dworkin, 2005). There was a difference in perceptions between experimenting, defined as making intentional and thought out decisions; and risk-taking, defined as intentional and functional decision-making. Dworkin (2005) suggested that the college environment plays a significant role in allowing risk-

taking behaviors to occur due to an increased amount of freedom and decreased overall supervision. Even though there may be negative consequences with some student risk-taking behaviors, students stated that they would not change their actions because of their educational influences (Dworkin, 2005).

College students' perceptions of individual drug usage and abuse were actually much higher than the reported totals for students. In addition, student athletes had some of the highest perceived risk-taking totals. While the overall risk-taking and drug use behaviors of student athletes were higher than non-athlete students, they were not nearly as high as the perceptions of their peers. Anderson, Albrecht, McKeag, Hough, and McGrew (1991) found that athletes' actual and perceived norms varied significantly. Social drug use was prevalent among those student athletes surveyed; however, there were differences between perceived and actual use of marijuana and cocaine among intercollegiate student athletes. Anderson et al. (1991) indicated that the rates of athlete drug use among marijuana and cocaine was decreasing. This decrease may have to do with increases in the educational opportunities available to student athletes and the prevalence of drug usage in media and professional sports (Anderson et al., 1991).

Differences between actual and perceived notions of behavior related to alcohol, drugs, and sexual behaviors exist. Participants regularly overestimated their peers' use of alcohol, drugs, and sexual behaviors. This was also representative of student athlete perceptions of other student athletes' alcohol use, drug use, and sexual behaviors. Student athletes overestimated the amount of risk-taking behaviors in which their peers took part. Discrepancies between perceived and actual amounts of alcohol, drug, and sexual risk-taking behaviors existed (Martens et al., 2006).

There are many misconceptions across the student population; research can continue to delve into student risk-taking behaviors and combat rumors and false realities (Martens et al., 2006). Researchers also established a variety of reasons that influenced student athletes' decision-making concerning drug use and abuse. The presence of drug testing, social influence, peer pressure, and a significant fear of being caught using drugs were contributing factors that motivated student athletes to abstain from using or trying and drugs or banned substances (Tricker & Connolly, 1997).

Martens et al. (2006) noted that students had misperceptions generally of social norms for usage of all substances. Many of the participants also overestimated behaviors related to alcohol use, drug use, and sexual behavior. Martens et al. (2006) identified a connection between students' individual behaviors and the ways they then perceives others' behavior. Aside from alcohol, the prevalence of substance use ranged from amphetamines, cigarettes, smokeless tobacco, cigars, to marijuana and cocaine. These findings confirm a statistically significant relationship between actual and perceived frequency use and actual substance use by participants in the study (Martens et al., 2006).

Studies have produced noteworthy results related to student athlete drug use. Anderson et al. (1991) reported marijuana usage as high as 70% among select athletic teams; 19% for cocaine. This study suggests that a majority of student athletes have tried some form of illegal drugs. While these results occurred more than 30 years ago, new studies can further inform these initial findings Future studies can focus on illegal drug use and consumption, in order to better understand current trends in student athlete risk-taking behaviors.

Since these studies occurred, drug usage has become more prevalent. New studies can focus on the presence of drug usage among student athletes. Researchers currently have more

knowledge of the risks associated with drug use. The NCAA now mandates and designs specialized drug prevention and education programs dedicated to student athletes. These factors may have an influence on the amount of risk-taking behaviors intercollegiate student athletes are partaking in when associated with drug use and abuse.

Assessments

A variety of assessments have been used to determine the level of risk-taking behaviors student athletes and college students engage in related to drug use and abuse. The Arnett Inventory of Sensation Seeking (Ravert et al., 2009) assessment measures students' drug risk-taking behaviors related to hard drug usage, marijuana use, and prescription drug misuse (Ravert et al., 2009). The Over the Counter Drug Screen for Athletes was used by Wolf et al. (2014) to assess student athlete drug use associated with medications and determine how often athletes used these medications. The Over the Counter Drug Screen for Athletes helped determine the degree that student athletes were misusing or abusing over the counter medications (Wolf et al., 2014). The College Alcohol Study (CAS) was used by Ford (2008) to examine the substance use, abuse, and other risk-taking behaviors that are common among college students. The CAS analyzes more than drinking and goes into drug use and abuse as well.

Another study focused on The Substance Use Risk Profile Scale (SURPS). The SURPS focuses on four main areas: hopelessness (H), anxiety sensitivity (AS), impulsivity (IMP), and sensation seeking (SS) (Woicik, Stewart, Pihl, & Conrad, 2009). The SURPS' four areas connect to specific substance-related behaviors and is a good predictor of substance use and abuse. These results will produce groupings related to the current study (Division II; male athletes). Substance use assessments have incorporated questions related to specific drug use along with questions related to individual substance abuse and use.

Overall, intercollegiate student athletes are placing themselves at an increased risk of physical and mental injury by using, abusing, and misusing prescription drugs, nonprescription medication, and substances. These substances can be in the form of stimulants, depressants, and performance enhancing drugs. Drug usage and intercollegiate student athlete studies can identify key determining factors that make certain athletes more susceptible to drug abuse behaviors. Athletes are under extreme stress and may turn to drugs to help them cope with the stressors of being a college athlete. Drug and substance use and abuse can correlate with student athletes' sexual risk-taking behaviors and alcohol use. Research must be carefully examined in order to explain why and how often athletes are taking sexual risks. Sexual risk-taking behaviors can be explored more in order to determine if there are specific factors associated with athletic participation and high risk sexual behaviors.

Sexual Risk-Taking

Another area of exploration related to student athlete risk-taking is high-risk sexual behavior. Student athletes take part in risky sexual behaviors such as engaging in higher frequencies of unsafe sex and sexual encounters as compared to non-athlete students (Kaly et al., 2002). Kaly et al. (2002) suggested that alcohol is a strong attributing factor of individual's risky sexual behaviors. This section examines the possible connections between sexual risk-taking behaviors and the intercollegiate student athlete; analyzes findings, and dissects literature suggesting these behaviors are closely related.

Sexual risk-taking is strongly correlated to individual alcohol use and/or drug use (Vélez-Blasini, 2008). Student athletes engage in more frequent sexual activities, have more partners, and are at a heightened risk of contracting sexual transmitted infections (Faurie, Pointer, & Raymond, 2004; Grossbard et al., 2007; Nattiv et al., 1997; Nattiv & Puffer, 1991). The presence

of alcohol and/or drugs has a negative influence on individual decision-making, Vélez-Blasini (2008) demonstrated that these factors significantly increased sexual risk-taking behaviors among today's college students. These findings suggest that consuming alcohol is directly associated with increases in sexual behavior. However, there were no connections found with the amount of alcohol consumed as related to the tendency to partake in sexual activities.

Studies have assessed risky sexual behaviors associated with alcohol consumption and sex motives. Student athletes partake in more alcohol consumption, drink before or during sexual activity, and have more sexual partners as compared to non-athlete students (Grossbard et al., 2007). Student athletes identified drinking for enhancement purposes and had a lower level of intimacy related to their partners than non-athlete students. Student athletes are prone to problematic results of risky sexual behaviors including engaging in sexual activity with multiple partners. Desiderato and Crawford (1995) found that most individuals reported engaging in sexual activity; 33% of students indicated that they had more than one sexual partner in the previous 11 weeks. The authors also found that approximately 50% of students reported condom use during this time, and 25% indicated using condoms on a consistent basis when engaging in sexual activity (Desiderato & Crawford, 1995).

Another study analyzed the relationship between drinking and hazardous behaviors. The study consisted of 904 students at three campuses. The study instrument, the Consumptive Habits Questionnaire, assessed levels of students' mental health when related to alcohol consumption (Pedrelli et al., 2010). Students who reported higher scores on the compulsive drinking questions also were at a higher risk for partaking in other high-risk behaviors. There was a high co-occurrence of high-risk behaviors related to alcohol use, drug use, sexual

behaviors, and gambling. There is an increased need for programs designed to educate students about the dangers associated with these high-risk behaviors (Pedrelli et al., 2010).

Kaly et al. (2002) described a connection between the disinhibition theory and alcohol myopia theory. These theories suggest that alcohol can cause students to disregard their inhibitions. Alcohol myopia theory also attempts to develop and promote programs designed to lower the amount of unsafe sexual behaviors, which is occurring in conjunction with alcohol use and consumption. MacDonald, Fong, Zanna, and Martineau (2000) identified alcohol myopia theory as being a better predictor of alcohol use and abuse. This theory offers a better overview and account of how alcohol influences decision-making, aids in risk-taking behaviors, and affects students' well-being.

Combining Sex and Other High Risk Behaviors

Student athletes were found to be more likely to take part in risk-taking behaviors; male student athletes reported significantly higher accounts of having multiple sexual partners and were more inclined to engage in unprotected sex than their female peers. In contrast, when gambling behaviors increased sexual risk-taking also increased among females. Studies have indicated that males are at a higher risk to take part in sexual risk-taking behaviors. Overall, alcohol consumption, especially heavy episodic drinking (HED), is elevated when associated with gambling or sexual risks (Huang, Jacobs, & Derevensky, 2009). Vélez-Blasini (2008) found an increase in occurrences of sexual behaviors when alcohol was present, however, there was no significant change in condom use or other forms of birth control. Sexual risk-taking behaviors were also found to increase as individual alcohol and drug use increased. There was also an increase in sexual risk-taking behaviors among individuals who self-identified as extroverts and had a lower level of agreeableness (Turchik, Garske, Probst, & Irvin, 2010).

According to researchers, student athletes are more likely to be involved in the sexual abuse of individuals of the opposite sex (Chandler, Johnson, & Carroll, 1999). Student athletes were involved in 20% of the sexual assaults and 14% of sexual abuse cases documented by Frintner and Rubinson (1993). This indicates that a small percentage of student athletes were involved with these sexual behaviors more often than their non-athlete student counterparts. Benedict (1998) stated that student athletes generate celebrity status on campus and this status leads to increases in sexual encounters and more sexual activity than non-athlete students. These sexual privileges include more sexual contact with peers and more consensual partners than their non-athlete student peers (Benedict, 1998). Cooper (2002) agreed that the majority of college students engaging in sexual behaviors are not taking proper precautions when engaging in sexual behaviors. There are low levels of reported condom use (less than 40%). Of the students who reported being sexually active, 62% indicated they had multiple sexual partners in the last three months. College students are taking many risks sexually and mixing sexual behaviors with the risk-taking behaviors of drug and alcohol use (Cooper, 2002). A correlation exists between alcohol consumption and an increase in sexual behaviors including sexual intercourse and sexual activities.

Huang, Jacobs, and Derevensky (2010) analyzed the relationship that sexual risks have between gambling and HED in intercollegiate student athletes. When analyzing male student athletes, if individuals exhibited high levels of gambling tendencies, their sexual risk-taking behaviors were lower. Conversely, when male student athletes engaged in high levels of drinking, their sexual risk-taking tendencies also increased (Hauang et al., 2010). These findings agree with other findings that link alcohol consumption to high-risk sexual behaviors and

identifies that gambling behaviors do not appear to have a direct correlation to male student athletes' levels of sexual risk-taking behaviors.

Sex Motives and Social Norms

Grossbard et al. (2007) explored the role of sex motives and the actions of both student athletes and non-athlete students. The findings included that student athletes were more likely to consume more alcohol, consume alcohol more frequently, drink alcohol prior to games, drink before sexual activity, and have higher numbers of sexual partners. In addition, student athletes reported high enhancement motives when it came to sex but lower intimacy motives (Grossbard et al., 2007). The results of the study also expressed that higher levels of reported intimacy were strong predicting factors of students being involved in frequent drinking on a lower frequency before or during sex (Grossbard et al., 2007). This suggests that student athletes are prone to taking part in risky sexual behaviors, including drinking before or during sexual activity and having sexual encounters with multiple partners. Grossbard et al. (2007) suggested that student athletes are more prone to having multiple partners and risky sex; this exacerbated their consumption of alcohol before and during sexual activities. Student athletes are more sensation seeking than their non-athlete peers and they may perceive alcohol as an enhancer of their sexual experiences.

Student athletes showed low levels of intimacy when compared to their non-athlete student peers. Student athletes may have more opportunities to engage in social settings and have exposure to more willing potential sexual partners without having to be in a serious relationship (Grossbard et al., 2007). Being in a relationship may serve as protection from some of these risks as single athletes partake in more sexual risk-taking behaviors than non-athlete students. Figure 2 below shows the interaction of athlete status and enhancement sex motives that predict the

number of sexual partners a student athlete may have. Grossbard et al. (2007) showed that student athletes and non-athlete students were similar in low enhancement levels but differed when related to high enhancement and student athletes had higher numbers of sexual partners than non-athlete students.

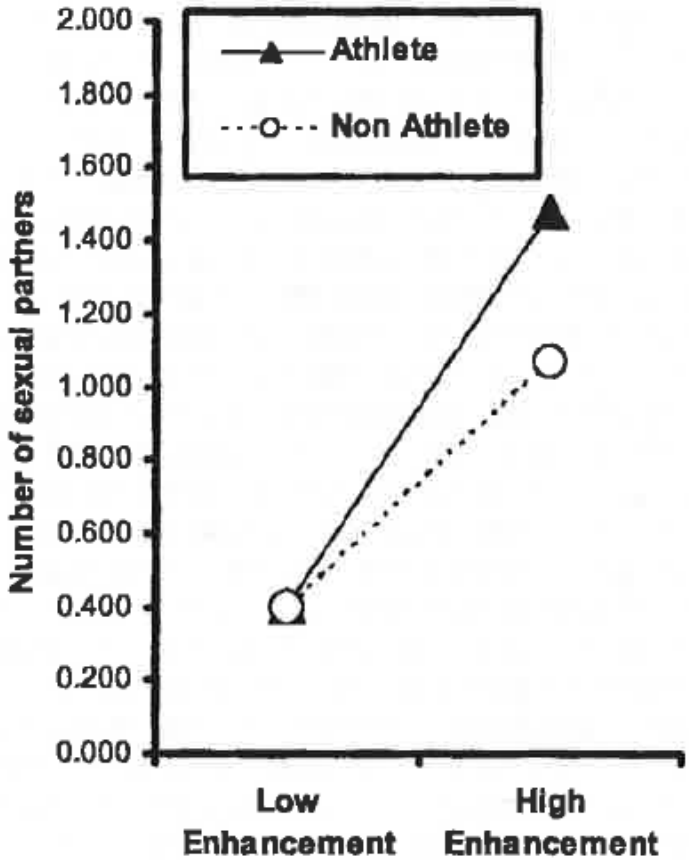

Figure 2. Interaction of athlete status and enhancement sex motives predicting number of sexual partners. Figure provided from Grossbard et al. (2007) study exploring number of sexual partners' athletes have related to levels of enhancement.

Figure 3 below depicts the interaction of athletic status and individual intimacy level related to sex motives when consuming alcohol before or during sexual activity. High levels of intimacy are associated with less frequent drinking either before or during sexual activities. Intercollegiate student athletes were more likely to exhibit low intimacy and less likely to show high intimacy when consuming alcohol. Figure 3 depicts these findings; Grossbard et al. (2007)

provided these findings to support the notion that student athletes have less romantic engagement and lower levels of intimacy.

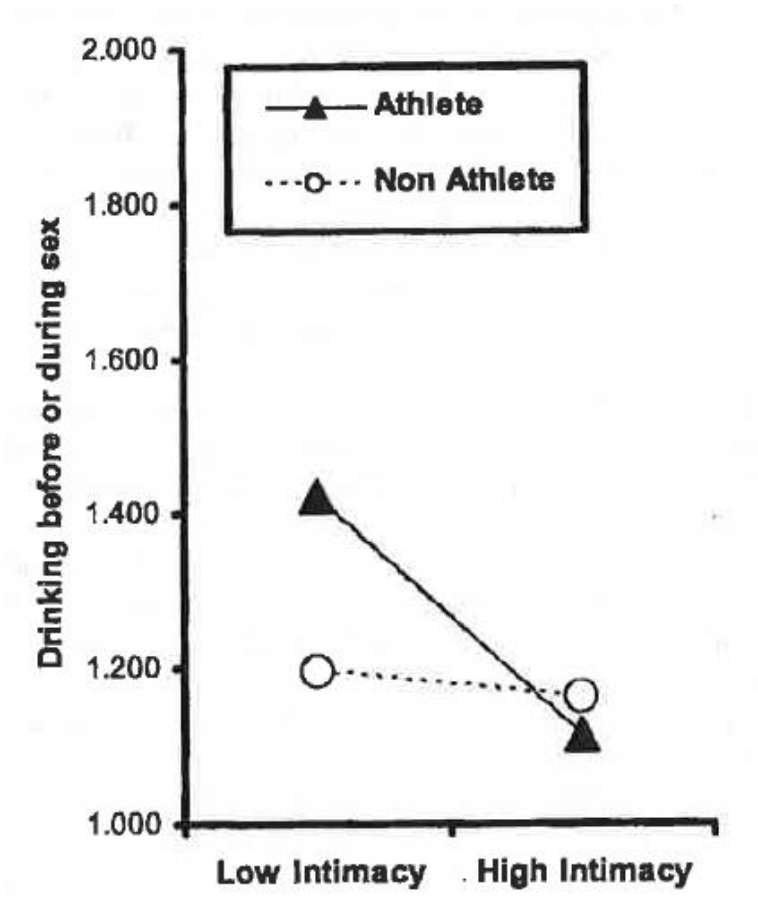

Figure 3. Interaction of athlete status and intimacy sex motives predicting alcohol use before or during sex. Figure provided from Grossbard et al. (2007) study exploring student athletes' levels of intimacy related to alcohol consumption

Prominent sports icons have theorized of the benefits of abstaining from sexual activity prior to an athletic competition and the advantage this abstinence will provide the student athlete (Thornton, 1990). Many coaches have bought into this philosophy by limiting their players' freedom by making them stay in hotels the night before games and monitoring them closely (Messner & Sabo, 1990). However, there has been no empirical evidence that abstaining from sexual activity before athletic competitions has an effect on athletic performance, response, strength, or stamina (Johnson, 1968). Even so, some student athletes and coaches have a false

reality that abstaining from sexual activity will provide them with an athletic advantage by conserving athletes' energy and giving them more stamina and strength to use in their athletic competition (Fischer, 1997). These ideas have driven Fischer's (1997) exploration of the question of sexual activity impairing ones' athletic ability.

The publishers of *Sport Psychology in Practice* have concluded that student athletes take greater risks by not wearing seat belts, driving with people who are under the influence, consuming greater alcohol levels, using tobacco and anabolic steroids, using fewer contraceptives during sexual activity, and experiencing more physical harm (Anderson, 2005). In addition, when sexual behaviors combine with alcohol use and drug use, these factors play a significant part in determining the potential for sexual risk-taking behaviors. Student athletes should understand the importance of using contraceptives, obtaining consent, and the consequences of unprotected sexual behaviors (Grossbard et al., 2007; Kaly et al., 2002; Tricker et al., 1989).

Sexual risk-taking behaviors influence the health and overall well-being of student athletes. Studies have demonstrated how significantly these risk-taking behaviors influence student athletes. Research has suggested that some student athletes use drugs to enhance their performance in athletics while others use them to offset the effect athletics has on their daily lives (Tricker et al., 1989). Overall, the use of illegal drugs is lower in student athletes, suggesting that student athletes are aware of what actions can significantly impair their athletic performance and refrain from these activities (Wechsler et al., 1997). These factors have a direct influence on a student athlete's decision to use these substances. In addition, it seems that student athletes are using these drugs in conjunction with partaking in high-risk sexual behaviors. Overall, student athletes seem to understand the influence these substances have on their bodies

while combining them with high-risk sexual behaviors, and how they contribute to negative athletic performance.

Assessments

Instruments exist that assess sexual behaviors in college students (O'Hare, 2001). The Risky Sex Scale (RSS) falls into three subscales of factors: risky sex expectancies (RSE), risky sex behaviors (RSB), and gender-based perceptions of risky sex (GSRP) (O'Hare, 2001). These factors are essential in determining student perceptions and behaviors as they relate to risky sexual behaviors. In addition, a correlation existed between alcohol use and high-risk sexual behaviors that included sexual intercourse without a condom or some form of protection. The Risky Sex Scale is a combination of questions used to determine a person's level of sexual risk-taking behaviors. Most of the questions relate in some way to alcohol consumption. The Risky Sex Scale is a good indicator of one's sexual risk-taking behaviors (O'Hare, 1997).

Other assessments have also been developed to assess sexual behaviors and sexual risks. Turchik and Garske (2009) developed The Sexual Risk Survey in an attempt to produce a comprehensive sexual risk-taking assessment designed specifically for college students. This assessment can be used by researchers to provide a comprehensive examination of risk-taking behaviors in college students. The findings suggest that males reported a higher expectation to have a sexual encounter and exhibited more sexual risk-taking behaviors as compared to their female peers (Turchik & Garske, 2009). Other sexual risk-taking assessments attempt to identify why college students engage in sexual risk-taking behaviors. The Alcohol and Sexual Consent Scale provides a measure of sexual encounters that took place and gained individual perspectives on alcohol and individual consent (Ward, Matthews, Weiner, Hogan, & Popson, 2012). This scale took into consideration multiple scales and assessments that analyze consent and sexual

behavior. An assessment designed for college students and/or college athletes can be used in order to provide pertinent findings that will analyze Division II male student athletes' sexual risk-taking behaviors.

Sexual Education Programs

Reel, Joy, and Hellstrom (2012) recommended the creation and implementation of a multi-tiered prevention approach to help student athletes identify the risks associated with risky sexual activity. Reel et al. (2012) reported that screening is central to managing and identifing sexually transmitted infections in athletes. Another reoccurring element that surfaced was the increased need for athlete specific programming. These programs should focus on the student athlete and work into athletic schedules and required NCAA athletic required trainings (Reel et al., 2012). Educational programs can be coordinated in conjunction with current NCAA-mandated programs designed specifically for student athletes. Arming student athletes with the knowledge to make informed decisions about consent and sexual education will increase student athlete awareness about the risks associated with being sexually active (Reel et al., 2012). Grossbard et al. (2007) suggested offering student athletes education programming concerning sexual activity and individual sex motives. These educational programs can complement sanctioned and mandated educational efforts already in place from the NCAA.

Specialized and directed educational programs and intervention programs generate lower sexual risk-taking behaviors among college students (Gil-Rivas, 2012). Programs that have had success target specific populations and work to address specific needs of populations. Educational programs should be rooted in theory to help support the conveyed message to participants. In addition, education programs should focus on specific sexual risk-taking behaviors and teach the importance of being aware of the risks associated with risky sexual

behavior (Gil-Rivas, 2012). Programs should also provide participants with statistics so they do not fall victim to perceived norms that are often higher than actual norms associated with the sexual behaviors in which student athletes are partaking.

Masculinity and Male Athletic Risk-Taking

Masculinity research can depict how a student athlete's masculinity affects risk-taking behaviors. Participation in intercollegiate athletics has played a significant role in both the masculinity development and socialization of male student athletes. These men develop psychologically, physically, and psychosocially while participating in intercollegiate athletics (Steinfeldt, J., & Steinfeldt, L., 2012). Limited research exists solely related to differences in student athlete risk-taking behaviors pertaining specifically to male student athletes. In addition, there has not been a comprehensive empirical study related to male risk-taking behaviors focused on Division II intercollegiate student athletes. However, studies concerning overall athletic risk-taking behaviors and studies comparing student athletes to non-athlete students have been conducted. These studies offer a comparison and breakdown of results related to male and female student athlete behaviors within their respective studies. Overall, male student athletes exhibited more high risk-taking behaviors and tendencies than female student athletes. In conjunction with the fact that student athletes partake in more risk-taking behaviors than non-athlete students, male student athletes are the sub-population that is the most at risk to engage in dangerous risk-taking behaviors. Division II male intercollegiate student athletes are at risk to conform to others risk-taking behaviors and are placed at a heightened risk to engage in high risk behaviors as a result of their masculinity development (Steinfeldt & Steinfeldt, 2012).

Masculinity is a major factor influencing male risk-taking behaviors among intercollegiate student athletes. Steinfeldt and Steinfeldt (2012) studied football players and

concluded that influencing factors to male student athletes' individual conformity were athletic identity, academic year, and position. These factors are important to note as being motivating influences into what individuals perceive as being the "norm" for male student athletes. Foley (2001) defined sport as representing an environment where young men learn more about masculine expectations, individual values, and norms. If this is the case, it is important that male student athletes are prepared for athletic competition and the various experiences that student athletes will encounter during college. Masculine ideologies can lead to negative outcomes that include high-risk behaviors (Blazina & Watkins, 1996; Locke & Mahalik, 2005).

Competition, social motives, and winning are all strong motivating factors for male athletes (Flood & Hellstedt, 1991). These constructs are important motivating factors that shape the male athletes' identity. These motives also influence the individual male student athletes' actions when associated with risk-taking behaviors and athletic identity. Steinfeldt, Rutkowski, Vaughan, and Steinfeldt (2011) reported that student athletes' individual identity was a high predictor of individuals attempting to conform and maintain what they perceived to be expectations of masculinity.

Similarly to other areas of risk, participants in Steinfeldt and Steinfeldt's (2012) study exhibited tendencies to conform to masculine norms. Masculine norms were influenced by student athletes' academic year and the level of connectivity and identity related to athletics (Steinfeldt & Steinfeldt, 2012). Similar to overall risk-taking behaviors, masculine norms played more of a role in student athletes' actions the more connected they were to an athletic team or athletic program. Black, Hochman, and Rosen (2013) studied the significance of exercise and the effect of athletics on individual risk-taking behaviors. Black et al. (2013) also found that exercise increased the likelihood of a student athlete to engage in high risk-taking behaviors. Since

student athletes engage in high levels of exercise throughout the year, they are at a higher risk to partake in high-risk behaviors than their non-athlete student peers (Black et al., 2013). Being active and athletically connected increases a male student athlete's likelihood of taking part in high-risk behaviors. Student athletes' masculinity development also plays an important role in the establishment of norms and potential for exhibiting high-risk behaviors.

Nattiv et al. (1997) provided empirical research identifying the differences between student athletes versus non-athlete student lifestyle choices. Table 2 depicts areas that were determined to be risky behaviors. These factors are areas in which student athletes exhibited statistically significant findings. Nattiv et al. (1997) found that male student athletes were at a significant risk for participating in high-risk behaviors. Male student athletes exhibited higher risk-taking tendencies when assessing the amount of athletic risk-taking behavior each exhibit. Student athletes participating in contact sports and male student athletes were at the most risk for partaking in potentially dangerous behaviors. Male student athletes were typically observed and reported as being higher risk-takers than other student athletes.

Overall, male student athletes exhibited the most risk-taking characteristics of any athletic group. Male student athletes exhibited significantly higher rates of unsafe sex with multiple partners than female student athletes (Huang et al., 2009). In addition, Hartman and Rawson (1992) reported that male student athletes were more likely to engage in sensation seeking behaviors as compared to female student athletes. Hartman and Rawson (1992) found that student athletes were more likely to participate in sensation seeking behaviors than non-athlete students. This indicates that male student athletes are the most likely group of athletes to engage in sensation seeking and high-risk sexual behaviors (Hartman & Rawsom, 1992). Table 2

illustrates the various areas that male student athletes are exhibiting significant risk-taking behaviors.

Table 2

"Riskier" Lifestyle and Health Risk Behaviors in Male and Female Athletes Compared to Non-athletes

Male athletes
Less likely to always use seatbelts
Less likely to always use helmets with motorcycle or motor scooter
More often drive while intoxicated with alcohol or drugs
More often drive with passenger who has been drinking or on drugs
Greater quantity of alcohol per sitting (> 3 drinks)
More smokeless tobacco use
More anabolic steroid use
More involved in physical fights
Greater frequency of sexually transmitted diseases
Greater number of sexual partners
Less safe sex
Less contraceptive use
More intentional weight loss or gain
More difficulty maintaining optimal weight
More reported stress fractures history
More reported anemia history

Note: $*p<0.05$. Table modified from Table 3 in (Nattiv et al., 1997) to exhibit statistically significant findings pertaining to male student athletes.

Leichliter et al. (1998) reported that alcohol use was more prevalent among college student athletes than non-athlete students. There were also significant findings that suggested more student athletes were also involved in binge drinking than other students. Leichliter et al. (1998) further stressed that male team leaders or captains were at the highest risk for alcohol abuse and consumption when compared to their teammates. However, the study found females who were in role model positions showed little or no difference in alcohol consumption and usage when compared to their teammates and athletic peers. This information suggests that male team leaders are prone to taking part in more risk-taking behaviors than their teammates. Male team leaders and captains are elevated to leadership roles that have influence on their peers. If

student athletes perceive the actions of team leaders as social norms of risk-taking behaviors, student athletes' risk-taking behaviors may continue to rise.

Half of student athletes reported that alcohol was present in their initiation onto the athletic team (Hoover, 1999). These findings suggest that the presence of alcohol is more frequent in regards to initiation and hazing members of an intercollegiate athletic program. Wilson et al. (2004) indicated that sociological influences were present in male student athletes' more than female student athletes (Wilson et al., 2004). When compared solely to social influences male student athletes consumed alcohol at a higher frequency than other student athletes (Wilson et al., 2004). These findings suggest the perceived social norms that are part of the masculine athlete culture.

Another study looked into risky behaviors where alcohol was involved among college athletic teams concerning initiation rites or hazing (Hoover, 1999). About half of the student athletes reported that alcohol was involved in their initiation onto the athletic team. Grossbard et al. (2008) found that male student athletes engaged in higher frequencies of alcohol use and marijuana use and had more alcohol-related consequences when compared to their female student athlete peers. It was also found that male student athletes had higher perceived alcohol use and perceived marijuana use than female athletes (Grossbard et al., 2008). This indicates that male student athletes already have a perception that they are partaking in more high-risk behaviors than their peers even if this is not entirely true for all areas of risk-taking explored and analyzed.

Tricker et al. (1989) and Diacin et al. (2003) found male student athletes were in support of drug testing and regulations in intercollegiate athletics. Diacin et al. (2003) also stated that students think critically and question authority and question society in the academic sector,

however, student athletes often view the athletic coaches as authority and follow their lead on the field. Some of these student athletes had trouble differentiating their varying roles within the institution. Clear and specific program development should continue in an attempt to increase the awareness of student athlete roles within the institution (Diacin et al., 2003). Through the understanding of male student athletic risk-taking motives and masculine social norms, interventions and educational opportunities can focus around the factors related to male decision making in relation to partaking in high-risk behaviors (Steinfeldt & Steinfeldt, 2012).

Conceptual Framework for the Study

Student athletes have exhibited more risk-taking tendencies throughout the studies concerning alcohol, substance, and sexual risk. Exploring student athletes' ways of thinking helps evaluate the various ways in which they perceive and evaluate risk. The conceptual framework for this study is designed around optimism bias, which causes individuals to think they are less likely to experience a negative outcome to an event than others (Shepperd et al., 2002). For this study, optimism bias was defined as a cognitive bias that enables individuals to feel invulnerable to negative consequences. Lapsley and Duggan (2001) designed the Adolescence Invulnerability Scale (AIS) that explores invulnerability. The danger invulnerability subscale assesses relationships to drinking, drug use, and smoking behaviors. Lapsley, Aalsma, and Halpern-Felsher (2005) discuss the AIS and optimism bias and explores the connection and relationship between the two. Invulnerability is suggested to be found as a result of widespread optimism bias that occurs when assessing risk (Lapsley et al., 2005). For this study, danger invulnerability is defined as being less susceptible to encountering negative outcomes associated with dangerous situations related to external dangers. Optimism bias will prove to factor into

consideration when examining why student athletes take risks and what effect those behaviors have.

In optimism bias, four main factors cause someone to become optimistically biased. These factors include overall mood, information individuals have about themselves and others, specific cognitive mechanisms, and the desired end state (Shepperd et al., 2002). The optimism bias is present in situations that have positive outcomes as well as those that have a negative outcome. However, there are more data suggesting that it is stronger when related to negative events and outcomes, such as risk-taking behaviors (Gouveia & Clarke, 2001; Shepperd et al., 2002).

Measurement of optimism bias occurs through a comparative risk form in which individuals compare themselves to others (Weinstein & Klein, 1996). In these comparisons, individuals can determine whether their own risk of experiencing an outcome is the same, greater, or less than others (Helweg-Larsen & Shepperd, 2001; Radcliffe & Klein, 2002). Other comparisons attempt to explain individual perceptions of risk-taking and the chance that others are also taking those risks (Helweg-Larsen & Shepperd, 2001; Radcliffe & Klein, 2002). The theory includes factors that measure the severity of risk and the likelihood of engaging in the risk-taking behavior (Hill, 2012). The theory exploring risk-taking behaviors is shown in Illustration 1. Optimism Bias explores the severity of risk-taking behaviors with the probability of engaging in the risk-taking behavior.

This study explored if student athletes who have a high sense of optimism bias possess more or less risk-taking behaviors as they relate to specific variables. The presence of optimism bias will help determine if certain groups of student athletes feel invincible and less susceptible to risk. It will also allow research to be conducted linking optimism bias to risk and examine the

severity and probability of risk associated with the risk-taking behaviors of alcohol use, drug use, and sexual behaviors occurring in the lives of student athletes. The main areas of the matrix that will factor into the discussion of athletic risk-taking behaviors are those that have a high-risk proponent, especially the scenario in which there is a high severity and high probability present (Hill, 2012). Through the analysis of optimism bias, areas where student athletes feel they are more or less likely to experience or encounter negative outcomes of risk-taking behaviors become apparent. The assessments will identify areas in which student athletes score higher or lower in relation to their perceptions of risk-taking behaviors when compared to their peers.

Optimism bias causes individuals to believe they are less likely to encounter or experience negative outcomes related to an event or experience than others in the same situation (Shepperd et al., 2002). Optimism bias helps determine which student athletes feel they are more/less susceptible to risk-taking behaviors, and these data aid in the examination of the measurement of comparing student athletes' personal level of risk-taking behaviors.

Illustration 1.

Risk Matrix Explaining Optimism Bias

Severity of Risk	High	***High severity - Low Probability***	***High Severity - High Probability***
	Low	***Low Severity – Low Probability***	***Low Severity - High Probability***
		Low	High
		Probability of Risk	

Notes: Optimism bias can be further explained by the matrix above depicting both high and low levels of severity of risk and high and low probability of risk and explains the potential outcomes of these risk-taking tendencies. Hill (2012) used this Matrix to describe Optimism Bias in *Scientific American*.

Adolescents and young adults have more optimism than adults when it comes to risk-taking behaviors and risks (Weinstein & Klein, 1996). Student athletes may feel like they are lucky and believe that negative outcomes will not affect them. The optimism bias helps explain how individuals compare their level of personal risk to the risks that others are facing. In addition, optimism bias has been closely associated with the concept of invulnerability. Lapsley and Duggan (2001) constructed The Adolescent Invulnerability Scale to assess the amount of danger adolescents place themselves in throughout their daily interactions. The scale can be broken down into subscales of danger invulnerability, general invulnerability, and interpersonal invulnerability (Lapsley & Duggan, 2001). Danger invulnerability include topics related to this study and is most predictive of drinking, drug use, and smoking risk-taking behaviors. While The Adolescent Invulnerability Scale does not solely measure optimism bias, the connections between danger invulnerability, the framework of optimism bias, and risk make it an optimal instrument for the study. This sub-scale was used to assess the extent or degree to which male Division II student athletes relate to danger invulnerability and assesses if higher scores on the sub-scale correlate to higher levels of risk-taking behaviors. A high score on the danger invulnerability sub-scale suggests that a student athlete may possess a higher optimism bias; items presented on the sub-scale indicate that higher scores represent high levels of coping and adjustment.

Lapsley et al. (2005) noted that individuals tend to be optimistic about the amount of risk in which they place themselves. Individuals, especially those in early adulthood tend to believe they are invulnerable and invincible to the negative consequences of risk-taking behaviors (Lapsley et al., 2005). This provides student athletes a sense of invincibility in relation to their risk-taking decision-making. There have been several studies that depict the optimism bias as

being stronger and more prevalent in adolescents than adults (Arnett, 2000; Cohn, Macfarlane, Yanez, & Imai, 1995). Millstein and Halpern-Felsher (2001) also concluded that it is in the early stages of adulthood when invulnerability and invincibility are strongest in individuals. Lapsley and Duggan (2001) concurred that adolescence is a key point in time for young adults that influence their sense of invulnerability and invincibility perceptions to risky behaviors.

Conclusion

This research assesses athletic risk-taking among Division II male intercollegiate athletes' behaviors. It provides researchers new data upon which to base future studies, and allows future research to continue to assess intercollegiate athletic risk-taking behaviors. It is important to continue to expand on the current research present regarding athletics and risk-taking to help future researchers explain why intercollegiate athletes engage in these behaviors. New data related to the focus areas of team/individual sport classification, age, academic class, years affiliated with an athletic program, scholarship, and team leader status is explored.

Identifying specific traits that lead student athletes to take risks helps determine which areas are most prevalent among this population. Division II male athletes have not been exclusively studied in previous research based on the variables of the study. This analysis examines the presence of intercollegiate athletic risk-taking and provides specific motivating factors and areas of influence for Division II athletes. In addition, analysis includes demographic information related to risk-taking behaviors in relation to the duration of time associated with an athletic program, leadership roles, changes in risk dependent on age, and scholarship status. Various assessments analyzing alcohol use, substance use, sexual behavior, and the presence of perceived optimism bias are present in the study. Overall, the behaviors exhibited by Division II male student athletes are explored in an attempt to help identify factors and traits that may

accurately explain levels of risk. This study determines which groups of athletes are more prone to partake in high-risk behavior.

CHAPTER III

METHODOLOGY

The purpose of the study was to assess the amount of risky behavior in which college student athletes are participating. Quantitative research studies analyze the relationships between independent and dependent variables while using an experimental or descriptive design (Creswell, 2009). In this study, a quantitative design was used to study the relationship between the independent variable, athlete (studied among several variables), and the dependent variables of alcohol risks, drug risks, sexual risks, and the presence of optimism bias. This section of the dissertation discusses the methodology of the study and defines and discusses research questions. The targeted population of this study was male intercollegiate athletes from Division II athletic programs. Participation in the study was voluntary, and student athletes had the option to decline to participate in the study at any time. The informed consent form addressed ethical concerns such as privacy, anonymity, and confidentiality. A copy of the approved informed consent form is included in Appendix A.

This chapter discusses the survey instruments and methodologies of the study. The assessments that were used in the study include the College Alcohol Problem Scale – revised (Talbott et al., 2009), the Substance Use Risk Profile Scale (Woicik et al., 2009), the Risky Sex Scale (O'Hare, 2001), and The Adolescent Invulnerability Scale – Danger Invulnerability Subscale (Lapsley & Duggan, 2001). The assessments combined to create a comprehensive survey that is comprised of all four assessments. These instruments determine which student athletes took more risks and why they engaged in these risk-taking behaviors. Data analysis will

inform individuals of the process of determining who takes more risks and what factors influence their risk-taking behaviors. Chapter IV presents the results of the data collection and analysis.

Materials and Instrument Design

The study utilized several surveys to assess the level of risk-taking behaviors student athletes' exhibit. The Risky Sex Scale (O'Hare, 2001) assesses a person's level of risks when dealing with sex. The Risky Sex Scale consists of 14 questions set on a five-point Likert scale (5=Strongly Agree, 4=Agree, 3=Not Sure, 2=Disagree, 1=Strongly Disagree). It investigates different risks associated with risky sex (O'Hare, 2001). The Risky Sex scale composite scores can range from (14-70); the Risky Sex Expectancies subscale is composed of seven questions and scores can range from (7-35); the Risky Sex Behaviors subscale is composed of four questions and scores can range from (4-20); and the Gender Based Perceptions of Risky Sex subscale is composed of three questions and scores can range from (3-15).

The Risky Sex Scale (RSS) focuses on sexual behaviors and experiences and contains three subscales: risky sex expectancies (RSE), related to the expectancies for sexual experiences after alcohol use; risky sex behaviors (RSB), related to sexual behaviors experienced while individuals are intoxicated; and gender-based perceptions of risky sex (GSRP), related to risks associated with sexual violence in combination with alcohol (O'Hare, 2001). These factors are important in determining students' perceptions and behaviors related to risky sexual behaviors. This survey assesses individual levels of risky sexual activity and shows strong reliability and concurrent validity. O'Hare (2001) conducted internal reliability assessments on the scale, and the Cronbach's alpha level reported scales with acceptable levels of reliability, with the exception of general comfort with sex. These areas were then removed from the final scale so all areas reported strong levels of reliability. The results were found to have good reliability (> .75

Cronbach's alpha for all items included in the final analysis) and concurrent validity (O'Hare, 2001). Cronbach's alpha indicating strong reliabilities were included in the Risky Sex Scale as follows: Risky Sex Expectancies (.93); Risky Sex Behaviors (.86); and Gender-based Sexual Risk Perceptions (.77). These levels indicate a good to excellent level of reliability as well as providing strong correlations (O'Hare, 2001).

O'Hare (2001) analyzed the development of the Risky Sex Scale and discussed how it determines college student sexual risk-taking behaviors. The article discusses the validation of the Risky Sex Scale as a valid instrument to assess risk-taking behaviors among college students. This correlational study used descriptive anonymous self-reporting surveys to analyze sexual risk-taking behaviors. In addition, a correlation was present between alcohol use and high-risk sexual behaviors that included sexual intercourse without a condom or some other form of protection. The Risky Sex Scale is a combination of questions used to determine a person's level of sexual risk-taking behaviors. Most of the questions relate in some way to individual alcohol consumption and sexual activity. The Risky Sex Scale is included as Appendix B. Permission to use the Risky Sex Scale is located in Appendix G.

The second instrument used to assess drug usage is The Substance Use Risk Profile Scale (SURPS). The assessment focuses on four main areas: hopelessness (H), anxiety sensitivity (AS), impulsivity (IMP), and sensation seeking (SS) (Woicik et al., 2009). The SURPS analyzes each category with five to seven factors ranging on a five-point Likert scale. The scale ranged from one to four (4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree). The SURPS composite score is made up of the answers to the 23 item instrument and the score can range from (23-92); the SURPS hopelessness subscale is composed of seven questions and scores can range from (7-28); the SURPS anxiety sensitivity subscale is composed of five questions and

scores can range from (5-20); the SURPS impulsivity subscale is composed of five questions and scores can range from (5-20); and the SURPS sensation seeking subscale is composed of six questions and scores can range from (6-24).

The category of anxiety sensitivity addresses factors related to physical sensitivity while hopelessness factors focus more on negative emotions. The section on sensation seeking focuses on exploring new situations. The last section contains factors relating to impulsivity addresses behaviors and control. The instrument was tested and determined to be both valid and reliable. Woicik et al. (2009) performed a correlational analysis of the scale and found that there was a modest inter-scale correlation. In addition, an internal reliability of the scales showed an adequate or good internal consistency relating to the subscales of the SURPS. During development an adequate internal reliability was found for each of the subscales (.86 for H; .61 for AS; .64 for IMP; and .70 for SS). Through a correlational analysis, a strong convergent validity existed among the various areas explored through the SURPS. Findings suggested that the SURPS is valid and can be used to accurately measure and predict addictive behaviors (Woicik et al., 2009). The results suggested that the four areas were connected to specific substance-related behaviors. The Substance Use Risk Profile Scale is included as Appendix C. Permission to use the SURPS is located in Appendix G.

The College Alcohol Problem Scale - revised (CAPS-r) is an updated version of The College Alcohol Problem Scale designed by O'Hare (1997). These scales are both valid and reliable in detecting problem-drinking areas in college students. The CAPS-r provides a better measure of alcohol use among college students. The College Alcohol Problem Scale-revised (CAPS-r) assesses the drinking habits of participants. The initial instrument was tested and analyzed; it was determined that the instrument was reliable, consistent, and valid. It supports

structural validity in use of analyzing alcohol use among college students (Talbott et al., 2009). The CAPS-r has a $p = .007$ (when exploring the two-factor measuring model) and was used to conduct analyses in multiple studies and assesses athletes' drinking behaviors (Maddock et al., 2001; Talbott et al., 2009). The researchers of the CAPS-r have performed internal consistency analyses and tests of construct validity to determine the validity and reliability. The CAPS-r is comprised of the two correlated latent variables, consisting of the areas of personal problems and social problems (Talbott et al., 2009). Talbott et al. (2009) state that studies should use the CAPS-r instrument in its entirety when conducting research. Participants in the study of the CAPS-r responded to the questions using a six-point Likert scale ranging from 1 to 6 (1 = never, 2 = Yes, but not in the past year, 3 = 1-2 times, 4 = 3-5 times, 5 = 6-9 times, 6 = 10 or more times) (Talbott et al., 2009). The CAPS-r composite score is comprised of eight questions and scores can range from (8-48). The CAPS-r is included as Appendix D. Permission to use the CAPS and CAPS-r is located in Appendix G.

Lapsley and Duggan (2001) constructed The Adolescent Invulnerability Scale that assesses the dangers adolescents place themselves in by engaging in risk-taking behaviors. The full scale consists of 20 items that are ranked on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree) and can be broken down into subscales of danger invulnerability, general invulnerability, and interpersonal invulnerability (Lapsley & Duggan, 2001). The danger invulnerability subscale used for the study consists of six questions and has a score range of (6-30). The subscales relate to areas of drinking, drug use, and smoking risk-taking behaviors. The Adolescent Invulnerability Scale was shown to have strong internal consistency ($\alpha = .86$), and subscales were shown to focus on specific areas of invulnerability such as danger invulnerability being associated with substance use and abuse (Lapsley &

Duggan, 2001). The Adolescent Invulnerability Scale Danger Invulnerability subscale proved to be strong in the areas of internal consistency and construct validity and is a good instrument to assess the level of perceived risk in which student athletes place themselves. The assessment is also a good indicator that suggests male student athletes who score higher on the danger invulnerability subscale have a higher likelihood of possessing tendencies related to having a high optimism bias. The Adolescent Invulnerability Scale – Danger Invulnerability (AIS DI) subscale is included as Appendix E. Permission to use the AIS DI subscale is located in Appendix G.

The questionnaires and surveys used in the study assess young adults and college age populations, and they will assess college student athletes. The key areas of the assessments combined to generate a composite instrument that was able to reflect the overall risk-taking behaviors of participants related to drug use, alcohol use, and sexual behaviors, as well as the presence of optimism bias. The assessments used in this study were able to determine the risk-taking behaviors in which individuals are most likely to engage. These instruments measure the risks of student athletes to determine which behaviors are more prevalent among the various participants. The College Alcohol Problem Scale-revised (Talbott et al., 2009), the Substance Use Risk Profile Scale (Woicik et al., 2009), the Risky Sex Scale (O'Hare, 2001), and The Adolescent Invulnerability Scale – Danger Invulnerability Subscale (Lapsley & Duggan, 2001) will assess athletes in an attempt to identify demographics that influence risk-taking behaviors.

These instruments helped examine and determine factors related to the study's conceptual framework, optimism bias. Individual assessments helped determine what causes individuals to feel they are less likely to experience a negative outcome to an event than others (Shepperd et al., 2002). Since there are more data suggesting that optimism bias is stronger when related to

negative events and outcomes, these factors may become prevalent in research related to alcohol use, drug use, and sexual behaviors (Gouveia & Clarke, 2001; Shepperd, et al., 2002). In this study, optimism bias can make comparisons between individuals and determine if the risk of experiencing a negative outcome is the same, greater, or less than their peers (Helweg-Larsen & Shepperd, 2001; Radcliffe & Klein, 2002). The Adolescent Invulnerability Scale – Danger Invulnerability Subscale assesses optimism bias in the studied population (Lapsley & Duggan, 2001). The instrument assesses the severity of the risk and the likelihood of engaging in the risk-taking behavior (Hill, 2012). Exploring optimism bias through the assessment helps determine athletes' risk-taking behaviors and explains why student athletes feel more or less susceptible to risk-taking behaviors than their peers. These instruments compare individual risk-taking behavior and explain why athletes choose to take risks relating to drug use, alcohol use, and sexual behaviors.

The instruments used in the study were different and able to assess athletes' levels of involvement in certain risky behaviors related to: alcohol use, drug use, sexual behaviors, and assessed the presence of optimism bias. These assessments attempt to identify specific risk-taking behaviors in which male Division II intercollegiate athletes are more prone to engage. In addition, specific groups of male Division II intercollegiate athletes were more or less susceptible to partaking in risk-taking behaviors. The results of the study determined which variables affected male intercollegiate athletes' risk-taking behaviors and which factors were not statistically significant.

Procedures and Population

The population of the study consisted of Division II male intercollegiate athletes from select institutions. Eight members of a Division II athletic conference participated in this study.

Participants from these institutions were assessed in order to identify the amount of risk-taking occurring among male student athletes. Institutional administrators agreed to participate in the study so that they could gain insight into the male risk-taking behaviors of their student athletes. Overall, this sample is important because institutions were from the same athletic conference. The individual institutions identified male student athletes who could potentially take part in the study. The dissertation will be provided to the individual institutional leadership members so that they can better understand the risk-taking behaviors of student athletes.

Student athletes completed an anonymous online assessment that was used to assess individual risk-taking tendencies. The online survey was sent to a total of 1,574 potential participants. Using a sample size calculator, a total of 309 responses were required to provide a 95% confidence level with a 5% margin of error. Krejcie and Morgan (1970) determined standard sample size calculations for a population of 1,500 would consist of 306 responses, and the sample size for a population of 1,600 would consist of 310 responses. After data collection, there were 320 valid responses to the survey. These participants agreed to the informed consent message, identified themselves as a current male student athlete, and progressed onto the survey instrument questions. Reasons a response was considered invalid included (entirely blank responses past the informed consent, failure to continue onto the survey instrument questions, indicating a non-athlete status). SPSS® may omit responses from the 320 that could potentially make the total number of responses used in the analysis drop below 309. Due to the large number of responses, there are still enough cases to allow the researcher to draw conclusions based upon the relationships between the variables even if the total falls below the recommended threshold of 309 for analysis.

Institutions and/or athletic leadership identified male student athletes as potential participants of the study. These students clicked a link to an online anonymous assessment that consisted of four instruments used to determine individual risk-taking tendencies. The Statistical Package for the Social Sciences® (SPSS®) version 23 was used to analyze the results and conduct a series of statistical analysis to determine and assess individual risk-taking. The researcher obtained all appropriate clearances and approvals to study this sample population, and the information was confidential and secure so that individual conference, institutions, and athletes remain anonymous. Copies of the study will be available to the individual institutional leadership so that they may view results related to student athlete risk-taking behavior. The researcher provided contact information if any participants wished to contact the researcher in order to obtain more information related to the study. No participants contacted the researcher to gain additional information or to gain a copy of the final dissertation. The study followed Proper Institutional Review Board (IRB) policies and procedures, and communication with individual institutions was constant and consistent. The researcher obtained IRB approvals from the originating institution and each institution participating in the study.

The results depict which groups of Division II intercollegiate male athletes were most likely/least likely to engage in certain risk-taking behaviors and documents the differences in risk among the various demographic identifiers. The four instruments used comprehensively analyzed students' levels of alcohol, substances, and sexual risk-taking behaviors, and gauged the presence of optimism bias. An example of the comprehensive instrument consisting of The Risky Sex Scale, The Substance Use Risk Profile Scale (SURPS), The College Alcohol Problem Scale-revised (CAPS-r), and The Adolescent Invulnerability Scale - Danger Invulnerability subscale (AIS DI) is included in Appendix F.

Research Questions

The purpose of this study was to examine the risk-taking behaviors of a specific sub-group of the total student-athlete population and total college student population. Division II male intercollegiate student athletes were surveyed and assessed concerning individual alcohol, drug, and sexual behaviors in order to better understand their actions. Currently, there are limited empirical data regarding this sub-group with regard to individual risk-taking behaviors. These risky decisions place college student athletes at a higher level of risk than other college students.

The research examined and conducted in this study focused on Division II male intercollegiate athletes risk-taking behaviors. Why do they take risks? What factors affect their decision-making? The study focused on the following research questions:

1. What group of student athletes (individual sports vs. team sports) engage in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?
2. Does student athlete risk-taking behavior differ according to length of association with an athletic program?
3. Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?
4. Does student athlete risk-taking behavior differ according to age?
5. Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?

These research questions provided the framework to evaluate the levels of risk exhibited by Division II male student athletes. Demographic information and individual characteristics helped determine which student athletes take more risks. These behaviors place college student athletes at a heightened level of risk than other non-athlete college students.

Data Analysis and Statistical Procedures

A series of independent samples t-tests and logistic regressions examined the relationship between student athletes and individual scores on the comprehensive risk assessment. T-tests used the two-factor variables (athlete and non-athlete, scholarship and non-scholarship, leader and non-leader, age and other age, year of affiliation and other years of affiliation, academic class and other academic class) and were observed and analyzed in relation to the observations within the various areas based on individual instrument test scores. The t-test analyzed the differences between the means of two samples to determine if a significant difference exists (Field, 2013). T-tests determined how the data sets from athletes varied from each other and identified areas of statistical significance (Witte, R., & Witte, J., 2010).

Logistic regression was selected to analyze the datasets in the study. Logistic regression was used as an explanatory model used to explain the relationship of binary or dichotomous variables (Witte & Witte, 2010). Logistic regressions are typically used to create combinations of predictions, and predicts the dependent variable by one or more independent variables (Field, 2013; Tabachnick & Fidell, 2007). In this case, the logistic regression is used as an explanatory model where the Independent Variables and Dependent Variables were analyzed so that the scores on the individual assessments acted as independent variables and the variables (individual/team sport, age, years of affiliation, academic classification, scholarship, and team leader) acted as dependent variables. In these logistic regressions, the dependent variables are the grouping variable and the independent variables are the explanatory variable(s).

In the study the variables were all binary (team sport student athlete/individual sport student athlete, 18 years old/other age, 19 years old/other age, 20 years old/other age, 21 years old/other age, 22+ years old/other age, freshmen/other academic class, sophomore/other

academic class, junior/other academic class, senior-graduate/other academic class, 1 year of affiliation/other years of affiliation, 2 years of affiliation/other years of affiliation, 3 years of affiliation/other years of affiliation, 4+ years of affiliation/other years of affiliation, team leader/non-team leader, scholarship/non-scholarship). Field (2013) states that logistic regression is an ideal analysis to use when outcomes are binary. In addition, they can be used to explain the outcome (dependent variable) from explanatory variables.

When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (independent variable) and the DV (dependent variable). The logistic regression also determines the odds ratio and effect size for the dependent variable in relation to the independent variables (Tabachnick & Fidell, 2007; Witte & Witte, 2010). The logistic regression utilizes a predicted probability formula to determine the outcome of datasets (Witte & Witte, 2010). An example of the logistic regression formula is below. The example formula includes the variable descriptors, and the predicted logit represents the dependent variable.

$$\text{logit}(p) = \text{(constant)} + \text{SURPS H } \beta \text{ VALUE*SURPS H} + \text{SURPS AS } \beta \text{ VALUE *SURPS AS} + \text{SURPS IMP } \beta \text{ VALUE *SURPS IMP} + \text{SURPS SS } \beta \text{ VALUE *SURPS SS} + \text{CAPS-R } \beta \text{ VALUE*CAPS-R} + \text{RSS RSE } \beta \text{ VALUE*RSS RSE} + \text{RSS RSB } \beta \text{ VALUE*RSS RSB} + \text{RSS GSRP } \beta \text{ VALUE*RSS GSRP} + \text{AIS DI } \beta \text{ VALUE*AIS DI}$$

In the study, significance levels of 0.05 were set. The significance level of 0.05 is thought to be the standard threshold of statistical significance (Field, 2013). This significance level was used as the threshold for the analysis of the variables. In addition, odds ratios are produced that determine the probably of an event occurring within the variables. The variables consisted of scores on the respective instruments composed of: The College Alcohol Problem Scale - revised,

The Risky Sex Scale (and subscales), The Substance Use Risk Profile Scale (and subscales), and The Adolescent Invulnerability Scale – DI subscale. For analysis of the assessment scales, scales were coded so that higher total scores on the survey equated to a higher amount of risk-taking behavior exhibited by the participant. Additional analysis were considered such as conducting ANOVA's, regression analysis, and correlational analysis. However, it was decided that conducting a logistic regression and using the model as an explanatory model that could be used to determine which instruments helped explain the variables would be beneficial to individual institutions/programs. T-tests were decided upon so that each assessment/variable set could be looked at independently from other groups, and that there could be a determination as to which individual areas produced statistically significant results. Additional analysis can occur in future research that can explore relationships further.

Research question one: What group of student athletes (individual sport student athletes/team sport student athletes) engage in the most risk-taking behaviors when assessing risks associated with alcohol use, drug use, and sexual behaviors? Individual results were calculated from the scores of the Risky Sex Scale, The Substance Use Risk Profile Scale, The College Alcohol Problem Scale – revised, and the Adolescent Invulnerability Scale - Danger Invulnerability sub-scale. The scores of team sport athletes and individual sport athletes were compared using t-tests and logistic regressions. SPSS® was utilized to sum the squared standard deviations for each group and produced a score for *t.* This analysis of the data determined the alpha level of each variable. The t-score determined if there was a statistically significant relationship between the scores. T-tests used the two-factor variables (team sport student athlete and individual sport student athlete) and were observed and analyzed in relation to the observations within the scores on the study instruments based on individual scores. The t-test

analyzed the differences between the means of two samples (team sport student athlete and individual sport student athlete) to determine if a significant difference exists (Field, 2013). T-tests determined how the data sets from student athletes varied from each other and identified areas of statistical significance.

The logistic regression analyzed the datasets related to the question. The analysis was used to explain the outcomes of the variables (Witte & Witte, 2010). In this question, the independent variables and dependent variable were analyzed so that the scores on the individual assessments acted as independent variables and the variable of team sport student athlete or individual sport student athlete acted as the dependent variable. When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (scores on survey instruments) and the DV (team sport student athlete/individual sport student athlete). The logistic regression also determined the odds for the dependent variable in relation to the independent variables (Witte & Witte, 2010). The significance level of 0.05 is thought to be the standard threshold of statistical significance, and was used as the threshold for the analysis of the variables (Field, 2013).

To answer research question two, asking if student athletes' risk-taking behaviors differ according to the length of time they are associated with an athletic program, t-tests were conducted to identify the mean for the data sets and deviation scores. SPSS® was used to sum the squared standard deviations for each set and identified t-scores. The t-score was once again used to analyze and identify areas of statistical significance. These additional comparisons determined if risk levels were statistically significant when factoring in the duration of participation in a sport. These analyses were able to determine which group engaged and participated in the risk-taking activities. The independent variable in relation to this question was either how long a

student athlete had been associated with his athletic team or the student athletes' academic standing. This question analyzed the difference in risk-taking behaviors and tendencies while looking at the duration of involvement in intercollegiate athletics. The dependent variable consisted of the scores on the individual instruments that indicated levels of risk related to alcohol use, drug use, sexual behaviors, and optimism bias. The t-score helped identify how groups of student athletes varying in duration of participation engaged in risk-taking behaviors and helped analyze and identify areas of statistical significance. T-tests used the two-factor variables (*x* years of affiliation and other years of affiliation/current academic standing and all other academic standings) and were observed and analyzed in relation to the observations within the scores on the study instruments based on individual scores. The t-test analyzed the differences between the means of two samples (years of affiliation or academic standing) to determine if a significant difference exists (Field, 2013). T-tests determined how the data sets from student athletes varied from each other and identified areas of statistical significance.

The logistic regression analyzed the datasets related to the question. The analysis was used to explain the outcomes of the variables (Witte & Witte, 2010). In this question, the independent variables and dependent variable were analyzed so that the scores on the individual assessments acted as independent variables and the variable of years of affiliation and academic standing acted as the dependent variable. When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (scores on survey instruments) and the DV (years of affiliation or academic standing). The logistic regression also determined the odds for the dependent variable in relation to the independent variables (Witte & Witte, 2010). The significance level of 0.05 is thought to be the

standard threshold of statistical significance, and was used as the threshold for the analysis of the variables (Field, 2013).

To answer research question three, asking if athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates, t-tests identified the mean for the data sets and deviation scores. SPSS® was used to sum the squared standard deviations for each set. SPSS® also identified t-scores. T-tests were used to analyze and identify areas of statistical significance. These additional comparisons were used to determine whether athletic team leaders engaged in more risk-taking behaviors than other athletes. These analyses determined under which factors athletic team leaders were engaging and participating in the risk-taking activities. T-tests used the two-factor variables (team leader and non-leader) and were observed and analyzed in relation to the observations within the scores on the study instruments based on individual scores. The t-test analyzed the differences between the means of two samples (team leader and non-leader) to determine if a significant difference exists (Field, 2013). T-tests determined how the data sets from student athletes varied from each other and identified areas of statistical significance.

The logistic regression analyzed the datasets related to the question. The analysis was used to explain the outcomes of the variables (Witte & Witte, 2010). In this question, the independent variables and dependent variable were analyzed so that the scores on the individual assessments acted as independent variables and the variable of team leader or non-leader acted as the dependent variable. When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (scores on survey instruments) and the DV (team leader status). The logistic regression also determined the odds for the dependent variable in relation to the independent variables (Witte & Witte, 2010). The

significance level of 0.05 is thought to be the standard threshold of statistical significance, and was used as the threshold for the analysis of the variables (Field, 2013).

Research question four analyzed if a student athletes' likelihood to partake in risk-taking behaviors differ depending on age. Similar to other research questions, t-tests were conducted to identify the mean for the data sets and deviation scores. SPSS® was used to sum the squared standard deviations for each set and identified t-scores. The t-tests analyzed the dataset and identified areas of statistical significance. These additional comparisons determined if risk levels were statistically significant when factoring in the age of participants competing in a sport. These analyses were able to determine which age groups were engaging and participating in the risk-taking activities. The Independent Variable to this question was identifying the age of athletes. The Dependent Variable were the scores on the individual instruments that indicated levels of risk related to alcohol use, drug use, sexual behaviors, and optimism bias. T-tests used the two-factor variables (*x* years old and other years of age) and were observed and analyzed in relation to the observations within the scores on the study instruments based on individual scores. The t-test analyzed the differences between the means of two samples (*x* years old and other years of age) to determine if a significant difference exists (Field, 2013). T-tests determined how the data sets from student athletes varied from each other and identified areas of statistical significance.

The logistic regression analyzed the datasets related to the question. The analysis was used to explain the outcomes of the variables (Witte & Witte, 2010). In this question, the independent variables and dependent variable were analyzed so that the scores on the individual assessments acted as independent variables and the variable of age acted as the dependent variable. When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (scores on survey instruments) and the

DV (age). The logistic regression also determined the odds for the dependent variable in relation to the independent variables (Witte & Witte, 2010). The significance level of 0.05 is thought to be the standard threshold of statistical significance, and was used as the threshold for the analysis of the variables (Field, 2013).

The final analysis was conducted to determine if scholarship athletes engaged in more risk-taking behaviors than non-scholarship athletes. This analysis helped determine whether scholarship athletes were more or less likely to take risks. The data analyzed through SPSS® was used to determine if there was a statistically significant relationship between the scores. T-tests identified the mean for the data sets and deviation scores. SPSS® was used to sum the squared standard deviations for each set and identified t-scores. The t-score was used to analyze and identify areas of statistical significance. These additional comparisons determined if risk levels were statistically significant when factoring in the scholarship level of participants competing in a sport. These analyses were able to determine which specific scholarship or non-scholarship student athletes were engaging and participating in the risk-taking activities. The independent variable consisted of the scholarship or non-scholarship student athlete status, and the dependent variables consisted of the scores on the individual instruments that indicated levels of risk related to alcohol use, drug use, sexual behaviors, and optimism bias. Analyzing these variables helped determine if scholarship athletes engaged in risk-taking behaviors the most when assessing alcohol use, drug use, and sexual behaviors. T-tests used the two-factor variables (scholarship or non-scholarship) and were observed and analyzed in relation to the observations within the scores on the study instruments based on individual scores. The t-test analyzed the differences between the means of two samples (scholarship or non-scholarship) to determine if a significant

difference exists (Field, 2013). T-tests determined how the data sets from student athletes varied from each other and identified areas of statistical significance.

The logistic regression analyzed the datasets related to the question. The analysis was used to explain the outcomes of the variables (Witte & Witte, 2010). In this question, the independent variables and dependent variable were analyzed so that the scores on the individual assessments acted as independent variables and the variable of scholarship status acted as the dependent variable. When analyzing the results of the logistic regression outputs, SPSS® was used to factor in all variables to determine relationships between the IVs (scores on survey instrument) and the DV (scholarship status). The logistic regression also determined the odds for the dependent variable in relation to the independent variables (Witte & Witte, 2010). The significance level of 0.05 is thought to be the standard threshold of statistical significance, and was used as the threshold for the analysis of the variables (Field, 2013).

In addition to t-tests and logistic regressions, descriptive statistics, mean, degrees of freedom, and standard deviation are included in Chapter IV. The Statistical Package for the Social Sciences® (SPSS®) version 23 was used to conduct the data analysis of the study. These processes were imperative to complete a detailed analysis of the connection between independent and dependent variables (Muijs, 2004). Table 3 reports analyses of the independent variables and dependent variables in the study. The research questions presented and broken down in Table 3 used a series of statistical analyses to determine the significance of test scores and variables. Table 3 visually maps out the specific research questions, items/variables, and statistical methods for the research questions included in the study. The data analysis was vital in the identification and reporting of statistically significant findings related to individual alcohol use, drug use, sexual behaviors and perceived optimism bias.

Table 3

Research Questions Data Analysis Methods

Research Questions	Items/Variables	Statistical Methods
What group of student athletes (individual sports vs. team sports) engage in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?	**IV:** Student athletes' participation in Team Sport or Individual Sport **DV:** Scores on instruments that determine risk	**T-test:** Comparing mean scores on the instruments. **Logistic Regression:** Used to measure the effect of the IVs on the DV. (IV and DV flipped using logistic regression)
Does student athlete risk-taking behavior differ according to length of association with an athletic program (years and academic classification)?	**IV:** Number of years associated with the athletic team. **DV:** Scores on instruments that determine risk	**T-test:** Comparing mean scores on the instruments. **Logistic Regression:** Used to measure the effect of the IVs on the DV. (IV and DV flipped using logistic regression)
Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?	**IV:** Athletic Team Leader Status **DV:** Scores on instruments that determine risk	**T-test:** Comparing mean scores on the instruments. **Logistic Regression:** Used to measure the effect of the IVs on the DV. (IV and DV flipped using logistic regression)
Does student athlete risk-taking behavior differ according to age?	**IV:** Student Athlete Age **DV:** Scores on instruments that determine risk	**T-test:** Comparing mean scores on the instruments. **Logistic Regression:** Used to measure the effect of the IVs on the DV. (IV and DV flipped using logistic regression)
Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?	**IV:** Athlete scholarship status **DV:** Scores on instruments that determine risk	**T-test:** Comparing mean scores on the instruments. **Logistic Regression:** Used to measure the effect of the IVs on the DV. (IV and DV flipped using logistic regression)

Note: DV = Dependent Variable; IV = Independent Variable

Conclusion

This study examined athletic risk-taking and assesses Division II male intercollegiate student athletes' risk-taking behaviors. It provides researchers new data with which to base future studies and allows future research to continue to assess athletic risk-taking behaviors. It is imperative that researchers understand how non-athlete students take risks and which factors influence their individual risk-taking behaviors. This study analyzed specific factors that influence Division II male intercollegiate student athletes. Through examining and analyzing Division II male intercollegiate athletes and comparing them to one another, tendencies and trends were identified and explored further. Specific traits that lead student athletes to take risks may aid researchers in determining why risks are prevalent among this population. Intercollegiate student athletics risk-taking studies identify which risks are more prevalent among college student athletes. These comparisons among athletes can be made along several factors in the future: Divisions (I, II, and III); gender (male vs. female); and specific sports.

This study examined the presence of intercollegiate student athlete risk-taking further and identified specific motivating factors and influences. These findings will aid in determining why Division II intercollegiate male student athletes take risks. This particular study focused upon Division II intercollegiate male student athletes but could be expanded in the future to encapsulate both male and female student athletes at all levels of athletic competition (Division I, Division II, and Division III). Overall, this analysis of male Division II student athlete risk-taking behavior can be the beginning of a larger comprehensive analysis that can be used to determine motivating and driving forces behind why student athletes engage in high-risk behaviors. Furthermore, it can offer insights regarding ways to combat high-risk behaviors among student-athletes.

CHAPTER IV

ANALYSIS OF RESULTS

The study conducted an analysis of the risk-taking behaviors of Division II male intercollegiate student athletes. The data analysis for this study focused on the following research questions:

1. What group of student athletes (individual sports vs. team sports) engage in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?
2. Does student athlete risk-taking behavior differ according to length of association with an athletic program?
3. Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?
4. Does student athlete risk-taking behavior differ according to age?
5. Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?

Utilizing a series of tables to better illustrate findings, this chapter depicts various levels of Division II male intercollegiate student athlete risk-taking behaviors.

Population

The study included members of several Division II athletic programs in the same conference. Table 4 lists a detailed breakdown of respondents and athletic teams represented in the sample population. This analysis assesses specific attributes of Division II male student athletes in relation to their athletic team. In addition, it analyzes how factors such as age,

affiliation time, academic standing, and scholarship level affect risk-taking behaviors. Division II student athletes were selected because they can be awarded athletic scholarships and have a high level of competition and were more receptive to taking part in a survey that assessed their levels of alcohol use, drug use, and sexual behaviors. As a reminder, Division II institutions comprise over 300 of the 1,121 colleges and universities participating in NCAA athletics. There are approximately 119,066 Division II athletes consisting of 69,448 men (58.3%) and 49,618 women (41.7%) (NCAA, 2016).

Eight athletic programs agreed to participate in the study. Contact information for male student athletes or directory information was made available to the researcher to contact participants, or athletic departments opted to contact male student athletes directly. A total of 1,574 potential participants were contacted from these institutions. Student athletes completed an anonymous online assessment that consisted of four instruments used to determine individual risk-taking tendencies and gauge perceived optimism bias of student athletes. There were 320 responses to the survey where the participant agreed to the informed consent message, identified themselves as a current male student athlete, and progressed onto the survey instrument questions. Invalid responses included (entirely blank responses past the informed consent, failure to continue onto the survey instrument questions, indicating a non-athlete status). A distribution of the population is broken down into various sports in Table 4.

Table 4

Athletic Teams Represented in the Study and Number of Participants Per Sport

Sport	*n*	Team Sport	Individual Sport
Baseball	42	*	
Basketball	10	*	
Football	96	*	
Golf	6		*
Lacrosse	4	*	
Soccer	31	*	
Swimming & Diving	22		*
Tennis	3		*
Track & Field or Cross Country	68		*
Water Polo	5	*	
Wheelchair Basketball	2	*	
Wrestling	30		*
No Sport Indicated	1		
Total:	**320**	**193**	**126**

Note: Valid results from the online anonymous survey are included

This study examined the risk-taking behaviors of male Division II student athletes and compared them against several variables: team type; time associated with the athletic program; team leader status; age of student athlete; and scholarship level of student athlete. Through a thorough analysis and comparison of student athlete risk-taking behaviors among variables, this study concludes to what extent and degree participating Division II male intercollegiate student athletes and athletic teams are partaking in specific risk-taking behaviors. From these analyses, conclusions are determined regarding the risk-taking behaviors of this sub-population of student athletes. Overall, this sample is representative of the larger population of male intercollegiate student athletes who were eligible to participate in the comprehensive study.

As a reminder, The Risky Sex Scale is set on a Likert scale (5=Strongly Agree, 4=Agree, 3=Not Sure, 2=Disagree, 1=Strongly Disagree). The RSS composite score can range from (14-70); subscales include the Risky Sex Expectancies subscale (scores range from 7-35); the Risky Sex Behaviors subscale (scores range from 4-20); and the Gender Based Perceptions of Risky

Sex subscale (scores range from 3-15). The Substance Use Risk Profile Scale is also scaled on a Likert scale (4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree). The SURPS composite score can range from (23-92); subscales include the hopelessness subscale (scores range from 7-28); the anxiety sensitivity subscale (scores range from 5-20); the impulsivity subscale (scores range from 5-20); and the sensation seeking subscale (scores range from 6-24). The College Alcohol Problems Scale – revised was also scaled on a Likert scale (1 = never, 2 = Yes, but not in the past year, 3 = 1-2 times, 4 = 3-5 times, 5 = 6-9 times, 6 = 10 or more times) The CAPS-r composite score can range from (8-48). The The Adolescent Invulnerability Scale – Danger Invulnerability subscale is set on a Likert scale (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree), the danger invulnerability subscale has a score range of (6-30). All instruments were coded so that higher totals equate to more overall risk exhibited.

Research Question One

What group of student athletes (individual sports vs. team sports) engages in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?

In the study, 12 sports are represented: seven are considered and classified as team sports (basketball, baseball, football, soccer, lacrosse, water polo, & wheelchair basketball) and five are considered and classified as individual sports (golf, swimming, wrestling, cross-country & track) (J. Vincent, personal communication, January 25, 2016). The team sport and individual sport distribution is listed in Table 5.

Table 5

Individual Sports vs. Team Sports

Sport Classification	*n*
Team Sport Student Athlete	193
Individual Sport Student Athlete	126
No Sport Indicated	1
Total:	**320**

Note: This table reports valid results indicating sport classification gathered from the responses from the online anonymous survey. Total *n* for statistical analysis may vary depending on incomplete responses omitted by SPSS® for the analysis.

Statistical and descriptive analyses conducted compared team sport student athletes and individual sport student athletes. Table 6 provides the mean, standard deviation, t-scores, and degrees of freedom for the instruments related to team sport/individual sport student athletes. Statistically significant results indicating individual sport student athletes scored statistically significantly lower on the CAPS-r (p = .021, t = 2.320) were found through the t-tests. This leads to the finding that the individual sport student athletes produced significantly lower scores on the CAPS-r assessment (Individual Sport M = 15.4711; Team Sport M = 17.5886). These results suggest that the team sport student athletes that took part in the study had significantly higher scores related to overall alcohol use assessed by the CAPS-r. These results provide examples of how team sport student athletes and individual sport student athletes differ from one another when compared among their means and standard deviations using t-tests.

The results indicate that team sport athletes do have higher mean scores in alcohol risk, sexual risk, and scored higher on questions that could be related to optimism bias than individual sport student athletes. The t-tests provided statistically significant results in relation to the CAPS-r (p = .021; t = 2.320). The Adolescent Invulnerability Scale – Danger Invulnerability subscale was not statistically significant in this model (p = .281, t = 1.080) but it is important to note that scores on the AIS DI subscale scores were higher overall in team sport student athletes. The

independent samples t-tests were run to determine if significant differences exist between team sport student athletes and individual sport student athletes. No serious violations were observed in relation to the dataset for the t-tests.

Table 6 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Individual sport athletes produced higher mean scores on the Substance Use Risk Profile Scale (Individual Sport *M* = 51.8595; Team Sport *M* = 50.5754), SURPS H hopelessness subscale (Individual Sport *M* = 12.1148; Team Sport *M* = 11.3889), SURPS AS anxiety sensitivity subscale (Individual Sport *M* = 12.3033; Team Sport *M* = 12.1148), SURPS SS sensation seeking subscale (Individual Sport *M* = 17.0164; Team Sport *M* = 16.4590), and the Risky Sex Scale RSE risky sex expectancies subscale (Individual Sport *M* = 19.4828; Team Sport *M* = 19.1345). Team sport athletes produced higher mean scores in SURPS IMP impulsivity subscale (Individual Sport *M* = 10.4380; Team Sport *M* = 10.6722), College Alcohol Problem Scale-revised (Individual Sport *M* = 15.4711, Team Sport *M* = 17.5886), Risky Sex Scale (Individual Sport *M* = 41.0948; Team Sport *M* = 41.3647), Risky Sex Scale RSB risky sex behaviors subscale (Individual Sport *M* = 10.8362; Team Sport *M* = 11.5205), Risky Sex Scale GSRP gender based perceptions of risky sex subscale (Individual Sport M = 10.7759; Team Sport *M* = 10.8023), and the Adolescent Invulnerability Scale- Danger Invulnerability subscale (Individual Sport *M* = 12.8348; Team Sport *M* = 13.4371).

Table 6

Means, Standard Deviation, and T-Test Results of Individual Sport Student Athlete Risk-taking Behaviors (Team Sports vs. Individual Sports) and the Relationships among the Variables

Variables	Individual Sport Student Athletes vs. Team Sport Student Athletes				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Individual Sport	51.8595	5.26356	121	298	-1.928
Team Sport	50.5754	5.91310	179		
H Subscale					
Individual Sport	12.1148	3.12335	122	300	-1.945
Team Sport	11.3889	3.22246	180		
AS Subscale					
Individual Sport	12.3033	2.27051	122	300	-1.148
Team Sport	12.1148	2.02629	180		
IMP Subscale					
Individual Sport	10.4380	1.95317	121	299	.991
Team Sport	10.6722	2.04647	180		
SS Subscale					
Individual Sport	17.0164	2.97922	122	303	-1.642
Team Sport	16.4590	2.85303	183		
College Alcohol Problem Scale- Revised					
Individual Sport	15.4711	7.17295	121	294	2.320*
Team Sport	17.5886	8.07521	175		
Risky Sex Scale					
Individual Sport	41.0948	8.97240	116	284	.231
Team Sport	41.3647	10.17928	170		
RSE Subscale					
Individual Sport	19.4828	5.41252	116	285	-.510
Team Sport	19.1345	5.85507	171		
RSB Subscale					
Individual Sport	10.8362	3.77162	116	285	1.397
Team Sport	11.5205	4.26386	171		
GSRP Subscale					
Individual Sport	10.7759	2.53012	116	286	.091
Team Sport	10.8023	2.32112	172		
Adolescent Invulnerability Scale - DI Subscale					
Individual Sport	12.8348	4.38084	115	280	1.080
Team Sport	13.4371	4.74728	167		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with individual sport student athlete as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 272 student athletes were available for analysis: 160 team sport student athletes and 112 individual sport student athletes.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 272) = 8.381, p =.004, indicating that the variables as a group, significantly differentiated between team and individual sport athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 34.654. The significance level was .000 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .375, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 7, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 80.6% of team sport student athletes and 43.8% of individual sport student athletes. Overall, the logistic regression correctly identified 65.4% of student athlete classification. This is an improvement over the 58.8% correct classification rate of the constant model, indicating that the model with the variables is better at determining classification.

Table 7

Classification Table for Team Sport/Individual Sport

	Correctly Predicted	Incorrectly Predicted	Total Correct
Team Sport	129	31	80.6
Individual Sport	49	63	43.8
Overall Percentage			65.4

*Note. The cut value is .500

Table 8 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *individual sport student athlete* (*p*) = -4.437 + .150*SURPS H + .137*SURPS AS - .114*SURPS IMP + .185*SURPS SS - .051*CAPS-R + .078*RSS RSE - .092*RSS RSB - .014*RSS GSRP - .057*AIS DI. Of the nine variables, six were statistically significant. According to the Wald criterion, six variables held statistical significance: the SURPS H hopelessness subscale, χ^2 (1, N = 272) = 11.062, p = .001; SURPS AS anxiety sensitivity subscale, χ^2 (1, N = 272) = 4.090, p = .043; SURPS SS sensation seeking subscale, χ^2 (1, N = 272) = 11.822, p = .001; RSS RSE risky sex expectancies subscale, χ^2 (1, N = 272) = 6.627, p = .010, CAPS-r, χ^2 (1, N = 272) = 5.953, p = .015; and RSS RSB risky sex behaviors subscale, χ^2 (1, N = 272) = 4.348, p = .037). The outcome of the logistic regression provides statistically significant results from the analysis. For every increase by one unit in SURPS H hopelessness, the odds of being an individual sport athlete increases by 16.2%. For every increase by one unit in SURPS AS anxiety sensitivity, the odds of being an individual sport athlete increases by 14.7%. For every increase by one unit in SURPS SS sensation seeking, the odds of being an individual sport athlete increases by 20.3%. For every increase by one unit in RSS RSE risky sex expectancies, the odds of being an individual sport athlete increases by 8.1%. For every increase by one unit in CAPS-r college alcohol problems scale revised, the odds of

being an individual sport athlete decreases by 5.0%. For every increase by one unit in RSS RSB risky sex behaviors, the odds of being an individual sport athlete decreases by 8.8%.

Table 8

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior among Team Sports vs. Individual Sports

							95% C.I. for Exp(β)	
Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.150	.045	11.062	1	.001*	1.162	1.064	1.270
AS Subscale	.137	.068	4.090	1	.043*	1.147	1.004	1.310
IMP Subscale	-.114	.076	2.269	1	.132	.892	.769	1.035
SS Subscale	.185	.054	11.822	1	.001*	1.203	1.083	1.337
College Alcohol Problem Scale-Revised	-.051	.021	5.953	1	.015*	.950	.911	.990
Risky Sex Scale								
RSE Subscale	.078	.030	6.627	1	.010*	1.081	1.019	1.148
RSB Subscale	-.092	.044	4.348	1	.037*	.912	.837	.995
GSRP Subscale	-.014	.061	.050	1	.823	.987	.876	1.111
Adolescent Invulnerability Scale-DI Subscale	-.057	.033	2.903	1	.088	.945	.885	1.009
Constant	-4.437	1.459	9.251	1	.002*	.012		

Note. *$p \leq .05$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) * = $p \leq .050$ Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for athletic team membership (team sport vs. individual sport). The -2LL value for all test variables was 333.903, and the Nagelkerke R square value was .161. This indicates that the

model accounted for 16.1% of the variance between team sport and individual sport athletes. Table 9 summarizes the model.

Table 9

Model Summary for Team Sport vs. Individual Sport Male Student Athletes

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	333.903	.161

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to athletic team type determined a connection to responses on various risk instruments. The areas identified as being statistically significant provide valuable information related to student athlete risk-taking behaviors. The factors and questions identified in this section of the study as being of statistical significance can be explored further to consider when assessing student athlete risk-taking behaviors related to team type.

The data analysis produced results that show student athletes participating in team sports had significantly higher scores on the CAPS-r (College Alcohol Problems Scale – revised) through the t-tests. In addition, the logistic regression identified the variables of the CAPS-r (College Alcohol Problems Scale – revised), RSS RSB (risky sex behaviors) subscale, SURPS H (hopelessness) subscale, SURPS AS (anxiety sensitivity) subscale, SURPS SS (sensation seeking) subscale, and the RSS RSE (risky sex expectancies) subscale as being significant explanatory variables. Through the analysis, it was found that increased hopelessness, anxiety-sensitivity, sensation seeking, and risky sex expectancies were associated with a likelihood of being an individual team athlete. Increased alcohol use and risky sex behaviors were associated with the likelihood of being a team athlete.

Research Question Two

Does student athlete risk-taking behavior differ according to length of association with an athletic program?

This question aimed to explore how academic year (freshmen, sophomore, junior, senior, graduate), and duration of athletic involvement (one, two, three, four, five years), related to risk-taking behaviors. Statistical analyses conducted compared instruments related to the levels of risk exhibited by each year or duration of athletic competition for Division II intercollegiate male student athletes. Overall, there were good response rates for (freshmen, sophomores, juniors, and seniors). Table 10 shows the total number of respondents for the survey. The table is representative of the valid results indicating academic classification from the online anonymous survey that Division II male intercollegiate athletes took in order to participate in the study. Depending on the individual questions answered, SPSS® omitted responses if they were invalid.

Table 10

Academic Classification

Academic Classification	*n*
Freshmen	91
Sophomore	97
Junior	59
Senior	67
Graduate	5
No Response	1
Total:	**320**

Note: Total *n* for statistical analysis may vary depending on incomplete responses omitted by SPSS® for the analysis.

Freshman Student Athletes

Statistical and descriptive analyses conducted compared freshman student athletes to all other student athletes. Table 11 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Freshman student athletes produced statistically significantly

lower scores on the SURPS (p = .032, t = 2.151). This leads to the finding that the freshman student athletes showed significantly lower scores on the overall SURPS assessment. The results of the SURPS subscales did not produce statistically significant results. The other area that produced statistically significant results were the CAPS-r (p = .000, t = 3.965). The findings suggest that the freshman student athletes that took part in the study had significantly lower scores on the CAPS-r than their peers. The lower score on the CAPS-r suggests that freshman student athletes have a lower rate of alcohol risk-taking behaviors than non-freshman student athletes. The CAPS-r and SURPS instruments highlighted several statistically significant results producing significance levels of less than p = .05.

The independent samples t-test was run to determine if significant differences exist between freshmen student athletes and non-freshmen student athletes. No serious violations were observed in relation to the dataset for the t-tests. Through the Levene's Test for Equality of Variance, the RSS RSB (p = .001) was identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results.

The CAPS-r (p = .000, t = 3.965) findings indicate that freshman student athletes engaged in significantly less alcohol related risk-taking behaviors than their peers and that they produced significantly lower scores related to alcohol use and consumption. In addition, the SURPS (p = .032, t = 2.151) findings indicate that freshman student athletes engage in significantly less substance related risk-taking behaviors than their peers and that freshman student athletes produced significantly lower scores related to substance use and consumption. These results provide examples of how freshman student athletes differ from their peers when compared among their means and standard deviations using t-tests.

The results of this analysis suggest that freshman student athletes are taking significantly lower amounts of risk related to substance use and alcohol use. Freshman student athletes produced higher mean scores only in the RSS GSRP gender based perceptions of risky sex subscale (Freshman M = 10.9620; Other Athletes M = 10.7333). The Adolescent Invulnerability Scale – Danger Invulnerability subscale measuring optimism bias was not significant (p = .481, t-score = .706) but it is important to note that the AIS DI subscale was lower in freshman male student athletes when compared to the scores of their peers.

Table 11

Means, Standard Deviation, and T-Test Results of Freshman Student Athlete Behaviors (Freshman Student Athletes vs. All Other Athletes) and the Relationships among the Variables

Variables	Freshman Student Athletes				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Freshman	49.9405	6.00472	84	298	2.151*
Other Athletes	51.5000	5.49164	216		
H Subscale					
Freshman	11.4881	2.93912	84	300	.574
Other Athletes	11.7248	3.30722	218		
AS Subscale					
Freshman	11.8214	1.94602	84	300	1.537
Other Athletes	12.2385	2.17399	218		
IMP Subscale					
Freshman	10.2976	2.02859	84	299	1.493
Other Athletes	10.6820	1.99427	217		
SS Subscale					
Freshman	16.3529	3.08493	85	303	1.252
Other Athletes	16.8182	2.84029	220		
College Alcohol Problem Scale- Revised					
Freshman	13.9024	7.35285	82	294	3.965*
Other Athletes	17.8178	7.35285	214		
Risky Sex Scale					
Freshman	40.4872	7.98333	78	285	.809
Other Athletes	41.5263	10.24134	209		
RSE Subscale					
Freshman	18.5000	5.17675	78	286	1.390
Other Athletes	19.5429	5.82772	210		
RSB Subscale					
Freshman	11.0385	3.25314	78	183.064	.591
Other Athletes	11.3190	4.34164	210		
GSRP Subscale					
Freshman	10.9620	2.48814	79	287	-.721
Other Athletes	10.7333	2.36913	210		
Adolescent Invulnerability Scale - DI Subscale					
Freshman	12.8734	4.45308	79	281	.706
Other Athletes	13.3039	4.65624	210		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with freshman academic standing as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 76 freshman student athletes and 197 student athletes of another academic classification.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 49.753, p = .000, indicating that the variables as a group, significantly differentiated between freshman student athletes and non-freshman student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 26.210. The significance level was .002 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .678, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 12, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 74.0% of student athletes and 43.8% of individual sport student athletes. Overall, the logistic regression correctly identified 98.0% of non-freshman student athletes and 11.8% of freshman athletes. Overall, the logistic regression correctly identified 74.0% of student athletes. This is a slight improvement over the 72.2% correct classification rate that the constant model produced, indicating that the model with the variables is better at determining freshman classification.

Table 12

Classification Table for Freshman Student Athletes

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Non-Freshman	193	4	98.0
Freshman	9	67	11.8
Overall Percentage			74.0

*Note. The cut value is .500.

Table 13 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *freshman student athlete* (p) = 2.198 - .023*SURPS H - .098*SURPS AS - .070*SURPS IMP - .059*SURPS SS - .089*CAPS-R - .029*RSS RSE + .068*RSS RSB + .085*RSS GSRP + .018*AIS DI. Of the nine variables, one was statistically significant. According to the Wald criterion, the variable that held statistical significance was the CAPS-r, χ^2 (1, N = 273) = 12.440, p = .000. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the CAPS-r instrument. For every increase by one unit in the CAPS-r college alcohol problems scale – revised, the odds of being a freshman student athlete decreases by 8.6%.

Table 13

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Freshman Academic Standing

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.023	.049	.213	1	.644	.978	.888	1.076
AS Subscale	-.098	.076	1.636	1	.201	.907	.781	1.053
IMP Subscale	-.070	.081	.749	1	.387	.932	.795	1.093
SS Subscale	-.059	.053	1.242	1	.265	.943	.850	1.046
College Alcohol Problem Scale-Revised	-.089	.025	12.440	1	.000*	.914	.870	.961
Risky Sex Scale								
RSE Subscale	-.029	.031	.847	1	.358	.972	.914	1.033
RSB Subscale	.068	.047	2.031	1	.154	1.070	.975	1.174
GSRP Subscale	.085	.066	1.642	1	.200	1.088	.956	1.238
Adolescent Invulnerability Scale-DI Subscale	.018	.034	.292	1	.589	1.019	.953	1.089
Constant	2.198	1.557	1.991	1	.158	9.003		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for freshman vs. non-freshman. The -2LL value for all test variables was 296.708, and the Nagelkerke R square value was .132. This indicates that the model accounted for 13.2% of the variance between freshman and non-freshman male student athletes. Table 14 summarizes the model.

Table 14

Model Summary for Freshman Male Student Athletes

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	296.708	.132

Note. -2 Log Likelihood values estimation terminated at iteration 5 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to freshman athletes determined a connection to responses on various risk instruments. The areas identified as being statistically significant provide valuable information related to freshman risk-taking behavior. Alcohol use and perceived substance use produced significantly lower results from the t-tests. The CAPS-r was also found to be a significant explanatory variable among the various instruments, where increased alcohol use is associated with the likelihood of being a non-freshman student athlete.

Sophomore Student Athletes

Statistical and descriptive analyses conducted compared sophomore student athletes to all other student athletes. Table 15 provides a summary of the analyses and t-tests, and highlights statistically significant findings. The CAPS-r and SURPS instruments highlighted several statistically significant results from the t-tests producing significant t-scores and *p* value of less that $p = .05$. Sophomores produced significantly higher scores on the CAPS-r - college alcohol problems scale revised ($p = .014$, $t = -2.474$) and the SURPS substance use risk profile scale ($p = .002$, $t = -3.081$). Three SUPRS subscales also produced significant results SURPS AS anxiety sensitivity subscale; ($p = .046$, $t = -2.001$), SURPS IMP impulsivity subscale; ($p = .000$, $t = -3.765$), and SURPS SS sensation seeking subscale; ($p = .036$, $t = -2.103$).

The independent samples t-test was run to determine if significant differences exist between sophomore student athletes and non-sophomore student athletes. No serious violations were observed in relation to the dataset for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS IMP subscale (p = .044), the RSS (p = .010), and the RSS RSB subscale (p = .007) were identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results.

Sophomores produced higher mean scores on the SURPS (Sophomore M =52.5714; Other Athletes M = 50.4067), SURPS AS anxiety sensitivity subscale (Sophomore M = 12.4891; Other Athletes M = 11.9619), SURPS IMP impulsivity subscale (Sophomore M = 11.2527; Other Athletes M = 10.2810), SURPS SS sensation seeking subscale (Sophomore M = 17.2151; Other Athletes M = 16.4575), CAPS-r (Sophomore M = 18.4270; Other Athletes M = 16.0048), RSS (Sophomore M = 42.0116; Other Athletes M = 40.9154), RSS RSE risky sex expectancies subscale (Sophomore M = 19.8506; Other Athletes M = 19.0050), and RSS RSB risky sex behaviors subscale (Sophomore M = 11.5349; Other Athletes M = 11.1188). These findings suggest sophomore student athletes also engaged in more substance related risk-taking behaviors than their peers and that sophomore student athletes had significantly higher scores related to alcohol use and substance use and consumption.

The results of this analysis suggest that sophomores are taking significantly higher amounts of risk related to substance use and alcohol use. The scores from the instruments were also analyzed using a logistic regression to determine statistical significance. In addition, The Adolescent Invulnerability Scale – Danger Invulnerability subscale measuring optimism bias was not significant in this model. While not significant (p = .830, t = .215) it is important to note that the AIS DI subscale measuring optimism bias was lower in sophomore male student athletes.

Table 15

Means, Standard Deviation, and T-Test Results of Sophomore Student Athlete Behaviors (Sophomore Student Athletes vs. All Other Athletes) and the Relationships among the Variables

Variables	Sophomore Student Athletes				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Sophomores	52.5714	5.29810	91	298	-3.081*
Other Athletes	50.4067	5.71790	209		
H Subscale					
Sophomores	11.6304	2.97136	92	300	.102
Other Athletes	11.6714	3.31036	210		
AS Subscale					
Sophomores	12.4891	1.96393	92	300	-2.001*
Other Athletes	11.9619	2.16728	210		
IMP Subscale					
Sophomores	11.2527	2.12704	91	153.984	-3.765*
Other Athletes	10.2810	1.88475	210		
SS Subscale					
Sophomores	17.2151	2.61205	93	303	-2.103*
Other Athletes	16.4575	3.01231	212		
College Alcohol Problem Scale-Revised					
Sophomores	18.4270	7.86085	89	294	-2.474*
Other Athletes	16.0048	7.66311	207		
Risky Sex Scale					
Sophomores	42.0116	11.19506	86	133.719	-.804
Other Athletes	40.9154	8.96090	201		
RSE Subscale					
Sophomores	19.8506	6.12947	87	286	-1.163
Other Athletes	19.0050	5.45390	201		
RSB Subscale					
Sophomores	11.5349	4.63160	86	136.380	-.734
Other Athletes	11.1188	3.81484	202		
GSRP Subscale					
Sophomores	10.6860	2.47463	86	287	.506
Other Athletes	10.8424	2.37244	203		
Adolescent Invulnerability Scale - DI Subscale					
Sophomores	13.0941	4.48177	85	281	.215
Other Athletes	13.2222	4.65578	198		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with sophomore academic standing as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 81 sophomore student athletes and 192 student athletes of another academic classification.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 42.432, p = .000, indicating that the variables as a group, significantly differentiated sophomore and non-sophomore student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 28.472. The significance level was .001 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .110, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 16, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 93.2% of non-sophomore student athletes and 17.3% of sophomore student athletes. Overall, the logistic regression correctly identified 70.7% of student athlete classification. This is a slight improvement over the 70.3% correct classification rate that the constant model produced, indicating that the model with the variables is better at determining classification.

Table 16

Classification Table for Sophomore Student Athletes

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Non-Sophomore	179	13	93.2
Sophomore	14	67	17.3
Overall Percentage			70.7

*Note. The cut value is .500.

Table 17 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *sophomore student athlete* (p) = $^{-5.245 - .034*\text{SURPS H} + .124*\text{SURPS AS} + .251*\text{SURPS IMP} + .113*\text{SURPS SS} + .026*\text{CAPS-R} - .004*\text{RSS RSE} - .010*\text{RSS RSB} - .084*\text{RSS GSRP} - .054*\text{AIS DI}}$. Of the nine variables, two were statistically significant. According to the Wald criterion, variables that held statistical significance were the SURPS IMP impulsivity subscale, χ^2 (1, N = 273) = 9.479, p = .002; and the SURPS SS sensation seeking subscale, χ^2 (1, N = 273) = 4.122, p = .042. The outcome of the logistic regression provides statistically significant results from the analysis. For every increase by one unit in SURPS IMP impulsivity, the odds of being a sophomore student athlete increases by 28.5%. For every increase by one unit in SURPS SS sensation seeking, the odds of being a sophomore student athlete increase by 12.0%.

Table 17

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Sophomore Academic Standing

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.034	.047	.514	1	.473	.967	.882	1.060
AS Subscale	.124	.072	3.011	1	.083	1.132	.984	1.302
IMP Subscale	.251	.081	9.479	1	.002*	1.285	1.095	1.507
SS Subscale	.113	.056	4.122	1	.042*	1.120	1.004	1.250
College Alcohol Problem Scale-Revised	.026	.021	1.565	1	.211	1.027	.985	1.070
Risky Sex Scale								
RSE Subscale	-.004	.032	.015	1	.901	.996	.935	1.061
RSB Subscale	-.010	.047	.048	1	.826	.990	.904	1.084
GSRP Subscale	-.084	.064	1.729	1	.189	.920	.812	1.042
Adolescent Invulnerability Scale-DI Subscale	-.054	.035	2.342	1	.126	.947	.884	1.015
Constant	-5.245	1.552	11.424	1	.001*	.005		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for sophomore vs. non-sophomore. The -2LL value for all test variables was 303.520, and the Nagelkerke R square value was .141. This indicates that the model accounts for 14.1% of the variance between sophomore and non-sophomore male student athletes. A summary of the model is included in Table 18.

Table 18

Model Summary for Sophomore Male Student Athletes

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	303.520	.141

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, factors pertaining to sophomore student athletes determined a connection to responses on various risk instruments. The areas identified as being statistically significantly higher were substance use and alcohol use based on t-test results. SURPS IMP and SURPS SS were identified as being strong explanatory variables through the logistic regression. Increasing impulsivity and sensation seeking behaviors were associated with a likelihood of being a sophomore student athlete. These results may indicate that a sophomore (2nd year) experience program may be beneficial to this targeted population.

Junior Student Athletes

Statistical and descriptive analyses conducted compared junior student athletes to all other student athletes that took part in the study. Table 19 provides a summary of the analyses and t-tests, and highlights statistically significant findings. When comparing the means of the junior student athletes' scores to all other student athlete scores no areas reported being statistically significant. Juniors did have higher mean values on the SURPS AS anxiety sensitivity subscale (Junior M = 12.4035; Other Athletes M = 12.0571), the RSS GSRP gender based perception of risky sex (Junior M = 11.0175; Other Athletes M = 10.7414), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (Junior M = 13.5893; Other Athletes M = 13.0837). The AIS-DI subscale was not significant in this model (p = .462, t = -.737). Scores were also analyzed through a logistic regression to determine significance. The

independent samples t-test was run to determine if significant differences exist between junior student athletes and non-junior student athletes. No serious violations were observed in relation to the dataset for the t-tests.

Table 19

Means, Standard Deviation, and T-Test Results of Junior Student Athlete Behaviors (Junior Student Athletes vs. All Other Athletes) and the Relationships among the Variables

Variables	Junior Student Athletes				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Juniors	50.7143	5.31110	56	298	.611
Other Athletes	51.1434	5.76065	244		
H Subscale					
Juniors	11.5789	3.47926	57	300	.209
Other Athletes	11.6776	3.14638	245		
AS Subscale					
Juniors	12.4035	2.45575	57	300	-1.112
Other Athletes	12.0571	2.03172	245		
IMP Subscale					
Juniors	10.1404	1.98601	57	299	1.821
Other Athletes	10.6762	2.00352	244		
SS Subscale					
Juniors	16.5088	3.01853	57	303	.516
Other Athletes	16.7298	2.89275	248		
College Alcohol Problem Scale-Revised					
Juniors	16.3860	7.08810	57	294	.374
Other Athletes	16.8159	7.95943	239		
Risky Sex Scale					
Juniors	40.7321	9.32346	56	285	.440
Other Athletes	41.3680	9.77702	231		
RSE Subscale					
Juniors	19.0000	6.01815	56	286	.382
Other Athletes	19.3233	5.59327	232		
RSB Subscale					
Juniors	10.8772	4.38370	57	286	.757
Other Athletes	11.3333	3.99638	231		
GSRP Subscale					
Juniors	11.0175	2.23999	57	286	.757
Other Athletes	10.7414	2.43929	232		
Adolescent Invulnerability Scale – DI Subscale					
Juniors	13.5893	5.32840	56	281	-.737
Other Athletes	13.0837	4.40505	227		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with junior academic standing as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 53 junior student athletes and 220 student athletes of another academic classification.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 86.527, p = .000, indicating that the variables as a group, significantly differentiated junior and non-junior student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 6.666. The significance level was .672 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .644, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 20, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 100% of non-junior student athletes and 0.0% of junior student athlete classification. Overall, the logistic regression correctly identified 80.6% of student athlete classification. There was no improvement over the model containing the constant.

Table 20

Classification Table for Junior Student Athletes

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Non-Junior	220	0	100.0
Junior	0	53	.0
Overall Percentage			80.6

*Note. The cut value is .500.

Table 21 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *junior student athlete* (*p*) = -1.254 - .012*SURPS H + .069*SURPS AS - .136*SURPS IMP - .037*SURPS SS + .013*CAPS-R + .014*RSS RSE - .069*RSS RSB + .061*RSS GSRP + .059*AIS DI. Of the nine variables, none were statistically significant.

Table 21

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Junior Academic Standing

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.012	.050	.059	1	.808	.988	.896	1.089
AS Subscale	.069	.080	.756	1	.384	1.072	.917	1.252
IMP Subscale	-.136	.092	2.147	1	.143	.873	.728	1.047
SS Subscale	-.037	.058	.418	1	.518	.963	.861	1.079
College Alcohol Problem Scale-Revised	.013	.024	.297	1	.586	1.013	.967	1.061
Risky Sex Scale								
RSE Subscale	.014	.034	.163	1	.686	1.014	.949	1.083
RSB Subscale	-.069	.050	1.921	1	.166	.933	.846	1.029
GSRP Subscale	.061	.071	.750	1	.386	1.063	.925	1.222
Adolescent Invulnerability Scale-DI Subscale	.059	.037	2.531	1	.112	1.061	.986	1.141
Constant	-1.254	1.634	.589	1	.443	.285		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) * = $p \leq .050$ Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for junior vs. non-junior student athletes. The -2LL value for all test variables was 262.059, and the Nagelkerke R square value was .039. This indicates that the model accounted for 3.9% of the variance between junior and non-junior male student athletes. Table 22 summarizes the model.

Table 22

Model Summary for Junior Male Student Athletes

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	262.059	.039

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to junior student athletes determined a connection to responses on various risk instruments. No areas produced statistically significant findings on t-tests and logistic regression. Juniors did not show significantly higher or lower results in any of the areas studied.

Senior and Graduate Student Athletes

Analyses conducted compared senior and graduate student athletes to all other student athletes that took part in the study. Table 23 provides a summary of the t-tests. No statistically significant results were found. Seniors and graduate student athletes did have higher mean values on the SURPS H hopelessness subscale (Senior and Graduate M = 11.9710, Other Athletes M = 11.5665), CAPS-r (Senior and Graduate M = 18.2206; Other Athletes M = 16.2895), RSS (Senior and Graduate M = 41.5672; Other Athletes M = 41.1455), RSS RSE risky sex expectancies subscale (Senior and Graduate M = 19.5970; Other Athletes M = 19.1584), RSS RSB risky sex behaviors subscale (Senior and Graduate M =11.4179, Other Athletes M = 11.1900), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (Senior and Graduate M = 13.3333; Other Athletes M = 13.1409). The AIS DI subscale was higher for seniors and graduates but failed to be significant (p = .770, t = -.292). The t-test was run to determine if significant differences exist between senior/graduate student athletes and other student athletes. No serious violations were observed in relation to the dataset for the t-tests.

Table 23

Means, Standard Deviation, and T-Test Results of Senior/Graduate Student Athlete Behaviors (Senior/Graduates vs. All Other Athletes) and the Relationships among the Variables

Variables		Senior and Graduate Student Athletes			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Seniors/Grads	50.7246	5.72118	69	298	.564
Other Athletes	51.1645	5.66751	231		
H Subscale					
Seniors/Grads	11.9710	3.60951	69	300	-.920
Other Athletes	11.5665	3.07886	233		
AS Subscale					
Seniors/Grads	11.7681	2.14986	69	300	1.586
Other Athletes	12.2275	2.10187	233		
IMP Subscale					
Seniors/Grads	10.3768	1.61884	69	299	.932
Other Athletes	10.6336	2.10941	232		
SS Subscale					
Seniors/Grads	16.5429	2.95711	70	303	.476
Other Athletes	16.7319	2.90454	235		
College Alcohol Problem Scale-Revised					
Seniors/Grads	18.2206	7.91719	68	294	-1.801
Other Athletes	16.2895	7.71317	228		
Risky Sex Scale					
Seniors/Grads	41.5672	9.79057	67	285	-.312
Other Athletes	41.1455	9.66313	220		
RSE Subscale					
Seniors/Grads	19.5970	5.29454	67	286	-.554
Other Athletes	19.1584	5.78535	221		
RSB Subscale					
Seniors/Grads	11.4179	3.93950	67	286	-.401
Other Athletes	11.1900	4.11870	221		
GSRP Subscale					
Seniors/Grads	10.5522	2.35026	67	287	.948
Other Athletes	10.8694	2.41527	222		
Adolescent Invulnerability Scale – DI Subscale					
Seniors/Grads	13.3333	4.29553	63	281	-.292
Other Athletes	13.1409	4.68780	220		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed on senior and graduate academic standing as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 63 senior and graduate student athletes and 210 student athletes of another academic classification.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 70.247, p = .000, indicating that the variables as a group, significantly differentiated senior and graduate student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 10.152. The significance level was .338 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .441, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 24, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 100.0% of non-senior and graduate student athletes and 4.8% of senior and graduate student athletes. Overall, the logistic regression correctly identified 78.0% of student athlete classification. This is a slight improvement over the 76.9% correct classification rate that the constant model produced, indicating that the model with the variables is better at determining classification.

Table 24

Classification Table for Senior/Graduate Student Athletes

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Non-Senior/Graduate	210	0	100.0
Senior/Graduate	3	60	4.8
Overall Percentage			78.0

*Note. The cut value is .500.

Table 25 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *senior/graduate student athletes* (p) = .460 + .064*SURPS H - .118*SURPS AS - .096*SURPS IMP - .026*SURPS SS + .039*CAPS-R + .021*RSS RSE + .008*RSS RSB - .057*RSS GSRP - .008*AIS DI. Of the nine variables, none were statistically significant.

Table 25

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Senior/Graduate Academic Standing

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.064	.046	1.911	1	.167	1.066	.974	1.167
AS Subscale	-.118	.077	2.379	1	.123	.888	.764	1.033
IMP Subscale	-.096	.088	1.196	1	.274	.909	.765	1.079
SS Subscale	-.026	.057	.207	1	.649	.975	.872	1.089
College Alcohol Problem Scale-Revised	.039	.022	3.106	1	.078	1.040	.996	1.086
Risky Sex Scale								
RSE Subscale	.021	.033	.391	1	.532	1.021	.957	1.089
RSB Subscale	.008	.049	.027	1	.869	1.008	.916	1.110
GSRP Subscale	-.057	.065	.766	1	.381	.945	.831	1.073
Adolescent Invulnerability Scale-DI Subscale	-.008	.036	.043	1	.836	.993	.924	1.066
Constant	.460	1.545	.089	1	.766	1.584		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for senior/graduates vs. non-senior/graduates. The -2LL value for all test variables is 284.799, and the Nagelkerke R square value is .055. This indicates that the model accounts for 5.5% of the variance between senior/graduate and non-senior/graduate male student athletes. Table 26 summarizes the model.

Table 26

Model Summary for Senior/Graduate Male Student Athletes

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	284.799	.055

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to senior/graduate student athletes determined a connection to responses on various risk instruments. There were no areas identified as being statistically significant through conducting t-tests and logistic regressions.

In regards to academic class, several areas produced statistically significant results. Freshman student athletes reported significantly lower scores related to the SURPS Substance Use Risk Profile Scale on the t-test (p = .032, t = 2.151), and CAPS-r College Alcohol Problems Scale – revised on the t-test (p = .000, t = 3.965). The CAPS-r was identified as being a statistically significant explanatory variable through the logistic regression (Wald = 12.440, p = .000). These findings suggest that freshman student athletes are taking significantly lower risks associated with alcohol and substance use and that the CAPS-r is a good explanatory variable. Sophomore student athletes were found to have significantly higher scores through the results of the t-tests related to the SURPS (p = .002, t = -3.081), SURPS AS anxiety sensitivity subscale (p = .046, t = -2.001), SURPS IMP impulsivity subscale (p = .000, t = -3.765), SURPS SS sensation seeking subscale (p = .036, t = -2.103) and the CAPS-r (p = .014, t = -2.474). The SURPS IMP impulsivity subscale (Wald = 9.479, p = .002) and the SURPS SS sensation seeking subscale (Wald = 4.122, p = .042) were found to be statistically significant explanatory variables related to sophomore student athletes through the logistic regression. These findings suggest that sophomore student athletes are taking significantly higher risks associated with substance use

and alcohol use. No significant findings were identified among the various instruments in the junior or senior/graduate academic class ranking.

Length of Time Associated with Athletic Program

The second part of the research question analyzed how long a student athlete was associated with a team (one to four or more years). Table 27 depicts the total number of respondents for the survey. The table is representative of the valid results indicating academic classification from the online anonymous survey that Division II male intercollegiate athletes took in order to participate in the study. Depending on the individual questions answered, SPSS® omitted responses considered invalid for data analysis.

Table 27

Length of Time Associated with Athletic Program

Length of time (in years)	*n*
1 Year	119
2 Years	77
3 Years	59
4 Years	51
5 Years	13
No Response	1
Total:	**320**

Note: This table is representative of valid results indicating duration student athletes indicated their involvement with the athletic team. Total *n* for statistical analysis may vary depending on incomplete responses omitted by SPSS® for the analysis.

Student Athletes Involved for One Year with Athletic Program

Statistical and descriptive analyses conducted compared student athletes involved for one year with an athletic team to all other student athletes that took part in the study. Table 28 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Student athletes with one year of involvement produced a significantly lower mean score on the CAPS-r (One Year Affiliation M = 14.6330; Other Years of Affiliation M = 17.9572) indicating

that student athletes with one year of athletic affiliation have a lower likelihood of taking risks associated with alcohol than their peers. This finding is in agreement with the findings for freshmen student athletes who also only have one year of athletic team affiliation. The results of the CAPS-r (p = .000, t = 3.613) lead to the finding that suggest student athletes with one year of affiliation, engage in less alcohol related risk-taking behaviors than their peers. In addition, student athletes with one year of athletic affiliation had significantly lower scores related to alcohol use and consumption. The independent samples t-test was run to determine if significant differences exist between student athletes with one year of athletic affiliation and other years of affiliation. No serious violations were observed in relation to the dataset for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS H subscale (p = .032) and the RSS RSB subscale (p = .003) were identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results.

The results of this analysis suggest that student athletes with one year of affiliation are taking significantly lower amounts of risk related to alcohol use. In addition, student athletes with one year of athletic affiliation had lower mean scores on the SURPS composite (One Year Affiliation M = 50.6486; Other Years of Affiliation M = 51.3069), SURPS H hopelessness subscale (One Year Affiliation M = 11.4595; Other Years of Affiliation M = 11.7749), SURPS AS anxiety sensitivity subscale (One Year Affiliation M = 12.0631; Other Years of Affiliation M = 12.1571), SURPS IMP impulsivity subscale (One Year Affiliation M = 10.5045; Other Years of Affiliation M = 10.6158), SURPS SS sensation seeking subscale (One Year Affiliation M = 16.6372; Other Years of Affiliation M = 16.7188), CAPS-r (One Year Affiliation M = 14.6330; Other Years of Affiliation M = 17.9572)RSS composite (One Year Affiliation M = 41.0000;

Other Years of Affiliation *M* = 41.3825), RSS RSE risky sex expectancies subscale (One Year Affiliation *M* = 18.8942; Other Years of Affiliation *M* = 19.4674), RSS RSB risky sex behaviors subscale (One Year Affiliation *M* = 11.1635; Other Years of Affiliation *M* = 11.2880), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (One Year Affiliation *M* = 12.9810; Other Years of Affiliation *M* = 13.3034). The Adolescent Invulnerability Scale – Danger Invulnerability subscale measuring optimism bias was not statistically significant in this model ($p = .570$, $t = .569$) but it is important to note that scores on the Adolescent Invulnerability Scale – Danger Invulnerability subscale were lower in student athletes with one year of athletic affiliation.

Table 28

Means, Standard Deviation, and T-Test Results of Student Athletes Affiliated with Athletic Team for One Year Behaviors (one-year affiliation vs. all other years of affiliation)

Variables	Time Affiliated with Athletic Program: 1 Year				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
One-Year	50.6486	5.86771	111	298	.970
Other Athletes	51.3069	5.55734	189		
H Subscale					
One-Year	11.4595	2.83415	111	264.301	.865
Other Athletes	11.7749	3.40535	191		
AS Subscale					
One-Year	12.0631	1.96459	111	300	.371
Other Athletes	12.1571	2.20679	191		
IMP Subscale					
One-Year	10.5045	2.12292	111	299	.463
Other Athletes	10.6158	1.94222	190		
SS Subscale					
One-Year	16.6372	3.10547	113	303	.236
Other Athletes	16.7188	2.80128	192		
College Alcohol Problem Scale-Revised					
One-Year	14.6330	7.65054	109	294	3.613*
Other Athletes	17.9572	7.62623	187		
Risky Sex Scale					
One-Year	41.0000	8.66306	104	285	.321
Other Athletes	41.3825	10.22957	183		
RSE Subscale					
One-Year	18.8942	5.36062	104	286	.824
Other Athletes	19.4674	5.84022	184		
RSB Subscale					
One-Year	11.1635	3.59641	104	247.299	.262
Other Athletes	11.2880	4.32664	184		
GSRP Subscale					
One-Year	10.9524	2.46273	105	287	-.837
Other Athletes	10.7065	2.36568	184		
Adolescent Invulnerability Scale – DI Subscale					
One-Year	12.9810	4.37647	105	281	.569
Other Athletes	13.3034	4.72977	178		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed on one year of affiliation as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 102 student athletes with one year of affiliation and 171 student athletes with more than one year of affiliation.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 17.057, p = .000, indicating that the variables as a group, significantly differentiated one year of affiliation and other years of affiliation student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 16.412. The significance level was .059 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .452, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 29, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 17.6% of student athletes with one year of athletic affiliation, and 91.2% of student athletes with some other year of athletic affiliation. Overall, the logistic regression correctly identified 63.7% of student athlete classification. This is a slight improvement over the 62.6% correct classification rate that the constant model produced, indicating that the model with the variables was better at predicting student athletes with one year of affiliation.

Table 29

Classification Table for Student Athletes with One Year of Athletic Affiliation

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Other year of affiliation	156	15	91.2
1 year affiliation	18	84	17.6
Overall Percentage			63.7

*Note. The cut value is .500.

Table 30 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *1 year affiliation* (*p*) = .047 - .038*SURPS H - .003*SURPS AS + .012*SURPS IMP - .003*SURPS SS - .070*CAPS-R - .018*RSS RSE + .042*RSS RSB + .071*RSS GSRP + .005*AIS DI. . Of the nine variables, one was statistically significant. According to the Wald criterion, one variable held statistical significance: the CAPS-r, χ^2 (1, N = 273) = 10.776, p = .001. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the variables and the student athlete years of affiliation. For every increase by one unit in CAPS-r, the odds of being a student athlete with one year of athletic affiliation decreases by 6.8%. The findings related to student athletes with one year of athletic affiliation indicates that as scores related to alcohol use increase, the likelihood of a student athlete being affiliated with an athletic team for one-year decreases.

Table 30

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on One Year of Athletic Affiliation

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.038	.044	.749	1	.387	.963	.883	1.049
AS Subscale	-.003	.067	.002	1	.961	.997	.874	1.137
IMP Subscale	.012	.073	.025	1	.874	1.012	.877	1.167
SS Subscale	-.003	.048	.005	1	.946	.997	.906	1.096
College Alcohol Problem Scale-Revised	-.070	.021	10.776	1	.001*	.932	.894	.972
Risky Sex Scale								
RSE Subscale	-.018	.029	.377	1	.539	.983	.929	1.039
RSB Subscale	.042	.043	.953	1	.329	1.043	.959	1.134
GSRP Subscale	.071	.060	1.419	1	.234	1.074	.955	1.207
Adolescent Invulnerability Scale-DI Subscale	.005	.031	.030	1	.862	1.005	.946	1.069
Constant	.047	1.388	.001	1	.973	1.048		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes with one year of athletic affiliation vs. other student athletes. The -2LL value for all test variables is 334.416, and the Nagelkerke R square value is .080. This indicates that the model accounts for 8.0% of the variance between one-year participation and other participation in male student athletes. Table 31 summarizes the model.

Table 31

Model Summary for Male Student Athletes with One Year of Athletic Affiliation

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	334.416	.080

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to years of affiliation determined a connection to responses on various risk instruments. The areas identified as being statistically significant provide valuable information related to student athlete risk-taking behaviors. Student athletes with one year of involvement produced significantly lower results related to alcohol use from the t-tests. The CAPS-r was identified as being a statistically significant explanatory variable related to one year of athletic affiliation through the logistic regression, indicating increased alcohol use is associated with the likelihood of being a student athlete with more than one year of affiliation. These findings may suggest new perspectives on student athletes with one year of athletic affiliation.

Student Athletes Involved for Two Years with Athletic Program

Statistical and descriptive analyses conducted compared student athletes with two years of involvement to all other student athletes that took part in the study. Table 32 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Student athletes with two years of involvement scored statistically significantly higher on the SURPS (p = .005, t = -2.831). Student athletes with two years of involvement also produced significantly higher scores on the SURPS IMP impulsivity subscale (p = .006, t = -2.763). The independent samples t-test was run to determine if significant differences exist between team student athletes with two years of affiliation and other years of affiliation. No serious violations were observed in

relation to the dataset for the t-tests. Through the Levene's Test for Equality of Variance, the RSS RSB subscale (p = .003) was identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results.

The results of this analysis suggest that student athletes with two years of affiliation are taking significantly higher amounts of risk related to substance use. Student athletes with two years of athletic affiliation had higher mean scores on the SURPS (Two Year Affiliation M = 52.6944; Other Years of Affiliation M = 50.5482), SURPS H hopelessness subscale (Two Year Affiliation M = 11.9178; Other Years of Affiliation M = 11.5764), SURPS AS anxiety sensitivity subscale (Two Year Affiliation M = 12.4795; Other Years of Affiliation M = 12.0087), SURPS IMP impulsivity subscale (Two Year Affiliation M = 11.1389; Other Years of Affiliation M = 10.3974), SURPS SS sensation seeking subscale (Two Year Affiliation M = 17.1781; Other Years of Affiliation M = 16.35345), CAPS-r (Two Year Affiliation M = 17.9857; Other Years of Affiliation M = 16.3451), and the RSS RSE risky sex expectancies subscale (Two Year Affiliation M = 19.2754; Other Years of Affiliation M = 19.2557). In addition, student athletes with two years of affiliation showed a lower score on the Adolescent Invulnerability Scale – Danger Invulnerability subscale measuring optimism bias. The result of the Adolescent Invulnerability Scale – Danger Invulnerability subscale was not statistically significant in this model (p = .124, t = .161), but it is important to note that the score on the AIS DI subscale was lower in male student athletes with two years of affiliation when compared to their peers. Table 37 provides the mean, standard deviation, T-scores and degrees of freedom for the instruments related to student athletes with two years of affiliation risk. Student athletes with two years of athletic affiliation produced significant results related to substance use and abuse.

Table 32

Means, Standard Deviation, and T-Test Results of Student Athletes Affiliated with Athletic Team for Two Years Behaviors (two-year affiliation vs. all other years of affiliation)

Variables		Time Affiliated with Athletic Program: 2 Years			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Two Years	52.6944	5.36981	72	298	-2.831*
Other Athletes	50.5482	5.68035	228		
H Subscale					
Two Years	11.9178	3.23931	73	300	-.792
Other Athletes	11.5764	3.19808	229		
AS Subscale					
Two Years	12.4795	2.0690	73	300	-1.658
Other Athletes	12.0087	2.12543	229		
IMP Subscale					
Two Years	11.1389	2.14480	72	299	-2.763*
Other Athletes	10.3974	1.93404	229		
SS Subscale					
Two Years	17.1781	2.59991	73	303	-1.651
Other Athletes	16.5345	2.99330	232		
College Alcohol Problem Scale-Revised					
Two Years	17.9857	7.76184	70	294	-1.543
Other Athletes	16.3451	7.77434	226		
Risky Sex Scale					
Two Years	41.0147	11.10801	68	285	.223
Other Athletes	41.3151	9.21538	219		
RSE Subscale					
Two Years	19.2754	6.23294	69	286	-.025
Other Athletes	19.2557	5.49465	219		
RSB Subscale					
Two Years	11.1176	4.65377	68	97.599	.264
Other Athletes	11.2818	3.88565	220		
GSRP Subscale					
Two Years	10.7059	2.40061	68	287	.353
Other Athletes	10.8235	2.40465	221		
Adolescent Invulnerability Scale - DI Subscale					
Two Years	13.1045	4.83402	67	281	.161
Other Athletes	13.2083	4.53186	216		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed on student athletes with two years of athletic involvement as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 63 student athletes with two years of affiliation and 210 student athletes with other years of affiliation.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 70.247, p = .000, indicating that the variables as a group, significantly differentiated student athletes with two years of affiliatin and other years of affiliation based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 16.037. The significance level was .066 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .917, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 33, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 6.3% of student athletes with two years of athletic affiliation, and 98.6% of students with another year of athletic affiliation. Overall, the logistic regression correctly identified 77.3% of the student athlete classification. This is a slight improvement over the 76.9% correct classification rate that the constant model produced, indicating that the model with the variables is slightly better at determining classification.

Table 33

Classification Table for Student Athletes with Two Years of Athletic Affiliation

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Other year of affiliation	207	3	98.6
Two years affiliation	4	59	6.3
Overall Percentage			77.3

*Note. The cut value is .500.

Table 34 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *2 year affiliation* (*p*) = -5.304 + .017*SURPS H + .142*SURPS AS + .178*SURPS IMP + .096*SURPS SS + .015*CAPS-R - .026*RSS RSE - .032*RSS RSB - .036*RSS GSRP - .029*AIS DI. Of the nine variables, one was statistically significant. According to the Wald criterion, one variable held statistical significance: the SURPS IMP impulsivity subscale, χ^2 (1, N = 273) = 4.651, p = .031. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the SURPS IMP impulsivity subscale. For every increase by one unit in SURPS IMP impulsivity, the odds of being a student athlete with two years of athletic affiliation increases by 19.5%.

Table 34

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Two Years Affiliated with Athletic Program

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.017	.048	.124	1	.724	1.017	.926	1.117
AS Subscale	.142	.075	3.622	1	.057	1.153	.996	1.334
IMP Subscale	.178	.083	4.651	1	.031*	1.195	1.016	1.405
SS Subscale	.096	.059	2.652	1	.103	1.101	.981	1.235
College Alcohol Problem Scale-Revised	.015	.022	.476	1	.490	1.015	.972	1.061
Risky Sex Scale								
RSE Subscale	-.026	.034	.596	1	.440	.974	.911	1.042
RSB Subscale	-.032	.049	.431	1	.512	.968	.879	1.066
GSRP Subscale	-.036	.067	.288	1	.591	.965	.846	1.100
Adolescent Invulnerability Scale-DI Subscale	-.029	.037	.610	1	.435	.972	.904	1.044
Constant	-5.304	1.615	10.786	1	.001*	.005		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes with two years of athletic affiliation vs. other student athletes. The -2LL value for all test variables was 278.915, and the Nagelkerke R square value was .086. This indicates that the model accounted for 8.6% of the variance between two years of affiliation

student athletes and male student athletes with other years of athletic affiliation. Table 35 summarizes the model.

Table 35

Model Summary for Male Student Athletes with Two Years of Athletic Affiliation

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	278.915	.086

Note. -2 Log Likelihood values estimation terminated at iteration 5 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to student athletes with two years of affiliation determined a connection to responses on various risk instruments. The areas identified as being statistically significantly higher were SURPS IMP impulsivity subscale and the SURPS from the t-tests. The outcome of the logistic regression provides statistically significant results supporting that there are significant findings among the SURPS IMP impulsivity subscale as an explanatory variable. This indicates increasing impulsivity was associated with a likelihood of being affiliated with an athletic team for two years. The results of this analysis suggest that student athletes with two years of athletic affiliation are taking higher amounts of risk in several areas. These findings can aid future studies that encompass additional student athletes or additional divisions of athletic competition.

Student Athletes Involved for Three Years with Athletic Program

Statistical and descriptive analyses conducted compared student athletes with three years of involvement to all other student athletes that took part in the study. Table 36 provides a summary of the analyses and t-tests, and highlights statistically significant findings. The t-tests produced no statistically significant results. The independent samples t-test was run to determine if significant differences exist between student athletes with three years of athletic affiliation and

other years of affiliation. No serious violations were observed in relation to the dataset for the t-tests. Student athletes with three years of athletic affiliation had higher mean scores on the SURPS AS anxiety sensitivity subscale (Three Year Affiliation *M* = 12.3393; Other Years of Affiliation *M* = 12.07.32), CAPS-r (Three Year Affiliation *M* = 17.2143; Other Years of Affiliation *M* = 16.6208), and the RSS RSE risky sex expectancies subscale (Three Year Affiliation *M* = 19.3519; Other Years of Affiliation *M* = 19.2393), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (Three Year Affiliation *M* = 13.2115; Other Years of Affiliation *M* = 13.1775) measuring optimism bias. The result of the Adolescent Invulnerability Scale – Danger Invulnerability subscale was not statistically significant in this model ($p = .962$, $t = -.048$), but it is important to note that the score on the AIS DI subscale was higher in male student athletes with three years of affiliation when compared to their peers.

Table 36

Means, Standard Deviation, and T-Test Results of Student Athletes Affiliated with Athletic Team for Three Years Behaviors (three-year affiliation vs. all other years of affiliation)

Variables		Time Affiliated with Athletic Program: 3 Years			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Three Years	50.6429	5.43199	56	298	.614
Other Athletes	51.1598	5.73372	244		
H Subscale					
Three Years	11.5893	3.06165	56	300	.180
Other Athletes	11.6748	3.24382	246		
AS Subscale					
Three Years	12.3393	2.43667	56	300	-.848
Other Athletes	12.0732	2.04109	246		
IMP Subscale					
Three Years	10.3750	1.62439	56	299	.825
Other Athletes	10.6204	2.08596	245		
SS Subscale					
Three Years	16.3860	2.79511	57	303	.869
Other Athletes	16.7581	2.94035	248		
College Alcohol Problem Scale-Revised					
Three Years	17.2143	7.17246	56	294	-.513
Other Athletes	16.6208	7.93659	240		
Risky Sex Scale					
Three Years	40.8704	9.26150	54	285	.314
Other Athletes	41.3305	9.78862	233		
RSE Subscale					
Three Years	19.3519	5.67070	54	286	-.131
Other Athletes	19.2393	5.68055	234		
RSB Subscale					
Three Years	10.9273	4.26812	55	286	.639
Other Athletes	11.3176	4.03033	233		
GSRP Subscale					
Three Years	10.7636	2.23577	55	287	.639
Other Athletes	10.8034	2.44155	234		
Adolescent Invulnerability Scale – DI Subscale					
Three Years	13.2115	4.44282	52	281	-.048
Other Athletes	13.1775	4.63996	231		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed on student athletes with three years of athletic involvement as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 50 student athletes with three years of affiliation and 223 student athletes with other years of affiliation.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 91.302, p = .000, indicating that the variables as a group, significantly differentiated student athletes with three years of affiliation and other years of affiliation based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 3.186. The significance level was .956 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .212, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 37, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 0.0% of student athletes with three years of athletic affiliation and 100% of student athletes with other years of athletic affiliation. Overall, the logistic regression correctly identified 81.7% of student athlete classification. There was no improvement over the 81.7% correct classification rate that the constant model produced.

Table 37

Classification Table for Student Athletes with Three Years of Athletic Affiliation

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Other year of affiliation	223	0	100.0
3 years affiliation	0	50	0.0
Overall Percentage			81.7

*Note. The cut value is .500.

Table 38 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *3 year affiliation* (p) = $^{-1.547 + .005*\text{SURPS H} + .052*\text{SURPS AS} - .056*\text{SURPS IMP} - .040*\text{SURPS SS} + .015*\text{CAPS-R} + .030*\text{RSS RSE} - .060*\text{RSS RSB} + .016*\text{RSS GSRP} + .020*\text{AIS DI}}$. A logistic regression was performed to determine the effects of the variables on the likelihood that a student athlete had three years of athletic affiliation. Of the nine explanatory variables, none were statistically significant.

Table 38

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Three Years Affiliated with Athletic Program

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.005	.050	.012	1	.913	1.006	.911	1.110
AS Subscale	.052	.080	.422	1	.516	1.053	.900	1.233
IMP Subscale	-.056	.092	.367	1	.545	.946	.789	1.133
SS Subscale	-.040	.059	.443	1	.506	.961	.855	1.080
College Alcohol Problem Scale-Revised	.015	.024	.382	1	.537	1.015	.968	1.064
Risky Sex Scale								
RSE Subscale	.030	.035	.740	1	.390	1.030	.963	1.102
RSB Subscale	-.060	.051	1.387	1	.239	.942	.852	1.041
GSRP Subscale	.016	.072	.050	1	.822	1.016	.883	1.169
Adolescent Invulnerability Scale-DI Subscale	.020	.038	.281	1	.596	1.021	.947	1.100
Constant	-1.547	1.663	.865	1	.352	.213		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes with three years of affiliation vs. other student athletes. The -2LL value for all test variables was 256.785, and the Nagelkerke R square value was .019. This indicates that the model accounted for 1.9% of the variance between student athletes with three years of affiliation and other male student athletes. Table 39 summarizes the model.

Table 39

Model Summary for Male Student Athletes with Three Years of Athletic Affiliation

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	256.785	.019

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to student athletes with three years of affiliation determined a connection to responses on various risk instruments. No areas identified as being statistically significant through the analysis of the t-tests and logistic regressions. These findings can aid future studies that encompass additional student athletes or additional Divisions of athletic competition.

Student Athletes Involved for Four or more Years with Athletic Program

Statistical and descriptive analyses conducted compared student athletes with four or more years of involvement to all other student athletes that took part in the study. Table 40 provides a summary of the mean, standard deviation, T-scores and degrees of freedom for the instruments related to student athletes with four or more years of affiliation risk. Student athletes with four or more years of involvement scored statistically significantly higher on the CAPS-r ($p = .035$, $t = -2.121$), and significantly lower on the SURPS AS anxiety sensitivity subscale ($p = .033$, $t = 2.138$). The independent samples t-test was run to determine if significant differences exist between student athletes with four or more years of athletic affiliation and other years of affiliation. No serious violations were observed in relation to the dataset for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS H subscale ($p = .005$) was identified as being less than $p \leq .05$ indicating that the variances are significantly different. This variable utilized the equal variances not assumed output when reporting results.

The results of this analysis suggest that student athletes with four or more years of athletic affiliation are taking higher amounts of risk related to areas of substance use, alcohol use, sexual behaviors, and optimism bias. Student athletes with four or more years of athletic affiliation had higher mean scores on the SURPS H hopelessness subscale (Four or more years affiliation M = 11.7742; Other Years of Affiliation M = 11.6292), CAPS-r (Four or more years affiliation M = 18.6066; Other Years of Affiliation M = 16.2468), RSS (Four or more years affiliation M = 42.2459; Other Years of Affiliation M = 40.9735), RSS RSE risky sex expectancies subscale (Four or more years affiliation M = 19.7869; Other Years of Affiliation M = 19.1189), RSS RSB risky sex behaviors subscale (Four or more years affiliation M = 11.8033; Other Years of Affiliation M = 11.0925), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (Four or more years affiliation M = 13.6102; Other Years of Affiliation M = 13.0714). The Adolescent Invulnerability Scale – Danger Invulnerability subscale was not statistically significant in this model (p = .424, t = -.800) but it is important to note that scores of the Adolescent Invulnerability Scale – Danger Invulnerability subscale were higher overall in student athletes with four or more years of athletic affiliation.

Table 40

Means, Standard Deviation, and T-Test Results of Student Athletes Affiliated with Athletic Team for Four or more Years Behaviors (four + years of affiliation vs. all other years of affiliation)

Variables	Time Affiliated with Athletic Program: 4+ years				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Four+ Years	50.2787	5.63954	61	298	1.211
Other Athletes	51.2636	5.67628	239		
H Subscale					
Four+ Years	11.7742	3.90216	62	80.694	-.272
Other Athletes	11.6292	3.00905	240		
AS Subscale					
Four+ Years	11.6129	2.07526	62	300	2.138*
Other Athletes	12.2542	2.11341	240		
IMP Subscale					
Four+ Years	10.2258	1.85029	62	299	1.539
Other Athletes	10.66653	2.04078	239		
SS Subscale					
Four+ Years	16.4839	3.00132	62	303	.619
Other Athletes	16.7407	2.89390	243		
College Alcohol Problem Scale-Revised					
Four+ Years	18.6066	7.93154	61	294	-2.121*
Other Athletes	16.2468	7.69485	235		
Risky Sex Scale					
Four+ Years	42.2459	10.13518	61	285	-.911
Other Athletes	40.9735	9.55542	226		
RSE Subscale					
Four+ Years	19.7869	5.60688	61	286	-.817
Other Athletes	19.1189	5.68953	227		
RSB Subscale					
Four+ Years	11.8033	4.01173	61	286	-1.211
Other Athletes	11.0925	4.08378	227		
GSRP Subscale					
Four+ Years	10.6557	2.47578	61	287	.513
Other Athletes	10.8333	2.38356	228		
Adolescent Invulnerability Scale - DI Subscale					
Four+ Years	13.6102	4.91660	59	281	-.800
Other Athletes	13.0714	4.51349	224		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed on student athletes with four or more years of athletic affiliation as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 58 student athletes with four or more years of affiliation and 215 student athletes with other years of affiliation.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 273) = 78.411, p = .000, indicating that the variables as a group, significantly differentiated four or more years of affiliation student athletes and other years of affiliation based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 19.896. The significance level was .019 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .320, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 41, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 5.2% of athletes with four or more years of affiliation and 99.5% of other years of affiliation. Overall, the logistic regression correctly identified 79.5% of student athlete classification. This is a slight improvement over the 78.8% correct classification rate that the constant model produced, indicating that the model with the variables is better at determining classification.

Table 41

Classification Table for Student Athletes with Four+ Years of Athletic Affiliation

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Other year of affiliation	214	1	99.5
4 + years affiliation	3	55	5.2
Overall Percentage			79.5

*Note. The cut value is .500.

Table 42 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *four year affiliation* (*p*) = $^{2.540 + .022*\text{SURPS H} - .214*\text{SURPS AS} - .178*\text{SURPS IMP} - .062*\text{SURPS SS} + .023*\text{CAPS-R} + .035*\text{RSS RSE} + .052*\text{RSS RSB} - .080*\text{RSS GSRP} + .011\text{AIS DI}}$. Of the nine variables, two were statistically significant. According to the Wald criterion, two variables held statistical significance: SURPS AS anxiety sensitivity subscale, χ^2 (1, N = 273) = 6.526, p = .011 and the CAPS-r, χ^2 (1, N = 273) = 6.430, p = .011. The outcome of the logistic regression provides results from the analysis supporting that there are significant findings among the SURPS AS anxiety sensitivity subscale and student athletes with four or more years of athletic affiliation. For every increase by one unit in SURPS AS anxiety sensitivity, the odds of being an athlete with four or more years of affiliation decreases by 19.2%. For every increase by one unit in CAPS-r, the odds of being an athlete with four or more years of affiliation increases by 6.1%.

Table 42

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Four+ Years Affiliated with Athletic Program

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.022	.049	.207	1	.649	1.023	.929	1.126
AS Subscale	-.214	.084	6.526	1	.011*	.808	.686	.951
IMP Subscale	-.178	.096	3.452	1	.063	.837	.694	1.010
SS Subscale	-.062	.059	1.126	1	.289	.939	.837	1.054
College Alcohol Problem Scale-Revised	.059	.023	6.430	1	.011*	1.061	1.014	1.111
Risky Sex Scale								
RSE Subscale	.027	.035	.590	1	.442	1.027	.959	1.099
RSB Subscale	.045	.052	.751	1	.386	1.046	.944	1.159
GSRP Subscale	-.080	.068	1.381	1	.240	.923	.807	1.055
Adolescent Invulnerability Scale-DI Subscale	.011	.038	.080	1	.777	1.011	.939	1.088
Constant	2.540	1.649	2.371	1	.124	12.677		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes with four or more years of affiliation vs. other student athletes. The -2LL value for all test variables was 262.490, and the Nagelkerke R square value was .109. This indicates that the model accounted for 10.9% of the variance between student athletes with four or more years of affiliation and other male student athletes. Table 43 summarizes the model.

Table 43

Model Summary for Male Student Athletes with Four+ Years of Athletic Affiliation

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	262.490	.109

Note. -2 Log Likelihood values estimation terminated at iteration 5 because parameter estimates changed by less than .001.

Through this portion of the study, factors pertaining to student athletes with four or more years of affiliation determined a connection to responses on various risk instruments. No areas produced statistically significant results through the t-test; however, the SURPS AS subscale and CAPS-r were identified as statistically significant explanatory variables through the logistic regression. Increasing anxiety sensitivity was associated with a likelihood of being affiliated with an athletic program for a duration less than four years, and increasing alcohol risk was associated with a likelihood of being affiliated with an athletic program for a duration of four or more years. The areas identified as being statistically significant provide valuable information related to student athlete risk-taking behaviors. The factors and questions identified in this section of the study as being of statistical significant can be explored further to consider when assessing student athlete risk-taking behaviors related to team type.

In relation to duration of athletic involvement, there are several statistically significant findings to discuss. Student athletes with one year of athletic affiliation were found to have significantly lower scores related to the CAPS-r on t-test (p = .000, t = 3.913) In addition, the CAPS-r was identified as the only statistically significant explanitory variable in determining one year of athletic involvement through the logistic regression (Wald = 10.776, p = .001). Student athletes with two years of athletic affiliation produced significantly higher scores on the t-tests of the SURPS (p = .005, t = -2.831), and SURPS IMP impulsivity subscale (p = .006, t = -2.763).

The SURPS IMP impulsivity subscale was identified as the only statistically significant explanatory variable in determining two years of athletic involvement through the logistic regression (Wald = 4.651, p = .031). No significant findings were identified among the various instruments for student athletes who were associated with an athletic team for three years. The SURPS AS anxiety sensitivity subscale and CAPS-r were identified as statistically significant explanatory variables in determining four or more years of athletic involvement through the logistic regression; SURPS AS (Wald = 6.526, p = .011) and the CAPS-r (Wald = 6.430, p = .011). These findings are representative of the sample set of Division II male intercollegiate student athletes and can be explored and analyzed further in order to find more details about this population.

Research Question Three

Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?

In the study, team leaders and team captain risk-taking behavior were compared to their intercollegiate student athlete peers. A limited number of team leaders responded to the survey assessment. It is common to have team leaders that are more mature and older than other members of the teams. In addition, team leaders have usually been associated with the athletic team for a longer period. The response distribution provided in Table 44 is representative of the valid results indicating athletic team leader status from the online anonymous survey that Division II male intercollegiate athletes took in order to participate in the study.

Table 44

Athletic Captain or Team Leadership Position

Team Leader/Captain	*n*
Yes (Team Leadership Position)	68
No (No Leadership Position)	251
No Response	1
Total:	**320**

Note: This table reports valid results indicating student athletes' leadership positions within their athletic team. Total *n* for statistical analysis may vary depending on responses omitted by SPSS®.

Statistical and descriptive analyses conducted compared student athlete team leaders and non-leaders. Table 45 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Student athlete team leaders scored statistically significantly higher on the College Alcohol Problem Scale-revised (p = .034, t = -2.133), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (p = .034, t = -2.136). This is concerning since coaches rely on student athlete captains to lead their teammates and act as role models for their peers. The independent samples t-test was run to determine if significant differences exist between team leaders and non-leaders. No serious violations were observed in relation to the datasets for the t-tests.

Overall, these significant results agree with literature that states team leaders and captains often engage in more risk-taking behaviors than their student athlete peers. Student athlete team leaders produced higher mean scores in the: SURPS SS sensation seeking subscale (Team Leader M = 17.2239; Non-Team Leader M = 16.5294), CAPS-r (Team Leader M = 18.5385; Non-Team Leader M = 16.2208), RSS (Team Leader M = 41.7460; Non-Team Leader M = 41.0717), RSS RSE risky sex expectancies subscale (Team Leader M = 19.3333; Non-Team Leader M = 19.2232), RSS RSB risky sex behaviors subscale (Team Leader M = 11.7813; Non-Team Leader M = 11.0807), and the Adolescent Invulnerability Scale – Danger Invulnerability

subscale (Team Leader M = 14.2540; Non-Team Leader M = 12.8584). The AIS-DI subscale measuring optimism bias was statistically significant in this model (p = .034, t = -2.136) suggesting team leaders have a statistically significantly higher optimism bias.

Table 45

Means, Standard Deviation, and T-Test Results of Team Captain Student Athlete Risk-taking Behaviors and the Relationships among the Variables

Variables	Team Leader Student Athlete/Non-Leader Student Athlete				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Team Leaders	50.9242	5.63317	66	298	.230
Non-Leaders	51.1068	5.70081	234		
H Subscale					
Team Leaders	11.4848	3.43396	66	300	.489
Non-Leaders	11.7034	3.14151	236		
AS Subscale					
Team Leaders	11.7273	1.97325	66	300	1.742
Non-Leaders	12.2415	2.15883	236		
IMP Subscale					
Team Leaders	10.4091	1.89718	66	299	.788
Non-Leaders	10.6298	2.04102	235		
SS Subscale					
Team Leaders	17.2239	2.82210	67	303	-1.730
Non-Leaders	16.5294	2.92472	238		
College Alcohol Problem Scale-Revised					
Team Leaders	18.5385	8.66580	65	294	-2.133*
Non-Leaders	16.2208	7.46113	231		
Risky Sex Scale					
Team Leaders	41.7460	8.82074	63	284	-.487
Non-Leaders	41.0717	9.93058	223		
RSE Subscale					
Team Leaders	19.3333	4.99677	63	285	-.136
Non-Leaders	19.2232	5.86119	224		
RSB Subscale					
Team Leaders	11.7813	3.94996	64	285	-1.212
Non-Leaders	11.0807	4.10918	223		
GSRP Subscale					
Team Leaders	10.7656	2.24487	64	286	.098
Non-Leaders	10.7991	2.45128	224		
Adolescent Invulnerability Scale – DI Subscale					
Team Leaders	14.2540	4.07577	63	280	-2.136*
Non-Leaders	12.8584	4.70146	219		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with team leaders as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 272 student athletes were available for analysis: 62 student athlete team leaders and 210 student athlete non-leaders.

A test of the full model with all nine variables against a constant-only model was statistically significant χ^2 (1, N = 272) = 71.243, p = .000, indicating that the variables as a group, significantly differentiated team leader and non-leader student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 17.716. The significance level was .039 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .162, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 46, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 3.2% of team leaders and 98.6% of other non-team leader. Overall, the logistic regression correctly identified 76.8% of student athlete classification. This is a decrease over the 77.2% correct classification rate that the constant model produced, indicating that the model with the variables is worse at determining classification.

Table 46

Classification Table for Student Athlete Leaders

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Non-Team Leader	207	3	98.6
Team Leader	2	60	3.2
Overall Percentage			76.8

*Note. The cut value is .500.

Table 47 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *team leader* (p) = .563 - .039*SURPS H - .092*SURPS AS - .209*SURPS IMP + .053*SURPS SS + .040*CAPS-R - .014*RSS RSE + .048*RSS RSB - .068*RSS GSRP + .061*AIS DI. Of the nine variables, one was statistically significant. According to the Wald criterion, one variable held statistical significance: SURPS IMP impulsivity subscale, χ^2 (1, N = 272) = 5.152, p = .023. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the SURPS IMP impulsivity subscale. For every increase by one unit in SURPS IMP impulsivity, the odds of a student athlete being a team leader decreases by 18.8%.

Table 47

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Team Leader Status

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.039	.049	.606	1	.436	.962	.873	1.060
AS Subscale	-.092	.079	1.354	1	.245	.912	.780	1.065
IMP Subscale	-.209	.092	5.152	1	.023*	.812	.678	.972
SS Subscale	.053	.057	.878	1	.349	1.055	.943	1.180
College Alcohol Problem Scale-Revised	.040	.023	3.156	1	.076	1.041	.996	1.088
Risky Sex Scale								
RSE Subscale	-.014	.035	.169	1	.681	.986	.921	1.055
RSB Subscale	.048	.050	.901	1	.343	1.049	.950	1.158
GSRP Subscale	-.068	.067	1.015	1	.314	.935	.819	1.066
Adolescent Invulnerability Scale-DI Subscale	.061	.036	2.925	1	.087	1.063	.991	1.141
Constant	.563	1.607	.123	1	.726	1.756		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athlete leaders vs. other student athletes. The -2LL value for all test variables was 274.290, and the Nagelkerke R square value was .096. This indicates that the model accounted for 9.6% of the variance between student athlete leaders and non-leader student athletes. Table 48 summarizes the model.

Table 48

Model Summary for Male Student Athlete Leaders

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	274.290	.096

Note. -2 Log Likelihood values estimation terminated at iteration 5 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to student athlete leadership determined a connection to responses on various risk instruments. The areas identified as being statistically significant provide valuable information related to student athlete risk-taking behaviors. Significant findings from the t-tests included the CAPS-r and the AIS DI subscale. The analysis of the student athlete team leaders found that team leaders showed significantly higher risk-taking behaviors related to alcohol use CAPS-r through the results of the t-tests (p = .034, t = -2.133) and a higher optimism bias through the results of the AIS DI Adolescent Invulnerability Scale – Danger Invulnerability subscale through the t-tests (p = .034, t = -2.136). The SURPS IMP impulsivity subscale was identified as a statistically significant explanatory variable in determining team leader status. Increased impulsivity was associated with the likelihood of being a non-leader. The CAPS-r (p = .076) and the AIS DI subscale (p = .087) were nearly significant in the logistic regression. The factors and questions identified in this section of the study as being of statistical significance can be explored further to consider when assessing student athlete risk-taking behaviors related to team leader status. Overall, the student athlete team leaders in the study exhibited more risk-taking behaviors than non-leaders.

Research Question Four

Does student athlete risk-taking behavior differ according to age?

In the study, this question aimed to identify significant differences in intercollegiate student athletes' risk-taking experiences based on age. It is common to have team members ranging from age 18 to over 22 on athletic teams. In addition, the athletes' years associated with the athletic team vary depending on their ages. It is common to have a wide range of ages present on athletic teams. The response distribution provided in Table 49 is representative of the valid results indicating student athlete age from the online anonymous survey that Division II male intercollegiate athletes took in order to participate in the study.

Table 49

Student Athlete Age

Student Athlete Age	*n*
18	59
19	88
20	70
21	60
22 +	41
No Response	2
Total:	**320**

Note: This table reports valid results indicating student athlete age gathered from the responses from the online anonymous survey. Total *n* for statistical analysis may vary depending on incomplete responses omitted by SPSS® for the analysis.

Student Athletes 18 Years of Age

Statistical and descriptive analyses conducted compared 18-year-old student athletes to all other student athletes that took part in the study. Table 50 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Statistically significantly lower results include the SURPS (p = .016, t = 2.423), CAPS-r (p = .000, t = 7.201), and the RSS RSE risky sex expectancies subscale (p = .031, t = 2.165). The independent samples t-test was run to

determine if significant differences exist between 18-year-old student athletes and athletes of another age. No serious violations were observed in relation to the datasets for the t-tests. Through the Levene's Test for Equality of Variance, the CAPS-r (p = .000) and the RSS RSB subscale (p = .020) were identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results. The t-scores on these instruments suggest that student athletes who are 18 years old exhibited significantly lower results related to substance use, alcohol use, and sexual behavior. 18-year-old student athletes produced higher mean scores only on the RSS GSRP gender based perceptions of risky sex subscale (18 year old M = 10.9600; All Other Ages M = 10.7615). The Adolescent Invulnerability Scale – Danger Invulnerability subscale score was not statistically significant in this model (p = .291, t = 1.058), and 18-year-old athletes had a lower optimism bias mean score than their peers.

Table 50

Means, Standard Deviation, and T-Test Results of 18-Year-Old Student Athletes (18-year-old student athletes vs. all other ages)

Variables		Student Athlete Age: 18			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
18 year olds	49.3519	5.62064	54	297	2.423*
Other Athletes	51.3429	5.42958	245		
H Subscale					
18 year olds	11.2222	2.81282	54	299	1.030
Other Athletes	11.7085	3.21013	247		
AS Subscale					
18 year olds	11.7593	1.89274	54	299	1.421
Other Athletes	12.2105	2.15936	247		
IMP Subscale					
18 year olds	10.3333	1.83262	54	298	.887
Other Athletes	10.5935	1.97675	246		
SS Subscale					
18 year olds	16.0727	3.04202	55	302	1.689
Other Athletes	16.7992	2.85112	249		
College Alcohol Problem Scale-Revised					
18 year olds	11.9231	4.45829	52	126.939	7.201*
Other Athletes	17.6337	7.74287	243		
Risky Sex Scale					
18 year olds	39.1837	7.95737	49	285	1.641
Other Athletes	41.6681	9.95661	238		
RSE Subscale					
18 year olds	17.6735	5.25749	49	286	2.165*
Other Athletes	19.5858	5.70566	239		
RSB Subscale					
18 year olds	10.5714	3.24037	49	85.015	1.506
Other Athletes	11.3808	4.21499	239		
GSRP Subscale					
18 year olds	10.9600	2.52304	50	287	-.531
Other Athletes	10.7615	2.37760	239		
Adolescent Invulnerability Scale - DI Subscale					
18 year olds	12.5600	4.09659	52	281	1.058
Other Athletes	13.3176	4.69432	233		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with 18-year-old student athlete as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 47 18-year-old student athletes and 226 student athletes of another age.

A test of the full model with all nine variables against a constant-only model was statistically significant, χ^2 (1, N = 273) = 95.957, p = .000, indicating that the variables as a group, significantly differentiated 18-year-old student athletes and athletes of another age based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 35.542. The significance level was .000 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .557, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 51, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 6.4% of 18-year-old students and 99.1% of students of another age. Overall, the logistic regression correctly identified 83.2% of student athlete classification. This is an improvement over the 82.8% correct classification rate that the constant model produced, indicating that the model with the variables is slightly better at determining classification.

Table 51

Classification Table for Student Athletes 18 Years of Age

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
18-years-old	3	44	6.4
Non-18-year-old	224	2	99.1
Overall Percentage			83.2

*Note. The cut value is .500.

Table 52 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *18 year old* (*p*) = $^{2.238 - .042*\text{SURPS H} - .135*\text{SURPS AS} + .073*\text{SURPS IMP} - .091*\text{SURPS SS} - .154*\text{CAPS-R} - .056*\text{RSS RSE} + .062*\text{RSS RSB} + .129*\text{RSS GSRP} + .013*\text{AIS DI}}$. Of the nine explanatory variables, one was statistically significant. According to the Wald criterion, the variable that held statistical significance was: the CAPS-r, χ^2 (1, N = 273) = 17.025, p = .000. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings between instruments and age classification. For every increase by one unit in CAPS-r, the odds of being an 18-year-old student athlete decreases by 14.3%.

Table 52

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Student Athletes Age 18

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.042	.063	.449	1	.503	.959	.847	1.085
AS Subscale	-.135	.095	2.028	1	.154	.873	.725	1.052
IMP Subscale	.073	.095	.592	1	.442	1.076	.893	1.296
SS Subscale	-.091	.063	2.062	1	.151	.913	.807	1.034
College Alcohol Problem Scale-Revised	-.154	.037	17.025	1	.000*	.857	.796	.922
Risky Sex Scale								
RSE Subscale	-.056	.037	2.274	1	.132	.945	.878	1.017
RSB Subscale	.062	.058	1.162	1	.281	1.064	.950	1.191
GSRP Subscale	.129	.082	2.490	1	.115	1.138	.969	1.335
Adolescent Invulnerability Scale-DI Subscale	.013	.040	.099	1	.753	1.013	.936	1.096
Constant	2.238	1.903	1.344	1	.246	9.374		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes 18 years of age vs. other student athletes. The -2LL value for all test variables was 215.234, and the Nagelkerke R square value was .203. This indicated that the model accounts for 20.3% of the variance between 18-year-old student athletes and male student athletes of another age. Table 53 summarizes the model.

Table 53

Model Summary for Male Student Athletes 18 Years of Age

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	215.234	.203

Note. -2 Log Likelihood values estimation terminated at iteration six because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to athlete age determined a connection to responses on various risk instruments. The CAPS-r related to alcohol use produced statistically significantly lower results from the t-tests, and the CAPS-r was identified as a significant explanatory variable through the logistic regression. Increased alcohol use was associated with a likelihood of being an age other than 18. These findings can help confirm that preventative programs and educational programs are doing their jobs in expressing the dangers of alcohol use. The factors identified as being statistically significant help clarify student athlete risk-taking tendencies related to age.

Student Athletes 19 Years of Age

Statistical and descriptive analyses conducted compared student athletes 19 years of age to all other student athletes that took part in the study. Table 54 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Student athletes 19 years of age scored statistically significantly higher on the: SURPS (p = .040, t = -2.067); SURPS SS sensation seeking subscale (p = .010, t = -2.584); RSS (p = .008, t = -2.674); and RSS RSE risky sex expectancies subscale (p = .012, t = -2.543). The independent samples t-test was run to determine if significant differences exist between 19-year-old student athletes and athletes of another age. No serious violations were observed in relation to the datasets for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS IMP subscale (p = .048) was

identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results.

The t-scores on these instruments suggest that student athletes age 19 years old exhibited significantly higher results related to substance use and sex. Overall, 19-year-old student athletes had higher mean scores on all the instruments and subscales with the exception of the SURPS H hopelessness subscale. Nineteen-year-old student athletes scored higher in the following areas: SURPS (19 year old M = 52.0488; All Other Ages M = 50.5806), SURPS AS anxiety sensitivity subscale (19 year old M = 12.4756; All Other Ages M = 12.0000), SURPS IMP impulsivity subscale (19 year old M = 10.9268; All Other Ages M = 10.4037), SURPS SS sensation seeking subscale (19 year old M = 17.3614; All Other Ages M = 16.4072), CAPS-r (19 year old M = 17.4250; All Other Ages M = 16.3302), RSS (19 year old M = 43.7179; All Other Ages M = 40.3206), RSS RSE risky sex expectancies subscale (19 year old M = 20.6410; All Other Ages M = 18.7476), RSS RSB risky sex behaviors subscale (19 year old M = 11.8590; All Other Ages M = 11.0143), RSS GSRP gender based perceptions of risky sex subscale (19 year old M = 11.2179; All Other Ages M = 10.6398), Adolescent Invulnerability Scale – Danger Invulnerability subscale (19 year old M = 13.3974; All Other Ages M = 13.1024). Table 63 provides the mean, standard deviation, t-scores and degrees of freedom for the instruments related to student athletes who are 19 years old. The results of this analysis suggest that 19 year olds are taking significantly higher amounts of risk related to substance use and sexual behaviors. The Adolescent Invulnerability Scale – Danger Invulnerability subscale score was not statistically significant in this model (p = .630, t = -.482), but it is important to note that the optimism bias was higher in 19-year-old male student athletes when compared to their peers.

Table 54

Means, Standard Deviation, and T-Test Results of 19-Year-Old Student Athletes (19-year-old student athletes vs. all other ages)

Variables		Student Athlete Age: 19			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
19 Year Olds	52.0488	5.01824	82	297	-2.067*
Other Athletes	50.5806	5.64409	217		
H Subscale					
19 Year Olds	11.2805	2.53019	82	299	1.151
Other Athletes	11.7489	3.34087	219		
AS Subscale					
19 Year Olds	12.4756	2.06216	82	299	-1.740
Other Athletes	12.0000	2.12888	219		
IMP Subscale					
19 Year Olds	10.9268	2.27048	82	121.377	-1.876
Other Athletes	10.4037	1.80179	218		
SS Subscale					
19 Year Olds	17.3614	2.67590	83	302	-2.584*
Other Athletes	16.4072	2.93672	221		
College Alcohol Problem Scale-Revised					
19 Year Olds	17.4250	7.97111	80	293	-1.102
Other Athletes	16.3302	7.43494	215		
Risky Sex Scale					
19 Year Olds	43.7179	9.60100	78	285	-2.674*
Other Athletes	40.3206	9.56544	209		
RSE Subscale					
19 Year Olds	20.6410	5.49137	78	286	-2.543*
Other Athletes	18.7476	5.66092	210		
RSB Subscale					
19 Year Olds	11.8590	4.21415	78	286	-1.568
Other Athletes	11.0143	4.00416	210		
GSRP Subscale					
19 Year Olds	11.2179	2.21358	78	287	-1.825
Other Athletes	10.6398	2.45204	211		
Adolescent Invulnerability Scale – DI Subscale					
19 Year Olds	13.3974	4.51359	78	281	-.482
Other Athletes	13.1024	4.63620	205		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with 19-year-old student athletes as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 76 19-year-old student athletes and 197 student athletes of another age.

A test of the full model with all nine variables against a constant-only model was statistically significant, χ^2 (1, N = 273) = 49.753, p = .000, indicating that the variables as a group, significantly differentiated 19-year-old student athletes and athletes of another age based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 18.466. The significance level was .030 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .743, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 55, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 9.2% of 19-year-old students and 95.9% of students of another age. Overall, the logistic regression correctly identified 71.8% of student athlete classification. This is a decrease over the 72.2% correct classification rate that the constant model produced, indicating that the model with the variables is less accurate at determining classification.

Table 55

Classification Table for Student Athletes 19 Years of Age

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
19-years-old	7	69	9.2
Non-19-year-old	189	8	95.9
Overall Percentage			71.8

*Note. The cut value is .500.

Table 56 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *19 year old* (*p*) = $^{-5.159 - .077*\text{SURPS H} + .099*\text{SURPS AS} + .060*\text{SURPS IMP} + .111*\text{SURPS SS} - .006*\text{CAPS-R} + .045*\text{RSS RSE} - .002*\text{RSS RSB} + .075*\text{RSS GSRP} - .016*\text{AIS DI}}$. Of the nine explanatory variables, one was statistically significant. According to the Wald criterion, the variable that held statistical significance was the: SURPS SS sensation seeking subscale, χ^2 (1, N = 273) = 4.158, p = .041. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the SURPS SS sensation seeking subscale and student athlete age. For every increase by one unit in SURPS SS sensation seeking, the odds of being a 19-year-old student athlete increases by 11.7%.

Table 56

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Student Athletes Age 19

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.077	.049	2.466	1	.116	.926	.841	1.019
AS Subscale	.099	.071	1.924	1	.165	1.104	.960	1.270
IMP Subscale	.060	.078	.596	1	.440	1.062	.911	1.238
SS Subscale	.111	.054	4.158	1	.041*	1.117	1.004	1.243
College Alcohol Problem Scale-Revised	-.006	.021	.088	1	.766	.994	.953	1.036
Risky Sex Scale								
RSE Subscale	.045	.032	1.967	1	.161	1.046	.982	1.113
RSB Subscale	-.002	.045	.001	1	.971	.998	.914	1.091
GSRP Subscale	.075	.067	1.259	1	.262	1.078	.946	1.228
Adolescent Invulnerability Scale-DI Subscale	-.016	.035	.225	1	.635	.984	.919	1.053
Constant	-5.159	1.576	10.712	1	.001*	.006		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes who are 19 years old vs. other student athletes. The -2LL value all test variables was 304.452, and the Nagelkerke R square value was .094. This indicates that the model accounted for 9.4% of the variance between 19-year-old student athletes and male student athletes of another age. Table 57 summarizes the model.

Table 57

Model Summary for Male Student Athletes 19 Years of Age

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	304.452	.094

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to athlete age determined a connection to responses on various risk instruments. The areas identified as being statistically significant higher were SURPS, SURPS SS sensation seeking, CAPS-r, and the RSS RSE risky sex expectancies, through t-tests. In addition, SURPS SS sensation seeking was the only statistically significant explanatory variable identified through the logistic regression. An increase in sensation seeking behaviors was associated with a likelihood of being a nineteen-year-old athlete. This data depicts how 19-year-old student athletes seem to be at a higher risk for partaking in certain risk-taking behaviors.

Student Athletes 20 Years of Age

Statistical and descriptive analyses conducted compared 20-year-old student athletes to all other student athletes that took part in the study. Table 58 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Twenty-year-old student athletes scored statistically significantly lower on several instruments: RSS (p = .020, t = 2.339) and the RSS GSRP gender based perceptions of risky sex subscale (p = .012, t = 2.540). The independent samples t-test was run to determine if significant differences exist between 20-year-old student athletes and athletes of another age. No serious violations were observed in relation to the datasets for the t-tests. Through the Levene's Test for Equality of Variance, the RSS RSB subscale (p = .014) was identified as being less than $p \leq .05$ indicating that the variances are

significantly different. These variables utilized the equal variances not assumed output when reporting results. The t-score on these instruments suggest that 20-year-old student athletes exhibited significantly lower tendencies related to sexual behavior and GSRP. The findings lead to the suggestion that suggest 20-year-old student athletes engage in less sexual risk-taking behaviors than their peers.

Twenty-year-old student athletes did not score lower in all areas. In fact, 20-year-old student athletes produced higher mean scores on the: SURPS (20 Year Old M =51.0455; All Other Ages M = 50.9657), SURPS H hopelessness subscale (20 Year Old M =11.6418; All Other Ages M = 11.6154), SURPS AS anxiety sensitivity subscale (20 Year Old M = 12.2388; All Other Ages M = 12.0983), SURPS SS sensation seeking subscale (20 Year Old M = 16.7059; All Other Ages M = 16.6568), CAPS-r (20 Year Old M = 17.1212; All Other Ages M = 16.4847), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (20 Year Old M = 13.2344; All Other Ages M = 13.1689). In addition, 20-year-old student athletes showed a higher optimism bias when compared to their peers. The Adolescent Invulnerability Scale – Danger Invulnerability subscale measuring optimism bias was not statistically significant in this model (p = .920, t = -.100) but it is important to note that scores on the Adolescent Invulnerability Scale – Danger Invulnerability subscale were higher overall in 20-year-old student athletes when compared to their peers.

Table 58

Means, Standard Deviation, and T-Test Results of 20-Year-Old Student Athletes (20-year-old student athletes vs. all other ages)

Variables		Student Athlete Age: 20			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
20 Year Olds	51.0455	5.75508	66	297	-.104
Other Athletes	50.9657	5.45188	233		
H Subscale					
20 Year Olds	11.6418	3.17042	67	299	-.061
Other Athletes	11.6154	3.14280	234		
AS Subscale					
20 Year Olds	12.2388	2.21626	67	299	-.478
Other Athletes	12.0983	2.09305	234		
IMP Subscale					
20 Year Olds	10.5303	1.93923	66	298	.077
Other Athletes	10.5513	1.95868	234		
SS Subscale					
20 Year Olds	16.7059	2.94253	68	302	-.123
Other Athletes	16.6568	2.88739	236		
College Alcohol Problem Scale-Revised					
20 Year Olds	17.1212	7.43695	66	293	-.600
Other Athletes	16.4847	7.63854	229		
Risky Sex Scale					
20 Year Olds	38.8182	10.55959	66	285	2.339*
Other Athletes	41.9683	9.30122	221		
RSE Subscale					
20 Year Olds	18.2576	6.16768	66	286	1.642
Other Athletes	19.5586	5.49156	222		
RSB Subscale					
20 Year Olds	10.5672	4.56012	67	97.088	1.430
Other Athletes	11.4480	3.90026	221		
GSRP Subscale					
20 Year Olds	10.1493	2.62421	67	287	2.540*
Other Athletes	10.9910	2.29891	221		
Adolescent Invulnerability Scale – DI Subscale					
20 Year Olds	13.2344	4.76009	64	281	-.100
Other Athletes	13.1689	4.55887	219		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with 20-year-old student athletes as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 60 20-year-old student athletes and 213 student athletes of another age.

A test of the full model with all nine variables against a constant-only model was statistically significant, χ^2 (1, N = 273) = 75.142, p = .000, indicating that the variables as a group, significantly differentiated 20-year-old student athletes and student athletes of another age based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 10.910. The significance level was .282 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .228, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 59, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 3.3% of 20-year-old students and 99.5% of students of another age. Overall, the logistic regression correctly identified 78.4% of student athlete classification. This is an improvement over the 78.0% correct classification rate that the constant model produced, indicating that the model with the variables is slightly better at determining classification.

Table 59

Classification Table for Student Athletes 20 Years of Age

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
20-years-old	2	58	3.3
Non-20-year-old	212	1	99.5
Overall Percentage			78.4

*Note. The cut value is .500.

Table 60 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *20 year old* (*p*) = -1.043 + .005*SURPS H + .092*SURPS AS + .018*SURPS IMP + .018*SURPS SS + .022*CAPS-R - .020*RSS RSE - .046*RSS RSB - .145*RSS GSRP + .012*AIS DI. Of the nine explanatory variables, one was statistically significant. According to the Wald criterion, the variable that held statistical significance was the: RSS GSRP gender based perceptions of risky sex subscale, χ^2 (1, N = 273) = 4.809, p = .028. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings between instruments and age classification. For every increase by one unit in RSS GSRP gender based perceptions of risky sex, the odds of being a 20-year-old student athlete decreases by 13.5%.

Table 60

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Student Athletes Age 20

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.005	.048	.009	1	.922	1.005	.914	1.104
AS Subscale	.092	.075	1.491	1	.222	1.097	.946	1.271
IMP Subscale	.018	.086	.042	1	.838	1.018	.861	1.204
SS Subscale	.018	.058	.100	1	.751	1.018	.909	1.141
College Alcohol Problem Scale-Revised	.022	.023	.925	1	.336	1.022	.978	1.068
Risky Sex Scale								
RSE Subscale	-.020	.034	.333	1	.564	.981	.918	1.048
RSB Subscale	-.046	.050	.846	1	.358	.955	.866	1.053
GSRP Subscale	-.145	.066	4.809	1	.028*	.865	.760	.985
Adolescent Invulnerability Scale-DI Subscale	.012	.036	.109	1	.741	1.012	.943	1.085
Constant	-1.043	1.550	.452	1	.501	.353		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes who are 20 years old vs. other student athletes. The -2LL value for all test variables was 276.629, and the Nagelkerke R square value was .060. This indicates that the model accounted for 6.0% of the variance between 20-year-old student athletes and other male student athletes. Table 61 summarizes the model.

Table 61

Model Summary for Male Student Athletes 20 Years of Age

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	276.629	.060

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to athlete age determined a connection to responses on various risk instruments. RSS GSRP gender based perceptions of risky sex produced statistically significant findings from the t-tests and was identified as the only significant explanatory variable through the logistic regression, and the RSS was identified as being significantly lower through the t-tests. Increased gender based perceptions of risky sex were associated with a likelihood of being an age other than 20-years-old. This data depicts how 20-year-old student athletes seem to be at a higher risk for partaking in certain risk-taking behaviors.

Student Athletes 21 Years of Age

Statistical and descriptive analyses conducted compared 21-year-old student athletes to all other student athletes that took part in the study. Table 62 provides a summary of the analyses and t-tests, and highlights statistically significant findings. There were no areas reported as being statistically significant. The independent samples t-test was run to determine if significant differences exist between 21-year-old student athletes and athletes of another age. No serious violations were observed in relation to the datasets for the t-tests. Student athletes age 21 years old produced higher means in the areas of: SURPS (21 Year Old *M* = 51.3390; All Other Ages *M* = 50.8958), SURP H hopelessness subscale (21 Year Old *M* = 12.0333 All Other Ages *M* = 11.5187), SURPS AS anxiety sensitivity subscale (21 Year Old *M* = 12.1667 All Other Ages *M*

= 12.1203), CAPS-r (21 Year Old *M* = 18.1833 All Other Ages *M* = 16.2298), RSS (21 Year Old *M* = 42.7414 All Other Ages *M* = 40.8646), RSS RSE risky sex expectancies subscale (21 Year Old *M* = 19.9153 All Other Ages *M* = 19.0917), RSS RSB risky sex behaviors subscale (21 Year Old *M* = 11.9483 All Other Ages *M* = 11.0652), RSS GSRP gender based perceptions of risky sex subscale (21 Year Old *M* = 10.9655 All Other Ages *M* = 10.7532), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (21 Year Old *M* = 13.2727 All Other Ages *M* = 13.1623). The Adolescent Invulnerability Scale – Danger Invulnerability subscale score was not statistically significant in this model ($p = .873$, $t = -.160$), but it is important to note that the optimism bias was higher in 21-year-old male student athletes when compared to their peers.

Table 62

Means, Standard Deviation, and T-Test Results of 21-Year-Old Student Athletes (21-year-old student athletes vs. all other ages)

Variables		Student Athlete Age: 21			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
21 Year Olds	51.3390	5.25754	59	297	-.553
Other Athletes	50.8958	5.57805	240		
H Subscale					
21 Year Olds	12.0333	3.48346	60	299	-1.135
Other Athletes	11.5187	3.05243	241		
AS Subscale					
21 Year Olds	12.1667	2.30082	60	299	-.151
Other Athletes	12.1203	2.07516	241		
IMP Subscale					
21 Year Olds	10.4167	1.72019	60	298	.576
Other Athletes	10.5792	2.00678	240		
SS Subscale					
21 Year Olds	16.5932	3.01787	59	302	.220
Other Athletes	16.6857	2.87071	245		
College Alcohol Problem Scale-Revised					
21 Year Olds	18.1833	8.30252	60	293	-1.787
Other Athletes	16.2298	7.35823	235		
Risky Sex Scale					
21 Year Olds	42.7414	9.61826	58	285	-1.321
Other Athletes	40.8646	9.67652	229		
RSE Subscale					
21 Year Olds	19.9153	5.40845	59	286	-.995
Other Athletes	19.0917	5.73351	229		
RSB Subscale					
21 Year Olds	11.9483	4.19031	58	286	-1.479
Other Athletes	11.0652	4.03155	230		
GSRP Subscale					
21 Year Olds	10.9655	2.08559	58	287	-.602
Other Athletes	10.7532	2.47504	231		
Adolescent Invulnerability Scale - DI Subscale					
21 Year Olds	13.2727	4.78599	55	281	-.160
Other Athletes	13.1623	4.56041	228		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with 21-year-old student athletes as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 54 21-year-old student athletes and 219 student athletes of another age.

A test of the full model with all nine variables against a constant-only model was statistically significant, χ^2 (1, N = 273) = 84.915, p = .000, indicating that the variables as a group, significantly differentiated 21-yaer-old student athletes and student athletes of another age based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 6.166. The significance level was .723 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .323, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 63, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 0.0% of 21-year-old students and 100.0% of students of another age. Overall, the logistic regression correctly identified 80.2% of student athlete classification. There was no improvement over the classification rate that the constant model produced, indicating that the model with the variables is no better at determining classification.

Table 63

Classification Table for Student Athletes 21 Years of Age

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
21-years-old	0	54	0.0
Non-21-year-old	219	0	100.0
Overall Percentage			80.2

*Note. The cut value is .500.

Table 64 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *21 year old* (*p*) = -1.709 + .071*SURPS H - .040*SURPS AS - .087*SURPS IMP - .008*SURPS SS + .023*CAPS-R + .009*RSS RSE + .034*RSS RSB + .017*RSS GSRP - .009*AIS DI. Of the nine explanatory variables, none were statistically significant.

Table 64

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Student Athletes Age 21

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.071	.048	2.152	1	.142	1.073	.977	1.179
AS Subscale	-.040	.079	.259	1	.611	.961	.823	1.122
IMP Subscale	-.087	.091	.909	1	.340	.917	.767	1.096
SS Subscale	-.008	.059	.018	1	.893	.992	.883	1.114
College Alcohol Problem Scale-Revised	.023	.023	.957	1	.328	1.023	.978	1.070
Risky Sex Scale								
RSE Subscale	.009	.035	.067	1	.796	1.009	.942	1.081
RSB Subscale	.034	.051	.443	1	.506	1.035	.936	1.144
GSRP Subscale	.017	.070	.056	1	.813	1.017	.886	1.167
Adolescent Invulnerability Scale-DI Subscale	-.009	.039	.059	1	.808	.991	.918	1.069
Constant	-1.709	1.652	1.070	1	.301	.181		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for 21-year-old student athletes vs. other student athletes. The -2LL value for all test variables was 265.382, and the Nagelkerke R square value was .035. This indicates that the model accounted for 3.5% of the variance between 21-year-old student athletes and other student athletes. Table 65 summarizes the model.

Table 65

Model Summary for Male Student Athletes 21 Years of Age

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	265.382	.035

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to athlete age determined a connection to responses on various risk instruments. There were no areas identified as being statistically significant on both the t-tests and logistic regressions. These findings depict how 21-year-old Division II male intercollegiate student athletes are taking risks.

Student Athletes 22 Years of Age and Older

Statistical and descriptive analyses conducted compared 22-year-old and older student athletes to all other student athletes that took part in the study. Table 66 provides a summary of the analyses and t-tests, and highlights statistically significant findings. There were no areas reported as being statistically significant. The independent samples t-test was run to determine if significant differences exist between 22-year-old and older student athletes and younger student athletes. No serious violations were observed in relation to the datasets for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS H subscale (p = .307) was identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results. The results of this analysis suggest that 22-year-old and older student athletes have higher mean scores on the SURPS H hopelessness subscale (22+ Year Old M = 12.2368; All Other Ages M = 11.5323), CAPS-r (22+ Year Old M = 18.1081; All Other Ages M = 16.4147), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (22+ Year Old M = 13.3611; All Other

Ages M = 13.1579). The Adolescent Invulnerability Scale – Danger Invulnerability subscale score was not statistically significant in this model (p = .805, t = -.247), the optimism bias was higher in male student athletes 22 years of age and older when compared to their peers.

Table 66

Means, Standard Deviation, and T-Test Results of Student Athletes 22 Years Old and Older Student Athletes (22-year-old and older student athletes vs. all other ages)

Variables		Student Athlete Age: 22+			
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
22+ Year Olds	50.3421	5.95604	38	297	.767
Other Athletes	51.0766	5.44852	261		
H Subscale					
22+ Year Olds	12.2368	4.04324	38	43.043	-1.034
Other Athletes	11.5323	2.99075	263		
AS Subscale					
22+ Year Olds	11.6579	2.00373	38	299	1.471
Other Athletes	12.1977	2.12915	263		
IMP Subscale					
22+ Year Olds	10.2632	1.68754	38	298	.958
Other Athletes	10.5878	1.98604	262		
SS Subscale					
22+ Year Olds	16.0769	2.66936	39	302	1.367
Other Athletes	16.7547	2.92135	265		
College Alcohol Problem Scale-Revised					
22+ Year Olds	18.1081	7.03082	37	293	-1.271
Other Athletes	16.4147	7.65161	258		
Risky Sex Scale					
22+ Year Olds	40.7222	9.12332	36	285	.345
Other Athletes	41.3187	9.76944	251		
RSE Subscale					
22+ Year Olds	19.1944	5.45537	36	286	.075
Other Athletes	19.2698	5.70931	252		
RSB Subscale					
22+ Year Olds	10.9444	3.38015	36	286	.470
Other Athletes	11.2857	4.16561	252		
GSRP Subscale					
22+ Year Olds	10.5833	2.51140	36	287	.567
Other Athletes	10.8261	2.38742	253		
Adolescent Invulnerability Scale – DI Subscale					
22+ Year Olds	13.3611	5.00944	36	281	-.247
Other Athletes	13.1579	4.54375	247		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with 22-year-old and older student athletes as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 36 sophomore student athletes and 237 student athletes of another academic classification.

A test of the full model with all nine variables against a constant-only model was statistically significant, χ^2 (1, N = 273) = 110.994, p = .000, indicating that the variables as a group, significantly differentiated 22-year-old and older student athletes and student athletes of another age based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 10.683. The significance level was .298 determining that the overall model is not statistically significant. The Hosmer and Lemeshow Test showed a significance level of .996, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 67, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 0.0% of 22-year-old and older students and 100.0% of students of another age. Overall, the logistic regression correctly identified 86.8% of student athlete classification. There was no improvement over the classification rate that the constant model produced, indicating that the model with the variables is no better at determining classification.

Table 67

Classification Table for Student Athletes 22 Years of Age and Older

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
22-years-old and older	0	36	0.0
Non-22-year-old and older	237	0	100.0
Overall Percentage			86.8

*Note. The cut value is .500.

Table 68 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *22+ years old* (*p*) = $^{1.429 + .043*\text{SURPS H} - .143*\text{SURPS AS} - .104*\text{SURPS IMP} - .100*\text{SURPS SS} + .059*\text{CAPS-R} + .014*\text{RSS RSE} - .029*\text{RSS RSB} - .047*\text{RSS GSRP} + .012*\text{AIS DI}}$. Of the nine explanatory variables, one was statistically significant. According to the Wald criterion, the variable that held statistical significance was the: CAPS-r, χ^2 (1, N = 273) = 4.556, p = .033. The outcome of the logistic regression provides results from the analysis supporting that there are significant findings among the CAPS-r. For every increase by one unit in CAPS-r, the odds of being a 22 year old or older student athlete increases by 6.0%.

Table 68

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior Dependent on Student Athletes Age 22 +

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	.043	.055	.598	1	.439	1.044	.937	1.163
AS Subscale	-.143	.097	2.151	1	.142	.867	.717	1.049
IMP Subscale	-.104	.113	.861	1	.354	.901	.723	1.123
SS Subscale	-.100	.070	2.062	1	.151	.904	.789	1.037
College Alcohol Problem Scale-Revised	.059	.027	4.556	1	.033*	1.060	1.005	1.119
Risky Sex Scale								
RSE Subscale	.014	.040	.128	1	.720	1.014	.938	1.097
RSB Subscale	-.029	.061	.224	1	.636	.972	.862	1.095
GSRP Subscale	-.047	.079	.354	1	.552	.954	.817	1.114
Adolescent Invulnerability Scale-DI Subscale	.012	.045	.076	1	.783	1.012	.927	1.105
Constant	1.429	1.897	.568	1	.451	4.176		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for student athletes 22 years old and older vs. other student athletes. The -2LL value all test variables was 202.215, and the Nagelkerke R square value was .071. This indicates that the model accounted for 7.1% of the variance between student athletes 22 years old and older and student athletes of other ages. Table 69 summarizes the model.

Table 69

Model Summary for Male Student Athletes 22 Years of Age and Older

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	202.215	.071

Note. -2 Log Likelihood values estimation terminated at iteration 5 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to student athletes 22 years of age and older determined a connection to responses on various risk instruments. The logistic regression identified the CAPS-r as being a statistically significant explanatory variable. When performing data analysis on male student athlete age, several areas produced statistically significant results. Results of the t-tests produced several areas of significance. 18-year-old student athletes were found to have significantly lower scores related to the SURPS (p = .016, t = 2.423), CAPS-r (p = .000, t = 7.201), and the RSS RSE risky sex expectancies subscale (p = .031, t = 2.165). The logistic regression model produced significant findings indicating that the CAPS-r (Wald = 17.025, p = .000) is a significant explanatory variable. 19-year-old student athletes were found to have significantly higher scores based on the findings from the t-tests related to the SURPS (p = .016, t = -2.067), SURPS SS sensation seeking subscale (p = .010, t = -2.584), RSS (p = .008, t = -2.674) and RSS RSE risky sex expectancies subscale (p = .012, t = -2.543). The logistic regression model identified the SURPS SS sensation seeking subscale (Wald = 4.158, p = .041) as being a significant explanatory variable. The analysis of the 20-year-old student athletes produced significantly lower results from the t-tests on the RSS (p = .020, t = 2.339) and the RSS GSRP gender based perceptions of risky sex subscale (p = .012, t = 2.540). The logistic regression identified RSS GSRP gender based perceptions of risky sex subscale (Wald = 4.809, p = .028) as being a statistically significant explanatory variable. These results

indicate that 20-year-old student athletes are not taking as many risks associated with sexual behaviors and gender based perceptions of risky sex as their peers. The 22 years old and older group did produce one statistically significant finding indicating that the CAPS-r (Wald = 4.556, p = .033) is a significant explanatory variable within the logistic regression. Increased alcohol use was associated with the likelihood of being a 22-year-old or older student athlete.

Research Question Five

Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?

In the study, this question aimed to identify differences in student athlete scholarship level in comparison to their risk-taking behaviors. The study consisted of athletes that received any amount of athletic scholarship and compared them against student athletes that received no athletic scholarship. In addition, the athletes' levels of scholarship varied. It is common to have both scholarship and non-scholarship athletes participating on all teams. The response distribution provided in Table 70 is representative of the valid results indicating student athlete scholarship status from the online anonymous survey that Division II male intercollegiate athletes took in order to participate in the study.

Table 70

Scholarship Classification

Scholarship Classification	*n*
Receiving scholarship (Full; Partial)	184
Receiving No scholarship	136
Total:	**320**

Note: This table reports valid results indicating student athlete age gathered from the responses from the online anonymous survey. Total *n* for statistical analysis may vary depending on incomplete responses omitted by SPSS® for the analysis.

Statistical and descriptive analyses conducted compared student athletes who receive some form of athletic scholarship to student athletes who do not receive any athletic scholarship. Table 71 provides a summary of the analyses and t-tests, and highlights statistically significant findings. Student athletes with scholarships scored statistically significantly higher on the: CAPS-r (p = .000, t = -3.933), RSS (p = .022, t = -2.302), RSS RSE risky sex expectancies subscale (p = .022, t = -2.304), RSS RSB risky sex behaviors subscale (p = .050, t = -1.964), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (p = .036, t = -2.101). The t-scores on these instruments suggest that scholarship student athletes exhibited significantly higher results in these areas. The independent samples t-test was run to determine if significant differences exist between scholarship student athletes and non-scholarship student athletes. No serious violations were observed in relation to the datasets for the t-tests. Through the Levene's Test for Equality of Variance, the SURPS SS subscale (p = .036) and the CAPS-r (p = .000) were identified as being less than $p \leq .05$ indicating that the variances are significantly different. These variables utilized the equal variances not assumed output when reporting results. Table 80 provides the mean, standard deviation, t-scores and degrees of freedom for the instruments related to scholarship and non-scholarship student athlete risk-taking behavior scores.

The results of this analysis suggest that scholarship student athletes are taking significantly higher amounts of risk overall. Overall, scholarship athletes exhibited higher means on the SURPS IMP impulsivity subscale (Scholarship Athlete M = 10.7412; Non-Scholarship Athlete M = 10.3712), CAPS-r (Scholarship Athlete M = 18.2395; Non-Scholarship Athlete M = 14.8615), RSS (Scholarship Athlete M = 42.4151; Non-Scholarship Athlete M = 39.7891), RSS RSE risky sex expectancies subscale (Scholarship Athlete M = 19.9438; Non-Scholarship Athlete M = 18.4062), RSS RSB risky sex behavior subscale (Scholarship Athlete M = 11.6625;

Non-Scholarship Athlete *M* = 10.7187), RSS GSRP gender based perceptions of risky sex subscale (Scholarship Athlete *M* = 10.9006; Non-Scholarship Athlete *M* = 10.6641), and the Adolescent Invulnerability Scale – Danger Invulnerability subscale (Scholarship Athlete *M* = 13.6987; Non-Scholarship Athlete *M* = 12.5512). The results of this analysis suggest scholarship student athletes are taking significantly higher amounts of risk related to alcohol use and sexual behaviors. The Adolescent Invulnerability Scale – Danger Invulnerability subscale score was also statistically significant in this model ($p = .036$, $t = -2.101$), it is important to note that the optimism bias was significantly higher in male scholarship student athletes when compared to their peers who did not receive a scholarship.

Table 71

Means, Standard Deviation, and T-Test Results of Scholarship Student Athletes Risk-taking Behaviors and the Relationships among the Variables

Variables	Scholarship Student Athletes/Non-Scholarship Student Athletes				
	M	*SD*	*n*	*df*	*t*
Substance Use Risk Profile Scale					
Scholarship	50.9704	5.82526	169	299	.400
Non-Scholarship	51.2348	5.5020	132		
H Subscale					
Scholarship	11.4353	3.24702	170	301	1.424
Non-Scholarship	11.9624	3.13438	133		
AS Subscale					
Scholarship	12.1235	2.09593	170	301	.109
Non-Scholarship	12.1504	2.17247	133		
IMP Subscale					
Scholarship	10.7412	1.98606	170	300	-1.594
Non-Scholarship	10.3712	2.02053	132		
SS Subscale					
Scholarship	16.6163	3.12009	172	302.256	.487
Non-Scholarship	16.7761	2.62046	134		
College Alcohol Problem Scale-Revised					
Scholarship	18.2395	8.52156	167	294.147	-3.933*
Non-Scholarship	14.8615	6.27503	130		
Risky Sex Scale					
Scholarship	42.4151	9.38171	159	285	-2.302*
Non-Scholarship	39.7891	9.87692	128		
RSE Subscale					
Scholarship	19.9438	5.49127	160	286	-2.304*
Non-Scholarship	18.4062	5.79225	128		
RSB Subscale					
Scholarship	11.6625	4.16316	160	286	-1.964*
Non-Scholarship	10.7187	3.90827	128		
GSRP Subscale					
Scholarship	10.9006	2.23943	161	287	-.832
Non-Scholarship	10.6641	2.59095	128		
Adolescent Invulnerability Scale – DI Subscale					
Scholarship	13.6987	4.84391	156	281	-2.101*
Non-Scholarship	12.5512	4.20640	127		

Note: * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

A logistic regression analysis was performed with scholarship student athlete as the outcome and nine independent explanatory variables: SURPS H, SURPS AS, SURPS IMP, SURPS SS, CAPS-r, RSS RSE, RSS RSB, RSS GSRP, AIS DI. Analysis was performed using SPSS®. After accounting for missing cases, data from 273 student athletes were available for analysis: 150 scholarship student athletes and 123 non-scholarship student athletes.

A test of the full model with all nine variables against a constant-only model was not statistically significant, χ^2 (1, N = 273) = 2.662, p = .103, indicating that the variables as a group, did not significantly differentiate scholarship and non-scholarship student athletes based on the scores of the instruments. The Omnibus Test of Model Coefficients that evaluates the model and compares it back to the null hypothesis produced a Chi-square value of 26.771. The significance level was .002 determining that the overall model is statistically significant. The Hosmer and Lemeshow Test showed a significance level of .213, proving that the model is a good fit. No serious violations in the logit were observed through the logistic regression. The SURPS and RSS scores were omitted from the analysis to avoid multicollinearity and redundancies in the dataset.

Table 72, the Classification Table on the SPSS® output, shows that the logistic regression correctly identified 70.0% of scholarship student athletes and 54.5% of non-scholarship student athletes. Overall, the logistic regression correctly identified 63.0% of student athlete classification. This is an improvement over the 54.9% correct classification rate that the constant model produced, indicating that the model with the variables is better at determining classification.

Table 72

Classification Table for Student Athlete Scholarship Level

	Correctly Predicted	Incorrectly Predicted	Percentage Correct
Scholarship	105	45	70.0
Non-Scholarship	67	56	54.5
Overall Percentage			63.0

*Note. The cut value is .500.

Table 73 shows the coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the nine variables. The logistic regression equation is determined to be: *scholarship student athletes* (*p*) = $^{1.650 - .111*\text{SURPS H} - .087*\text{SURPS AS} + .056*\text{SURPS IMP} - .102*\text{SURPS SS} + .068*\text{CAPS-R} + .015*\text{RSS RSE} + .012*\text{RSS RSB} - .020*\text{RSS GSRP} + .055*\text{AIS DI}}$. Of the nine variables, three were statistically significant. According to the Wald criterion, the three variables that held statistical significance were the: SURPS H hopelessness subscale, χ^2 (1, N = 273) = 6.609, p = .010; SURPS SS sensation seeking subscale, χ^2 (1, N = 273) = 4.198, p = .040; and CAPS-r, χ^2 (1, N = 273) = 10.708, p = .001. The outcome of the logistic regression provides statistically significant results from the analysis supporting that there are significant findings among the SURPS H hopelessness subscale, SURPS SS sensation seeking subscale, and CAPS-r instruments. For every increase by one unit in SURPS H hopelessness, the odds of being a scholarship student athlete decreases by 10.5%. For every increase by one unit in SURPS SS sensation seeking, the odds of being a scholarship student athlete decreases by 9.7%. For every increase by one unit in CAPS-r, the odds of being a scholarship student athlete increases by 7.0%.

Table 73

Summary of Logistic Regression Analysis for Variables Explaining Athletic Risk-taking Behavior among Scholarship Level

Variable	β	S.E.	Wald	*df*	*p*	Exp(β)	95% C.I. for Exp(β) Lower	Upper
Substance Use Risk Profile Scale								
H Subscale	-.111	.043	6.609	1	.010*	.895	.822	.974
AS Subscale	-.087	.066	1.721	1	.190	.917	.805	1.044
IMP Subscale	.056	.073	.578	1	.447	1.057	.916	1.220
SS Subscale	-.102	.050	4.198	1	.040*	.903	.819	.996
College Alcohol Problem Scale-Revised	.068	.021	10.708	1	.001*	1.070	1.028	1.114
Risky Sex Scale								
RSE Subscale	.015	.029	.265	1	.607	1.015	.959	1.073
RSB Subscale	.012	.042	.083	1	.774	1.012	.933	1.098
GSRP Subscale	-.020	.058	.117	1	.732	.980	.874	1.099
Adolescent Invulnerability Scale-DI Subscale	.055	.032	2.929	1	.087	1.056	.992	1.124
Constant	1.650	1.382	1.425	1	.233	5.207		

Note. * = $p \leq .050$
H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability) Composite scores omitted for the SURPS and RSS since running a logistic regression with those scores included would cause redundancies in the dataset.

SPSS® also calculated the -2 Log likelihood (-2LL) and the Nagelkerke R square values for scholarship student athletes vs. non-scholarship student athletes. The -2LL value all test variables was 349.013, and the Nagelkerke R square value was .125. This indicates that the model accounted for 12.5% of the variance between scholarship student athletes and non-scholarship student athletes. Table 74 summarizes the model.

Table 74

Model Summary for Male Student Athletes and Scholarship Level

		-2 Log Likelihood	Nagelkerke R Square
Block 1	Overall Percentage	349.013	.125

Note. -2 Log Likelihood values estimation terminated at iteration 4 because parameter estimates changed by less than .001.

Through this portion of the study, specific factors pertaining to scholarship level determined a connection to responses on various risk instruments. The logistic regression and t-tests identified statistically significant findings, indicating that this group of student athletes engage in more risks-taking behaviors. These findings depict how both scholarship and non-scholarship student athletes are taking risks. Scholarship student athletes were found to take significantly higher risks in several areas identified through the t-tests. Significantly higher results were found among the results of the t-tests in the CAPS-r (p = .000, t = -3.933), RSS (p = .022, t = -2.302), RSS RSE risky sex expectancies subscale (p = .022, t = -2.304), and AIS DI Adolescent Invulnerability Scale – Danger Invulnerability subscale (p = .036, t = -2.101). The logistic regression also identified three significant explanatory variables: the CAPS-r (Wald = 10.708, p = .001), SURPS H hopelessness subscale (Wald = 6.609, p = .010), and SURPS SS sensation seeking subscale (Wald = 4.198, p = .040). Indicating increased hopelessness and sensation seeking behaviors were associated with the likelihood of being a non-scholarship athlete, and increased alcohol use was associated with the likelihood of being a scholarship athlete.

Conclusion

This study analyzed the risk-taking behaviors of Division II intercollegiate male student athletes. This study focused on a single division in a specific region of the United States. The

athletes from these institutions are primarily recruited from the same geographic region as the institution is located. After exploring athletic risk based on specific demographic information and focusing on one gender in a specific division, several key findings appeared. Chapter V includes detailed overviews of the findings from the statistical analysis. In addition, the study explored new demographic areas previously not studied together. The data collected can be expanded upon and increased in the future to produce other studies examining intercollegiate student athlete risk-taking behaviors. The findings of this study confirmed several findings from previous studies, and challenged others.

Specific sub-groups of Division II male intercollegiate student athletes contributed to the study. Answers to various assessments provide the researcher the opportunity to attempt to assess student athlete risk-taking behavior. Variables of athletic team classification, age, scholarship level, academic standing, leadership, and duration of athletic affiliation add depth to the analysis. Chapter V evaluates the dissertation, discusses areas of statistical significance, and provides results and conclusions of the study. Division II male intercollegiate student athletes' experiences and risk-taking behaviors pertaining to alcohol use, drug use, sexual behavior, and optimism bias were examined and evaluated to provide a better understanding of student athlete risk-taking behaviors.

CHAPTER V

CONCLUSION AND DISCUSSION

The purpose of this study was to investigate Division II intercollegiate male student athlete risk-taking and to assess intercollegiate student athletes' level of risk-taking behaviors among various demographic levels. Male student athlete risk-taking was explored in relation to: team classification, student athlete age, duration of time affiliated with an athletic program, scholarship level, academic classification, and athletic leadership roles. New data was explored and analyzed through the study. Future research can continue to assess athletic risk-taking behaviors in new areas. Research can continue to expand on current studies regarding athletics and risk-taking to help future researchers explain why intercollegiate male student athletes engage in these behaviors.

If future research is conducted with student athletes, it is important to examine any divisional differences to determine if there are specific factors or traits which student athletes possess that makes them more susceptible to certain risk-taking behaviors. Further studies can include analyses performed to assess the various levels of competition. It is important to evaluate where the differences among the student athletes exist. After detailed quantitative analysis, significant relationships appeared between risk-taking behaviors and various demographic characteristics of the student athletes.

Additional data collection and analysis can support focuses on new athletic programs to determine if trends are consistent with the entire population of student athletes today. It is also necessary to monitor the differences among student athletes' behavior to determine what

interventions help educate student athletes of the risk-taking behaviors they partake in throughout their college careers. These areas identify traits and factors that are influential in exploring Division II male student athlete risk-taking behaviors. Findings related to the specific research questions presented in this study and key elements of the findings are explored and evaluated. These areas can strengthen current research and shape future studies in the area of athletic risk-taking behavior.

Summary of Research Question Findings

In examining Division II male intercollegiate student athlete risk-taking behaviors and trends, several key areas stood out as being significant findings related to what risks male student athletes take and which demographics place them at a heightened risk of partaking in these behaviors. In addition, there was a connection between the presence of the optimism bias in student athletes and heightened levels of risk-taking behaviors among several of the variables. Table 75 lists the areas of statistical significance identified through the analysis of t-tests and logistic regressions of the dataset.

As a review, there were several scales and subscales included in the analysis of the study. The Risky Sex Scale (RSS) focuses on sexual behaviors and experiences and contains three subscales: risky sex expectancies (RSE), related to the expectancies for sexual experiences after alcohol use; risky sex behaviors (RSB), related to sexual behaviors experienced while individuals are intoxicated; and gender-based perceptions of risky sex (GSRP), related to risks associated with sexual violence in combination with alcohol (O'Hare, 2001). The Substance Use Risk Profile Scale (SURPS) focuses on substance use and abuse (Woicik et al., 2009). The SURPS contains four subscales: hopelessness (H), factors focus on negative emotions; anxiety sensitivity (AS), focuses on factors related to physical sensitivity; impulsivity (IMP), addresses

behaviors and control; and sensation seeking (SS), focuses on exploring new situations. The College Alcohol Problem Scale-revised (CAPS-r) assesses the drinking habits of participants and analyzes alcohol use among college students (Talbott et al., 2009). Lastly, findings from the Adolescent Invulnerability Scale – Danger Invulnerability (AID DI) subscale measure optimism bias and suggest that participants scoring higher on the danger invulnerability sub-scale have a high likelihood of possessing a high optimism bias (Lapsley & Duggan, 2001).

What group of student athletes (individual sports vs. team sports) engage in the most risk-taking behaviors associated with alcohol use, drug use, and sexual behaviors?

The data analysis suggests that team sport student athletes had significantly higher scores on the CAPS-r (College Alcohol Problems Scale – revised) related to the results of the t-tests. These findings are consistent with the findings of Rockafellow and Saules (2006), who suggested participation in team sports plays a role in an individual's substance abuse. They suggest that student athletes participating in team sports are more likely to take risks than individual sport student athletes.

In this study, there were several statistically significant explanatory variables identified based on the results of the logistic regressions. Those variables were the SURPS H hopelessness subscale (p = .001), SURPS AS anxiety sensitivity subscale (p = .043), SURPS SS sensation seeking subscale (p = .001), the RSS RSE risky sex expectancies subscale (p = .010), the CAPS-r (p = .015), and the RSS RSB risky sex behaviors subscale (p = .037). In relation to team sports, Brenner and Swanik (2007) studied various student athletes across all three divisions. Research indicated that student athletes have a high rate of binge drinking tendencies, and these tendencies are more prevalent in team sports than in individual sports. These findings are in agreement with the findings from the CAPS-r College Alcohol Problems Scale – revised through the t-tests (p =

.021). Brenner and Swanik (2007) concurred that alcohol usage should be higher in team sport student athletes. The effect is apparent from the data that team sport student athletes possess a higher likelihood of encountering negative consequences associated with alcohol risk-taking behaviors.

Team sport student athletes produced a higher mean when considering all assessments (Team sport *M* = 19.55073; Individual sports *M* = 19.47524). Individual sport student athletes scored higher on the SURPS (Individual sport *M* = 51.8595; Team sport *M* = 50.5754), but team sport student athletes produced higher means on the CAPS-r (Team sport *M* = 17.5886; Individual sport *M* = 15.4711), the RSS (Team sport *M* = 41.3647; Individual sport *M* = 41.0948), and the AIS-DI (Team sport *M* = 13.4371; Individual sport *M* = 12.8348).

Overall, the team sport student athletes in the study did exhibit more risk-taking behaviors than individual sport student athletes. When determining which variables are significant explanatory variables. For each increase by one unit in SURPS H, the odds of being an individual sport athlete increases by 16.2%. The SURPS AS is strong with every increase by one unit in SURPS AS, the odds of being an individual sport athlete increases by 14.7%. The SURPS SS was also strong with every increase by one unit in SURPS SS, the odds of being an individual sport athlete increases by 20.3%. Other significant explanatory variables include the CAPS-r. With every increase by one unit in CAPS-r, the odds of being an individual sport athlete decreases by 5.0%. In addition, when the RSS RSE increases by one unit, the odds of being an individual sport athlete increases by 8.1%, and for every increase by one unit in RSS RSB, the odds of being an individual sport athlete decreases by 8.8%. Indicating that increasing hopelessness, anxiety sensitivity, sensation seeking, and risky sex expectancies were associated with the likelihood of being an individual sport athlete, and increasing alcohol use risk and risky

sex behaviors were associated with the likelihood of being a team sport athlete. These findings highlight several areas of significance related to athlete team type that future research can expand upon.

Does student athlete risk-taking behavior differ according to length of association with an athletic program?

In regards to academic class, several areas produced statistically significant results related to specific academic class rankings. Previous findings suggested that freshmen student athletes have higher alcohol risk-taking behaviors exhibited than their upper-class athlete peers (Doumas et al., 2007). However, this study found that freshman student athletes reported significantly lower scores on the t-tests related to the SURPS Substance Use Risk Profile Scale (p = .032), and CAPS-r College Alcohol Problems Scale – revised (p = .000). The CAPS-r was identified as being a statistically significant explanatory variable through the logistic regression (p = .000). Indicating that for every increase by one unit in the CAPS-r, the odds of being a freshman student athlete decreases by 8.6%. Indicating that increased alcohol use risk is associated with the likelihood of being a non-freshman student athlete. These findings suggest that freshman student athletes are taking significant lower risks associated with alcohol and substance use. Another factor that may influence freshman scores is masculine norms. Steinfeldt and Steinfeldt (2012) stated that academic year and the level of connectivity and identity related to athletics influenced athletes. Being active and athletically connected increases a male student athlete's likelihood of taking part in high-risk behaviors (Black et al., 2013). Overall, the results of the freshman responses agreed with findings by Leichliter et al. (1998), who found that the more connected a student athlete is within a team the more risk-taking tendencies that person exhibits.

Younger student athletes are not as connected as their peers and this would help to explain the significantly lower scores exhibited by the freshmen student athletes.

Sophomore student athletes were found to have significantly higher scores through the t-tests related to the SURPS (p = .002), SURPS AS anxiety sensitivity subscale (p = .046), SURPS IMP impulsivity subscale (p = .000), SURPS SS sensation seeking subscale (p = .036) and CAPS-r (p = .014). The logistic regression also identified the following explanatory variables as being statistically significant: SURPS IMP impulsivity subscale (p = .002), and SURPS SS sensation seeking subscale (p = .042). The results indicate that for every increase by one unit in SURPS IMP, the odds of being a sophomore student athlete increases by 28.5%, and for every increase by one unit in SURPS SS, the odds of being a sophomore student athlete increase by 12.0%. Indicating that increasing impulsivity and sensation seeking behaviors were associated with a likelihood of being a sophomore student athlete.

These findings suggest that sophomore student athletes are taking significantly higher risks associated with substance use and alcohol use. Substance use, especially anxiety sensitivity, sensation seeking, and impulsivity were significantly higher in sophomore student athletes. Overall, the results of the sophomore responses do not agree with findings by Leichliter et al. (1998). Leichliter et al. (1998) found that the more connected a student athlete is within a team, the more risk-taking tendencies that student will exhibit.

There were no significant findings among the various instruments in the junior or senior/graduate academic class ranking. Leichliter et al. (1998) would argue that there should have been higher scores exhibited from older student athletes since student athletes with strong connections within a team exhibit higher risk-taking tendencies. If this finding were true in the current study, older student athletes would have been reporting significantly higher results as

compared to their peers, and this was not the case with the results from the juniors, seniors, or graduates.

There are changes in overall risk as student athlete academic class rank increases. The group with the most significant findings were sophomore student athletes. The sophomore year produced the highest mean when considering all assessments (M = 20.06935), while the freshman year produced the lowest (M = 18.87855). Overall mean scores for the group were as follows: (Freshman M = 18.87855; Sophomore M = 20.06935; Junior M = 19.35891; Senior/Graduate M = 19.64287). Athletic risk-taking does change as a student athlete progresses through institutions of higher education within the sample population. A graph depicting the mean scores from year to year is included in Appendix I.

Does student athlete risk-taking behavior differ according to length of association with an athletic program?

In relation to duration of athletic involvement, there are several statistically significant findings to discuss related to specific years of affiliation. This area was similar to academic rank in which students with one year of affiliation (majority freshman) were found to report significantly lower scores on the t-test related to the CAPS-r (p = .000). In addition, the CAPS-r was identified as being a statistically significant explanatory variable through the logistic regression (p = .001). For every increase by one unit in CAPS-r, the odds of being a student athlete with one year of athletic affiliation decreases by 6.8%. Indicating increased alcohol use risk is associated with the likelihood of being a student athlete with more than one year of affiliation. These findings suggest that student athletes with one year of athletic affiliation are taking significant lower risks associated with alcohol and that the CAPS-r is a statistically significant explanatory variable. Previous research explored in this study would suggest that

students with one year of affiliation would have higher alcohol risk-taking behaviors exhibited than their upper-class athlete peers (Doumas et al., 2007). However, this finding was not true in the studied population. The current study's findings would agree with Leichliter et al. (1998) findings that suggest that student athletes with stronger team connections exhibit more risk-taking tendencies. Younger student athletes are not as connected as their peers and this would help to explain the significantly lower alcohol scores exhibited by the student athletes with one year of affiliation.

Student athletes with two years of athletic affiliation produced significantly higher scores in areas that were similar to the findings for sophomore student athletes. The significantly higher scores included the SURPS (p = .005) and SURPS IMP impulsivity subscale (p = .006) through the results of the t-tests. The SURPS IMP was also identified as being a statistically significant explanatory variable through the logistic regression (p = .031). For every increase by one unit in SURPS IMP, the odds of being a student athlete with two years of athletic affiliation increases by 19.5%. Indicating increasing impulsivity was associated with a likelihood of being affiliated with an athletic team for two years. These findings suggest that student athletes with two years of affiliation are taking significantly higher risks associated with impulsive substance use and substance use. Overall, the results of the two year affiliated student athletes responses do not agree with findings by Leichliter et al. (1998). Leichliter et al. (1998) found that the more connected a student athlete is within a team, the more risk-taking tendencies that person will exhibit. When comparing their mean scores, student athletes with two years of affiliation had higher means than all other years of affiliation in the following areas: SURPS, SURPS AS anxiety sensitivity subscale, SURPS IMP impulsivity subscale, and SURPS SS sensation seeking

subscale. Two year affiliated student athletes took significantly more risks than other years of affiliation associated with the study.

There were no significant findings among the various instruments for student athletes who were associated with an athletic team for three years. The SURPS AS anxiety sensitivity subscale (p = .033) and CAPS-r (p = .035) were found to be a statistically significant through the t-tests for student athletes with four or more years of athletic affiliation. In addition, the SURPS AS (p = .011) and CAPS-r (p = .011) were found to be significant explanatory variables. For every increase by one unit in SURPS AS anxiety sensitivity, the odds of being an athlete with four or more years of affiliation decreases by 19.2%. For every increase by one unit in CAPS-r, the odds of being an athlete with four or more years of affiliation increases by 6.1%. Indicating that increased anxiety sensitivity was associated with a likelihood of being affiliated with an athletic team for less than four years, while increased alcohol risk was associated with a likelihood of being affiliated with an athletic team for four or more years.

There are changes in risk as student athlete affiliation increases. The group with the most significant findings were student athletes with two years of athletic affiliation. The two year athletic affiliation group produced the highest mean when considering all assessments (M = 19.87386), while the one year of athletic affiliation group produced the lowest mean (M = 19.17609). Student athlete risk does not change consistently with years of athletic affiliation. Overall mean scores for the group were as follows: (one year athletic affiliation M = 19.17609; two years athletic affiliation M = 19.87386; three years athletic affiliation M = 19.42468; four or more years of athletic affiliation M = 19.73492). A graph depicting the mean scores from year to year is included in Appendix I. These findings are representative of the sample set of Division II

male intercollegiate student athletes and can be explored and analyzed further in order to find more details about this population.

Do athletic team leaders (captains) exhibit more risk-taking behaviors than their teammates?

The analysis of the current study found that team leaders showed significantly higher risk-taking behaviors related to alcohol use through the t-tests on the CAPS-r (p = .034) and a higher perceived optimism bias through the results of the AIS DI Adolescent Invulnerability Scale – Danger Invulnerability subscale (p = .034). These findings are consistent with findings by Leichliter et al. (1998) that state the more connected a student athlete is within a team, the more risk-taking tendencies that person will exhibit. This would help explain why team leaders scored higher in alcohol related risk-taking. The current study also confirmed Leichliter et al. (1998) findings that indicate individuals placed into leadership roles within teams exhibit increased risk-taking tendencies. This is especially troublesome since team leaders are frequently perceived as leaders and role models to members of their respective athletic teams. The logistic regression also identified SURPS IMP (p = .023) as a variable that statistically significantly explained team leader status. For every increase by one unit in SURPS IMP, the odds of a student athlete being a team leader decreases by 18.8%. Indicating increased impulsivity is associated with the likelihood of being a non-leader.

Overall, team leaders did take more risks when considering all assessments (Team leader M = 19.83436; Non-Leader M = 19.40589). Non-leaders scored higher on the SURPS (Non-leader M = 51.1068; Team Leader M = 50.9242), but team leaders produced higher means on the CAPS-r (Team leader M = 18.5285; Non-leader M = 16.5294), the RSS (Team Leader M = 41.746; Non-leader M = 41.0717), and the AIS-DI (Team leader M = 14.254; Non-Leader M =

12.8584). Overall, the student athlete team leaders in the study did exhibit more risk-taking behaviors than non-leaders.

Does student athlete risk-taking behavior differ according to age?

When performing data analysis on male student athlete age several areas produced statistically significant results. Eighteen-year-old student athletes were found to have significantly lower scores through the t-tests related to the SURPS (p = .016), CAPS-r (p = .000), and the RSS RSE risky sex expectancies subscale (p = .031). In addition the logistic regression identified the CAPS-r (p = .000) as being a statistically significant explanatory variable through the model. For every increase in one unit in CAPS-r, the odds of being an 18-yer-old student athlete decreases by 14.3%. Indicating increased alcohol use risk is associated with the likelihood of being an age other than 18, These findings suggest that 18-year-old student athletes are taking significant lower risks associated with alcohol and substance use, and risky sexual expectancies. Previous findings suggest that freshmen student athletes have higher alcohol risk-taking behaviors exhibited than their upper-class athlete peers (Doumas et al., 2007). Many freshmen would fall into the 18-year-old age category. Alternatively, the results of the 18-year-old responses agreed with Leichliter et al. (1998) findings that suggest student athletes who have a strong connection to a team will exhibit more risk-taking tendencies. Younger student athletes are not as connected as their peers and this would help to explain the significantly lower scores exhibited by the freshmen student athletes. Overall, the findings of the current study suggest 18-year-old student athletes are not engaging in high-risk behavior as much as their peers.

Nineteen-year-old student athletes were found to have significantly higher scores through the t-tests related to the SURPS (p = .016), SURPS SS sensation seeking subscale (p = .010), RSS (p = .008) and RSS RSE risky sex expectancies subscale (p = .012). In addition, the logistic

regression identified the SURPS SS sensation seeking subscale (p = .041) as being a statistically significant explanatory variable through the model. For every increase by one unit in SURPS SS, the odds of being a 19-year-old student athlete increases by 11.7%. Indicating increased sensation seeking is associated with the likelihood of being 19 years of age. These findings suggest that 19-year-old student athletes are taking significant higher risks associated with substance use and sex. Substance use, especially sensation seeking, was significantly higher among 19-year-old student athletes. Previous research found active and athletically connected students to have a higher likelihood of taking part in high-risk behaviors (Black et al., 2013). The results of the 19-year-old responses do not agree with Leichliter et al. (1998) findings that suggest the more connected a student athlete is within a team, the more risk-taking tendencies that person will exhibit. Younger student athletes are not as connected to their athletic team as their older peers. However, 19 year olds participating in the current study were shown to take significantly more risks than student athletes of another age in several areas.

The analysis of 20-year-old student athletes produced significantly lower t-test results on the RSS (p = .020) and the RSS GSRP gender based perceptions of risky sex subscale (p = .012). The RSS GSRP was identified as being a statistically significant explanatory variable through the logistic regression (p = .028). For every increase by one unit in RSS GSRP, the odds of being a 20-year-old student athlete decreases by 13.5%. Indicating increased gender based perceptions of risky sex is associated with the likelihood of being an age other than 20. These results indicate that 20-year-old student athletes are not taking as many risks associated with sexual behaviors and gender based perceptions of risky sex as their peers. There were no significant findings among the various instruments related to 21-year-old student athletes. However, the 22 years old and older group did produce one statistically significant explanatory variable through the logistic

regression model related to the CAPS-r (p = .033). Indicating that for every increase by one unit in CAPS-r, the odds of being a 22 year old or older student athlete increases by 6.0%, and increased alcohol use risk is associated with the likelihood of being 22 years old or older.

There are variations in risk as student athlete age increases. The group with the most significant findings were 19-year-old student athletes. The 19 year old group produced the highest mean when considering all assessments (M = 20.21375), while the 18 year old group produced the lowest mean (M = 18.32828). Student athlete risk does not increase with age. Overall mean scores for the group were as follows: (18 years old M = 18.32828; 19 years old M = 20.21375; 20 years old M = 19.11911; 21 years old M = 19.96140; 22+ years old M = 19.40822). Overall, student athlete risk does not consistently increase with age within the sample population. A graph depicting the mean scores according to age is included in Appendix I.

Do scholarship athletes partake in more risk-taking behaviors than non-scholarship athletes?

Scholarship level may be one of the best explanatory models relating to risk-taking behavior among student athletes. Multiple areas within scholarship level produced significantly higher scores related to risk-taking behaviors. Scholarship student athletes produced significantly higher results from the t-tests among the CAPS-r (p = .000), RSS (p = .022), RSS RSE risky sex expectancies subscale (p = .022), and AIS DI Adolescent Invulnerability Scale – Danger Invulnerability subscale (p = .036). The logistic regression model identified the statistically significant explanatory variables of the CAPS-r (p = .001), the SURPS H hopelessness subscale (p = .010), and the SURPS SS sensation seeking subscale (p = .040). For every increase by one unit in SURPS H, the odds of being a scholarship student athlete decreases by 10.5%. For every increase by one unit in SURPS SS, the odds of being a scholarship student athlete decreases by

9.7%, and for every increase by one unit in CAPS-r, the odds of being a scholarship student athlete increases by 7.0%. Indicating increased hopelessness and sensation seeking is associated with the likelihood of being a non-scholarship student athlete; and increased alcohol use risk is associated with the likelihood of being a scholarship student athlete.

These findings suggest that scholarship athletes perceive higher levels of invulnerability and invincibility to the negative consequences of risk-taking behaviors. These results help demonstrate that optimism bias is stronger and more prevalent in college-aged students (Arnett, 2000; Cohn et al., 1995; Lapsley et al., 2005). Millstein and Halpern-Felsher (2001) would agree that college students are more susceptible to having higher optimism biases. The high scores on the AIS DI indicate a strong connection with invulnerability and optimism bias and helps determine the perceptions and beliefs of student athletes. Student athletes with a high optimism bias feel less susceptible to experience negative outcomes associated with risk-taking behaviors. Scholarship level is an area that future research can be based upon. Through the examination of the results of the current study, scholarship student athletes do take more risks then their non-scholarship student athlete peers.

Scholarship student athletes take more risks when considering all assessments (Scholarship student athletes M = 19.88608; Non-scholarship student athletes M = 19.04415). Non-scholarship student athletes scored higher on the SURPS (Non-scholarship student athlete M = 51.2348; Scholarship student athlete M = 50.9704), but scholarship student athletes produced higher means on the CAPS-r (Scholarship student athlete M = 18.2395; Non-scholarship student athlete M = 14.8615), the RSS (Scholarship student athlete M = 42.4151; Non-scholarship student athlete M = 39.7891), and the AIS-DI (Scholarship student athlete M = 13.6987; Non-scholarship student athlete M = 12.5512). Overall, the scholarship student athletes

within the sample population did exhibit higher scores related to risk-taking behaviors than non-scholarship student athletes.

Presence of the Theoretical Framework of Optimism Bias in Student Athletes

Student athlete team leaders produced a significantly higher score on the Adolescent Invulnerability Scale – Danger Invulnerability subscale related to invulnerability and perceived optimism bias through the results of the t-test (p = .034) as compared to their peers. Team leaders produced the highest mean score on the Adolescent Invulnerability Scale – Danger Invulnerability subscale of all variables studied (M = 14.2540). Research has indicated that adolescents believe they are invulnerable and invincible to the negative consequences of risk-taking behaviors (Lapsley et al., 2005). Several studies have shown optimism bias as being strong and prevalent in adolescents (Arnett, 2000; Cohn et al., 1995). Millstein and Halpern-Felsher (2001) found that it is in the early stages of adulthood when invulnerability and invincibility are strongest in individuals.

Scholarship level also produced a high mean score (M = 13.6987) and statistically significant findings among the results of the t-test (p = .036). Scholarship level is an area of potential focus to determine why scholarship student athletes feel invincible and less susceptible to negative risk consequences. There were also several trends found in the representation of the mean scores for optimism bias in the student athlete groups. Overall, the optimism bias scores were lower in freshman, 18-year-old student athletes, and student athletes with one year of athletic affiliation. The means were also lower among sophomores and student athletes with 2 years of affiliation, but were higher in 19-year-old student athletes. Several of these groups exhibited statistically significantly higher scores among the variables, yet produced a lower optimism bias. The high scores on the Adolescent Invulnerability Scale – Danger Invulnerability

subscale indicate a heightened correlation with the optimism bias. This helps determine the relationship between the variables, and the significant relationship student athlete leaders and scholarship student athletes have related to individual perceptions and beliefs of one's susceptibility to experience negative outcomes of risk-taking behaviors.

The presence of optimism bias as being a learned concept should be explored further. If student athletes are learning the culture and learning what it means to be a student athlete at a particular institution, the presence of optimism bias may change over time. When freshman student athletes enter college, they are exposed to many rules and regulations imposed on them from a variety of constituents. They may feel as though teammates, coaches, administrators, professors, and others are watching their every move. However, as student athletes progress through their academic and athletic careers, optimism bias may become stronger. If a student athlete has gone years without any consequences to their risk-taking behaviors, they may be more inclined to continue those behaviors. Student athletes who have taken risks and have not experienced any negative outcomes may be willing to continue to engage in more risk-taking behaviors. This area can be explored further to determine if correlations exist between specific risk-taking behaviors and certain groups of student athletes. Significant results from the data analysis across all variables are included in Table 75.

Table 75

Areas of Statistical Significance: T-tests and Logistic Regressions and Corresponding p-values

Variables/Instrument	t-test (*t*-score)/ Logistic Regression (Wald)	*p*
T-test		
Individual Sport/Team Sport/CAPS-r	t-score = 2.320	.021*
Freshman/SURPS	t-score = 2.151	.032**
Freshman/CAPS-r	t-score = 3.965	.000**
Sophomore/SURPS	t-score = -3.081	.002*
Sophomore/SURPS AS	t-score = -2.001	.046*
Sophomore/SURPS IMP	t-score = -3.765	.000*
Sophomore/SURPS SS	t-score = -2.103	.036*
Sophomore/CAPS-r	t-score = -2.474	.014*
1 Year Affiliation/CAPS-r	t-score = 3.613	.000**
2 Years Affiliation/SURPS	t-score = -2.831	.005*
2 Years Affiliation/SURPS IMP	t-score = -2.763	.006*
4+ Years Affiliation/SURPS AS	t-score = 2.138	.033**
4+ Years Affiliation/CAPS-r	t-score = -2.121	.035*
Team Leader/CAPS-r	t-score = -2.133	.034*
Team Leader/AIS DI	t-score = -2.136	.034*
18 Years Old/SURPS	t-score = 2.423	.016**
18 Years Old/CAPS-r	t-score = 7.201	.000**
18 Years Old/RSS RSE	t-score = 2.165	.031**
19 Years Old/SURPS	t-score = -2.067	.040*
19 Years Old/SURPS SS	t-score = -2.584	.010*
19 Years Old/RSS	t-score = -2.674	.008*
19 Years Old/RSS RSE	t-score = -2.543	.012*
20 Years Old/RSS	t-score = 2.339	.020**
20 Years Old/RSS GSRP	t-score = 2.540	.012**
Scholarship/CAPS-r	t-score = -3.933	.000*
Scholarship/RSS	t-score = -2.302	.022*
Scholarship/RSS RSE	t-score = -2.304	.022*
Scholarship/RSS RSB	t-score = -1.964	.050*
Scholarship/AIS DI	t-score = -2.101	.036*

*significantly higher scores = $p \leq .050$
**significantly lower scores = $p \leq .050$

Logistic Regression		
Individual Sport/Team Sport/SURPS H	Wald = 11.062	.001*

For every increase by one unit in SURPS H, the odds of being an individual sport athlete increases by 16.2%.

Individual Sport/Team Sport/SURPS AS	Wald = 4.090	.043*

For every increase by one unit in SURPS AS, the odds of being an individual sport athlete increases by 14.7%.

Individual Sport/Team Sport/SURPS SS Wald = 11.822 .001*

For every increase by one unit in SURPS SS, the odds of being an individual sport athlete increases by 20.3%.

Individual Sport/Team Sport/CAPS-r Wald = 5.953 .015*

For every increase by one unit in CAPS-r, the odds of being an individual sport athlete decreases by 5.0%.

Individual Sport/Team Sport/RSS RSE Wald = 6.627 .010*

For every increase by one unit in RSS RSE, the odds of being an individual sport athlete increases by 8.1%.

Individual Sport/Team Sport/RSS RSB Wald = 4.348 .037*

For every increase by one unit in RSS RSB, the odds of being an individual sport athlete decreases by 8.8%.

Freshman/CAPS-r Wald = 12.440 .000*

For every increase by one unit in the CAPS-r, the odds of being a freshman student athlete decreases by 8.6%.

Sophomore/SURPS IMP Wald = 9.479 .002*

For every increase by one unit is SURPS IMP, the odds of being a sophomore student athlete increases by 28.5%.

Sophomore/SURPS SS Wald = 4.122 .042*

For every increase by one unit in SURPS SS, the odds of being a sophomore student athlete increase by 12.0%.

1 Year Affiliation/CAPS-r Wald = 10.776 .001*

For every increase by one unit in CAPS-r, the odds of being a student athlete with one year of athletic affiliation decreases by 6.8%.

2 Years Affiliation/SURPS IMP Wald = 4.651 .031*

For every increase by one unit in SURPS IMP, the odds of being a student athlete with two years of athletic affiliation increases by 19.5%.

4+ Years Affiliation/SURPS AS Wald = 6.526 .011*

For every increase by one unit in SURPS AS, the odds of being an athlete with four+ years of affiliation decreases by 19.2%.

4+ Years Affiliation/CAPS-r Wald = 4.396 .036*

For every increase by one unit in CAPS-r, the odds of being an athlete with four+ years of affiliation increases by 6.1%.

Team Leader/SURPS IMP Wald = 5.152 .023*

For every increase by one unit in SURPS IMP, the odds of a student athlete being a team leader decreases by 18.8%.

18 Years Old/CAPS-r Wald = 17.025 .000*

For every increase by one unit in CAPS-r, the odds of being an 18-year-old student athlete decreases by 14.3%.

19 Years Old/SURPS SS Wald = 4.158 .041*

For every increase by one unit in SURPS SS, the odds of being a 19-year-old student athlete increases by 11.7%.

20 Years Old/RSS GSRP Wald = 4.809 .028*

For every increase by one unit in RSS GSRP, the odds of being a 20-year-old student athlete decreases by 13.5%.		
22 + Years Old/CAPS-r	Wald = 4.556	.033*
For every increase by one unit in CAPS-r, the odds of being a 22 year old or older student athlete increases by 6.0%.		
Scholarship/SURPS H	Wald = 6.609	.010*
For every increase by one unit in SURPS H, the odds of being a scholarship student athlete decreases by 10.5%.		
Scholarship/SURPS SS	Wald = 4.198	.040*
For every increase by one unit in SURPS SS, the odds of being a scholarship student athlete decreases by 9.7%.		
Scholarship/CAPS-r	Wald = 10.708	.001*
For every increase by one unit in CAPS-r, the odds of being a scholarship student athlete increases by 7.0%.		

*statistically significant = $p \leq .050$

Note. Findings included in this table are representative of the areas of significance when conducting t-tests and logistic regressions upon the dataset for the study.
SURPS (Substance use Risk Profile Scale), H (Hopelessness); AS (Anxiety Sensitivity); IMP (Impulsivity); SS (Sensation Seeking); CAPS-r (College Alcohol Problems Scale-revised); RSS (Risky Sex Scale); RSE (Risky Sex Expectancies); RSE (Risky Sex Expectancies); GSRP (Gender-Based Perceptions of Risky Sex); DI (Danger Invulnerability)

Conclusions

This study sheds new light on Division II athletics. More specifically, it examined male student athletes and assessed their levels of risk-taking behaviors related to alcohol use, drug use, sexual behavior, and explored the presence of optimism bias. It provides researchers new data on which to base future studies. It is important to continue to expand upon the current research regarding athletics and risk-taking to help future research explain why college student athletes engage in these behaviors. Overall, areas identified as being the most significant and noteworthy help make the following conclusions related to the study:

Conclusion 1

The second year of student athletes' college experience is the time that most risk-taking is occurring among Division II male intercollegiate student athletes. This is true for age (19 years old), academic class (sophomores), and time affiliated with the program (two years). There may

be student athletes that do not fit these assumptions; however, many are in the second year of their collegiate career during these stages. These areas produced significantly higher results, and warrant additional research concerning what is occurring in this group of Division II male intercollegiate student athletes.

In reference to age, 19-year-old student athletes were the group that produced the most significantly higher risk-taking scores. Nineteen-year-old student athletes scored significantly higher on the SURPS, SURPS SS sensation seeking subscale, RSS, and RSS RSE risky sex expectancies subscale when compared to their peers. These results would agree with the conclusion that younger student athletes exhibited more risk-taking behaviors since 19-year-old students would typically fall into the freshman/sophomore category. When exploring the results, 18-year-old student athletes scored significantly lower on the SURPS, CAPS-r, and the RSS RSE risky sex expectancies subscale when compared to their peers. Additional research can determine why there is a dramatic shift from 18-year-old to 19-year-old student athletes. It may be because student athletes are learning the culture of the institution and being a student athlete during their first year after which they gradually take more risks. However, we see the level drop back off in 20-year-old student athletes who showed significantly lower scores in the RSS and RSS GSRP gender based perceptions of risky sex subscales among lower scores on other scales/subscales.

Similar to age, there were significant differences among academic class. Most noticeably, these differences occurred in regards to sophomore risk-taking behaviors. Sophomore student athletes scored significantly higher on the SURPS, SURPS AS anxiety sensitivity subscale, SURPS IMP impulsivity subscale, SURPS SS sensation seeking subscale, and CAPS-r. As previously reported, younger student athletes exhibited the most risk-taking behaviors. However, when exploring the results freshmen student athletes produced significantly lower results in

relation to the SURPS and CAPS-r. Additional research can be conducted to determine why there is a dramatic increase from the freshman year to sophomore year in student athletes. The results may be similar to age, suggesting that student athletes are learning the culture of the institution and what being a student athlete is like on their campus. This shift from first to second year could be an area of further exploration.

Similar to age and academic class, there were significant differences among years of affiliation. Most noticeably, differences occurred in regards to two years affiliation risk-taking behaviors. Student athletes with two years of affiliation scored significantly higher on the SURPS and SURPS IMP impulsivity subscale when compared to other lengths of affiliation. When exploring the results of the study, student athletes with one year of involvement produced significantly lower CAPS-r results. Mean optimism bias scores were lower among sophomores and student athletes with 2 years of affiliation, but were higher among 19-year-old student athletes. The second year of student athletes' intercollegiate athletic career is worth noting as a potential area of focus for studies related to age, affiliation, and academic classification.

Conclusion 2

Athletic team type can be used to determine susceptibility to risk among several explanatory variables. Team sport student athletes and individual sport student athletes produced varying levels of significance in the study. The main area of focus is that team sports scored significantly higher in regards to alcohol use. There were also six areas identified as being statistically significant explanatory variables through the logistic regression. The areas related to hopelessness, anxiety sensitivity, sensation seeking, alcohol use, risky sex expectancies, and risky sex behaviors can be focused upon as significant explanatory variables.

These variables can be focused upon by athletic administration, coaches, and other university personnel to identify areas that student athletes may be more or less likely to engage in risk-taking behaviors. However, there has not been enough research conducted previously related to athletic team type and the factors explored in the current study. These findings highlight several areas of future exploration related to athlete team type. Future research exploring teams in comparison to one another will allow researchers to make conclusions based on which sport is engaging in the most risk-taking behaviors.

Conclusion 3

Team captains/leaders are in need of additional training and programming designed specifically for individuals placed in leadership roles. Team leaders produced significantly higher results related to alcohol use and perceived optimism bias. This is of importance since it suggests team leaders take more risks with alcohol and perceive themselves to be invincible and less susceptible to the dangers associated with risks than their peers. Previous studies found that individuals placed into leadership roles within teams exhibit increased risk-taking tendencies. The findings of this study suggest that team leaders are taking more risks with alcohol and optimism bias. This is especially troublesome since team leaders are trusted to be role models for members of their respective athletic teams. Team leaders have an influence on their teammates, and in this case, the influence may place their teammates in danger. Team leaders possess elevated tendencies to engage in high-risk alcohol use and a heightened sense of invulnerability and optimism bias. How and why team leaders view themselves as being less susceptible to risk and how this factor attributes to their risk-taking behaviors are areas of future exploration.

Conclusion 4

Team leaders and scholarship student athletes feel invincible and less susceptible to negative consequences associated with risk-taking behaviors. Perceived optimism bias was higher in all areas studied with the exception of freshmen, sophomore, one year of affiliation, two years of affiliation, and 18-year-old student athletes. While optimism bias may not have significantly factored into the equation in all variables, team leader status and scholarship level did produce significantly higher scores. The two areas of future exploration are the areas of sophomores and student athletes with two years of affiliation. These areas produced lower mean scores related to perceived optimism bias but produced significantly higher results among several other instruments in the study. This would lead to the conclusion that while sophomores and student athletes with two years of affiliation are taking more risks, student athletes are more aware of those risks and the negative consequences associated with their actions. Future exploration of the optimism bias can help determine the relationships that exist between the factors.

Recommendations for Future Research

Student athlete risk-taking behaviors have been explored based on key demographic information across the areas of drug use, alcohol use, sexual behaviors, and presence of optimism bias throughout this study. Based on the findings of the study, recommendations for future research exist in several areas. These recommendations focus on athletic risk-taking related to divisions, gender, athlete status, analysis type, demographic information, and several other variables.

Recommendation 1

The current study evaluated Division II male intercollegiate student athletes exclusively. Future research focused in new areas can provide a more in-depth perspective on student athlete risk. Researchers may consider conducting a similar study focusing on all divisions of athletic competition (Division I, Division II, and Division III). This will help future researchers compare student athletes in other levels. In addition, future researchers may consider dividing risk-taking behaviors of sports and comparing them in order to determine which sports take the most/least risks. Expanding on the current study along the basis of sex is another area of consideration. There has been some research conducted that has compared male athletes to female athletes when assessing risk. Nattiv et al. (1997) found that male athletes had significantly more risk-taking behaviors than female college athletes. Exploring the differences between male and female intercollegiate student athletes' levels of risk-taking would add another layer to the analysis. Gender differences among alcohol use, drug use, sexual behaviors, and the presence of optimism bias could be the basis for future studies. It is important to realize that there are definite differences between the two sexes when assessing the amount of risk-taking behavior each exhibits.

Another analysis consideration is the comparison of intercollegiate student athletes to non-athlete students and assessing their levels of risk among the focus areas of alcohol use, drug use, sexual behaviors, and the presence of optimism bias. These studies could explore if differences exist between the risk-taking tendencies of student athletes and non-athlete students. College students have been found to engage in risk-taking behaviors, a detailed analysis determining specific areas of risk and how behaviors differ between athletes and non-athletes could be the basis of future research.

Recommendation 2

Conducting a qualitative study detailing student athlete experiences could give researchers another detailed look into the world of intercollegiate athletics that quantitative studies have not produced. Qualitative research could span any of the five approaches of: narrative research, phenomenology, grounded theory, ethnography, or case study (Creswell, 2007). Using qualitative methods would allow researchers to tell specific stories of individual athletes and see if there are similarities in their accounts that may aid in overall response to preventing risk-taking behaviors.

New trends or factors could become apparent through the coding of qualitative transcripts. Qualitative research gathering related to athletic risk would provide a different look at the data that would analyze individual experiences and perceptions of risk-taking behaviors. A qualitative study could provide detailed insight from interviews with student athletes that could further explore why student athletes take risks. A qualitative research design can explore student athletes' risk-taking behaviors and factors that contribute to student athletes engaging in risk-taking behaviors associated with alcohol use, drug use, sexual behavior, and optimism bias.

Recommendation 3

Several areas yielded low sample sizes in the current study. These areas could be the focus of future research to identify areas of significance among the variables. Areas of potential focus include 5th year of athletic affiliation and graduate student athletes. There may also be other specific demographic information that could be asked to breakdown groups further. Specific demographic information could be used in future studies to further analyze all groups. This demographic information could potentially account for some of the variance in the models. The current studies explained variance shifts from analysis to analysis. This indicates that other

factors could be explaining some of the difference between the groups. Studying the student athletes in detail could help future researchers explain what other factors are accounting for the variance in the models.

Recommendation 4

Additional levels of analysis can be conducted in the future to further explore the relationships present in the study. Future researchers could go back and analyze the direct relationships between student athlete scores on the Adolescent Invulnerability Scale – Danger Invulnerability subscale and behaviors with a correlational design. This would allow researchers to identify other relationships that are present within the group. In addition, a multinomial regression model could be conducted to analyze the variables in the study, as opposed to, or in addition to, the individual binary logistic regressions conducted in the current study. In addition, a one way ANOVA with post hoc comparisons could be conducted in order to determine relationships between the various levels of variables. This analysis would provide researchers additional levels of analysis that can identify and/or confirm areas of statistical significance between groups within the variables.

Recommendation 5

After exploring the areas of statistical significance in the study, it is apparent that there should be a focus on the second year of student athletes' experiences (19 years old, sophomore, affiliated for two years). These are areas of high statistical significance in the current study. The second year of student athletes' college experience is the year that the most statistically significantly higher risk-taking behaviors are occurring among Division II male intercollegiate student athletes.

The findings of the study suggest that 19-year-old student athletes are taking significantly higher risks associated with substance use, alcohol use, and sex. Substance use and sensation seeking behaviors reported statistically significantly higher results in 19-year-old student athletes. In addition, 19-year-old student athletes produced statistically significantly higher scores related to sexual behaviors and risky sexual expectancies. There is also an increase in risk-taking behaviors from freshman to sophomore years in student athletes. The results are similar to age, suggesting student athletes are observing the culture of the institution and what being a student athlete is like on their campus. In addition, there are increases in risk-taking from the first year of affiliation to the second year of affiliation within an athletic team. Overall, the second year of student athletes' intercollegiate athletic career is worth noting as being a time of potential focus and significance.

Research can focus on determining why there is a dramatic shift from 18-year-old to 19-year-old student athletes, freshman to sophomore student athletes, and athletes with one year of affiliation to two years of affiliation risk-taking behaviors. Student athletes are beginning to take more risks during their first year and gradually engage in more high-risk behaviors that become significant during their sophomore year, second year of affiliation while they are 19 years old.

Recommendation 6

An additional recommendation is for future researchers to study the differences between scholarship and non-scholarship athletes and team leaders and non-leader athletes more closely. These factors led to significant findings in the current study. Further analyzing these areas in relation to factors such as age, affiliation, and academic classification can help future researchers explore additional areas of significance. Instead of focusing the analysis on one variable at a time, future research can explore several factors together in relation to the instruments used in

the study. This would require additional analyses but could further break down specific factors that produce statistically significant results. In the current study, scholarship level was significant in several areas of research. Scholarship student athletes would seem to have more to lose than non-scholarship student athletes. However, scholarship student athletes are partaking in high-risk behaviors more at a higher rate than their peers.

Based on analysis of scholarship/non-scholarship student athletes, it is suggested that scholarship student athletes perceive they are more invincible to the negative consequences of risk-taking behaviors than their non-scholarship peers. These results help demonstrate that the theoretical framework of optimism bias is stronger and more prevalent in some sub-populations of student athletes such as scholarship student athletes. These results agree with the findings of Millstein and Halpern-Felsher (2001) that state college students are more susceptible to having higher optimism biases. In addition, future research can expand on the findings that show optimism bias as being stronger and more prevalent in college-aged students (Arnett, 2000; Cohn et al., 1995; Lapsley et al., 2005; Millstein & Halpern-Felsher, 2001). Athletic scholarship level is an area in which significant research was not available. Future studies dedicated to exploring scholarship/non-scholarship student athletes can further explore these results to verify if the results are unique to Division II male student athletes and determine how these athletes score in relation to their peers.

These potential areas of study can be the basis and focus for expansions on this study or other related scholarly work related to intercollegiate athletic risk-taking. Overall, these areas of focus would be optimal examples of potential studies that can produce findings related to intercollegiate athletic risk-taking behaviors. These areas of potential future research can explore and assess the intricacies of intercollegiate student athlete risk-taking behaviors.

Recommendations for Practice

Recommendations for practice relate to targeted efforts that can be implemented in order to benefit student athletes. Recommendations include increased demographic analysis, specific program implementation, and other high impact practices. Based on the findings of the study, recommendations for future practice exist in the following areas relating to athletic risk-taking:

Recommendation 1

The NCAA and individual institutions need to implement targeted educational programming for both general student athlete populations, as well as, specialized training designed for targeted sub-populations. General student athlete populations should be exposed to programming/interventions related to general risk-taking behaviors such as alcohol use, substance use, and sexual behaviors. These programs need to be funded through both the NCAA and individual institutions to ensure all student athletes are exposed to these important messages. General educational programs need to be required throughout the year, and not solely at the beginning of the academic calendar. Attendance at these events will need to be tied to an athletes eligibility to ensure all student athletes are participating. General training programs are required of all student athletes regardless of age or academic classification.

Individualized educational programming is also needed within athletic departments. Individual athletic departments will need to analyze their athletes to determine which interventions/programming are needed in relation to student athlete risk-taking behavior. Individual institutions would be responsible for funding these programs since they may vary from institution to institution. Using the current study as an example: individualized educational programs should be designed for the team leaders, student athletes in their second year, and scholarship student athletes. Team captains/leaders are in need of programming and training

designed specifically for individuals placed in leadership roles. Team leaders in the current study produced significantly higher results related to alcohol use and perceived optimism bias. Programming can address why team leaders are taking more risks with alcohol and perceive themselves to be invincible. Educational programming is needed in order to help team leaders understand the importance of their leadership positions. Team leaders are trusted to be role models for members of their respective athletic teams and their teammates look up to them. Additional programming is needed for the second year of student athletes' college experience: age (19 years old), academic class (sophomores), and time affiliated with the program (two years). The second year was the year where the majority of high level risk was occurring in the studied population. Specific targeted programming designed specifically for these student will combat risk-taking behavior and educate student athletes. Additionally, scholarship student athletes must have their own educational programming sessions designed around their feeling of invincibility and elevated risk-taking behaviors. Scholarship student athletes can be educated on the requirements of their scholarships and the dangers associated with taking certain risks. Target educational programming can help individual institutions in areas that are of specific concern to their administration. There is not one set answer when it comes to targeted programming, but education initiatives can be molded to fit the needs of individual institutions, athletic departments, and athletic teams.

Wasesh et al. (2013) recommended a need for increased educational programs and trainings designed specifically for student athletes. Martens et al. (2010) suggested the implementation of personalized individualized intervention programs tailored for student athletes. This personalized approach is favorable over an education-only intervention program by student athletes. There is a need for effective student athlete educational risk-taking prevention

programming. These interventions and initiatives should be addressed on a broad spectrum of behaviors and encompass all risk-taking behaviors that influence student athletes (Bovard, 2008).

Intercollegiate coaches, athletic administrators, and student affairs administration should be aware of which risk-taking behaviors are most likely to affect their student athletes. Keeping coaches and administrators aware of the potential risk-taking behaviors that may influence student athletes will allow them to better sever their student athletes. The current study and data analysis suggest that Division II male student athletes are in need of support, change, education, and intervention in key areas involving athletic risk. Division II athletic programs will benefit greatly from increased awareness of behaviors and increased knowledge of the unnecessary risks in which student athletes participate.

Recommendation 2

As expressed in recommendation 1, there is a need for increased focus on the second year of the student athlete experience (19 years old, sophomore, affiliated for two years). These are characteristics of high statistical significance in the current study. The second year of student athletes' college experience is the year that the most statistically significantly higher risk-taking behaviors are occurring among Division II male intercollegiate student athletes. These results were true of the studied population that consisted of eight institutions in the same conference. If trends such as this present themselves, conference leadership, divisional leadership, or the NCAA must make it a priority to investigate and explore these behaviors.

The findings of the study suggest that 19-year-old student athletes are taking significantly higher risks associated with substance use, alcohol use, and sex. Substance use and sensation seeking behaviors reported statistically significantly higher results in 19-year-old student athletes. In addition, 19-year-old student athletes produced statistically significantly higher

scores related to sexual behaviors and risky sexual expectancies. There is also an increase in risk-taking behaviors from the freshman year to sophomore year in student athletes. The results are similar to age, suggesting student athletes are observing the culture of the institution and what being a student athlete is like on their campus. In addition, there are increases in risk-taking from the first year of affiliation to the second year of affiliation within an athletic team. Overall, the second year of student athletes' intercollegiate athletic career is worth noting as being a time of potential focus and significance.

Another area to analyze is connection to a sport. Leichliter et al. (1998) suggested that the more connected a student athlete is within a team, the more risk-taking tendencies the student athlete exhibits. In this case, younger student athletes may not be as connected as their older peers. This would help to explain the significantly lower scores exhibited by freshmen student athletes. The 19-year-old student athlete results would challenge this conclusion. Previous research also found that active and athletically connected students had a higher likelihood of taking part in high-risk behaviors (Black et al., 2013). The findings of this current research would support the argument that risk may increase with age; however, additional research can further analyze the variables.

Research conducted must focus on determining why there is a dramatic shift from: 18-year-old to 19-year-old student athletes, freshman to sophomore student athletes, and athletes with one year of affiliation to two years of affiliation risk-taking behaviors. Student athletes are beginning to take more risks during their first year, and gradually engage in more high-risk behaviors that become significant during their sophomore year, second year of affiliation, and while they are 19 years old.

Longitudinal research needs to be conducted in order to follow specific student athletes through their collegiate experience to see if these trends are accurate. The NCAA must investigate risk-taking behaviors and determine when student athletes are engaging in these behaviors. If the current study is representative of the larger population, there needs to be targeted efforts placed upon the second year of the student athlete experience, and studies should start immediately since these issues are increasingly prevalent among college students.

Recommendation 3

Practitioners should design specialized learning communities for student athletes. Learning communities help create inclusive environments that aid student development. Learning communities merge academic learning with students' out-of-class learning experiences (Browne, Headworth, & Saum, 2009). Partnerships with athletics could provide options that address risk-taking behaviors. Successful learning communities contribute to student success and encourage collaboration (Kuh & Banta, 2000). These new learning communities can focus on risk-taking behaviors that actively discuss associated risks. Designing specialized learning communities will increase students' experiences and extend learning into various platforms for student athletes (Bourassa & Kruger, 2001). These learning communities can occur in residence halls, athletic facilities, or other campus spaces, and can have a positive influence on high-risk behaviors. Learning communities are a relatively low cost option that can increase student athlete success.

Targeted programs designed specifically for athletes can focus on helping them balance the various roles student athletes play in college such as being both a student and an athlete (Mamerow & Navarro, 2014). Programs can be designed with themes such as combating risk-taking behaviors among student athletes in mind. These programs will help athletic departments

promote healthy life choices and monitor risk-taking behaviors. Researchers have studied how to promote learning and growth in student athletes, yet few have actually considered student athletes as the target population of their community (Eggleston & Mitchell, 2005; King, 2008). Incorporating risk-taking education into learning communities can positively influence the decision-making of student athletes. Student athletes will benefit from educational opportunities promoting healthy life choices and knowledge of their susceptibility to high-risk behaviors. Ideally, college student athletes are educated through programs that combine knowledge and experience while battling high-risk behaviors in this specialized group of students. These communities can be comprised of individual teams or groups of athletes. Institutional support and guidance is essential in the creation, promotion, and implementation of successful learning communities.

Implications

This research can help educate student athletes concerning the risks they are most susceptible to and help identify areas that change can occur. It is important to continue to expand on the current research regarding athletics and risk-taking to help future researchers explain why college student athletes engage in high-risk behaviors. These studies would further assess student athletes' risk-taking behaviors when associated with alcohol, drugs, sex, and the presence of optimism bias among student athletes. Student athletes are a unique sub-population of the overall student body, and detailed studies should continue to identify factors related to specific sports as well as specific demographic information related to student athletes. These studies would relate to male intercollegiate student athletes in order to better understand this specialized population of college students. Implications of high-risk behaviors can have an influence on student athlete well-being, engagement, retention, persistence, and graduation.

Student athletes are in need of positive experiences that promote safe and responsible choices. High-risk behaviors highlighted through programs designed by individual institutions and the NCAA can promote healthy lifestyles. High-risk-taking behaviors addressed through both active and passive programming can help further explore the presence of these behaviors among student athletes. Students who find a connection or affiliation to campus have higher retention rates, higher satisfaction rates, and are more successful. This remains true for student athletes as they progress through their education and complete their college experience. Through the identification of areas of high-risk, the development of specific initiatives with student athletes in mind can begin. High-risk-taking behaviors can have a negative influence on student athletes' education. Understanding the behaviors of student athletes can help institutions identify which student athletes are most at-risk for taking part in high-risk behaviors. This study helped to identify areas of focus for the targeted population that can combat high-risk behaviors.

Additional determining factors leading to student well-being, success, and persistence include developing relationships, satisfaction with the institution and athletic department, athletic success, and personal and athletic development (Weiss & Robinson, 2013). These factors will lead to student athletes having higher retention and success rates, higher persistence rates, and higher overall success in college. Understanding why student athletes take risks will help institutions combat high-risk behaviors and increase success rates. Through intentionally designed programs and initiatives, the NCAA has analyzed and made improvements to requirements in an attempt to positively influence graduation rates, student-athlete persistence, and retention. New programs can be designed and implemented that focus on risk-taking behaviors. Eligibility requirements, degree requirements, and monitoring systems track and increase the success of student athletes (Hosick, 2014). These initiatives can help institutions

combat high-risk-taking behaviors in specific groups of student athletes in targeted areas. Through the current study, multiple areas of risk were studied. Proposed interventions based on this study are population specific. Athletic risk-taking can also factor into studies concerning athlete success and graduation rates. Further analysis can determine what level of risk graduating student athletes are taking and how these behaviors influence graduation.

Student athletes are an important sub-group of the total student population, and specific programs and initiatives designed around exploring risk-taking behaviors will aid in their development and overall success. Specially designed high impact practices incorporated into the lives of student athletes will help them succeed within institutions of higher education. Student athletes can benefit from exposure to programs and high impact practices that will aid in their personal development, professional development, holistic growth, and overall academic success, while exploring the dangers associated with high risk-taking behaviors.

This study examined athletic risk-taking and assessed male intercollegiate athletes' risk-taking behaviors. Study findings provide researchers new data upon which to base future studies. It also allows future researchers to continue to assess student athlete risk-taking behaviors. It is important to continue to expand upon the current research regarding intercollegiate athletics and risk-taking to help future researchers explain why college student athletes engage in these risk-taking behaviors. This research can encompass a large study of athletic risk-taking behaviors composed of athletes from all divisions (Division I, II, and III) of competition and both male and female student athletes. The current study does delimit by gender by studying only male student athletes. It does not delimit by other characteristics that may help explain differences in risk-taking behaviors. The models presented in the study explains only a portion of the variance in the variables. Some other characteristics have to explain some of the difference between groups, and

a detailed analysis of specific demographic factors could help explain those factors. It would be beneficial to monitor the differences between the various divisions and also analyze the male and female student athlete patterns of risk-taking behaviors. This analysis could be used to determine which interventions can specifically address the needs of student athletes regarding the risk-taking behaviors they take part in throughout their college career. The presence of optimism bias was assessed in relation to the variables of the study; additional research can continue that analyzes the link between perceived optimism bias and specific risk-taking behaviors as identified by the studies instruments. This analysis would identify relationships between perceived optimism bias and specific risk-taking behaviors. This study attempted to examine various factors in relation to the risk-taking behaviors of male Division II intercollegiate student athletes.

Closing Remarks

The student athletes' scores on the instruments used in this study suggest that Division II male student athletes are a group of student athletes who produced significant higher and lower results based on assessments across a variety of variables. In addition, specific explanatory variables have been identified that can help explain risk-taking among the target population. It is important to continue to research these groups of student athletes to assess their risk-taking behaviors along with the variables examined in this study. The results of the data in the study suggest that there are significant differences between alcohol use, drug use, sexual behaviors, and the presence of optimism bias in Division II male student athletes when considering various factors. It is important to continue to collect data on athletes and athletic programs from other conferences to determine if these trends are reflective of the entire population of student athletes today. The specific demographic information studied in this dissertation can expand to determine

how variables affect risk-taking tendencies among the divisions and between genders. In addition, it is necessary to monitor the differences between athletes' patterns of risk-taking behavior to determine which interventions can be created or refined to help educate student athletes of the behaviors they take part in throughout their intercollegiate career.

Division II male student athletes are a group in need of intervention and additional educational resources related to alcohol use, drug use, and sexual behaviors. More specifically, the groups of scholarship athletes, team leaders, 19-year-old athletes, sophomore athletes, and those affiliated with an athletic program for two years produced some of the highest statistically significant findings in the study. These are groups in need of further examination in terms of additional demographic breakdowns within these variables (e.g., examining sub-groups within the variables) in order to delve deeper into how and why these areas were statistically significant.

The risk-taking behaviors of college students, and more specifically, intercollegiate student athletes, will continue to be an area of focus within higher education and intercollegiate athletics. This study was an attempt to analyze male Division II intercollegiate athletic risk-taking behaviors that positively contributed to current research on the subject. The existing research on athletic risk-taking behaviors provided the framework for this dissertation. However, no other research exists that examines athletic risk based on alcohol use, drug use, and sexual behaviors together, while also assessing the perception of invulnerability as it relates to perceived optimism bias. Analyses focused on the factors of age, academic classification, years associated with the athletic team, scholarship level, team leader status, and team classification while focusing on one sex in a specific athletic conference. The dissertation focused on areas previously unexamined together, even though some of the factors had been areas of individual focus in previous studies.

Since intercollegiate athletics is a popular subject for media and news outlets, this study provides valuable information that institutional administrators and athletic departments can take into consideration when working with their student athletes. The findings of this dissertation confirmed several outcomes of previous studies, disagreed with other previous findings, were able to make new connections between the demographic information of student athletes, and examined new variables related to Division II male student athletes. This study will allow future researchers to delve into the specific factors and traits of student athletes' risk-taking behaviors and tendencies and provide benefits to institutions and student athletes alike.

The information and data gathered through this dissertation can help student athletes navigate their education, athletic performance, and academics. Evaluation of athletic risk-taking behavior factors can help determine why Division II male student athletes are engaging in high-risk behaviors. Risk-taking will continue to be a prominent problem and area of concern on college campuses nationwide; this research of a specific sub-population will help practitioners work with Division II male intercollegiate student athletes in areas related to their individual risk-taking behaviors. A specific sub-population of Division II male student athletes have now been exclusively studied in an attempt to assess and chronicle how student athletes engage and exhibit specific risk-taking behaviors in relation to certain traits and demographic information. By reading this dissertation, readers have a heightened sense of the relationship between risk-taking and the variables of team type, age, leadership roles, time affiliated with the team, academic standing, and scholarship. Through this study, a clearer understanding of how student athletes exhibit risk and an assessment of when student athletes engage in risk-taking behaviors was established. The dissertation provides an exclusive evaluation and examination of Division II male intercollegiate student athletes through multiple variables related to high-risk behaviors.

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APPENDIX A

Matthew Kerch, Principal Investigator from the University of Alabama, is conducting a study called Risk-Taking Behaviors among Division II Male Intercollegiate Athletes and Athletic Teams. He wishes to find out the various level of risk in which Division II intercollegiate male athletes take part.

Taking part in this study involves completing a web survey that will take about 10 minutes. This survey contains questions assessing the level of risks Division II intercollegiate male athletes take part in. Upon agreement to participate in this study, you will be given a survey consisting of multiple questions that will assess your level of risk in areas of alcohol use, sex, and drug use. If you would like additional information the researchers contact information will be provided at the end of the session.

We will protect your confidentiality by taking strict measures with collected data. Only the researcher will have access to your questions. Your name will not appear anywhere on the survey reports, and there is no way to match your responses with your identity. When you are done completing the survey your answers will be collected and viewed by the researcher. All data will be kept secured and protected. Contact information will only be used to send results of the study. Only summarized data will be presented at meetings or in publications.

There will be no direct benefits to you. The findings will be useful to athletes, administrators, and higher education professionals to understand why student athletes take risks and how risk influences athletes and athletic teams.

The chief risk is that some of the questions may make you uncomfortable. You may skip any questions you do not want to answer, and may choose to stop the survey at any point in time.

If you have questions about this study, please contact Matthew Kerch at [redacted] or by email at [redacted] If you have questions, concerns, or complaints about your rights as a research participant, contact [redacted] If you have complaints or concerns about this study, file them through the UA IRB outreach website at http://osp.ua.edu/site/PRCO_Welcome.html. Also, if you participate, you are encouraged to complete the short Survey for Research Participants online at this website. This helps UA improve its protection of human research participants.

YOUR PARTICIPATION IS COMPLETELY VOLUNTARY. You are free not to participate or stop participating any time before you submit your answers.

APPENDIX B

The Risky Sex Scale

Indicate to what extent you agree or disagree with the following statements.

Use the answer key as follows:

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE
5	4	3	2	1

1. I often feel sexier after I've had a few drinks.	5	4	3	2	1
2. I'm a better lover after a few drinks.	5	4	3	2	1
3. Women can have orgasms more easily if they have been drinking.	5	4	3	2	1
4. I enjoy having sex more if I've had some alcohol.	5	4	3	2	1
5. I am more romantic when I drink.	5	4	3	2	1
6. I feel more masculine (feminine) after a few drinks.	5	4	3	2	1
7. After a few drinks I am more sexually responsive.	5	4	3	2	1
8. If I have been drinking or using other drugs, I am more likely to have unprotected sex.	5	4	3	2	1
9. If I have been drinking or using other substances with a new date, I am more likely to have sex with them.	5	4	3	2	1
10. I am more likely to have unplanned sex if I have been drinking or using other substances.	5	4	3	2	1
11. If I have been drinking or using other substances with a familiar companion, I am more likely to have sex with that person.	5	4	3	2	1
12. Women are more vulnerable to sexual assault if they have been drinking or using other drugs.	5	4	3	2	1
13. Women seem more inclined to have sex if they have been drinking, than if they have not been drinking.	5	4	3	2	1
14. Men are more likely to commit sexual assault if they have been drinking or using other drugs.	5	4	3	2	1

APPENDIX C

Table 1
The substance use risk profile scale.

Item number 23-item scale	Item number in 28-item Scale	Item content
1	1	**I am content.**
	2	In stressful situations, I often fear that no one will reach me in time.
2	3	**I often don't think things through before I speak.**
3	4	**I would like to skydive.**
4	5	**I am happy.**
	6	I get frightened and feel that I am losing my mind when I cannot concentrate on the things that I need to do.
5	7	**I often involve myself in situations that I later regret being involved in.**
6	8	**I enjoy new and exciting experiences even if they are unconventional.**
7	9	**I have faith that my future holds great promise.**
8	10	**It's frightening to feel dizzy or faint.**
	11	The most interesting and exciting things are usually illegal or immoral.
9	12	**I like doing things that frighten me a little.**
	13	Sometimes I think I am no good at all.
10	14	**It frightens me when I feel my heart beat change.**
11	15	**I usually act without stopping to think.**
12	16	**I would like to learn how to drive a motorcycle.**
13	17	**I feel proud of my accomplishments.**
14	18	**I get scared when I'm too nervous.**
15	19	**Generally, I am an impulsive person.**
16	20	**I am interested in experience for its own sake even if it is illegal.**
17	21	**I feel that I'm a failure.**
18	22	**I get scared when I experience unusual body sensations.**
	23	I'm stubborn and strong-minded and act upon my thoughts despite others' opinions.
19	24	**I would enjoy hiking long distances in wild and uninhabited territory.**
20	25	**I feel pleasant.**
21	26	**It scares me when I'm unable to focus on a task.**
22	27	**I feel I have to be manipulative to get what I want.**
23	28	**I am very enthusiastic about my future.**

Note. Bold items comprise the 23-item SURPS; Based on the 23-item scale H = Items 1, 4, 7, 13, 17, 20, 23; AS = Items 8, 10, 14, 18, 21; IMP = Items 2, 5, 11, 15, 22; SS = Items 3, 6, 9 12, 16, 19; Items 1,4,7,13,20 and 23 require an inversion of respondent's score.

APPENDIX D

College Alcohol Problems Scale - Revised

Use the scale below to rate HOW OFTEN you have had any of the following problems over the past year as a result of drinking alcoholic beverages.

1. Feeling sad, blue, or depressed

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

2. Nervousness, irritability

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

3. Caused you to feel bad about yourself

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

4. Problems with appetite or sleeping

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

5. Engaged in unplanned sexual activity

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

6. Drove under the influence

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

7. Did not use protection when engaging in sex

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

8. Illegal activities associated with drug use

(1) Never (2) Yes, but not in the past year (3) 1-2 times

(4) 3-5 times (5) 6-9 times (6) 10 or more times

APPENDIX E

The Adolescent Invulnerability Scale (Danger Invulnerability Sub-scale) 3 factor model:

Use the scale below to indicate to what extent you agree or disagree with the following statements.

Please note this scale ranges from:
(1) Strongly Disagree, (2) Disagree, (3) Not sure, (4) Agree, (5) Strongly Agree

1. Safety rules do not apply to me.
2. I could probably drink and drive without getting into an accident.
3. Driving very fast wouldn't be dangerous if I were driving.
4. Taking safety precautions is far more important for other people than it is for me.
5. I'm unlikely to get hurt if I did a dangerous thing.
6. Special problems, like getting an illness or disease, are not likely to happen to me

APPENDIX F

Instrument for Study

The survey consists of questions from The Risky Sex Scale, College Alcohol Problems Scale-Revised, The Substance Use Risk Profile Scale (SURPS), and The Adolescent Invulnerability Scale (Danger Invulnerability Sub-scale):

1. Are you currently an Intercollegiate NCAA Athlete?
    a. Yes
        i. Enter Sport Name
    b. No
6. Age
7. Athletic Scholarship
    a. Full Scholarship
    b. Partial Scholarship
    c. No scholarship
8. How long have you been a member of the athletic team?
9. Are you a team leader of captain of the team?
10. Current academic classification:
    a. Freshmen
    b. Sophomore
    c. Junior
    d. Senior
    e. Graduate Student

The Substance Use Risk Profile Scale (SURPS) 23-item scale: *The assessment focuses on four main areas; hopelessness, anxiety sensitivity, impulsivity, and sensation seeking.*

(1) Strongly agree; (2) Agree; (3) Disagree; (4) Strongly disagree

1. I am content
2. I often don't think things through before I speak.
3. I would like to skydive.
4. I am happy.
5. I often involve myself in situations that I later regret being involved in.
6. I enjoy new and exciting experiences even if they are unconventional.
7. I have faith that my future holds great promise.
8. It's frightening to feel dizzy or faint.
9. I like doing things that frighten me a little.

10. It frightens me when I feel my heart beat change.
11. I usually act without stopping to think.
12. I would like to learn how to drive a motorcycle.
13. I feel proud of my accomplishments.
14. I get scared when I'm too nervous.
15. Generally, I am an impulsive person.
16. I am interested in experience for its own sake even if it is illegal.
17. I feel that I'm a failure.
18. I get scared when I experience unusual body sensations.
19. I would enjoy hiking long distances in wild and uninhabited territory.
20. I feel pleasant.
21. It scares me when I'm unable to focus on a task.
22. I feel I have to be manipulative to get what I want.
23. I am very enthusiastic about my future.

College Alcohol Problems Scale – Revised: *Use the scale below to rate HOW OFTEN you have had any of the following problems over the past year as a result of drinking alcoholic beverages.*

(1) Never; (2) Yes, but not in the past year; (3) 1-2 times; (4) 3-5 times; (5) 6-9 times; (6) 10 or more times

1. Feeling sad, blue, or depressed
2. Nervousness, irritability
3. Caused you to feel bad about yourself
4. Problems with appetite or sleeping
5. Engaged in unplanned sexual activity
6. Drove under the influence
7. Did not use protection when engaging in sex
8. Illegal activities associated with drug use

The Risky Sex Scale: *Indicate to what extent you agree or disagree with the following statements.*

(1) Strongly agree; (2) Agree; (3) Not sure; (4) Disagree; (5) Strongly disagree
1. I often feel sexier after I've had a few drinks.
2. I'm a better lover after a few drinks.
3. Women can have orgasms more easily if they have been drinking.
4. I enjoy having sex more if I've had some alcohol.
5. I am more romantic when I drink.
6. I feel more masculine after a few drinks.
7. After a few drinks I am more sexually responsive.
8. If I have been drinking or using drugs, I am more likely to have unprotected sex.
9. If I have been drinking or using other substances with a new date, I am more likely to have sex with them.
10. I am more likely to have unplanned sex if I have been drinking or using other substances.

11. If I have been drinking or using other substances with a familiar companion, I am more likely to have sex with that person.
12. Women are more vulnerable to sexual assault if they have been drinking or using other drugs.
13. Women seem more inclined to have sex if they have been drinking, than if they have not been drinking.
14. Men are more likely to commit sexual assault if they have been drinking or using other drugs.

The Adolescent Invulnerability Scale (Danger Invulnerability Sub-scale):
Use the scale below to indicate to what extent you agree or disagree with the following statements. Please note this scale ranges from (1) Strongly Disagree, (2) Disagree, (3) Not sure, (4) Agree, (5) Strongly Agree

1. Safety rules do not apply to me.
2. I could probably drink and drive without getting into an accident.
3. Driving very fast wouldn't be dangerous if I were driving.
4. Taking safety precautions is far more important for other people than it is for me.
5. I'm unlikely to get hurt if I did a dangerous thing.
6. Special problems, like getting an illness or disease, are not likely to happen to me

*All scores on instruments were coded and compiled so higher totals equate to higher risk

APPENDIX G

Kerch, Matthew

From: Conrod, Patricia <patricia.conrod@kcl.ac.uk>
Sent: Tuesday, October 06, 2015 9:34 AM
To: Kerch, Matthew; pwoicik@bnl.gov
Subject: Re: Permission to use SURPS in Doctoral Dissertation

Follow Up Flag: Follow up
Flag Status: Flagged

Matthew, sounds like an interesting study! Feel free to use the SURPS! If you do find some interesting results, we would be happy to help you to investigate the impact of personality-targeted interventions for this high risk group.

Patricia

Patricia J. Conrod, Ph.D., CPsychol.
Senior Lecturer and Consultant Clinical Psychologist
Department of Psychological Medicine and Psychiatry
Institute of Psychiatry, King's College London

4 Windsor Walk, Denmark Hill, London, SE5 8BB
email: patricia.conrod@kcl.ac.uk
Phone: +442078480836
Fax: +442078480818

Kerch, Matthew

From: Thomas O'Hare <thomas.ohare@bc.edu>
Sent: Tuesday, October 06, 2015 12:55 PM
To: Kerch, Matthew
Subject: Re: Permission to Use Risky Sex Scale in Doctoral Dissertation

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Matthew---Sounds like a great study. Yes, you can use the RSS. Let me know if you need any related articles or scale copies.

Best of luck. Tom

Kerch, Matthew

From: Thomas O'Hare <thomas.ohare@bc.edu>
Sent: Wednesday, October 07, 2015 9:00 AM
To: Kerch, Matthew
Subject: Re: Permission to use Instrument

Follow Up Flag: Follow Up
Flag Status: Flagged

Matthew---Yes, you may use the CAPS-r. Let me know if you need any related materials.

Sure. Be great to see your findings. Tom

Kerch, Matthew

From: Daniel Lapsley <danlapsley@nd.edu>
Sent: Tuesday, February 23, 2016 3:35 PM
To: Kerch, Matthew
Subject: Re: Permission to use instrument

Hello Matthew, of course! Good luck with your project.

Dan

On Tue, Feb 23, 2016 at 12:27 PM, Kerch, Matthew <mkerch@sa.ua.edu> wrote:

Dr. Lapsley,

Good Morning! I hope this email finds you well. I am writing you to gain permission to use The Adolescent Invulnerability Scale (Danger Invulnerability Sub-scale), in my doctoral dissertation. I am a student in the Higher Education Administration Ed. D. program at The University of Alabama, and am preparing to defend my proposal before beginning to collect data.

This study examines the risk taking behaviors of Division II male collegiate athletes in a specific athletic conference. Athletes' attitudes and actions will be studied based on the risky behaviors of: sex, drinking, and drugs. Through examination and comparison of these athletes and their behaviors, this study reveals how much and to what degree today's Division II male collegiate athletes are practicing various risk taking behaviors. These behaviors and factors can then be assessed and studied in an attempt to create additional educational opportunities for student athletes. In addition, individual sports will be analyzed to determine if specific sports are more prone or susceptible to participate in risk taking behaviors.

My theoretical framework is Optimism Bias and The Adolescent Invulnerability Scale (Danger Invulnerability Sub-scale) will help assess the student athletes levels of optimism bias. This study will attempt to find a relationship between athletic participation in intercollegiate athletics and individual risk taking behaviors, as well as identifying specific risk taking behaviors and factors that are statistically significant. Thank you for your consideration in allowing me to use your instrument in my study.

APPENDIX H

ALABAMA Institutional Review Board for the Protection of Human Subjects

April 25, 2016

Matthew Kerch
ELPTS
College of Education
Box 870302

Re: IRB # 16-OR-172, "Risk-Taking Behaviors among Division II Male Intercollegiate Athletes and Athletic Teams"

Dear Mr. Kerch:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note: Recruitment of research subjects at
may not begin until the study is officially approved by the institution's IRB. Please forward copies of the IRB approval letters to rscompliance@fa.ua.edu upon receipt.

Your application will expire on April 24, 2017. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

Director & Research Compliance Officer
Office for Research Compliance

THE UNIVERSITY OF ALABAMA | Office of the Vice President for Research & Economic Development
Office for Research Compliance

February 13, 2017

Matthew Kerch
ELPTS
College of Education
The University of Alabama
Box 870302

Re: IRB # 16-OR-172-R1 "Risk-Taking Behaviors among Division II Male Intercollegiate Athletes and Athletic Teams"

Dear Mr. Kerch:

The University of Alabama Institutional Review Board has granted approval for your renewal application. Your renewal application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on February 12, 2018. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

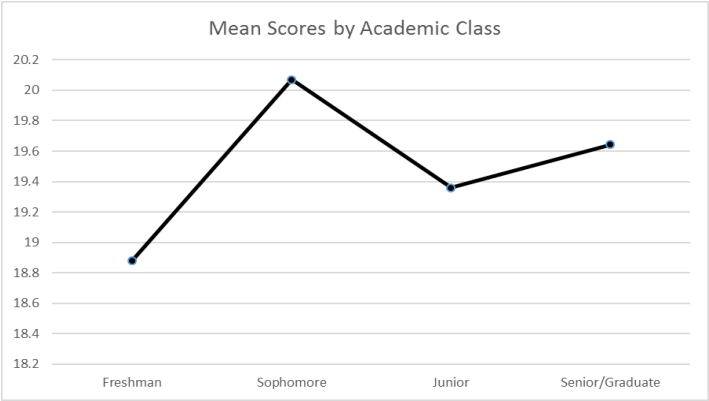
Should you need to submit any further correspondence regarding this proposal, please include the above application number.

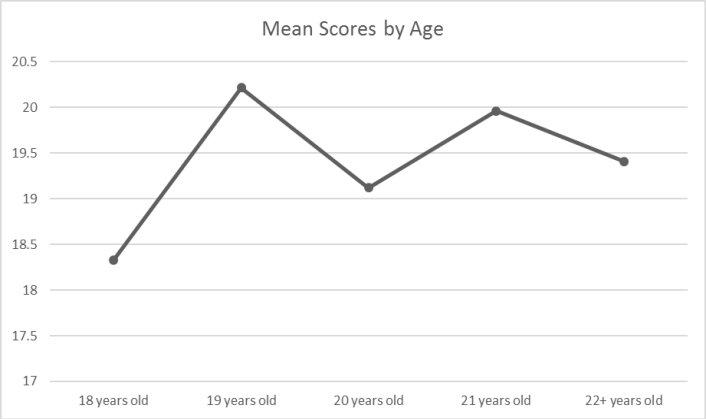
Good luck with your research.

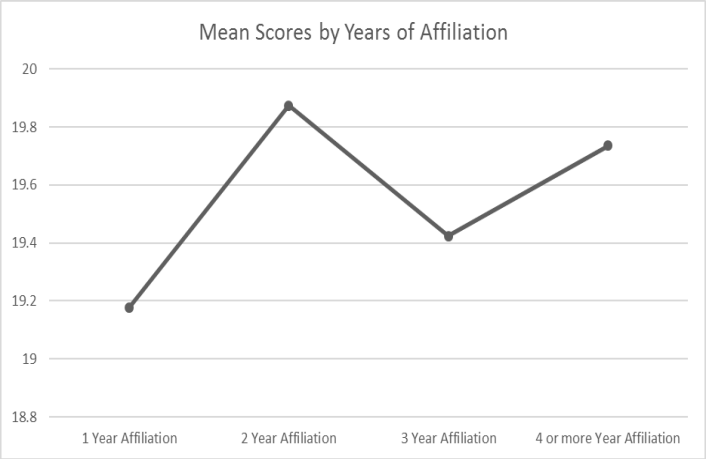
Sincerely,

Director & Research Compliance Officer
Office for Research Compliance

APPENDIX I







Note. Graphs are representative of total mean scores of all instruments in the study providing an overview of the total profile for the variables of academic class, age, and years of affiliation.