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Evaluation of risk and protective factors of substance use in the national association of intercollegiate athletics.

Richard D Weaver Jr.
University of Louisville

EVALUATION OF RISK AND PROTECTIVE FACTORS OF SUBSTANCE USE IN
THE NATIONAL ASSOCIATION OF INTERCOLLEGIATE ATHLETICS

By

Richard D. Weaver Jr.
B.S., Indiana University, 2013
M.S.S.W., University of Louisville, 2017

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By

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by the following Dissertation Committee:

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Dissertation Chair: Dr. Adrian Archuleta

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Dr. Shawnise Miller

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Dr. Armon Perry

_____

Dr. Matt Moore

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DEDICATION

This work is dedicated to my amazing wife, Amanda Dailey-Weaver, for her endless support and introducing me to the world of athletics that would forever change my academic life. To my wonderful daughter, Olivia Eyre-Weaver, who has inspired me to work hard and believe in myself. To my late mother, Lizette Weaver (2009), who never got to see her son start college, but always believed in me even when I did not believe in myself. To my father, Richard Weaver, who taught me that hard work and dedication are their own reward. I must recognize the love and emotional support my beautiful Pitbull children have given me through this process, to Doc (2014), Erin (2019), Morgan, and Grace. May my work reflect the love and support all these truly beloved souls have given me.

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ABSTRACT

EVALUATION OF RISK AND PROTECTIVE FACTORS OF SUBSTANCE USE IN
THE NATIONAL ASSOCIATION OF INTERCOLLEGIATE ATHLETICS

Richard D. Weaver Jr.

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The NCAA and NAIA have conducted prevalence studies of substance use in
their organizations but little research into risk and protective factors that influence usage.
Substance use is associated with an array of consequences including negative academic
impacts, criminal charges, health risks, and mental health. As the most reported
substances used by student-athletes the study focused on alcohol, marijuana, and nicotine.
This study specifically examined several risk and protective factors impacting substance
use.

This study utilized a secondary data analysis of information gathered from the
NAIA Substance Use and Abuse Study conducted in 2020 with student-athletes
(N=2489). Descriptive statistics, parametric tests, non-parametric tests, and multiple
regression was utilized to conduct statistical analysis for the research questions. The
researcher created composite variables of substance use that incorporated self-reported
levels of current usage for alcohol, marijuana, and nicotine. Data for the three identified
substances of interest were combined to create a global score of substance use.

There were multiple significant findings identified in this research study. The first
was reported levels of substance use significantly increased for males 21 and above from
those 18-20. Substance use at public universities was significantly higher than at private
universities, with the lowest usage at private faith-based institutions. Data shows that who
a student-athlete lived with impacted their substance use and those living with fellow

athletes have the highest rates of usage. A significant factor analyzed in this study for influencing current substance use was when they started using i.e., before high school, high school, or college.

Results support that athletic departments need to address substance use for male athletes 21 and older. Public universities need to evaluate private institutions, specifically private faith-based institutions, to better understand what can be done to decrease substance use on their campuses. Athletic departments at the college and high school level should work to identify athletes with substance use early, increase education, and examine potential evidence-based interventions to decrease substance use. One potential concept for creating a positive impact on substance use among student-athletes is the incorporation of social workers in athletic departments and organizations across college sports.

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CHAPTER I INTRODUCTION

Substance use has been a concern across the United States. The impact of substance use has led to financial hardships for families, criminal activity, injuries, and death. Historically, attending college has been seen as a protective factor against substance use; however, college campuses across the United States have seen an increase in drug use over the last decade (Welsh et al., 2019). The diversity of student populations along with the integration of substance use as a part of college life contribute to overlapping and unique risk and protective factors associated with substance use for this population. Typical risks for substance use disorders among college students have focused on low perceptions of harm, binge use, peer influences, time of transition, and membership fraternities and sororities (Welsh et al., 2019) that result in fewer hours studying, lower post-graduation employment, increased sexual assault, and higher comorbid physical and mental health problems (Arria et al., 2015; Arria et al., 2013; Caldeira et al., 2009; Rimsza & Moses, 2005; Wolaver, 2008). Despite being members of the broader collegiate population, the diversity of student-athletes, as well as the risk and protective factors associated with their use, have been overlooked.

There are more than 600,000 college student-athletes in the United States between the National Collegiate Athletic Association (NCAA), National Association of Intercollegiate Athletics (NAIA), and National Junior College Athletic Association (NJCAA). Athletic departments exist in more than 1,970 public and private colleges in the United States (NCAA, 2020A; NAIA, 2020A; NJCAA, 2020). Student-athletes are a

diverse population (NCAA, 2019). The NCAA reported gender demographic information of 44% female and 56% male during the 2018 year (NCAA, 2019). The general age range of student-athletes is 18 to 23 years. Of the 498,691 student-athletes in the NCAA, 64% are White, 16% Black, 6% Hispanic/Latinx, 4% multi-racial., and 2% Asian/Native Hawaiian (NCAA, 2019). While the demographic makeup and substance use patterns of NCAA student-athlete has been studied, only recently have researchers explored the substance use patterns of the NAIA. The NAIA reports 65,000 student athletes with 250 member institutions (NAIA, 2018).

Unlike the NCAA, the NAIA does not report the racial/ethnic nor gender demographics of their student-athlete population. In the ten-year period from 2007-2008 academic year to 2017-2018, the NAIA observed an increase in sports offered across their member institutions with the largest increase among female sports offerings which may reflect universities increased focus on seeing athletics as an enrollment tool (NAIA, 2019). The NAIA is primarily made up of private institutions (82%) and more than half are faith-based (65%) with the average number of student-athletes being 308 and in 17 sports per member institution (NAIA, 2021B). Not knowing the demographic data, it is hard to examine specific differences between student-athlete populations between the NCAA and NAIA.

College student-athletes, like their peers, find themselves entering a new world upon their entrance into post-secondary education (Dierker et al; 2008; Skidmore et al., 2016). Attending college is the first experience away from home post-high school for many individuals, which brings exciting new opportunities and challenges. New challenges include adapting to cultural and cognitive changes, acclimating to a new

environment and social climates that often define college life, navigating academic expectations, developing new social skills, understanding financial obligations, and balancing life goals (Gill, 2008; Jennings et al., 2018; Sanagavarapu et al., 2019). Meeting these challenges may be difficult for any young adult; however, student-athletes face the added pressure of meeting academic and athletic expectations. While many believe that student-athletes are adapting well to these pressures and difficult experiences, substance use among the population indicates that student-athletes may be inappropriately coping and/or engaging in behaviors that have negative consequences for their health and education.

Evidence from the NCCA National Study on Substance Use Habits of College Student-Athletes (2018), along with more recent data from the NAIA Substance Use and Abuse Survey (2020), suggest that student-athletes use marijuana, alcohol, and tobacco products at comparable rates to their non-student-athlete peers (Moore & Abbe, 2021; NCAA, 2018). Because the expectation for student-athletes may be higher, they may also experience equal or greater consequences than their non-athlete peers. Pressures faced from coaches regarding athletic participation and performance impact student athletes' mental health in addition to the stressors they face that are comparable to their peers (Horn et al., 2000; Ryan et al., 2018). For student-athletes, academic success is linked to the continuation of their scholarship, which can be lost for failing grades (Sack, 2001). Student-athletes may experience stricter guidelines regulating their behavior (e.g., regular drug testing) and steeper consequences that could influence their long-term academic performance (e.g., loss of financial support and loss of social support from the team) and standing at the university. However, the belief that student-athletes are at substantially

lower risk for substance use and associated sequalae has resulted in a dearth of studies investigating the potential risk and protective factors associated with their use, including potential differences in environments, life experiences, health conditions, and social situations.

Risk and Protective Factors for Substance Use

Student-athletes, like their non-athlete student peers, have social identities driven by personal characteristics (e.g., age, gender, and race) or situational factors (e.g., history of substance use) that may increase or decrease the risk and protective factors that influence substance use. Differences in age, gender, and race/ethnicity may be meaningful factors that expose student-athletes to stressful life experiences (e.g., discrimination) that elevate their risk of substance use. Moreover, a person's history of substance use (e.g., age at first use) or living in environments with heavy peer substance use may increase a person's own risk. Students using alcohol, marijuana, and/or nicotine products during or before high school had higher levels of substance use compared to those who waited until college or later (Kingson et al., 2017). Who student-athletes use substance with may influence their behavior. Social relationships create meaningful social convoys that influence health-related behaviors, including substance use (Umberson & Montez, 2010; Antonucci et al., 2013). Athletes whose friends engaged in binge drinking, and who believe party life was a part of the college experience have higher rates of binge drinking behavior (Ford, 2007), indicating that where and with whom student-athletes are housed may relate to their risk for substance use. These risks may be further exacerbated by the unique risk factors student-athletes experience.

Student-athletes can face many different forms of discrimination and stereotypes that include negative perceptions of athletes and negative beliefs about their academic abilities along with the racism, sexism, and classism that is associated with their social identities (Cooper et al., 2017; Feltz et al., 2013; Gill, 2014; Simons et al., 2007). Experiences of discrimination and stereotypes faced by student-athletes can lead to negative mental health outcomes, isolation, and fear of identifying as an athlete (Cooper et al., 2017; Simons et al., 2007; Riciputi & Erdal., 2017). These negative experiences may exacerbate poor coping skills, particularly in environments where substance use may be perceived as normative.

The culture within athletic organizations may also represent a risk factor for student-athletes. Student-athletes who are part of team sports have higher rates of substance use compared to individual sport athletes, with interactions with peers who use substances increasing their risk of substance use (Brenner & Swanik, 2007; Ford, 2007; Kremer & Levy, 2008). In a study of college student-athletes, findings showed members of team sports had an increased level of high-risk alcohol use at 84% compared to those who participated in individual sports at 57% (Brenner & Swanik, 2007). Individual sports are those that a participant is judged by a score specific to their individual performance which includes swimming, track, tennis, and cross-country compared to team sports that require teamwork and group participation, like that of basketball, football, and baseball (Pluhar et al., 2019). For student-athletes, substances (e.g., alcohol) may be perceived as a way of coping with negative events, particularly those that may be experienced as a team (Martens et al., 2011). Substance use can become part of a student-athlete's lifestyle and experiences as a member of an athletic organization. Therefore, greater integration

into a student-athlete community (e.g., living with other student-athletes) may serve as a risk factor that elevates potential use.

Though negative environmental factors can have a detrimental impact, individual and institutional factors that can be protective against substance use for student-athletes. One area that has been shown to be a positive influence against substance abuse in college, including student-athletes, has been religious beliefs and/or attending religious private institutions (Ginn et al., 1998; Jennings et al., 2018; Moore et al., 2013). Data shows that student-athletes with faith-based beliefs or attending religious institutions had lower levels of substance use compared to their student-athlete peers (Jennings et al., 2018; Moore et al., 2011). Individual and organizational beliefs about substance use along with stricter institutional rules about usage that can lead to punishments or expulsion from school likely decrease substance use at many religious institutions (Ginn et al., 1998; Jennings, 2018). The environment created by schools with rules based on religious beliefs and student-athlete's own beliefs can be a protective factor that decreases their substance use through faith or fear of punishment. Religious beliefs are just one factor that can play a part in student-athletes larger life experiences that could impact their substance use

Consequences of Substance Use

The negative impacts of substance use and abuse can reach beyond the campus and throughout the community. The implications of substance use and abuse for college students can range from adverse impacts on academics, violence to persons and property, criminal acts, and even death (Barry et al., 2015; Gill, 2017, Skidmore et al., 2016). According to the Substance Abuse and Mental Health Services Administration

(SAMHSA) (2019) annual estimates, alcohol use was related to 1,825 deaths and 696,000 student-on-student assaults, including 97,000 reports of sexual assault. Respondents to a survey on college student substance use reported 12% experienced disfavor and penalty with police/residence hall/college authorities, 22% reported driving while intoxicated/driving under the influence (DWI/DUI), 1% was arrested for DWI/DUI, 29% engaged in an argument or fight, 8% were sexually assaulted, and 34% did something they later regretted (SIUC/Core Institute, 2014).

Research shows substance abuse has negative impacts on academics and student success. Substance use has adverse effects on cognitive function and can lead to poor attention, neurological decline, and negative impact on abstract reasoning which all impact academic performance (Hernandez-Serrano et al., 2018; Meda et al., 2017). A longitudinal study of marijuana and alcohol use found freshman participants with moderate to high use of both substances had decreased GPAs compared to students with low to no substance use (Meda et al., 2017).

For student-athletes, substance use may increase risk-taking behavior. Student-athletes reported engaging in riskier behaviors while using substances including driving while intoxicated, riding with an intoxicated driver, drinking a greater alcohol use in one sitting, and engaging in risky sexual behaviors (Ginn et al., 1998; Miller et al., 2002; Nattiv & Puffer, 1991; NCAA, 2018; Ryan et al., 2018). Student-athletes face numerous social., legal., physical., and mental health consequences associated with their substance use (DiSanto, 2020; NCAA, 2018). For example, student-athletes reported having a hangover after drinking sessions, forgot where they were or what they did, or did something they regretted doing. Alcohol use may negatively affect an athlete's physical

and mental health. For example, student-athletes who struggle with mental illness, mental health crisis, and traumatic life experiences may use substances to cope and/or as self-medicate (Capone, 2018; Miller et al., 2002; Ryan et al., 2018). Additionally, alcohol use is positively correlated with self-reported levels of depression, anxiety, and other mental health disorders, as well as higher overall mental health symptoms (Miller et al., 2002). The number of consequences faced by student-athletes warrants additional investigations into factors associated with their use as well as those that may provide protection.

Implications of substance use for college-athletes

Despite the consequences, little is known about the risk and protective factors faced by student-athletes. For decades college athletic organizations have studied substance use, and some have conducted studies to evaluate the prevalence of the behavior among their student-athlete population. Though understanding the rates of use among the populations helps organizations evaluate the impact substance use has on athletes it only gives data about rates of use. For service providers, including sports social workers, there is a deeper question about the causes and experiences that lead to substance use behaviors (Moore & Gummelt, 2017). Impacting substance use by student-athletes are protective and risk factors that develop through social structures, interactions with peers and authority figures, rules and regulations developed by systems they navigate, and experiences affecting mental health (Brenner & Swanik, 2007; Horn et al., 2000; Wechsler & Davenport, 1997).

Substance use and abuse can have far-reaching damage for student-athletes including athletic participation, academic goals, and potential future endeavors (Pitts et al., 2018; Yusko et al., 2008). Worse, use of substances may result in legal consequences.

In 2020, three NCAA Division I (DI) players were arrested when police were called to an apartment belonging to the athletes leading to their arrest for marijuana possession, possession of paraphernalia, and unlawful possession of a controlled substance (DiSanto, 2020). Although members of the general student body may experience similar consequences, the high-profile nature of student-athlete arrests or involvement may be associated with additional consequences. Even if there are no legal ramifications for substance use, there are mechanisms in place to monitor student-athletes substance use which may be associated with punishment from the national athletic associations, conferences, colleges, and coaches. The NCAA uses a punitive approach to substance use through loss of eligibility for positive tests, inability to participate in post-season play, and other sanctions; though each institution can establish its own testing policies they are expected to enforce NCAA penalties (NCAA, 2021A). After taking and failing a drug test for the second time, a student-athlete can be suspended from athletics for the year which may include no participation in any team meetings or events (Wanamarta, 2020).

Rather than taking a punitive approach to substance use, identifying the risk and protective factors that are specific to student-athlete substance use may help in developing better interventions. Moreover, identifying potential protective factors that can be enhanced or highlighted by athletic organizations may help reduce substance use. Research shows that athlete-specific interventions that incorporate evidence-based programs significantly decrease alcohol use (Cimini et al., 2015). Additionally, social support and targeted interventions help to minimize risk and decrease substance use within organizations, including those that are slow to embrace or create evidence-informed policies (Vimpani, 2005). Social workers' use of evidence to inform practice

will be critical in sport social workers' role in shaping the experiences of people within athletic organizations.

Social Work and Athletics

As substance use has implications for athletes, so does the introduction of sociology and social work into the athletic environment as service providers and researchers. Bourdieu (1990) stated, those individuals that know sports in the practical sense cannot speak about it academically, while those who know academic talk speak about sports with disdain or poorly. Though Bourdieu's words are simplistic and over-generalizing about the nature of academics and sports fans, his sentiment is partially felt by those in social work seeking to work in athletics, such as Dr. Emmett Gill. Gill (2008) noted that, "when thinking of vulnerable populations, social work theorists, researchers, and practitioners are not likely to think about college athletics". Though not a traditional field for social work, sports and athletics are ripe for the profession. When looking at sports, if one only focuses on a specific sport for research then they miss the larger picture of the systematic transformations and cultural impacts of sports at the macro level; but if academics only focus on the larger area of sport in general then they risk missing the historical and social influence on specific sports or groups of athletes (Bourdieu, 1990). In the context of substance use, if researchers only focus on macro-level issues of performance-enhancing drugs across all sports, then they may miss another drug that is more widely used in a specific sport.

As an example, though spit tobacco was reportedly used by 13% of NCAA (2019) student-athletes, it was seen highest in baseball (44%) and hockey (46%). Social workers evaluating the rates of spit tobacco use would look at social historical influences that

impacted the rates of use. Researchers would observe how spit tobacco was popularized by baseball and promoted to young children in the form of Big-League Chew. Gum was marketed to youth in packaging that matched spit tobacco pouches their idols carried, was shredded to mimic the shredded tobacco leaves, and had a picture of a cartoon baseball player right on the packaging. Created by Rob Nelson in 1979, Big League Chew has sold over 800 million pouches of the gum making approximately $17 million a year (Malooley, 2019). When researching substance use and abuse with the intent of reducing consumption it is important to understand sports, athletics, social influences, and historical trends that could be impacting current use. Social work brings dynamic principles, education, research, and training that benefit the entire athletic community.

Summary

Substance use across the United States is a concern for public health and education officials. College campuses are not immune to the impacts of substance use with alcohol, marijuana, and nicotine being the most used substances by college students (Dierker et al., 2008; Skidmore et al., 2016; Yusko et al., 2008). As part of the college study body, student-athletes are not immune to substance use. There are many causes of substance use that include mental health, social/recreational use, and coping mechanisms for stress (Dierker et al., 2008; Skidmore et al., 2016). Substance use can have serious impacts on student-athletes that involve loss of playing time, loss of scholarships, dismissal from college sports, negative impacts on academics, and criminal charges (Barry et al., 2015; Gill, 2017, NCAA, 2021B; Skidmore et al., 2016). Research has been instrumental for college athletic organizations and athletic departments to better understand the impact of substance use on student-athletes.

Current Study

This exploratory secondary data analysis used the NAIA Substance Use and Abuse Survey to further examine descriptive statistics of the student-athlete population, evaluated first use of specific substances and current substance use, and identified additional protective and risk factors impacting substance use. Data presented by the NCAA in their multiple publications and the currently published NAIA substance use data only identified descriptive and inferential statistics. The current study goes beyond previous studies by evaluating risk and protective factors to add to the literature on college student-athlete substance use and identifies potential areas for social work interventions, inform evidence-based practices, and inform future research.

CHAPTER II THEORY AND LITERATURE REVIEW

Understanding substance use and abuse among college student-athletes require a review of previously reported prevalence rates, current data, application of sociological theories, and a review of previous literature. This chapter will present the current data on college systems, athletic organizations, college students, and student-athletes. The evaluation of factors impacting substance use could be better evaluated through the lenses of sociological theories that include System Theory, Social Cognitive Theory, and Critical Race Theory. Finally, a review of current literature will be presented including an introduction of prior research into student-athlete substance use and a description of the current study.

Substance Use and Abuse Definitions

The definition of substance use and abuse can differ between those used by clinicians/therapists and those used by researchers and academic institutions. Though some of the participants in studies of substance use and abuse may reach the level of clinical substance use disorders, researchers often are more interested in evaluating the reported rates of substance use and abuse, heavy or binge drinking (five or more drinks in one sitting), methods of substance ingestion, substances used, and consequences associated with substance use (Arria et al., 2012; Linden-Carmichael et al., 2019; Moore et al., 2013; Yusko et al. 2008). The clinical definition and parameters set by the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) are stricter for diagnosing a substance use disorder than the standards established by researchers conducting college research on the topic. The clinical definition of substance use disorders or substance abuse is defined as, "a cluster of cognitive, behavioral., and

psychological symptoms indicating that the individual continues using the substance despite significant substance-related problems" (American Psychiatric Association, 2013, p. 483).

The DSM-5 contains several substance-related disorders and descriptions of substance use. These disorders range from the use of legal substances (tobacco, alcohol) to illegal substances (marijuana, opioids). A substance abuse diagnosis must meet at least one of the following criteria: (1) poor role performance at work or school, (2) use in hazardous circumstances (such as operating while intoxicated, fighting), (3) recurring legal problems, or (4) interpersonal relationship issues caused by substance use (Scheid & Brown, 2010). As stated previously, researchers are often interested in the levels and reasons of substance use in the college population and not with diagnosing or recording clinical levels of substance abuse. Though it is important to understand the diagnostic requirements for substance use disorders, studies of usage in athletics and this current exploratory study are more interested in the rates of use by student-athletes reported and the prevalence of use. The surveys conducted by the NCAA and NAIA do not collect data that would allow for the diagnosis of substance use disorders which leaves researchers to utilize a more generalized view of use self-reported usage of specified substances. Building off this concept of a more generalized definition of substance use, it is important to understand the reported prevalence rates of usage before delving deeper into potential risk and protective factors.

Alcohol. A recent study found 60% of surveyed college students reported being current alcohol drinkers, with over 20% reporting binge drinking, which can add to the burden of high-risk drinking on college campuses (Yaeger & Moreno, 2017). Gender

contributes little difference to alcohol use among college students; however, it contributes to a marked difference in episodes of heavy drinking. In a study of 504 college students, 84% of males and 80% of females reported drinking in the past month, while 59% of males and 50% of females reported heavy episodic drinking in the past two weeks (Yusko et al., 2008). The college population reported 25% higher alcohol consumption rate within the last month (80%) compared to the general population (55.1%) for individuals aged 18 to 25 years (National Institute on Drug Abuse, 2020; Yusko et al., 2008). SAMHSA (2019) reported that 53.6% of full-time college students reported alcohol use in the last month, 34.8% reported binge drinking, and 9.7 reported being heaving drinkers (binge drinking five or more times each month).

While several factors can influence alcohol use that includes social anxiety, mental health, family history, developmental environment; research shows peer pressure is a notable cause (Dillard et al., 2018; Kremer & Levy, 2008; Ring & Kavussanu, 2017). Observing substance use by friends and peers or pressure from authority figures can act as a cue or trigger to participate in the consumption of the presented substance (Graupensperger et al. 2017, Kremer & Levy, 2008; Ring & Kavussanu, 2017). Alcohol use can lead to high-risk behaviors that include negative social interactions with peers, negative physical effects such as hangovers, missed classes and decreased academic grades, and criminal acts or legal issues (Dillard et al., 2018). Along with alcohol, nicotine and tobacco products are a commonly used and abused substance among college students (Dierker et al., 2008; Skidmore, 2016; Yusko, 2008).

Cigarettes, E-Cigarettes, and Nicotine. In a study comprised of 1,542 college students who identified as e-cigarette users, 38% (n= 556) reported being current e-

cigarette smokers, with 32% reporting use as experimentation, 21% through the influence of friends, and 18% believed it was safer than cigarettes (Keene et al., 2017). Data shows vaping nicotine was more prevalent among college students than non-college students in 2019 (Schulenberg et al., 2019). A study of 504 college students reported that 50% of males and 54% of females smoked cigarettes, but 17% of males used smokeless tobacco compared to only six percent of females (Yusko et al., 2008). According to the Center for Disease Control and Prevention (2021), smoking is the "leading cause of preventable death" which can lead to serious medical conditions that include asthma, cancer, gum disease, heart disease, mental health conditions (anxiety and depression, and diabetes. There is some data that ecigs can work as a less harmer method to quit smoking for those who use combustible tobacco products, but that nicotine is still highly addictive and ecig products still cause damage to the lungs, brain, and introduce unknown chemicals to the body through the liquids for these devices (National Institute on Drug Abuse, 2021). For student-athletes who physicality is important nicotine use can negatively impact their athletic performance, decrease lung capacity, and harm their academic performance.

Marijuana. Since the early 21st century the United States saw an evolution in marijuana laws across the country that led the drug from a national illegal status to some states adopting medical marijuana, and in recent years, 30% of states legalizing recreational marijuana use. Since 2012, 15 states have legalized recreational marijuana and 33 states and the District of Columbia legalized medical use (Dills et al., 2021). The impact of these new marijuana laws, as previously stated, is not well known because little data exists on states legalizing medical and recreational marijuana.

Co-users of alcohol and marijuana are more vulnerable to a wide range of negative outcomes (Linden-Carmichael et al., 2019). Alcohol and marijuana are the two most frequently used substances among college students. Study participants who used both experienced more negative effects of substance use than those who did not use both substances (Linden-Carmichael et al., 2019). As with alcohol, the use of marijuana is commonly associated with social contexts such as peer pressure and possible self-medicating for mental health disorders or physical injuries. Data shows 19% of college students are current marijuana users (SIUC/Core Institute, 2014).

Tetrahydrocannabinol (THC), the chemical in marijuana that creates the euphoric feeling for users, has three primary methods of ingestion: smoking (burning parts of the marijuana plant), vaping (using an electronic cigarette to heat cannabis oil for inhalation), and edibles (digestible products such as bakery products or candies) (Johnson et al., 2016). There is an increase in the use of electronic cigarette devices (e-cigarette, ecigs) as a new method of cannabis use. In a study of e-cigarette users, 81% of individuals reported other substance use in e-cigarettes (OSUE), which included marijuana or marijuana derivatives (Keene et al., 2017). The use of ecigs for marijuana use increased from 5.2% in 2017 to 11% in 2018 (Schulenberg et al., 2019). The use of ecigs for marijuana or a marijuana derivative does not divert their use as a method of nicotine ingestion. Marijuana derivatives and/or cannabis Sativa derivatives are products created from parts of the cannabis plant that include hashish, cannabinoid oils, cannabinoid hand creams, and other products that interact with THC receptors or cannabinoid receptors located in the human brain (Capano et al., 2019; Preedy, 2017). Regarding oils and creams for skincare, the majority in the United States are CBD based which has below

.03% THC and cannot get a subject high, but these products are growing in popularity

(Ashton, 2021; Devash, 2019).

Substance Use in the General Population

      To better understand the levels of substance use and abuse in college students it is

important to compare their levels to the levels of use in the general population. In the

United States, 139.8 million people over the age of 12 years used alcohol in the last

month, 58.5 million used tobacco products in the last month, 31.9 million used illicit

drugs in the last month, and specifically 43.5 million used marijuana within the last year

(SAMHSA, 2018). The 2018 National Survey of Drug Use and Health stated the

following percentages of individuals between the ages 18 and 25 years self-reported

using the following substances within the last month: 55.1% alcohol, 19.1% cigarettes,

and 22.1% marijuana (National Institute on Drug Abuse, 2020). Though the data is

limited since many states recently had changes in the legalization of medical and

recreational marijuana, the data shows little changes in levels of use prior to legalization

rates and post-legalization rates (Dills et al., 2021).

Colleges

      There are 4,298 colleges in the United States: 1,626 public institutions, 1,687

private institutions, and 985 for-profit institutions (Moody, 2019). Of the roughly 4,298

academic institutions identified above, roughly 250 are members of the NAIA, with this

number changing as universities join the NAIA, leave to join the NCAA, or the

universities close. Of the approximate 250 member institutions in the NAIA, 208 of them

are private universities with 166 of those institutions being religious/faith-based schools

(NAIA, 2020A). The Department of Education's statistical websites identify public,

private, for-profit, two-year, and four-year colleges but do not identify institutions with religious affiliations. Research concerning students' substance use trends at religiously affiliated colleges is limited, especially regarding student-athletes. Based on the available data, there is limited research and/or literature comparing the substance use differences between public and private universities. As of 2015, the most recent National Center for Education Statistics, there were approximately 883 post-secondary educational institutions that had religious affiliations, with 66 religious groups sponsoring colleges across the country (Encyclopedia.com, 2020; National Center for Education Statistics, 2021). Religious institutions, specifically concerning substance use, have their own rules and regulations that are stricter than non-religious affiliated colleges (Family of Faith Christian University, 2021; Hanover College, 2018; Messiah University, 2020). Consequences for alcohol or drug possession on campus range from reprimands and probation to suspension or expulsion (Family of Faith Christian University, 2021; Messiah University, 2020; Vanderbilt University, 2021). The rules of religious and private institutions surrounding substance use could provide a protective factor against substance use, specifically for those who themselves have a strong religious affiliation.

There are student organizations housed on college campuses including fraternities and sororities with over 750,000 members, degree program organizations, student government and political affiliated organizations with over 100,000 members, and athletic programs that have over 600,000 student-athletes across the country (NAIA, 2018; NCAA, 2018; University of New Mexico, 2020). Membership in student organizations provides a protective factor that reduces feelings of social isolation and loneliness (Ray et al., 2019).

College Students

In the fall of 2019, there were 973,157 individuals between the ages of 18 to 24 years that started at a four-year public institution for the first time and 411,209 at private institutions (Education Data, 2020). Unfortunately, the NAIA website, nor their representatives, provide a breakdown of how many first-year or transfer students are entering their member institutions each year of the approximately 65,000 student-athletes. According to the National Center for Educational Statistics (2020), in the fall of 2020, approximately 19.7 million students were projected to attend college, with 14.6 million attending public institutions and 5.1 million attending private institutions. There were over 11.3 million females, 8.5 million males attending college in 2019-2020 (National Center for Education Statistics, 2020). The National Center for Education Statistics (2020) reported the racial/ethnic diversity of college campuses across the United States consisted of 10.3 million White students, 3.7 million Latinx students, and 2.6 million African American/Black students. The data showed that 12.3 million (62.4%) of college students were under the age of 25 years (National Center for Education Statistics, 2020). As stated previously, there are approximately 600,000 college student-athletes across the NCAA, NAIA, and NJCAA.

Substance Use and Abuse Among 18 – 25-Year-Old

College students face stress from social and cultural factors that include family conflict, lack of coping skills, intimate relationships, academics, and experimentation with alcohol and/or drugs. "In the United States, the rates of heaving drinking, tobacco use, and illicit substance use peak between ages 18 to 25 years. This age range coincides with a period of major transition out of high school and, for many, into college" (Yusko

et al., 2008, p. 281). The data for substance use in the last year for the general population age 18 to 25 years presented that 73.1% used alcohol, 27.9% used cigarettes, and 34.8% used marijuana (National Institute on Drug Abuse, 2021). Data on the general population's substance use age 18 to 25 years presented that in a 30-day period 55.1% reported alcohol use, 19.1% reported cigarette use, and 22.1% marijuana use (National Institute on Drug Abuse, 2020). The results of a study evaluating substance use in the last 30-days found youth in 12th grade reported 33.2% had used alcohol, 20.4% got drunk, 22.5% used marijuana, 12.5% used e-cigarettes, 10.5% smoked cigarettes, 3% used amphetamines, and 5.4% used prescription drugs (Gray & Squeglia, 2018). This data is significant because it evaluates those who will soon be exiting high school and provides a viewpoint of the types of behaviors that might carry forward into the college setting.

Alcohol, marijuana, and cigarettes are the three most used substances across individuals 18-25 on college campuses. A survey of substance use among college students found 68.7% reported alcohol use and 19% marijuana use in the last 30 days (SIUC/Core Institute, 2014). The 30-day data presented shows college students have higher rates of alcohol use but slightly lower rates of marijuana use. Another national survey on drug use by college students reported 78.9% alcohol use, 18.7% cigarette use, and 38.3% marijuana use (Schulenberg et al., 2019). The data for use in the last year shows college students had higher rates of alcohol and marijuana use but lower cigarette use. The data from the National Institute on Drug Abuse does not report rates of electronic cigarette use.

College Athletic Systems and Organizations

The college athletic system across the U.S. contains a vast array of organizations and institutions. It is comprised of universities and colleges, athletic departments, national athletic organizations, athletic divisions and conferences, and third-party contractors such as medical providers and athletic trainers. A highly recognized college athletic organization is the NCAA. The NCAA has over 460,000 student-athletes across three divisions that participate in 24 sports (NCAA, 2018). Besides the NCAA, there are several other college athletic organizations that include the NAIA and the National Junior College Athletics Association (NJCAA). The NJCAA is for student-athletes attending two-year academic member institutions and reported having 22,785 student-athletes with 1,699 athletic teams in 2017 (NCJAA, 2019). The NAIA contains over 250 member institutions with over 65,000 student-athletes participating across their four-year academic member institutions (NAIA, 2018).

The NCAA is the powerhouse of college sports, specifically Division I (DI) sports. The DI programs are the most recognized of the three NCAA divisions across the world, with Division II (DII) and Division III (DIII) receiving less attention. Vast media coverage, including nationally televised sporting events and attention, sets DI sports apart from other athletic programs. As of 2017, CBS and TNT broadcast television and radio networks had signed contracts with the NCAA to televise DI men's basketball championship games with the contract running from 2010 to 2032 for a total of 19.6 billion dollars (Kim, 2017). The large amounts of money that television and media companies have been willing to pay the NCAA for the rights to DI sports has made the NCAA a well-funded organization and dominant force in the college athletic system.

Along with the money from television rights and media coverage, athletic organizations themselves, especially for NCAA DI programs, are extremely profitable. The total revenue for the top five NCAA DI programs for 2018-2019 totaled over one billion dollars in revenue; Texas ($223,879,781), Texas A&M ($212,748,002), Ohio State ($210,548,239), Michigan ($197,820,410), and Georgia ($174,042,482) (USA Today, 2021). According to the NCAA, in 2019, the combined revenue for the three divisions was $18.9 billion with $10.5 billion generated by athletic departments and $8.3 billion coming from student fees and government/institutional support; and the Football Bowl Subseries accounted for 72% of all revenue (NCAA, 2020A). College athletics can be profitable for universities, especially DI schools, but according to the NCAA and NAIA, the money produced by athletics is primarily used to fund scholarships and athletic competitions for student-athletes (NAIA, 2021A; NCAA, 2021C). Unlike the NCAA, the NAIA does not get the same financial benefits from televised sports or endorsement deals which decreases their revenue generation leaving more responsibility for program development on member institutions. Though this is shifting somewhat with new television deals as more NAIA tournament games are getting coverage from national sports stations, like ESPN.

Protective and Risk Factors

Protective factors have different names and descriptions across literature including social strengths. Social strengths are part of an individual's life that can support positive growth and development from family, friends, neighbors, and other informal supports (Ashford & Lecroy, 2013). Protective factors that are associated with positive development can impact an individual's academics, self-esteem, and health (Kremer &

Levy, 2008; Ryan et al., 2018; Vest & Simpkins, 2013). There are social hazards that can cause risk factors for negative mental and physical health impacts that include poverty, unemployment, discrimination, and interaction with corrupt/biased institutions (Ashford & Lecroy, 2013; Gill, 2014; Ginn et al., 1998; Simons et al., 2007). The want for social acceptance, popularity, peer pressure, and other interactions can be risk factors for individuals that can have negative health outcomes, for example, substance use (Miller et al., 2002; Moore et al., 2011; Vest & Simpkins, 2013). Along with the above risk and protective factors that can impact all college students, student-athletes have some unique to their athletic participation. Student-athletes can be subject to athlete-specific stereotypes based on academic and athletic ability, racial stereotypes, attitudes towards academics, and social pressures from teammates that can be risk factors for substance use (Feltz et al., 2013; Kremer & Levy, 2008; Riciputi & Erdal., 2017). There are also protective factors that athletes can experience including supportive peers and teammates against substance use as well as, role-models and supervision from coaches and athletic staff (Martens et al., 2011; Nolt et al., 2013; Vest & Simpkins, 2013). Reviewing potential risk and protective factors that influence student athlete's substance use informs the collection and analysis of research data.

Risk Factors

The variety of pressures placed on student-athletes at the micro, mezzo, and macro levels can be more negatively impactful for student-athletes representing underrepresented populations (Carswell et al., 2009; Cooper, 2017; Gill, 2008; Njororai Simiyu, 2012). Student-athletes travel to colleges from around the world bringing their unique experiences to their new institutions. For some, athletics presents the sole

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opportunity to attend college and escape dangerous environments surrounded by crime, gangs, and poor secondary education (Gill, 2008). Research shows that Black or African American youth that comes from impoverished urban areas are at high risk of major educational., social., and physical health issues than more affluent White and Black youth (Carswell et al., 2009; Cooper, 2017; Njororai Simiyu, 2012). The NCAA study on substance use for 2018 did not report racial data but the NAIA study found black student-athletes had lower rates of reported alcohol and marijuana use with nicotine not being reported (Moore & Abbe, 2021). Yet, there are racial differences and risk/protective factors that can impact black student-athlete substance use.

The reasons associated with substance use by black students have been related to their mental health with data showing individuals using substances, specifically alcohol and marijuana, reporting struggling with mental health (Barry et al., 2017; Mahony, 2020). Data from a study of black students at a Predominately White Institution (PWI) found that almost 50% of individual reporting alcohol or drug use wanted or felt they needed treatment from mental health services and participants did not feel connected to the community around the campus (Mahony, 2020). A study of alcohol use and mental health between black students at Primarily Minority Institutions (PMI) compared to PWI's found that participants at PWI's, especially males, had higher rates of alcohol consumption and reported mental health conditions compared to their peers at PMI's (Barry et al., 2017). The area of racial differences in substance use, specifically risk and protective factors, is developing with one study noting that; "racial differences in drug use among college students do not necessarily reflect racial differences in drug abuse" (McCabe et al., 2007). Researchers agree that more studies need to be conducted looking

at black and underrepresented populations substance use, the effects of PWI's and PMIs on substance use, and social/cultural differences that impact substance use (Barry et al., 2017; Mahony, 2020; McCabe et al., 2007).

International and underrepresented student-athletes' populations must learn to navigate institutions that are predominately White and significantly differ from their home environment (Cooper et al., 2017; Gill, 2008). Underrepresented populations can experience harassment and violence in nonathletic environments at universities even when they are part of teams and athletic departments that claim to provide inclusive environments, which can cause negative mental health caused by acute and chronic stressors (Kroshus, 2021). The systems that student-athletes must navigate as part of their athletic participation can negatively or positively impact their experiences in post-secondary education (Feltz et al., 2013; Moore, 2016). Along with the environment and systems that international and underrepresented student-athletes navigate, there is also the potential for the way surveys/data collection on substance use and abuse is presented to them. Research has shown that self-reported rates of substance use by racial and ethnic underrepresented populations have lower validity and reliability which can be impacted by cultural differences, lower educational attainment, question comprehension, concerns by underrepresented populations about privacy, fear of discrimination, and social desirability to conform to perceived majority cultural values (Johnson, 2014). The negative impacts of institutional environments and the potential impact of racially/ethnically related variables on survey reliability can in themselves cause researchers to miss valuable data about prevalence rates, along with potential risk and protective factors impacting substance use. Impacting these experiences on international

and underrepresented populations are the learning processes associated with the new experiences of attending college.

Student-athletes face new experiences while learning to navigate performance expectations, being away from home, and navigating academic expectations (Giacobbi et al., 2004; Gill, 2008; Potuto & O'Hanlon, 2007). Student-athletes are unique compared to their non-athlete peers in that they are required to maintain high physical fitness standards as part of their membership on an athletic team, in addition to academic challenges (Moreland et al., 2017). They are placed under pressure from those around them starting at a young age, with pressure to earn a college degree, and to potentially pursue their sport at the youth, college, and professional or Olympic level (NCAA, 2016; Turman, 2007). There are positive benefits to participation in college athletics, which include scholarships, DI athletes have access to Student Assistance funds to help with emergency needs, promotion of mental and physical health by the Sports Science Institute, insurance policies for athletes who suffer a catastrophic injury, DI and DII athletes have access to unlimited meals, and academic support services and tutoring (NCAA, 2021D).

Student-athletes face personal pressure that increases anxiety and cognitive load from fear of the "dumb jock" stereotype and negative views held about an athlete's academic ability (Cooper et al., 2017; Feltz et al., 2013; Fuller, 2017; Wininger & White, 2015). Student-athletes face discrimination and stereotypes from non-athlete students that view athletes as not being academically motivated, receiving academic help from professors, and even negative academic beliefs from fellow athletes (Riciputi & Erdal, 2017). A study of 538 student-athletes reported, 62% heard negative comments about

athletes from faculty members, 41% heard negative comments from students and 29% from faculty that athletes lacked intellectual ability, and 30% reported faculty comments about lack of motivation from student-athletes (Simons et al., 2007).

Expectations of academic failure and athletic success from instructors and coaches can lead to self-deprivation and social isolation for the student-athlete (Riciputi & Erdal., 2017). This lack of a perceived support system, coupled with pressures to comply with the expectations, jeopardizes mental health and leaves student-athletes vulnerable to peer pressure in the college environment (Simons et al., 2007). As a vulnerable population, they are at potential risk for self-medicating with substances and alcohol (Miller et al., 2002). Miller and associates (2002) found that the college student-athlete group abusing alcohol reported higher levels of depression and other psychiatric symptoms. With the increase in psychiatric symptoms, there was an increase in alcohol consumption. Student-athletes face demands and expectations from coaches and athletic programs that include committing extensive time to their sport, pressure to win, emotional stress from being benched or no longer being the star player, and negative interactions with coaches and other athletes (Oseguera et al., 2018; Wilson & Pritchard, 2005).

Across the United States, the promotion of college party culture stereotype is well documented and has become a cultural symbol of the college experience. Movies glorify partying and promote the concept of party life, music depicts positive associations with substance use, and well-read annual publications list notorious party schools in the country (Chen et al., 2006; The Princeton Review, 2020; Roberts et al., 1999, Substance Abuse and Mental Health Services Administration, 2019). Notably, the Princeton

Review's 62-year running report on the top 386 colleges contains sections about party

life and atmosphere by promoting those institutions with labels such as "lots of beer",

"lots of hard liquor", and "reefer madness (don't inhale)" (The Princeton Review, 2020).

Students may be introduced to and develop an understanding of substance use and abuse

through the social climate, which has become a serious topic for colleges, health experts,

and researchers considering the glorification and the promotion of party life. The

presented data provide an overview of the college environment, system, and impact of

substance use and abuse on the general college population and student-athletes.

Though college life has associated parties and social life as reasons for substance

use on campuses, several experiences may lead to substance use and abuse. There is a

range of causes of substance use that include self-medication for psychotic disorders,

coping mechanisms for stress, social/peer pressure, and recreational purposes (Barry et

al., 2015; Cimini et al., 2015; Jennings et al., 2018; Miller et al., 2002; Mousavi et al.,

2021). College student-athletes can face many of the previously mentioned causes of

substance use but also have pressures unique to their athletic status that can have both

positive and negative impacts on their use. The vast array of reasons that individuals use,

and abuse substances requires researchers to conduct studies within different populations,

including college student-athletes, to better understand the protective and risk factors that

potentially influence substance use.

Protective Factors

Athletic participation can serve as a protective and positive factor for student-

athletes who feel being an athlete had a significant influence on their emotional and

personal development (Potuto & O'Hanlon, 2007). Athletes trend toward having higher

academic standings, high self-esteem, and favorable health outcomes (Vest & Simpkins, 2013). Coaches who show concern and positive communication about alcohol use experience a decrease in substance use by their student-athletes (Pitts et al., 2018). When athletic departments provide alcohol education, screening, and brief interventions there is a decrease in alcohol use by student-athletes (Cimini et al., 2015). Research into substance use found that attending a religious/faith-based academic institution and religious beliefs were protective factors against alcohol and drug use (Jennings et al., 2018; Moore, 2011). The factors that can be protective and risky to student-athlete substance use have seen athletic organizations respond with research, new testing policies, educational programs, and interventions.

Response from Athletic Organizations

Athletic organizations are diligent about understanding and addressing issues among student-athletes. One issue facing the study of college student-athletes is individuals seeing the physical abilities and financial benefits of sports participation as creating a robust population that does not suffer from the same issues found in other populations (Bourdieu, 1990; Gill, 2008). The physical attributes of athletes and perceived privilege keep theorists, researchers, and practitioners from viewing student-athletes as a vulnerable population, but academic disciplines and mental health and social work practitioners work with athletic organizations to increase support for athletes (Bourdieu, 1990; Gill, 2008; Moore & Gummelt, 2017; Weaver & Reynolds, 2020). The NCAA has set the standard for examining substance use in college student-athletes. Because of the NCAA standard, it emphasizes the importance of understanding the findings presented by the organization by researchers.

Created in 2013, the NCAA Sports Science Institute (SSI), promotes and develops safety, excellence, and wellness in college student-athletes, and fosters lifelong physical and mental development (NCAA, 2021E). Part of the SSI's responsibilities is the promotion of fair and safe competition, which includes a partnership with the National Center for Drug-Free Sports to conduct drug-testing programs across the NCAA (NCAA, 2021F; NCAA, 2021G). The SSI also produced several educational publications regarding substance use, mental health, and physical health that includes *Mind, Body, and Sport: Understanding and Supporting Student-Athlete Mental Wellness* and *Mental Health Best Practices*.

Almost all the information on student athletes' substance use from reports and journals comes from the NCAA or NCAA population. The NCAA developed the student-Athlete Substance Use Study in response to concerns of substance use and abuse among student-athletes, concerns for student-athlete health and wellness, and negative media attention (Green et al., 2001; NCAA, 2020B). The study began in 1985 and occurs every four years (NCAA, 2020E). The NCAA has invested time and resources in the study and reduction of substance use among student-athletes (Green et al., 2001). The NCAA's financial abilities and organizational opportunities allow for the execution of the substance use study. Studies conducted with student-athletes support the findings of the NCAA study. There are trends of significant substance use among student-athletes with high levels of alcohol use and binge drinking, marijuana use, and other illicit substances (Brenner, 2007; Ford, 2007; Orsini et al., 2018; Yusko, 2008)

The results of the NCAA Student Athlete Substance Use Study found 77% of student-athletes reported alcohol use, 42% reported binge drinking, 13.4% used tobacco

products, 24% reported inhalation of marijuana, 4% reported cocaine use, 2.9% reported pain medication use without a prescription, and 7.5% reported use of ADHD stimulants without a prescription in the past 12 months (NCAA, 2018). Eighty-two percent (82%) of the general student population reported alcohol use, 33% marijuana use, and 4% cocaine use (SIUC/Core Institute, 2014). The CORE survey conducted with the general college student population did not report cigarette use (SIUC/Core Institute, 2014). Data shows that NCAA student athletes self-report lower levels of alcohol use (-5%), lower marijuana use (-9%), but equal reports of cocaine use (NCAA, 2018; SIUC/Core Institute, 2014). The results of the NCAA 2017 Student Athlete Substance Use Study show substance use and abuse, though sometimes reporting lower rates compared to the general college population, is a potentially serious issue among the student-athlete population.

The NCAA study also revealed differences in substance use by gender (NCAA, 2018). Females reported higher levels of alcohol use in the last year compared to their male counterparts by three percent (3%) (NCAA, 2018). Males had higher levels of self-reported binge drinking (5%), cigarette use (8.7%), spit tobacco (21.2%), marijuana use (4%), and cocaine use (3%) (NCAA, 2018). The data shows differences based on race/ethnicity. White participants (n=16,664) reported alcohol use (83%), marijuana use (26%), cigarette use (13%), and e-cig use (10%); Black/African-American participants (n=4,089) reported alcohol use (59%), marijuana use (20%), cigarette use (3%), and e-cig use (3%); and Hispanic/Latino participants (n=1,527) reported alcohol use (71%), marijuana use (24%), cigarette use (8%), and e-cig use (6%) (NCAA, 2018).

The NCAA made binge drinking one focus of their research because studies of young adult drinking behaviors and patterns of consumption show binge drinking to be of specific concern (Adan et al., 2016; Barry et al., 2015; Wechsler & Davenport, 1997). In the NCAA study of substance use and abuse, student-athletes self-reported use in the last year, and with alcohol specifically, they identify binge drinking as defined by five or more drinks in one instance for males and four or more drinks for females (NCAA, 2018). Self-reported measures are standard for surveys, but the NCAA and other organizations use urinalysis to detect substance use such as marijuana. The NCAA uses Drug-Free Sports International to conduct drug testing and has established drug levels, in the case of marijuana is established by 35 nanograms of THC per milliliter through urinalysis (NCAA, 2019).

About the NAIA and Their Work on Substance Use

Substance use by student-athletes is a concern at all levels of competition. In 1985, the NCAA started conducting a survey of student athletes' substance use by conducting a survey every four years with eight having been conducted across their organization by 2017, and two replication studies at Michigan State University (NCAA, 2020C). The longitudinal study of substance use and abuse by the NCAA allowed researchers to track trends among student-athletes.

The NAIA is a distinctive organization compared to the larger known NCAA. The NAIA is often compared to NCAA DII programs but should not be undervalued. Colleges can be influenced by several factors, such as financial costs when selecting an athletic organization under which to compete (Stanbra, 2018). The operating budgets for all NAIA athletic programs had a median operating budget of $1.6 million compared to

NCAA DII at $3.4 million and DIII at $2.8 million with organizations going from NAIA to NCAA DIII increasing cost per student by 26% (McCollum, 2018). The NAIA like NCAA DII gives athletic scholarships, which NCAA DIII programs are not allowed to provide. The NAIA established academic standards student-athletes must meet, allows schools and conferences to create their own rules and budgets, has fewer restrictions on coaches contacting potential recruits, and is generally comprised of smaller academic institutions (College Express, 2012). Each element of the NAIA can be beneficial for social., academic, and athletic life. The NAIA also allows for schools and conferences to make their own decisions regarding drug testing.

Current Testing Policy

The NAIA, in the 2017-2018 school year, established that drug testing would take place at championships and invitationals; this legislation established the punishments for a positive drug test (NAIA, 2017A). Though the NAIA established testing for championships and invitational competitions, it allows individual schools to determine their own drug testing policies outside of those specific events, leading schools across the country to have different policies from not testing at all to administering multiple random drug tests each year. Drug testing and the penalties faced by student-athletes are partially credited for the decrease in substance use by athletes and why use is lower than that of their non-athlete peers (Moore & Gummelt, 2018). A key point to remember when analyzing student-athlete substance use and abuse is that the primary source of information comes from research of athletes in the NCAA.

NAIA Substance Use and Abuse Study

Due to the lack of information about the NAIA's student-athlete population, the NAIA partnered with Dr. Matt Moore at Ball State University (BSU) in 2020 to conduct the first comprehensive substance use and abuse study utilizing a modified version of the NCAA Student Athlete Substance Use Study. The NAIA did not have data on their over 65,000 student-athletes substance use so they wanted their own study conducted to better understand their population's substance use, to create steps for promoting health and safety of athletes, and to compare NAIA data to NCAA data to create a larger picture of student-athlete substance use and abuse (Moore & Abbe, 2021).

The data provided from the NAIA Substance Use and Abuse Study presented prevalence rates for substance use among the student-athlete population. Alcohol use within the last year was reported by 49.2% of student-athletes with only 19% reporting binge drinking; both areas of alcohol use were lower than that of the NCAA (Moore & Abbe, 2021). Regarding alcohol use, men (52%) were more likely than women to report alcohol use with the racial breakdown of alcohol use reporting the highest use among whites (69%), Hispanic or Latino (12.2%), and Black or African American (10.7%) (Moore & Abbe, 2021). For nicotine use, the highest reported method of ingestion was ecigs (16%), cigars and spit tobacco (8% each), and cigarettes 5%; all but ecig use was lower among NAIA student-athletes which was twice as high (Moore & Abbe, 2021). Marijuana use within the last year was reported by 20.6% of participants, with men reporting the highest rate of use at 95.9% and a racial breakdown of White (62.2%), Hispanic or Latino (15.7%), and Black or African American (14.5%). The prevalence

rates of all substances, except for ecigs, was lower among NAIA student-athletes compared to their NCAA peers.

The purpose of the current exploratory study is a secondary data analysis utilizing the information gathered from the NAIA Student Athlete Substance Use Study to analyze NAIA student-athlete self-reported data. To establish a framework for analyzing and interpreting the NAIA data, the application of sociological theories was applied.

Theory

Using sociological theories presents a mechanism to begin evaluating and understanding the intricate relationships these concepts produce through investigating the impacts navigation of complex systems, social cognition and learning, and critical race theories inject into the student athlete's development. It is vital to identify that this focus of generalized analysis of student-athletes does not provide the in-depth study of specific factors of religion, gender, sexual orientation, nationality, or other individual traits that can impact development. Though other sociological theories such as feminist and conflict theories can provide insight into specific populations within intercollegiate athletics, these theories provide information regarding potential risk and protective factors relevant to student athletes' experiences with substance use. Systems Theory and Social Cognitive Theory present sociological theories for evaluating student-athlete substance use at the micro, mezzo, and macro levels there are important aspects of the student-athlete experience that cannot be ignored and require acknowledgment. Underrepresented population student-athletes navigate systems infiltrated with institutional racism and are confronted with biases from individuals that impact their lives as athletes.

Systems Theory

General systems theory describes how systems develop from and in response to their environments and environment is required for a system to exist; systems differentiate themselves from the environment creating boundaries to control differences between environment and system (Luhmann, 1995). College student-athletes are members of several systems including athletic teams, college communities, and family systems (Moore, 2016). Through interactions with these systems, they develop an individual, team, and organizational relationships (Moore, 2016).

Autopoiesis is the process of systems being self-made or self-generating when they start distinguishing themselves from their environment and develop their own boundaries from the environment and other systems (Ritzer & Stepnisky, 2014). The Intercollegiate Athletic Association (IAA) was founded in 1906 by 62 academic institutions to reform rules for football, and in 1910, the IAA became the NCAA (Chronicles in Higher Education, 2011). The NCAA system developed in response to changes and growth in the college athletic environment and the other national athletic organizations developed in response to similar change. The NAIA was officially established in 1952 from the National Association of Intercollegiate Basketball and setting itself apart from other college athletic organizations by being the first to allow historically Black institutions to become members (1953) and women sports (1980) (NAIA, 2005).

These organizations set themselves apart through self-generation and developing their boundaries. Boundaries both separate and connect systems to the environment and systems to other systems with boundaries separating elements of systems, but not

relations or communications (Luhmann, 1995). Structural coupling allows inter-systemic

communication where each coupled system is connected and disconnected at the same

time, allowing certain structural developments to be coordinated (Mattheis, 2012). These

national athletic organizations are unique self-contained systems with adopted

intercommunication techniques through structural coupling. Shared communication exists

concerning student-athletes; however, communication concerning substance abuse is

lacking. This is evidenced by the NCAA substance abuse study not including other

athletic organizations. Student athletes' academic and athletic careers leave them subject

to possible transfer between colleges or athletic divisions, and consequently national

athletic organizations. Potential transience compounds potential confusion and further

highlights weaknesses created by inconsistent communication and expectations.

Subsystems develop within existing systems with the repetition of the

development of subsystems known as system differentiation (Luhmann, 1995). Center-

periphery differentiation occurs when subsystems develop in a system, yet subsystems

are bound by the rules and authority of the primary system (Ritzer & Stepnisky, 2014).

For example, the NCAA is a primary system that is comprised of three separate

competition divisions subsystems: DI, DII, and DIII (NCAA, 2020A). The division

subsystems contain division conferences. Division conference subsystems contain

member institutions/colleges. College athletic departments are a subsystem located in

each region of the United States and are also bound to the rules and control of the NCAA

headquartered out of Indianapolis, Indiana. When subsystems develop, the original

system could become an environment for new systems (Luhmann, 1995). Academic

member institutions affiliated with the NCAA develop their own systems within the context of the NCAA and create their own rules, standards, and practices.

These different systems and environments create a complex network of rules, standards, and practices that place college student-athletes in constant worry of violating rules. Each national organization establishes its own policies and guidelines separate from each other. Along with the national organizations, the universities, athletic departments, and teams have their own unique policies and procedures. These different systems and subsystems can create different rules and policies concerning substance use that affect student-athletes. The Sports Science Institute produced a website for the NCAA detailing drug use and abuse policies, testing, medical waivers, and other resources for institutions and student-athletes (NCAA, 2020D). The NAIA's National Administrative Council Drug Testing Policy Manuel outlines rules for substance use testing at championships, banned substances, and punishments for positive tests (NAIA, 2020B). Campus policies have been developed to reduce substance use and abuse issues on campus.

Substance use and abuse does not discriminate between public, private, or religious institutions but affects a vast population of the college community for which institutions attempt to develop methods of detection and deterrence of substance use. According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2019), some colleges banned alcohol from campuses, not allowing it in dorm rooms, and substance-free housing, which included non-smoking policies. Some faith-based colleges implemented policies around alcohol and substance use that have far-reaching consequences for students. Messiah University in Mechanicsburg, Pennsylvania acknowledges that alcohol has the potential for abuse that can cause damage to people

and society, and requires that students enrolled will not use alcohol, tobacco, or illegal

drugs on or off-campus (Messiah University, 2020). Students who do not adhere to the

requirements are subject to consequences that could include permanent dismissal.

The systems associated with Historically Black Colleges and Universities

(HBCU) and PMI's have been shown to be a protective factor for black students in these

institutions because the system emphasizes character development and spirituality (Lewis

et al., 2012). Substance abuse was lower in black students attending HBCU's & PMI's

compared to peers attending PWI's, with those at PWI's reporting higher levels of mental

health concerns and lower levels of feeling as part of the college community (Barry et al.,

2017; Mahony, 2020). Though limited research exists on the impacts of private

institutions, especially HBCU's and PMIs on underrepresented population student

substance use, there is even less on how these factors impact student-athletes specifically.

The systems that individuals, especially black students, develop in can impact their

substance use and could require these systems to better monitor their student

developments.

Systems are self-referential., creating mechanisms for monitoring processes and

gathering feedback to ensure everything is operating correctly (Ritzer & Stepnisky,

2014). Systems and subsystems of national athletic organizations can lack recognition

when negative practices occur that impact student-athletes. Systems cannot comprehend

the complexity that produces an unclear understanding within the system that leads to an

inability to identify risks, plans, make decisions, or excuses (Luhmann, 1995). The

NCAA operates under the concept that its member institutions provide institutional

control over athletic departments and thus are responsible for violations of NCAA rules

(Smith, 2019). The NCAA as a system, along with other organizations/institutions, depends on subsystems to regulate themselves through being self-referential., but this leaves them open to missing corruption or abuse by member institutions that could be widespread. The NCAA lacks investigator power and depends on member institutions to report violations and the member institutions (Miller, 2012). Miller (2012) found the NCAA has an incentive to decrease public awareness because violations could diminish the perception of those institutions' brands and adversely affect the multi-billion-dollar media deals from which these institutions financially gain.

The development of systems and subsystems is dependent on individuals, many of whom grew and developed in the athletic system. The NCAA has made strides to become more diverse with 29.4% of leadership being from underrepresented populations, but this has not been reflected at the conference and division level being predominately white (Lapchick, 2019; TIDES, 2021). It is hard for student-athletes in the NCAA system to feel they have opportunities to continue their careers outside athletics, such as working for the NCAA or as coaches, when they do not see themselves represented in the system (Lapchick, 2021). From 2019-2020 the NCAA saw representation for underrepresented populations and people of color decrease across 12 of 16 categories tracked by the TIDES Report; student-athletes of color decreased from 34.4% to 31.7%, coaches in men's and women's sports, and across administrative positions (Lapchick, 2021). Representation of women in the 2019-2020 year increased in 10 out of 14 categories, but still only made up 41% of all DI women sports head coaches, 47.2% of DI assistant women's team coaches, and 33.3% of DI Conference Commissioners (Lapchick, 2021). Decision-makers are influenced by learned values and behaviors. These decisions impact the control of athletic

organizations and their staff, as well as impacting student athletes' development academically, athletically, and socially.

The NAIA operates comparably to the NCAA with the utilization of conferences, divisions, and individual athletic departments having separate leadership but all falling under the main organization, the NAIA, and its scope of operation. Dr. Richard Lapchick and The Institute for Diversity and Ethics in Sports do not create a racial or gender report card or track data on diversity in the NAIA. The NAIA does not have divisions like the NCAA but alternatively has distinct sports-related divisions. For example, basketball that has a division one and division two which do not operate as the NCAA systems does. The NAIA and NCAA both have dues that are paid by their member organizations that help fund the operations, scholarships, and tournaments. Unlike the NCAA DI organization though, the NAIA does not have the media or television money or high profits from athletic teams.

Systems do not just exist at the macro level but are also found at the mezzo and micro levels. For student athletes, their athletic teams and teammates become their family with coaches/staff becoming mentors. The family consists of teammates, members of the coaching staff, and other professionals who participate in team activities (Moore, 2016). By spending time together and participating in activities, the members of athletic teams develop individual., group, and organizational relationships (Lopez-Felip et al., 2018). Membership in athletic teams and peer groups can impact group dynamics through the development of social crowd affiliation that can, through peer dynamics, impact risk-taking behavior (Kremer & Levy, 2008; Vest & Simpkins, 2013). Athletic department staff and team coaches, which consist of head and assistant coaches, are leaders in the

mezzo and microsystems that develop team dynamics. Coaches create the environment

shaping team and athlete experiences, which can impact the development of mezzo level

systems prevention and intervention programs (Pitts, 2017). As peers, teammates, and

coaches can impact the systems that student-athletes navigate they can also impact social

cognitive development.

Social Cognitive Theory

Albert Bandura advanced social cognitive theory by expanding on his original

social learning theory (Bandura, 1971). Learning develops through observations or direct

experience of behaviors of which the behaviors are interpreted as appropriate depending

on if the behavior is punished or rewarded (Bandura, 1971). In observing responses to

behaviors by others, the individual develops hypotheses about which behaviors are

acceptable or rewarded and which result in punishment (Bandura, 1971). For athletes, the

culture and environment are important in the development of morals through social

interactions with individuals and institutions building their values and behaviors based on

those they are observing (Schwamberger & Curtner-Smith, 2019). College student

athletes' behaviors and values are influenced through socialization and observation of

family, friends, teammates, coaches, community members, athletic heroes, and leaders

which inform their views on substance use and abuse.

Coaching leadership can influence student-athlete behaviors and experiences that

can inform their motivations, athletic performance, and antisocial behaviors (Pitts et al.,

2018). Conditioning occurs when a positive behavior is rewarded or negative behavior is

punished, which can derive from verbal communication or behavioral observation

(Bandura, 1971). The power and status that coaches wield can positively or negatively

impact athletic drinking trends (Pitts et al., 2018). Self-efficacy represents the individuals' own belief in their abilities, with high levels leading to confidence in succeeding in endeavors and low levels leading to decreasing pursuits of endeavors (Ashford & Craig, 2013). The outcome expectancies from drinking behavior can influence an individual's responses when presented with alcohol, where positive drinking outcomes lead to greater drinking and negative outcomes lead to reduced amounts of drinking (Hasking et al., 2015). Individuals' responses to behaviors and their interpretations by student-athletes can impact their substance use.

Modeling behaviors from coaches, peers, family, and teammates have a strong learning effect on developing student athletes' views and behaviors of substance use (Dillard et al., 2018; Horn et al., 2020; Kremer & Levy, 2008; Nolt et al., 2013; Vest & Simpkins, 2013). Modeling requires that adults present proper behaviors or conduct of activities for children and adolescents (Bandura, 1971). Modeling can be a more successful method of learning compared to unguided action (Bandura, 1971). Coaches who modeled positive ethical behavior and leadership created an environment of inclusion and satisfaction of chosen institution by student-athletes, but coaches who present negative models or model substance use behaviors can influence behaviors such as alcohol or tobacco use (Horn et al., 2000; Pitts et al., 2018; Yukhymenko-Lescroart et al., 2015). When a student athlete's teammates model moderate to high levels of substance use and decreased prosocial behaviors towards helping or assisting others, data shows that those individuals have a higher rate of self-reported substance use and lower levels of prosocial behaviors (Davis et al., 2017; Vest & Simpkins, 2013). Athletes whose teammates do not use substances and present prosocial behaviors reported decreased

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substance use and higher rates of prosocial behaviors (Davis et al., 2017; Vest &
Simpkins, 2013). Modeling can occur between peers and teammates that have negative
impacts on student-athlete behavior. Student-athletes whose beliefs or behaviors differed
from teammates would conform to group behaviors to reduce the dissonance between
views with athletes with a strong identity to their team conforming to pressure to partake
in risky behaviors, but the results also support that there can be conformity to positive
social behaviors (Graupensperger et al., 2018).

Critical Race Theory

Racism is a systemic problem in the world. Some individuals and groups gain
through the exploitation of African American/Black people and other underrepresented
populations, minimizing incentive for said individuals to fight racism (Crenshaw et al.,
1995; Ritzer & Stepnisky, 2014). White-dominated sports are funded and supported by
the work of Black athletes in predominately revenue-generating sports, like basketball
and football, that generate 58% of athletic revenue that is then spread over more than 20
different sports in the NCAA (Garthwaite et al., 2020). The NCAA has greatly benefitted
from the work of Black student-athletes as part of revenue-generating sports (Harper,
2014). Sixty percent (60%) of football players on the top 25 Bowl Championship Series
teams are Black, yet only represent 12% of coaches or athletic directors at the same
institutions (Harper, 2014). At predominately White institutions, Black male athletes can
be confronted with racism and bigotry from fellow students who see they are being
enrolled in the school as solely the product of their athletic ability, and some White
faculty can see their academic accomplishments as aberrations instead of academic
ability (Cooper, et al., 2017).

Race is a social construct that evolves or changes across time, it is not a fixed reality nor objective. Critical race theorists do not use the term race but racialization, which is a social process of creating, manipulating, and replacing racial categories with new constructs when deemed necessary by individuals or systems (Crenshaw et al., 1995; Ritzer & Stepnisky, 2014). In the 1960s and 1970s, southern colleges were anti-desegregation and presented numerous challenges for underrepresented population student-athletes. Black athletes were initially restricted to playing on segregated teams. Through strategic organizing, communication, and protests, Black athletes transitioned to playing on White teams with restrictions to full college desegregation in 1971 (Berry, 2004). Diversity elevated athletics and generated revenue for the desegregated colleges. Black athletes went from being segregated from playing college sports to becoming the preeminent players on revenue-generating college sports, as their talents earned institutions millions.

Through the lens of naturalization of racism, the dominant culture can explain away social phenomena by passing it off as a natural occurrence rather than the effects of institutional racism or discrimination (Martinez, 2014). Through minimization of racism, the dominant groups can portray that marginalization is not systemic but due to life chances and choices (Martinez, 2014). Black student-athletes have suffered from negative stereotypes and discrimination at universities seeing them as not academically capable, more focused on athletics than education, and only admitted because of their athletic ability (Cooper et al., 2017; Fuller, 2017; Njororai Simiyu, 2012). This perception of Black athletes has persisted in the acceptance of Black student-athletes. Moreover, the institutional racism experienced is evident in the lower graduation rates experienced by

Black Student-athlete at a lower rate compared to their White counterparts, as evident by only 50% of Black male athletes in the top seven NCAA DI sports graduating within 6 years (Harper, 2014; Njororai Simiyu, 2012). When evaluating graduation rates of student-athletes of color there are many factors that could influence the low graduation rates that include being first-generation, limited social supports, financial strain, and previous educational experiences.

Critical theories of race and racism focus on issues that affect underrepresented populations through advancing social justice, structures of power and oppression, and the social welfare and criminal justice systems (Ritzer & Stepnisky, 2014). People of color are unequal under the law, and though colorblindness claims to not see race or color, this concept ignores the racial differences that allow for the continued institutionalized injustices that continue to impact Black citizens and the laws unfairly impacting people of color (Martinez, 2014). Though according to the NCAA (2019) demographic database for 2018-2019, only 16% of the entire student-athlete population was Black. A study by Gill (2017) found that 47.7% of crimes stories reported about student-athletes in the mainstream media focused on Black athletes. Black student-athletes, and athletes at all levels, are just as likely as their fellow non-athlete Black members of the general population to be overrepresented in the criminal justice system and fall victim to the racial bias of the criminal justice system (Berry & Smith, 2000; Gill, 2017). Reports using data from the NCAA do not directly provide findings on race regarding negative consequences of substance use or experiences of involvement with police related to substance use. Data has been collected by the NCAA National Study on Substance Use

Habits of College Student Athletes but has not been analyzed to evaluate the experiences of Black student-athletes specifically.

The use of sociological theories provides a map for the analysis and interpretation of human behavior. The application of theory informs the understanding of the literature using Systems Theory, Social Cognitive Theory, and Critical Race Theory. Through a review of the literature and analysis utilizing theory informed the current secondary data analysis study.

<div align="center">**Literature Review**</div>

Institutional Factors

Student athletes navigate several systems as part of their collegiate experience that includes the universities where they play, the athletic departments that recruited them, their teams, national athletic organizations, and more. These different systems can have different approaches and policies that impact substance use and even impact access to substances on campuses. The NAIA, based out of Kansas City, Missouri, was established in the 1940's and states their "dedication to academic achievement above athletic excellence" as a hallmark of their organization (NAIA, 2005, para. 2). The NAIA has developed online courses through their NAIA Academy that includes the myPlaybook Drug Free Sport course, which informs student-athletes about substance use policies and prevention programs. While the NAIA has established the myPlaybook course, it is not mandated by the NAIA nor is it required for student-athlete eligibility (NAIA, 2017B). The NAIA only requires and performs drug testing during championships for their sports. Individual member institutions can implement their own substance use education and testing policies that range from random or reasonable

suspicion testing of players once a year or more, required consent to be tested signed by every player, institutional and team punishments, and educational requirements and/or trainings, with some institutions mandating the myPlaybook course (Indiana University East, 2020; Ottawa University, 2020; Park University Athletics, 2020). The different policies across athletic departments and the NAIA creates an environment where different players across these organizations are held to different standards that could create confusion, especially if student-athletes transfer between institutions.

Data from the NCAA National Study on Substance Use Habits of College Student Athletes presented that 64% of participants believed athletes should be tested for performance enhancers by schools and 72% believed they should be tested by the NCAA (NCAA, 2018). Thirty-six percent (36%) believed athletes should be tested for marijuana by schools and the NCAA, 45% believed drug testing by individual colleges deterred substance use, 49% believed that NCAA testing deterred substance use, and 54% believed imposing team penalties for a player testing positive was fair (NCAA, 2018). The findings from the NCAA study support findings from other studies of student athletes' beliefs that substance use testing is fair, especially when associated with performance enhancers, and that concern about testing positive was a deterrent for some student-athletes (Diacin et al., 2003; Tricker & Connolly, 1997). The NCAA, NAIA, and athletic departments have their own policies on substance use and drug testing the universities can have their own policies on substance use.

Religion and Religious Institutions

Spirituality and religious beliefs show to be protective factors for substance use and abuse (Jennings et al., 2018; Marsiglia, 2005; Moore et al., 2013; Stewart, 2001). In a

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study of coping mechanisms to stress at a private religious university, on a four-point Likert scale, 61 non-student athletes reported alcohol use (M=1.15, SD=0.40) and smoking tobacco, marijuana, etc. (M=1.13, SD=0.45) and 71 student-athletes reported alcohol use (M=1.18, SD=0.45) and smoking tobacco, marijuana, etc. (M=1.07, SD=0.26); supporting that substance use is not a common coping mechanism for religious students (Jennings, et al., 2018). A study of 87 student-athletes at a public NCAA DI university reported 91.6% of participants had some level of religious belief with 57.8% attending church at least monthly (Moore et al., 2013). Moore and colleagues (2013) found participants with higher levels of religious beliefs had lower levels of alcohol use during their lives (75%) and fewer episodes of binge drinking in the last two weeks (20%) compared to a national study of college students that reporting alcohol use during their lives (81%) and an episode of binge drinking in the last two weeks (37%).

Stewart (2001), reported from a sample of 337 students at a large southern university, participants who self-reported religious or spiritual belief being important was significantly correlated with decreased alcohol use compared to students who did not for freshman (t(84) = –3.55, p = .001) and sophomores (t(102) = –6.79, p = .000); there was no significance for juniors (t(63) = –1.07, p = .097) or seniors (t(80) = –.495, p = .622). Though personal beliefs can impact a student athletes substance use there is also a connection between the perception and beliefs expressed by coaches.

Social Learning and Modeling Behavior

Studies support coaches' beliefs, behaviors, and attitudes towards substance use can impact student athletes' consumption or abstinence from substance use (Horn et. al., 2000; Nolt et al., 2013; Pitts, et. al., 2018). Nolt and colleagues (2013), research of

college coach's knowledge and attitudes towards alcohol consumption found that 58.6% (n=62) reported being somewhat or not at all confident in knowing signs or symptoms of alcohol use, 51.2% (n=41) reported not knowing their institution's alcohol policies, 61% (n=41) had their own team rules on alcohol use, and 56.4% (n=41) reported enforcing team alcohol use rules more in-season than off-season. The lack of knowledge of institutional policies, self-reported lack of ability to identify alcohol use, team rules that may differ from university or organizational policy, and different enforcement practices between in-season and off-season can create a confusing environment for student-athletes. A study of female student-athletes reported that when coaches spoke with athletes about the negative consequences of alcohol use (Concerned Communication) that alcohol use was significantly decreased (γ= -0.17, SE= 0.06, t= -2.73, p<.01) and athletes whose coaches showed lenient attitudes and behavior toward alcohol use significantly increased reported alcohol use (γ= 0.21, SE= 0.07, t= 3.24, p.<.01) (Pitts, et. al., 2018).

College students have a wide array of social interactions that can influence their perceptions, willingness to partake, and social behaviors regarding substance use which are impacted by their social groups, teammates, and roommates (Dillard et. al., 2018; Kremer & Levy, 2008; Vest & Simpkins, 2013). Dillard and colleagues (2018) conducted a two-year study of excessive drinker prototypes in first-year college students (n=340). Results presented the more positive prototype view participants held about alcohol use by peers, the higher their alcohol consumption was, and negative consequences associated with alcohol use; findings supported that across time as participants positive prototypes increased so did their alcohol use. In a study of adolescent alcohol use, it was found that sports participation was related to lower alcohol use when participants sports friends had

low levels of use (z= 32.95, p.< .001) and participants had lower levels of alcohol use when teammates had lower levels of use (z= 5.41, p.< .001) (Vest & Simpkins, 2013).

Adolescent youth data shows peers and teammates with lower levels of alcohol use correlates with individuals' lower levels of alcohol use, which carries over to college. A study of 379 NCAA student-athletes from DII and DIII programs evaluated participants social identity and conformity to perceived teammates' risky behaviors presented results those individuals higher in social identity more willingly conformed to risky behaviors involving binge drinking (b=.19, p< .001), marijuana use (b= .10, p= .021), and drinking and driving (b= .08, p= .043) (Graupensperger et. al., 2018). Teammates and peers can influence substance use among student-athletes but there are other factors that can affect their substance use.

Athlete Stress and Pressure

Student-athletes and non-athletes both share many of the same stressors but athletes are also impacted by social demands, time commitments, athletic commitments, travel requirements, and physical and emotional demands that can include mental health concerns (Cimini et al., 2015; Miller et al., 2002; Weaver et al., 2013; Wilson & Pritchard, 2005). Wilson and Pritchard (2005) conducted a study of sources of stress comparing college non-athletes (n=310) and student-athletes (n=52), which reported that student-athletes had higher levels of stress from intimate and family relationships (t(359)= 2.53, p< .05), levels of responsibility (t(357)= 1.96, p< .05), lack of sleep (t(357)= 1.98, p< .05), and heavy demands from extracurricular activities (t(359)= 8.81, p< .001). Though stress can be a factor leading to increased substance use, the impact of competitiveness can impact substance use. A study of 263 college student-athletes

evaluating achievement motivation and alcohol outcomes provided evidence that competitiveness and alcohol use increased during playing season ($B= .07$, SE= .01, p< .001), that out of season ($B= .03$, SE= .01, p= .006) for males, but females had no significant difference for females in- or out of season; alcohol use was highest among men reporting 11.69 drinks per week (DPW) compared to females 4.87 DPW and findings support that for males DPW and competitiveness were strongest during the competitive season (Weaver, et. al., 2013). The studies highlighted in this section show the impact of stress and pressure on student-athletes; however, mental health issues and disorders also impact substance use among student-athletes.

Mental Health

Research into substance use has shown a relationship for some student-athletes and their peers to be associated with mental health conditions, use as a coping mechanism, and a relationship with substance use and the want for mental health treatment (Brener & Swanik, 2007; Jennings et al., 2018; Kenney et al., 2018; Mahony, 2020; Ryan et al., 2018). A study of 262 student-athletes stated that 21% of participants reported high alcohol use and negative consequences from drinking; individuals who scored in the clinical level of depression on the Beck Depression Index (BDI) (BDI $\geq$ 10) had a mean Alcohol Use Disorders Identification Test (AUDIT) score of 8.2 ± 1.6 which is above the cutoff for misuse which was significant (p< .0001) and individual reporting subclinical levels of depression on the BDI and subscales of the Symptoms Checklist 90 (SCL90) had significantly high AUDIT scores (p< .03) (Miller et al., 2002). Self-reported levels of mental health disorders at the clinical and even subclinical level on two majorly excepted screening tools showed correlation to higher levels of alcohol consumption

presenting evidence that student-athletes could be using alcohol and other substances as self-medication. Though research has supported evidence that stressors, personal drives, and mental health can all be related to substance use, the NCAA National Study on Substance Use Habits of College Student Athletes does not ask questions related to those areas.

Substance Use

The NCAA National Study on Substance Use Habits of College Student Athletes (2018) data reported previously present evidence of alcohol, marijuana, and cigarettes being the most used substances. The NCAA findings are supported by several other studies that examined substance use in both non-athlete and athlete college populations that alcohol, marijuana, and cigarettes/nicotine products had the highest reported levels of use (Arria et al., 2017; Dieker et al., 2008; Linden-Carmichael et al., 2019; Skidmore et al., 2016; Wechslar & Davenport, 1997; Yusko et al., 2008). A study of 1543 male and 1592 female student athletes' substance use in the last 30 days reported that 43.5% of males and 39.6% of females used alcohol, 17.3% of males and 5.5% of females used tobacco, and 3.1% of males and 2% of females used marijuana (Orsini et al., 2018). Studies of substance use provide evidence that males have higher rates of substance use compared to females, even among college student-athletes.

The NCAA National Study of Substance Use Habits of College Student Athletes (2018) found males had higher substance use in the last year reporting, except for general alcohol use with 79% of females and 76% of males reporting alcohol use in the last year; but 44% of males and 39% of females reported binge drinking, 14% of males and 5.3% of females reporting cigarette use, 26.3% of males and 22.3% of females reporting

marijuana use (NCAA, 2018). Brenner and Swanik (2007) researched high-risk drinking (five or more drinks in on one occasion) in student-athletes which showed that males (81%) had significantly higher rates of high-risk drinking compared to females (67%); males (52%) also reported high-risk drinking on three or more occasions in the prior two weeks compared to females (34.5%). Results of a study examining student-athletes substance use reported 54% of males and 39% of females reported binge drinking; and 28% of males and 25% of females reported marijuana use in the past two weeks (Ford, 2007). Along with gender differences in substance use, the data presents differences across race and ethnicity.

Race/Ethnicity Reporting in Student-Athlete Research

The NCAA National Study of Substance Use Habits of College Student Athletes (2018) uses eight categories of racial/ethnic backgrounds (see table 1) participants can choose from while other studies report this differently. Yusko and colleagues (2008) reported ethnic backgrounds using five categories consisting of Asian/Pacific Islander, Black, Hispanic/Latino, White/Caucasian, and Other/Multiethnic. Orsini and colleagues (2018) reported race using six categories that included White, Black, two or more races, Asian, Hawaiian or Pacific Islander, and American Indian or Alaskan Native. The inconsistency in the use of racial/ethnic categories, differences between race and ethnicity, definition of multiracial., and other factors makes it difficult for readers to compare these factors across studies. Research has provided evidence of differences in substance use by gender and racial categories but there has also been evidence of differences between sports teams and type of sport played.

The NCAA National Study of Substance Use Habits of College Student-Athletes (2018) found that there were differences in substance use by race/ethnicity (see table 1), with White student-athletes having the highest reported use of alcohol, cigarettes, and ecigs while participants identifying as multiracial had the highest rate of marijuana use; across all four categories, Black or African American had the lowest rates of substance use. Orsini and colleagues (2018) study of polysubstance use of first-year NCAA athletes presented White student-athletes (n= 2311) reported 45.5% alcohol use, 2.5% marijuana use, and 11.9% tobacco use; Black or African American participants (n= 331) reported 23.1% alcohol use, 1.8% marijuana use, and 4.9% cigarette use; and participants identifying as two or more races (134) reporting 38.2% alcohol use, 4.5% marijuana use, and 15.7% tobacco use.

Table 1

Race and Substance Use in NCAA.

	American Indian or Alaska Native	Asian or Asian American	Black or African American	Hispanic or Latino	Native Hawaiian or Pacific Islander	White	Multiracial	Other
N	262	574	4,089	1,527	230	16,664	708	325
Alcohol	72%	72%	59%	71%	67%	83%	78%	60%
Marijuana	24%	25%	20%	24%	24%	26%	28%	23%
Cigarettes	11%	11%	3%	8%	8%	13%	8%	11%
Ecigs	6%	10%	3%	6%	9%	10%	8%	7%

Data shows that Black or African American student-athletes have the lowest levels of self-reported substance use and White student-athletes have the highest rates, with the exception being the NCAA findings of marijuana use highest among participants identifying as multiracial. One area of confusion that must be acknowledged in substance

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use literature involving student-athletes, but not unique to just this population, is how race/ethnicity is reported.

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Team and Individual Sports

The NCAA reports 24 varsity sports, while the NAIA reports 27 championship sports, with some of those sports being individual sports while others are team sports (NCAA, 2020A). Team sports are those where a single player supports and is supported by teammates working together for an accumulative score and success depends on the group, where individual sports the individual is usually competing against their best score with success or failure falling on them not having a team to support the athlete's

performance (G4 Athletics, 2012). Brenner and Swanik (2007) study reported that high-risk drinking, defined as five or more drinks in on one occasion, was higher in team sport athletes at 84% compared to 57% of individual sports athletes with a significant difference (x^2(1, 750) = 59.87, p< .001). The NCAA National Study of Substance Use Habits of College Student Athletes (2018) data shows that in this sample there was not a noticeable difference in substance use in the last year between individual and team sports but there were differences when comparing sports in general with men's hockey having the highest level of alcohol use (93%) and women's track having the lowest (65%), men's lacrosse having the highest marijuana use (50%) and gymnasts having the lowest (15%), and men's lacrosse having the highest cigarette use (38%) and the lowest being gymnastics (1%). Ford (2007) reported from a study of substance use based on sport/team affiliation that men's baseball (64.6%) and hockey (75.4%) had the highest rates of binge drinking with soccer players (47.1%) and runners (40.9%) reporting lowest levels of binge drinking; hockey athletes reported the highest marijuana use (38.5%) and runners the lowest at (16.3%); for female athletes, soccer had the highest rates of substance use of binge drinking (46.9%), marijuana use (37.8%), and other illicit drugs (23%).

NAIA Substance Use and Abuse Survey

Though there is limited research around college athletics and student-athletes the literature has been growing over the last few decades. However, NCAA National Study of Substance Use Habits in College Student Athletes focuses solely on NCAA college student-athletes. In a review of participants in 27 journal articles, 16 that specified NCAA athletes, 10 reported using secondary data analysis of national surveys (i.e., NCAA data), while the remaining did not specify their sample population or the affiliation of athletic

organization of the student athletes. The lack of studies focused on the NAIA is a gap in

the literature, especially regarding investigation into risk and protective factors for

substance use which this study starts to explore.

CHAPTER III METHODS

The purpose of the NAIA Substance Use and Abuse study conducted by the BSU research team was to replicate the NCAA National Study on Substance Use Habits of College Student Athletes with the student athlete population of the NAIA. The NCAA study occurs every four years, across all three divisions. The study started in 1985 but no such study previously existed in the NAIA. In 2019, Dr. Russ Richardson, Former Director of Student Athlete Health and Wellness at the NAIA, reached out to Dr. Matt Moore from BSU to conduct the NAIA Substance Use and Abuse Study. Dr. Richardson reached out to Dr. Moore after a presentation on social work boundaries training given at the 2019 NAIA National Convention. Dr. Richardson stated that he wanted to do a replication study of the NCAA National Substance Use Habits of College Student Athlete for some time. The NAIA as the funding organization requested that Dr. Moore and his team, from here on out referred to as the BSU researchers, use the original NCAA survey instrument and set the minimum number of student athletes to complete the study at 2,400 participants. The BSU research study was conducted from June 2019 to April 2020 with data collection specifically taking place from September to November 2019.

There primary goal established by the BSU researchers and the NAIA for the original data collection was to collect data to disseminate the prevalence rate of substance use by NAIA student athletes to better understand the population and compare to the NCAA National Study of Substance Use Habits of College Student Athletes 2017 data (Moore and Abbe, 2021). The current study uses NAIA data from the NAIA Substance Use and Abuse Survey to explore potential risk and protective factors. Through utilizing secondary data analysis to conduct an exploratory evaluation of the following research

questions regarding student-athlete substance use, researchers' goal is to better understand contributing factors to student-athletes' usage.

Research Questions

This research study had three aims:

    1. To create a descriptive profile of the NAIA population and patterns of substance use across racial groups and academic institutions.

    2. To evaluate institutional factors and their impact on substance use that include public and private, institutional location, and religious affiliation.

    3.1. Investigate the relationship between first use of specific substances and current self-reported substance use.

    3.2 Identify risk and protective factors that relate to substance use between types of institutions, racial groups, and type of sport played.

<div align="center">

Research Design

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Sampling

    The BSU researchers conducted an exploratory study and utilized a cross-sectional., web-based survey to conduct the NAIA Substance Use and Abuse Survey. Eligible participants had to compete for an NAIA member institution during the 2019-2020 academic year. Participants also had to be 18 years of age or older. BSU researchers used a stratified random sampling procedure to identify student athlete participants. Stratified random sampling is utilized to reduce errors in sampling and increase reliability that variable values are proportionally represented (Lawson et al., 2019; Pedhazur & Schmelkin, 1991). Researchers began by dividing the NAIA student athlete population into smaller subgroups, or strata, based on sports available throughout

the NAIA. This included a stratum for each of the 26 sports with separate stratum for
each gender (and division level for basketball) (Table 2).

Table 2

NAIA Sport Participation in Study.

Female Sports		Male Sports		Coed Sports	
Sport	Number of Schools	Sport	Number of Schools	Sport	Number of Schools
Cross-country	14	Cross-country	14	Competitive Cheer	8
Soccer	14	Football	7	Competitive Dance	4
Volleyball	15	Soccer	14		
Basketball	16	Volleyball	4		
Bowling	4	Basketball	16		
Indoor Track and Field	10	Bowling	4		
Swimming & Diving	3	Indoor Track and Field	10		
Golf	11	Swimming & Diving	2		
Outdoor Track and Field	13	Wrestling	5		
Softball	13	Baseball	13		
Tennis	8	Golf	12		
		Outdoor Track and Field	13		
		Tennis	11		

Through stratified sampling, researchers broke down the population into
subgroups and randomly drew from each subgroup, which if sampled proportionally,
allows for more generalizability of results from the study participants to the general
NAIA population (Lawson et al., 2019; Pedhazur & Schmelkin, 1991). The research
sampling goal was to have an equal student-athlete percentage representation from each
sport. Each institution participating in a sport then received a random number.
Researchers selected random numbers to identify the member institutions that would
participate in the survey from each sport. This approach ensured all member institutions
participating in the various sports had an equal opportunity for inclusion in the survey.

Through the stratified random sampling 137 universities out the 255 member institutions had at least one team chosen to participate in the BSU research, and some universities had multiple teams in the study.

Sample Size

Sample size was guided by first deciding on the type of statistical test utilized for each research question. Due to the nature of each variable being nominal or ordinal., it was decided that Chi-Square and T-Tests were appropriate for this data analysis. G*Power is software designed to compute power analysis for a range of statistical tests, effect sizes, and create graph results of power analysis (Heinrich Heine Universität Dusseldorf, 2020). Using G*Power software, it was determined that to conduct a two-tailed independent sample t-test with an effect size of d = 0.2, $\alpha < 0.05$, and power 0.80, the total sample size would need to be 788 participants. Utilizing G*Power to estimate the sample size for multiple regression with an effect size $f^2 = 0.02$, $\alpha < 0.05$, power 0.80, and 15 predictors, total sample size needs to be 954.

Data Collection

The initial recruitment of participants started with a recruitment email being sent to the NAIA Athletic Trainers' Association (ATA) members. The recruitment letter explained that support for this study had been given by several organizations that included the NAIA, ATA, and Ball State University's Institutional Review Board (IRB). The letter stated the importance of the study, instructions for completing the study and data collection techniques, and the intended use of the collected data. This email was sent to all the randomly stratified sample institutions' athletic training staff and specifically identified which sports had been chosen at that institution to participate.

Researchers contacted athletic training staff at all NAIA member institutions with sports randomly sampled to assist in the data collection process. Utilization of athletic training staff was a deviation from the NCAA study. The NCAA used Faculty Athletic Representatives (FARs) for data collection. The NAIA does not utilize FARs in the same capacity as the NCAA. Thus, researchers believed athletic training staff would be more consistent in helping with data collection across NAIA institutions but was also seen as a limitation.

BSU researchers provided the athletic training staff with the list of teams from their institution for inclusion in data collection. Researchers also shared this information with the college or university Athletic Director to promote accountability and offer support for the athletic training staff. Researchers provided athletic training staff detailed instructions for data collection and a copy of the informed consent (See Appendix 1). Athletic training staff at 137 universities met with each of the selected athletic teams (n=258) and had the team complete the survey on one occasion in a classroom-type setting to attempt to standardize administration. Across the different teams and institutions, a total of 8,800 student athletes were invited to participate in the study. Of the 8,800 student athletes requested to participate in the study the BSU researchers along with the NAIA desired minimum number of participants (2,400) had established a minimum response rate of 27.3%. Researchers requested only the athletic training staff be present in the room with the athletes during survey completion which could have influenced student athletes to participate in data collection that would normally not have and/or influenced the answers provided by participants. The survey took approximately 15 to 20 minutes to complete and was conducted using Qualtrics. Student athletes needed

access to a computer or smart phone with Internet access to complete the web-based survey.

Qualtrics is a web-based corporation that provides services to companies, organizations, and academic intuitions around the world for survey design and data analysis (Qualtrics, 2020). Qualtrics is used by a large portion of universities that includes BSU. Qualtrics provides support in survey design and programming, sampling and sample recruitment, data processing, and data analysis and reporting (Qualtrics,2020), Qualtrics allows researchers to create web-based surveys that can be used on smart phones and computers anywhere in the world. Specifically, for the NAIA data collection, the BSU researchers turned off GEO-tracking, which is a feature in Qualtrics that tracks where the participant completed the survey. The GEO-tracking was turned off by the BSU researchers to increase anonymity of participants.

If athletic training staff had questions for the researchers, they were provided with all necessary contact information for the research team. Researchers also worked with athletic training staff to troubleshoot any problems throughout data collection. Researchers worked with athletic training staff to verify their intentions for study participation. If a school declined participation, researchers had the ability to go back to their stratified random sample until the desired sample size was achieved. Researchers sent a series of reminders to the invited athletic trainers once every three weeks in a nine-week time span for a total of three reminders and were able to achieve a 28.3% response rate.

Instrumentation

Researchers used an edited version of the 2016 NCAA National Study of Substance Habits of College Student Athletes survey to design the NAIA Substance Use and Abuse survey tool (see appendix 2). Researchers minimally edited the survey to meet the needs of the NAIA around demographics and any additional questions the researchers deemed necessary by key stakeholders. Researchers removed two questions from the NCAA survey concerning the division played because the NAIA does not have multiple divisions like the NAIA does and membership of a fraternity or sorority as the NAIA did not see this question as relevant to their population. The NAIA survey added three questions about if an institution was private or public, if the university was faith-based or nonfaith-based, and geography of the institutional setting (rural, urban, suburban). The final version of the NAIA Substance Use and Abuse Study contained 31 questions with 124 variables.

The survey instrument was broken down into three primary sections: institutional and background information, substance use experience, and performance enhancers and dietary supplements. The first section included questions pertaining to demographics, sports questions, financial and living situation, and institutional information.

Section 1. Institutional and Background Information

Demographic questions asked participants if they played on a men's or women's team, what sport they played, academic year, race and ethnicity, age range (18 to 20, 21 or older), and if the participant had transferred schools. Gender was identified as being either on a men's team or a women's team and there is no specific question about gender or gender identity. Being there are two co-ed teams and no co-ed option on the team gender question can lead to missing or inaccurate data. The age range question had only

two options, "18-20, 21 or older". The use of age ranges was done because for legal substances (alcohol, nicotine products, and where marijuana where legal) the legal age of purchase is 21 or older; and all illegal drugs are banned no matter the participant age leading to all substance use under 21 was illegal and any use of illegal substances was a violation at any age. The use of the presented age range question is limiting in the ability to analyze data compared to if a ratio scale with a larger range of ages such as 18, 19, 20, 21, older than 21. Reviewing studies and literature of college student athletes the reporting of specific ages or age ranges is uncommon with researchers either not using age as a variable or using class standing instead of age though for substance use research knowing age could be very beneficial since class standings does not always support participants' actual age (freshman can be 21 for example).

Financial and living situation questions asked participants about how they pay for college, example; "Do you rely on the following to help pay for college? (mark all that apply)" with answer options of family contribution, personal contribution, Pell Grant, Need-based financial assistance, academic scholarship, athletic scholarship, loans. There were questions about who they currently live with, where they live, and questions about their academic institution. One example of living and institutional questions is, "Which of the following best describes the college or university you attend?" with response options of a public institution or private institution. There is also a question about their thoughts concerning possibility of becoming a professional or Olympic sport.

Section 2. Substance Use Experience

Section two on substance use experiences contained questions about substance use, first use, use during competition, frequency of use, and potential consequences experienced from substance use. As an example of a frequency use question is, "How often have you used, or do you currently use the following products? (mark one for each substance)" which include cigarettes, cigars, E-cigarettes, Hookah, and Spit tobacco. These frequency questions about use were reported on a six-point Likert scale (Never Used; Daily; Weekly; Monthly; In the last year; Used, but not in the last year).

The self-reported first use questions asked, "When did you <u>first </u>use the following substances? (Mark ONE for each substance)"; then lists 16 substances. Each listed substance history was reported on a four-point scale (Never used; Before High School; High School; College). A separate question asked participants to identify when they used substances specifically related to their competitive season, "Within the last year, when have you used the following substances <u>in relation to your competitive season</u>? (Mark ONE for each substance). Participants indicated use on a four-point scale (Not used in last year; Only during season; Only off season; and Both in and out of season) on 12 substances. Participants also answered questions related to reasons for quitting if they have substance use history or are still using, if they take specific substances before competitions, and amount and frequency of use (see appendix 2).

Section 3. Performance Enhancers and Dietary Supplements

Section three is specific to the use of performance enhancing drugs or dietary supplements. The first question asks participants to identify if they have taken any of the listed performance enhancing substances. The second question asks participants to

identify if they have taken any of the listed substances including sleep aids, vitamins, energy drinks and workout products, and weight loss products.

Validity & Reliability

The NCAA has not reported out in any of the publications using their data information about validity or reliability of measures they have calculated through analysis of their data sets. Furthermore, the survey used in both studies was specifically designed for use with the student athlete population with clear goals established by those organizations. The NCAA had specific data that was identified by their sports science professionals, health experts, and researchers that informed the creation of their survey. The NCAA did not use any known previously existing instrument that had been reported that could be looked at for reliability or validity on specific questions or sections.

Measurements

Composite Variables

Reviewing the original data set there was the ability to create composite and dummy variables to better analyze proposed research questions. The literature and previous research present evidence that alcohol, marijuana, and tobacco are the three most abused substances among student athletes. Through recoding the data set and upon reviewing the literature the NAIA substance abuse study the following questions were combined to create a composite variable of frequency of substance use: questions about cigarette, cigars, e-cigarettes, hookah, and spit tobacco use; questions about marijuana use through inhale, ingest, and applying to skin.; and the one question about alcohol use. All these substance use questions contained the same potential answers consisting of never used, daily, weekly, monthly, in the last year, and used, but not in the last year. The

creation of the composite variable from several single item variables allowed for the

creation of continuous variables that were used to analyze substance use across teams,

race, gender, grade, and institutional factors. Table 3 presents which specific questions

about specific substances currently used were converted into subscales of marijuana use

and nicotine use; and the creation of a global substance use scale combining alcohol,

marijuana, and nicotine use

Table 3

Scales and Subscales.

Questions Combine	New Scale Created	Range
Nicotine Subscale	Q15.1R: How often use cigarettes	5-23
	Q15.2R: How often use cigars	
	Q15.3R: How often use ecigs	
	Q15.4R: How often use hookah	
	Q15.5R: How often use spit tobacco	
Marijuana Subscale	Q16.1R: Marijuana inhale use	3-18
	Q16.2R: Marijuana ingestion	
	Q16.3R: Marijuana applied to skin	
Global Scale	Q15.1R: How often use cigarettes	9-39
Substance	Q15.2R: How often use cigars	
	Q15.3R: How often use ecigs	
	Q15.4R: How often use hookah	
	Q15.5R: How often use spit tobacco	
	Q16.1R: Marijuana inhale use	
	Q16.2R: Marijuana ingestion	
	Q16.3R: Marijuana applied to skin	
	Q19R: How often use alcohol	

Nicotine use. There were multiple composite variables designed to evaluate

substance use; questions asking about nicotine use from the survey asked for respondents

to answer if they had used this substance as; never, daily, weekly, monthly, in last year,

used not in the last year. This was recoded to a new variable ranging from; never, not in

last year, in last year, monthly, weekly, daily. The recoded variables allowed for data to

be analyzed from lowest usage (never) to highest frequency of use (daily) on a scale from

70

1-6 range. Reliability was adequate (α = 0.72) for the measure of nicotine use in the current sample.

Marijuana use. Questions about marijuana use from the survey was original designed with responses about use ranging from; never, daily, weekly, monthly, in last year, used not in the last year. This was converted to a new variable ranging from; never, not in last year, in last year, monthly, weekly, daily (1-6 range). This allowed for data to be analyzed from never lowest score to highest most frequent use. When recoded into subscales and global scales this new system would allow for better data analysis. Reliability for the measure of marijuana use (α = 0.69) was adequate in the current sample.

Alcohol use. There was one question about alcohol use in the survey designed with responses ranging from; never, daily, weekly, monthly, in last year, used not in the last year. This was converted to a new variable ranging from; never, not in last year, in last year, monthly, weekly, daily (1-6 range). This allowed for data to be analyzed from never lowest score to highest most frequent use. When recoded into subscales and global scales this new system would allow for better data analysis. New questions coded using original data point with an "R" after original question label in SPSS. Alcohol use was a stand-alone question and could not be used to create a unique alcohol subscale.

Data Analysis

IBM SPSS statistical version 25 was utilized to analyze data and test research questions. Qualtrics has an export function available through its software to import data into SPSS. The first step upon transferring data to SPSS was to clean the data set. After the data was placed in SPSS by the BSU researchers the data was analyzed for missing

variable data. Due to the low number of participants with missing data it was decided to identify missing variables by coding missing data with 99. The secondary data set provided by the BSU researchers for analysis for this project had already been cleaned.

Had the secondary data set not been cleaned or researchers had collected primary data there are different ways that data could be cleaned. Missing data could be evaluated and handled through either the substitution imputation of the variable or listwise deletion. Using listwise deletion, subjects with missing data are removed from the study as long as too many participants are not removed from the study to affect the study (Lawson et al., 2019; Meyer et al., 2017). Listwise could be used if participants are missing multiple data points or did not respond to important information for data analysis (race, ethnicity, gender, etc.) and that participant and all their data would be removed from the data set. But if removing of participants would drop the data analysis pool below the established minimum response rate or number of participants than another method would need to be deployed. For those missing three or less data points or if listwise deletion would impair desired response rates than missing data would be handled through data substitution.

Substitution imputation uses the mean on the specific variable for all participants as the response for missing variables in the data set, but this can skew data if too many individuals are missing responses to the same variable (Lawson et al., 2019; Meyer et al., 2017; Tabachnick & Fidell, 2013). Educational studies commonly have 15% to 20% rates of missing data with listwise deletion being used in 97% of studied evaluated that contained missing data (Dong & Peng, 2013). With 15% to 20% being common among studies involving educational settings, anything over 20% of participants having to be

removed or specific items are not answered then the instruments will be reviewed to decide if the entire question should be removed. If early survey results show multiple missing data points, then the electronic survey will be evaluated to ensure the measurement tool is working properly.

Analytic Plan

Preliminary data analysis was conducted on all variables, categorical and continuous. Descriptive statistics were used because one of the aims of this study to develop a descriptive profile of substance use. More specifically, the sample composition was examined by gender, race, ethnicity, academic year, and sport participation. To develop a profile of substance use through distributions among groups data analysis start by using cross tabs then test the differences through utilization of Chi-Square tests. Descriptive statistics were examined on categorical variables to evaluate frequency, answer percentages, and evaluate if data is missing or skewed responses; then conducted on continuous variables to analyze means, standard deviations, skewness, and kurtosis (Lawson et al., 2019; Meyer et al., 2017; Pedhazer & Schmelkin, 1991). For data that showed skewness or kurtosis, further analysis was conducted to view distributions across charts, diagrams, and bell curves in SPSS to identify the issue. If data did not meet the assumptions of previously selected test, then alternative statistical tests were selected.

Statistical Tests and Assumptions

The statistical tests utilized for this study had certain assumptions and limitations that had to be identified. The Chi-Square is a test of differences/association for variables at the nominal or categorical level with two assumptions; first no more than 20% of the expected frequency can be under five and second no individual observed frequency can

be less than one (Lawson et al., 2019; Tabachnick & Fidell, 2013). When the X^2 is small than the relationship between the two variables is independent and the researcher accepts the null hypothesis but when the X^2 is large than the variables are related, and researchers should reject the null hypothesis (Tabachnick & Fidell, 2013).

The T-Test or One Way Analysis of Variance (ANOVA) is a parametric test used for nominal level independent variables (IV) and interval/ratio dependent variable (DV) with multiple assumptions; first is normal distribution but the test is robust (which does not require strict normality as other tests) long as the groups are approximately equal size, second there must be homogeneity of variance between populations but this can be violated if the groups are large but equal size groups, finally at least 20 per group (Lawson et al., 2019; Meyer et al., 2017).

The Kruskal Wallis test is a non-parametric test of mean ranks that can be used when the assumptions for a One-Way ANOVA are not met (Lawson et al., 2019; Meyer et al., 2017). Lawson and Colleagues (2019) state that the Kruskal Wallis is used for nominal IV and ordinal DV that have relatively equal groups. Assumptions of the Kruskal Wallis test are first that the sample is random, two observations are independent, and three the DV is at least ordinal; unlike ANOVA there does not need to be a normal distribution or equal variance across groups (Lawson et al., 2019; Statistics Solutions, 2021).

Linear Regression and Multiple Linear Regression utilize interval/ratio predictor IV's and interval/ratio predicted DV's (Darlington & Hayes, 2017; Lawson et al., 2019; Pedhazur & Schmelkin, 1991). Regression modeling can be conducted on nominal and

categorical variables but requires them to be recoded into dummy variables that allows the legitimate use of dichotomous variables (Darlington & Hayes, 2017).

Dummy Coding

Dummy coding is used to convert nominal and ordinal variables into dichotomous variables for use in linear regression analysis (Geert van den Berg, 2020). Dummy coding was conducted for: academic standing (Q3), how do you describe yourself (race/ethnicity) (Q4), with whom do you currently live (Q9), and which of the following best describes the college or university you attend (Q19). The use of dummy coding for this secondary data analysis allowed the researcher to conduct linear regression in relations to each substance reportedly used by participants, composite variable of substance use, individual consequences, and composite variables of consequences from substance use, and other potential variables of interest.

Linear Regression models requires variable relationships to be linear, observations must be independent, and there must be normalcy of distribution for the predictor IV's (Darlington & Hayes, 2017; Lawson et al., 2019). To conduct multiple linear regression testing on substance use and across different groups dummy coding was used. Using multiple linear regression allowed researchers to control for other variables in the model and it allowed for the inclusion of categorical variables and/or continuous independent variables (Darlington & Hayes, 2017).

Table 4

Research Questions, Variables, and Statistical Tests.

Research Question	IV	DV	Statistical Test
RQ.1 To create a descriptive profile of the NAIA population and patterns of substance use across racial groups and academic institutions.	NAIA participants demographics and institutional setting	Substance Use	Descriptive statistics, Chi-square, Kruskal-Wallis
RQ.2 To evaluate Institutional factors and their impact on substance use that include public and private, institutional location, and religious affiliation.	NAIA participants first use of specific substance	Substance use	Chi-square, Kruskal-Wallace
RQ.3 1. Investigate the relationship between first use of specific substances and current self-reported substance use2. Risk and protective factors that relate to substance use between institutional traits, racial groups, and sports.	NAIA participant sport played and future sports participation beliefs	Substance use	Multiple Linear Regression

Family-wise Error Rate and Alpha Value

In the data analysis of this study the researchers conducted 15 separate statistical tests and because of this it important to evaluate the potential for Family-wise Error Rate (FWER) which has the potential of a false positive of a hypothesis or Type I Error. To evaluate the FWER researchers used the Bonferroni correction of $\alpha = .05$, equation of $.05/15 =$ new $\alpha = .003$ (Pedhazer & Schmelkin, 1991; Watkins, 2021). The Bonferroni correction would establish that any p value above .003 was not significant. Bonferroni is a very conservative measure for protection against Type I Errors. There are scenarios where a Type I Error can be acceptable such as exploring whether an intervention has positive effects which may support accepting an error in the early stages of exploratory research if no harm would be incurred (Meyers et al., 2017). Because of the exploratory nature of this secondary data analysis the researchers acknowledge the concerns about FWER, but also noting the conservative rate of the Bonferroni correction, decided to

continue the utilization of the $\alpha = .05$. The decision on alpha was supported by the current

study being exploratory in the fact the analysis conducted had not been attempted before

by the NCAA or NAIA that was found in any publication.

Ethical Consideration

Student athletes and athletic organizations are constantly faced with publicity and

media attention, which requires researchers to take great precautions to protect identities,

participant data, and research records (Weaver & Reynolds II, 2020). Anonymous

surveys are utilized in effort to protect participant data. The protection of participant

information in this study is critical because if the data were made public, or individuals

could be identified to self-reported substance use, it could negatively impact their athletic

participation. NCAA (2018) reported that 33% of participants in the substance use study

received Pell Grants. Forfeiting Pell Grants or other financial aid because of removal

from athletics if substance abuse was revealed could have lasting negative impacts on

participants. Social workers can provide a positive environment to promote treatment and

services for substance use, as well as other mental health disorders that focus on

resolving concerns through strength-based approaches (Gill, 2007).

CHAPTER IV RESULTS

This study sought to answer three research questions related to NAIA student athlete substance use. This chapter provides results of the secondary data analysis from the first NAIA Substance Use and Abuse Survey.

Research Question One

Sample Population

A total of 2489 student athletes completed the NAIA Substance Use and Abuse Survey. Of the sample population 1274 men's team players (51.2%) and 1215 (48.8%) women's team players responded to the survey. The survey condensed age to two categories, 18 to 21, with 1673 (67.2%); and 21 or older with 813 (32.7%). Participant academic standing was comprised of 847 (34%) first year, 575 (23.1%) sophomore, 568 (22.8%) junior, 469 (18.8%) seniors, and 21 (0.8%) graduate students. The racial/ethnic background reported by participants presented a diverse population (see figure 1). The race/ethnic background was condensed into four categories with 1419 (57%) White, 404 (16.2%) Black or African American, 419 (16.8%) Hispanic/Latino, and 247 (9.9%) other race/ethnicity.

Figure 1

Race/Ethnic Background of NAIA Participants.
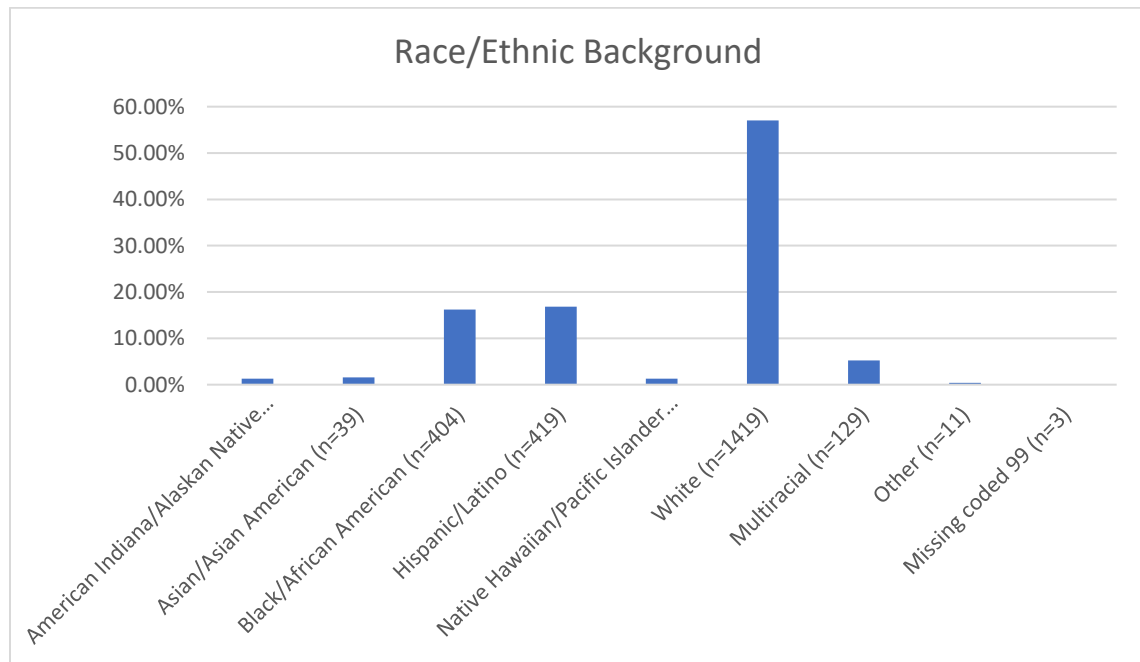
Evaluating the study population by race/ethnicity and gender presents data that Black females are not equally represented in the study. The study population included 651 (26.2%) White males and 768 (31.6%) females, 273 (11%) Black males and 131 (5.3%) females, 226 (9.1%) Hispanic males and 193 (7.8%) females, 124 (5%) male other race/ethnicity and 123 (4.9%) females. There are less than half the number of Black females in the study compared to a more equal distribution of the other three racial categories. In a conversation with an NAIA Athletic Director, researchers learned that the NAIA does not currently collect or report data on student-athletes race or ethnicity (J. Glover, personal communication, April 8, 2021). Without data from the NAIA on the overall student athlete population race/ethnicity, it is not currently possible to evaluate if the racial/ethnicity of participants in the study mirror that of the entire population.

Figure 2 presents a breakdown of sport played. Football had the largest number of participants with 449 (18%) and the lowest was lacrosse with 22 (0.9%). For data analysis sport played was condensed down two categories of individual sport 866 (34.8%) and team sport 1623 (65.2%). The condensing of the sports category was supported by previous research that evaluated athlete's behaviors and substance use based on participation in individual versus team sports. These two groupings are common in research because of the different approaches to coaching, training, and psychosocial impact on athletes (Pluhar et al., 2019; Van de Pol et al., 2015).

Figure 2

Sports Played by Study Participants.
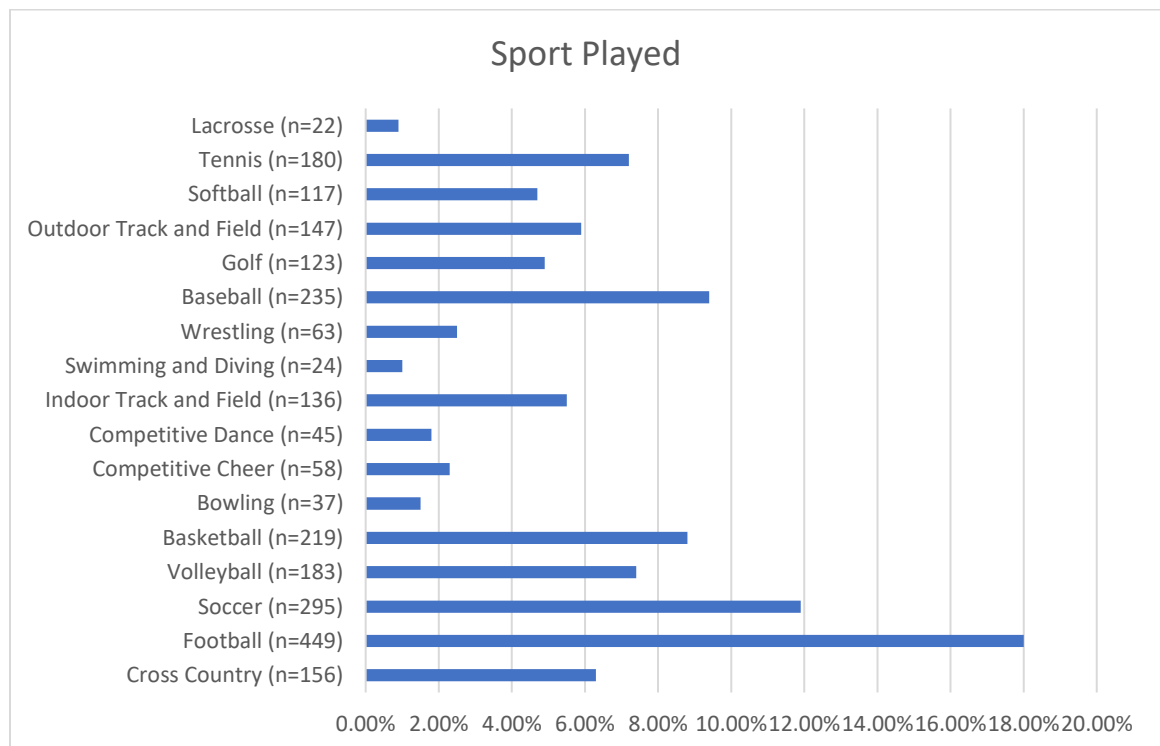
Black or African American Reported Substance Use

   To examine the relationship between Black student-athletes reported substance use in relation to institutional factors two tests were conducted specifically on participants that identified as Black or African American. The first test conducted was a Kruskal-Wallis test to examine self-reported scores on the global substance abuse scale and if the student-athlete reported attending a public or private institution. The Kruskal-Wallis test was chosen because the data did not meet the assumptions required for a parametric test. The data showed a mean rank for public institutions of 218.86 (n=59) and a mean rank for private institutions of 196.13 (n=339). The results were not significant; $X^2 = 2.36$, p < .124. These results suggest there is no significant difference in substance use between public and private institutions.

   The second test conducted was a Kruskal-Wallis test to examine self-reported scores on the global substance abuse scale and if the student-athlete reported attending a faith-based or non-faith-based institutions. The Kruskal-Wallis test was chosen because the data did not meet the assumptions required for a parametric test. The data showed a mean rank for non-faith-based institutions of 190.93 (n=59) and a mean rank for faith-based institutions of 248.73 (n=339). The results were significant; $X^2 = 15.285$, p > .001. Contrary to the findings related to public and private institutions, there was a significance found between non-faith-based student-athletes having higher means rates of substance use compared to those at faith-based institutions.

Gender and Substance Use

Participants were asked to identify how frequently they use specific substances on a 6-point scale from Never Used to Daily; 1: never used, 2: used, not in last year, 3: in last year, 4: monthly, 5: weekly, 6: daily. The data on frequency of use on specific substances, gender, and age was evaluated. Table 5 shows that female participants had lower mean scores on all substance use with the exceptions of hookah use, which was the same as males, and marijuana skin use which was higher for females. Mean scores based on age found that individuals 21 and up had higher means on all substance use compared to those aged 18-20.

Table 5

Gender and Age Means and Standard Deviation of Substance Use.

	Male *M* (SD)	Female *M* (SD)	18-20 *M* (SD)	21 and Up *M* (SD)
Alcohol	2.6 (1.6)	2.4 (1.5)	2.2 (1.4)	3.2 (1.6)
Cigarette	1.3 (.75)	1.1 (.45)	1.1 (.57)	1.3 (.72)
Cigar	1.4 (.80)	1.1 (.42)	1.2 (.57)	1.4 (.81)
E-Cig	1.7 (1.5)	1.4 (1.1)	1.5 (1.2)	1.8 (1.5)
Hookah	1.2 (.70)	1.2 (.47)	1.1 (.45)	1.3 (.81)
Spit Tobacco	1.6 (1.3)	1.0 (.21)	1.2 (.77)	1.5 (1.3)
Marijuana Inhale	1.5 (1.1)	1.4 (.92)	1.4 (.95)	1.6 (1.2)
Marijuana Ingest	1.3 (.72)	1.2 (.56)	1.2 (.55)	1.4 (.81)
Marijuana Skin	1.1 (.62)	1.2 (.69)	1.1 (.59)	1.2 (.78)
Global Scale	13.6 (6.2)	11.9 (3.9)	11.9 (4.4)	14.6 (6.3)

The researcher conducted a stepwise multiple regression analysis to estimate a regression model that best predicts levels of gender and age. Prior to conducting the regression, the researcher generated several descriptive statistics and graphs to test assumptions, including normality of distributions, linear relationship between gender and age, normality of residuals, homoscedasticity, and multicollinearity. Measures of skewness and kurtosis, histograms, and Q-Q plots showed the shapes of the distributions of gender and age approached that of a normal curve.

Pearson's correlation coefficients and scatterplots showed a linear relationship age and gender. In addition, inspections of both the histogram and the normal probability plots of the residuals indicated the errors were normally distributed. Moreover, inspection of the scatterplot of predicted scores against the residuals confirmed the data set met the assumption of homoscedasticity. Finally, evaluation of the correlation matrix and both VIF and tolerance values showed no multicollinearity existed among the factors. A multiple regression model was conducted to examine the effect of gender and age, and the interaction of gender and age on substance use utilizing the global substance use scale.

Gender was dummy coded with female being the reference variable. Age was dummy coded as well with 21 and above being the reference variable. The overall model was significant F (2, N=2461) = 103.13, $p < .001$, R^2 statistic .077, adjusted R^2 statistic .077. The results present that the current model can account for 7.7% of the variance. Table 6 presents the statistical information from the multiple linear regression for gender and age.

Table 6

Effects of Gender and Age on Current Substance Use

N=2460	*β*	*Unstandardized β*	*Std. Error*	*t*	*p*	*Partial Correlation*
Male	.151	1.588	.204	7.778	.001	1.55
18-20	-.221	-2.480	.218	-11.375	.001	.224

There was an observed interaction between gender and age which was further analyzed using a multiple regression model. To test this an interaction variable was created by combining gender and age. The overall model was significant with the addition of the interaction of gender and age $F(3, N = 2460) = 77.56$, $p < .001$, R^2 statistic .086, adjusted R^2 statistic .085, presenting that with the interaction the new model accounts for 8.5% of variance. As presented in figure 3, there is an interaction between gender and substance use which presents that as males age over 21 there is a significant increase in their reported substance use compared to women which does not show a significant increase in reported substance use after turning 21. As seen in Table 7 the results still support that male student athletes have a significant increase in substance use from 18-20 to 21 or Older compared to their female counterparts (see figure 3).

Table 7

Multiple Linear Regression for Gender and Age with Variable Interaction.

N=2460	*β*	*Unstandardized β*	*Std. Error*	*t*	*p*	*Partial Correlation*
Male	.290	3.052	.359	8.501	.001	.170
18-20	-.117	-1.312	.321	-4.089	.001	-.234
Gender*Age	-.192	-2.154	.436	-4.945	.001	-.051

Figure 3

Current Substance Use and Age.
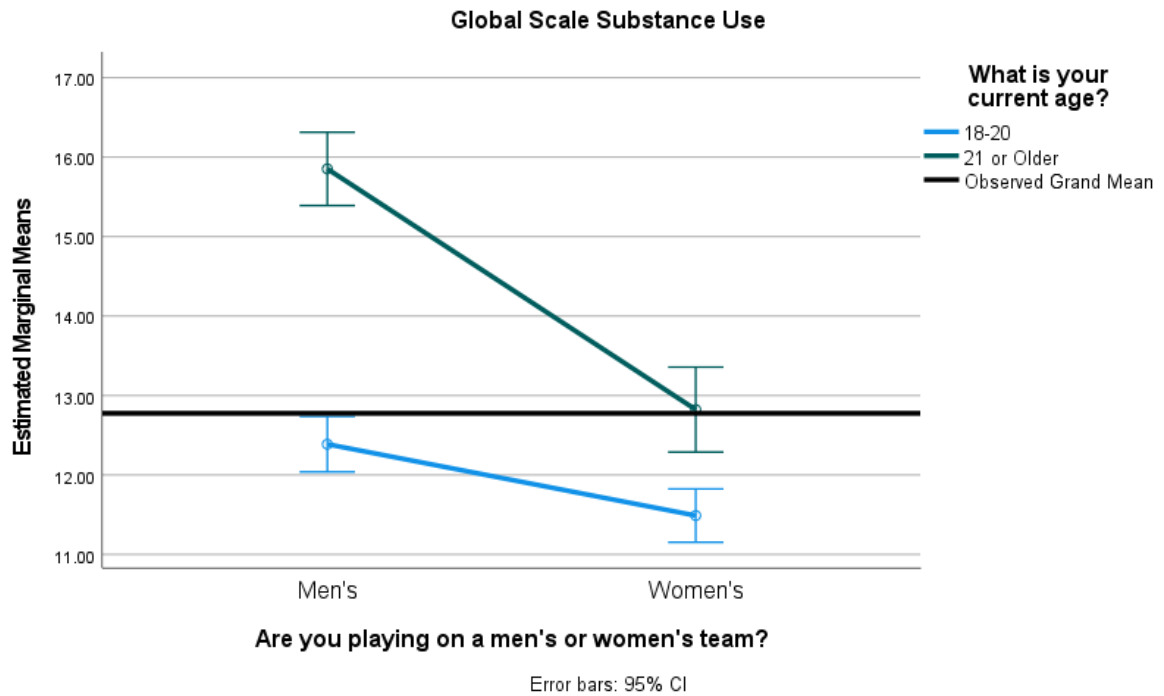
Alcohol Use

Current alcohol usage and amount of alcohol consumed in one sitting was analyzed. The variable of how many drinks do you have in one sitting was recoded into a new variable of binge drinking with two levels; the first was one to four drinks and the second was five or more drinks in one sitting. Of those that reported binge drinking there was 12% who reported doing it monthly and 8% who reported binge drinking weekly. The results can be seen in Table 8. A Kruskal Wallis test was conducted to further analyze current alcohol usage and binge drinking. The Kruskal Wallis test was performed to analyze for differences of binge drinking based on reported current alcohol usage. The mean rank for one to four drinks in a sitting was 1265.20 and 1205.66 for five or more drinks in a sitting. The results were significant $X^2(1) = 4.342$, p = .037. The data shows

that students who report alcohol consumption more are having four or less beverages per sitting.

Table 8

Student-Athletes Reporting Alcohol Consumption and Binge Drinking.

(N=2488)	1-4 Drinks in a sitting	5 or more drinks in a sitting
Never	652	480
Used, not in last year	106	25
In last year	404	62
Monthly	288	105
Weekly	166	173
Daily	7	20

Research Question Two

Institutional Factors

Many respondents reported attending a private institution (82.8%) compared to those attending public institutions (16.6%). The distribution of participants at private and public institutions mirrored the NAIA's reported institutional numbers of 205 being private schools (82%) and 45 public institutions (18%) (NAIA, 2021A). Most participants reported their school as faith-based (76%) compared to non-faith based (23.6%). Distribution between faith based and non-faith-based institutions was skewed towards faith-based institutions numbering 164 (65.5%) of NAIA institutions and 86 (34.4%) non-faith based (NAIA, 2021A). There was a fairly equal distribution of institutional settings with (34.7%) rural., (27.4%) urban, and (37.6%) suburban. Table 9 shows the distribution by gender and racial background across institutional variables.

Table 9

Institutional Settings and Race/Ethnicity.

	Male	Female	White	Black	Hispanic	Other
Public	239	175	275	62	40	37
Private	1031	1030	1134	342	375	210
Faith Based	994	897	1010	345	346	190
Non-Faith Based	272	316	404	59	68	57
Rural	416	448	521	142	124	77
Suburban	504	432	520	141	160	115
Urban	353	329	371	121	135	55

Participant's data showed that 326 (79.3%) attending public institutions received education from their schools about NAIA banned drugs and/or supplements before participating in sports compared to 1584 (77.1%) attending private institutions. The findings suggest that over 20% of student athletes participating in the study did not receive training about NAIA banned substances and/or supplements.

When specifically looking at marijuana laws for the institutions attended, 382 (15.3%) reported their state had both legal recreational and medical marijuana, 397 (16%) reported medical marijuana was legal., 1159 (46.6%) reported marijuana was illegal., and 551 (22.1%) did not respond. A Kruskal-Wallis test was conducted using the marijuana subscale and marijuana laws of the state in which the participants educational institutions. The Kruskal-Wallis test was chosen because the data met the assumptions for the test with the DV (marijuana subscale) was ordinal or continuous, the IV (marijuana laws: legal for medical and recreational., legal for medical., not legal., or don't know the laws) was nominal\categorical., and each response was independent of other responses from

participants (Elliott & Woodward, 2007; Laerd Statistics, 2021; Lawson et al., 2019). The test found no significance between these two variables $X^2(3) = 3.29$, p = .19. The results present evidence that marijuana laws are not related to usage in the study population.

Institutional Factors and Substance Use

An analysis of substance use between public vs. private institutions found 59.4% of students at public institutions had substance use in the last year compared to 49.5% at private institutions. A significantly higher number of public institutions students showed substance use in the last year, χ^2 (1, N = 2475) = 13.604, p < .001. The Cramer's V coefficient was small at .07 and significant at p < .001.

When analyzing substance use between faith based and non-faith-based institutions the data showed faith-based institutions had lower substance use in the last year 46.6% compared to 66.3% use at non-faith-based institutions. Utilizing a Chi-square, the findings between faith-based and non-faith-based use were significant, χ^2 (1, N = 2479) = 69.567, p < .001. The Cramer's V coefficient was small at .17 and significant at p < .001.

Furthermore, 55.1% substance use in student athletes occurred in rural settings, 43.0% among urban settings, and 54% use in suburban settings. Students in urban settings had a lower level of substance use compared to rural and suburban settings, χ^2 (2, N = 2482) 26.59 = p < .001. The Cramer's V coefficient was small at .10 and significant at p < .001.

When evaluating substance use based on receiving education regarding banned drugs and/or supplements before beginning participation in sports there was no

significant differences between those who received education and those who did not on substance use, X^2 (1, N = 2480) = .707, p = .40.

Living Conditions and Substance Use

An analysis using Chi Square was conducted for whom the student athlete lives with (live alone, with parent or significant other, with teammates or other student athletes, mix of athletes and non-athletes, other students not athletes, and with other non-students) and substance use with in the last year (yes/no) presented data that participants living alone (see figure 4), with other teammates/student athletes, and those living with non-students have the highest rates of substance use, χ^2 (5, N = 2487) 50.839 = p < .001. The Cramer's V coefficient was moderate at .14 and significant at p < .001. The highest rate of use was among student athletes living with other teammates or student athletes.

Figure 4

Whom Do You Live With?
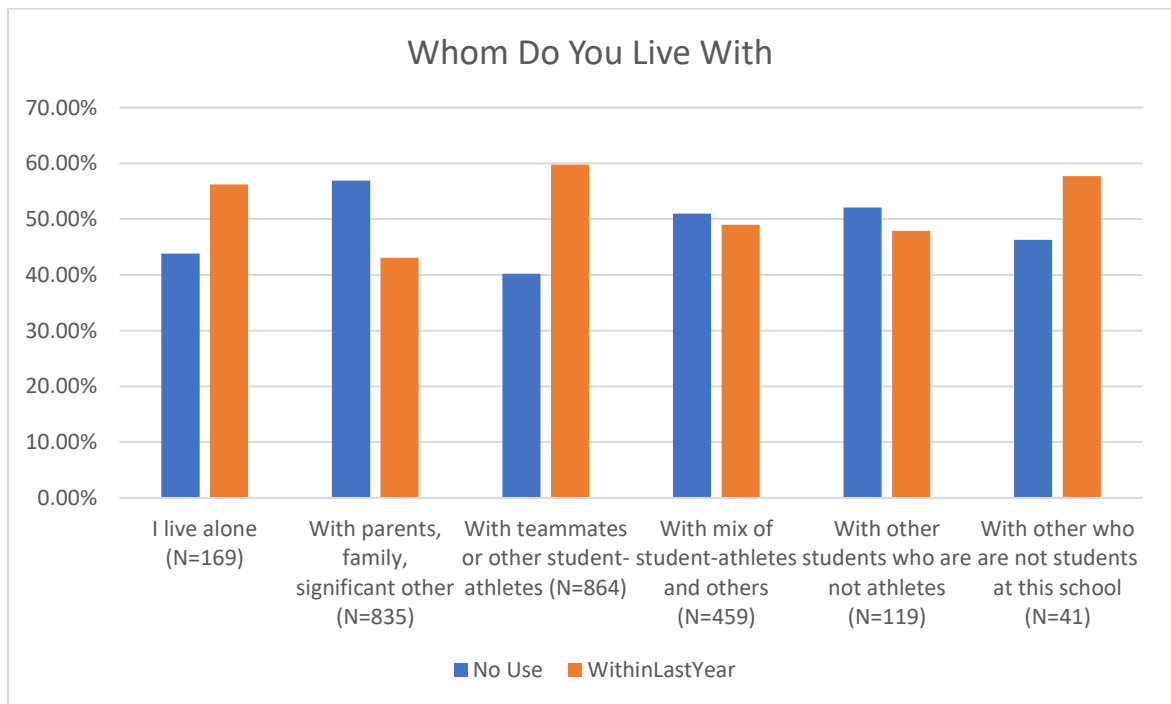
Research Question Three

First Use and Current Usage

To evaluate first use of specific substances as a protective or risk factor for current substance use data was evaluated using Kruskal Wallis Tests. The Kruskal Wallis test was the most appropriate for evaluation of these variables as the DV of current substance use was an ordinal level and the IV of first usage was a nominal variable (Elliott & Woodward, 2007; Laerd Statistics, 2021; Lawson et al., 2019). For both the DV and IV variables those participants that reported never using the specified substance were not included in data analysis.

A Kruskal Wallis test was conducted to analyze differences between first use of e-cig and current e-cig usage. The DV was a categorical level of first use of ecigs (before high school, high school, or college) and the IV an ordinal scale of current ecig use (used, not in last year, in the last year, monthly, weekly, daily). An analysis found that there was not significant difference between when an individual first used cigarettes and current cigarette usage. There was a difference found between first usage of ecigs and current usage with the mean rank for before high school was 211.66, high school was 222.21, and college was 259.71. The results were significant, $X^2_{(2)} = 9.16$; $p = .01$. The findings suggest that participants who first used ecigs before high school had the lowest rates of current usage. The lowest usage among individuals among before high school students may be related to the relative newness of e-cigs.

A Kruskal Wallis test was conducted to analyze differences between first use of spit tobacco and current spit tobacco usage. The DV was a categorical level of first use of spit tobacco (before high school, high school, or college) and the IV an ordinal scale of

spit tobacco use (used, not in last year, in the last year, monthly, weekly, daily). A difference was also found between first use of spit tobacco and current usage with the mean rank for before high school being 162.32, high school 109.12, and college 115.07. The results were significant $X^2_{(2)} = 22.34$; $p < .001$. The data suggests that participants that had spit tobacco use before high school had the highest current usage. The NAIA rates resemble rates of use by NCAA DII athletes with baseball (NAIA 39.1%; NCAA DII 44%) and football (NAIA 16.3%; NCAA DII 25%) having the highest rates of use but the NAIA reported numbers lower than that of their NCAA counterparts.

A Kruskal Wallis test was conducted to analyze differences between first use of alcohol and current alcohol usage. The DV was a categorical level of first use of alcohol (before high school, high school, or college) and the IV an ordinal scale of alcohol use (used, not in last year, in the last year, monthly, weekly, daily). There was a difference in first alcohol use and current alcohol use with the mean rank before high school 774.03, high school 665.90, and college 555.37. The results were significant $X^2_{(2)} = 22.34$; $p < .001$. The results suggest that the earlier that a participant started drinking alcohol the higher their current alcohol consumption.

A Kruskal Wallis test was conducted to analyze differences between first use of marijuana and current usage. This test was used because the sample sized were not equal and the homogeneity of variance was significant meaning that the assumptions for an ANOVA could not be met. The DV was a categorical level of first use of marijuana (before high school, high school, or college) and the IV the interval marijuana subscale. The results showed differences between groups with a mean score of first use before high school 366.29, high school 298.28, and college 296.41. The results were significant X^2

(2) = 9.92, p = .007. As with other substances, those who started marijuana use before high school had the highest rates of current usage.

Evaluation of Risk and/or Protective Factors

To better evaluate the factors effecting current substance use in student athletes a stepwise multiple linear regression model was conducted. The same process was completed for evaluation of assumptions as was conducted for the gender and age multiple linear regression. All variables presented in the model were dummy coded to fit the SPSS model for multiple linear regression.

The gender variable used female sports players as the reference group for male sports. The results show that males had a significant increase in substance use compared to female athletes. The age variable used 21 or above as the reference variable to 18 to 20. The results present evidence that younger student athletes have a lower use of substances compared to those 21 or older. Age findings support the evidence in figure 3 that there is a significant increase in substance use, specifically for males, in the 21 and older population. The multiple linear regression model supports earlier findings for gender and age interaction that there is a decrease in substance use for younger males and females. In relation to age, student academic level was added with graduate student-athletes being the reference variable. There was no significant difference on substance use at from freshman to graduate students.

Public institutions were compared to the reference group of private schools. The results provide evidence that public schools have lower substance use compared to private schools. As noted previously the NAIA is comprised of primarily private schools which could influence the results. Non-faith-based schools were used as the reference

group for faith-based schools. The provided evidence suggests that faith-based institutions and religion can offer a protective factor against substance use as faith-based institutions reported a significantly lower rate of substance use. Suburban institutions were used as the reference group for urban and rural institutions. The data showed that there were no significant differences related to substance use between urban, suburban, and rural institutions.

The next variable included in the model was whom the participant lives. The variable on living with non-students was used as the reference group for living alone, living with parents/family/significant other, teammate/other student athlete, mix of student athletes and non-athletes, and living with non-student athletes. None of the variables of whom the participant lives with were significant. The results do show though that of the data analysis, living with teammates/other student-student athletes the highest rate of current substance use though not significant when other variables are entered into the regression model.

The racial/ethnicity variable used white as the reference variable for Black, Hispanic, and other. Data revealed that Hispanic and Other racial/ethnicity categories had lower levels of substance use compared to the white reference category and these were significant. Black student-athletes reported substance use data revealed no significant difference in reported use in relation to the reference group. The next variable presented in the model used team sports as the reference for individual sports. Results provide evidence that individual sports had significantly lower levels of reported substance use compared to the team sports.

The final set of variables was about first experience of specific substance use. The substance variables added to the regression model included first substance use of alcohol, cigarettes, ecigs, spit tobacco, and marijuana. The first use of specific substances had four levels of never, before high school, high school, and college; never was used as the reference group and the other three variables were dummy coded. When these variables were added to the regression model through the stepwise procedure it changed the data significantly.

There were many variables before first use was added that showed significance values that lost significance one first use was added. Before adding the last set of variables related to first usage the model only accounted for 17.5% of variation in current substance use. As the findings below show the variation in current substance accounted for in the first usage variables was sizable. The overall model was significant $F (35, N = 2428) = 189.86$, $p < .001$. The main effects can be found in table 11. The R^2 was .732 and the adjusted R^2 for the model was moderately high (R^2(adj) j= 0.729, showing that the examined factors only account for 72.9% of variation in current substance use. The addition of first use of specific substances increased the variance by 55.4%. First use is a significant risk factor for current self-reported substance use.

Table 10

Effects of Independent Variables on Current Substance Use.

N=2447	β	Unstandardized β	Std. Error	t	p	Partial Correlation
Male	.065	.685	.212	3.237	.001	.066
18 to 20	-.020	-.224	.233	-.963	.335	-.020
Gender*Age	-.057	-.641	.245	-2.615	.009	-.053
First Year	.026	.293	.544	.539	.590	.011
Sophomore	.025	.312	.544	.573	.567	.012
Junior	.013	.158	.528	.300	.764	.006
Senior	.031	.410	.524	.783	.434	.016
Public Institution	-.028	-.392	.189	-2.076	.038	-.042
Faith-Based	-.078	-.961	.166	-5.787	.001	-.117
Location (rural)	.000	.001	.134	.009	.992	.000
Location (urban)	-.010	-.116	.142	-.818	.414	-.017
Living with (alone)	.000	.001	.482	.003	.998	.000
Living with (parent)	-.017	-.194	.444	-.437	.662	-.009
Living with (teammate/athlete)	.033	.367	.444	.828	.408	.017
Living with (athletes and non-athletes)	-.020	-.273	.452	-.604	.546	-.012
Living with (non-athlete students)	.007	.180	.503	.358	.720	.007
Race (Black)	.004	.058	.168	.344	.731	.007
Race (Hispanic)	-.024	-.333	.158	-2.105	.035	-.043
Race (Other)	-.024	-.431	.192	-2.241	.025	-.041
Individual Sport	-.033	-.369	.123	-2.997	.003	-.061
Alcohol Before Highschool	.124	2.677	.282	9.482	.001	.189
Alcohol High school	.149	1.634	.155	10.543	.001	.209
Alcohol College	.099	1.420	.175	8.102	.001	.162
Cigarette Before Highschool	.050	2.194	.598	3.670	.001	.074
Cigarette High school	.122	2.620	.260	10.077	.001	.200
Cigarette College	.107	3.132	.347	9.037	.001	.180
Ecig Before Highschool	.055	3.025	.638	4.740	.001	.096
Ecig High school	.239	3.717	.209	17.786	.001	.340
Ecig College	.220	4.534	.250	18.138	.001	.345
Spit Tobacco Before Highschool	.174	6.466	.482	13.426	.001	.263
Spit Tobacco High school	.165	3.481	.258	13.475	.001	.264
Spit Tobacco College	.115	3.849	.388	9.916	.001	.197
Marijuana Before Highschool	.116	3.584	.379	9.451	.001	.188
Marijuana High school	.176	2.519	.184	13.720	.001	.268
Marijuana College	.125	2.908	.269	10.816	.001	.214

CHAPTER V DISCUSSION

This study presents multiple significant findings from the secondary data analysis. This section presents the key findings for each research question.

Data analysis showed that Black females were underrepresented in the study population compared to Black males. To examine the race/ethnicity and gender data from the NAIA study population, it was compared to the race information provided by the NCAA for DII. The NCAA does not include ethnicity in their data reporting and only reports for white, Black, or other. For the overall DII population there were 38,399 (30.6%) white males and 34,186 (27.2%) female, 17,564 (14%) black males and 6,948 (5.5%), other male (13.1%) and 11,955 (9.5%) females. Unfortunately, the only real comparison that can be made from the available NCAA data is that in both populations black females are represented significantly less than their male counterparts.

The results of data analysis and substance use provided several important findings. Male student athletes reported higher rates of substance use on every substance except for marijuana skin usage with females reporting slightly higher rates and hookah tobacco use which was equal across genders. Though not examined through the current study there is one area of concern with the data on marijuana ingestion and marijuana skin use. Malone (2021), a professor in the College of Agriculture and Natural Resources at Michigan State wrote about how one-third of Americans believe hemp and marijuana are the same thing and a section of the population conducting internet searches to inquire if CBD will get them high. The distinction between CBD from hemp and marijuana could be impacting the reliability of those two variables in the study if participants did reported usage of marijuana but were actually taking CBD based products that do not contain

THC. The varieties of CBD currently provided on the market and legal across the United States come in gummies, oils, skin care products, creams, and pill forms which student athletes may mistake for ingestion/skin use of marijuana.

The results of the multiple linear regression analyzing gender and age on substance use found that males have a higher rate of use which significantly increases for those males 21 and over. The increase for males from 18 to 20 to 21 and above was significantly higher than the increase of use by females in the same categories. The results show the potential for interventions with male student athlete upper classmen could be utilized to attempt decreasing substance use in individuals 21 and older. Another factor that could be impacting the reported levels of substance use could be participants under 21 are displaying response bias or respondent effects.

Regarding alcohol and other substance use, respondents may not answer specific questions or respond in a manner that they believe makes them appear more acceptable or give a better impression of themselves (Creswell & Creswell, 2018; Pedhazeer & Schmelkin, 1991). The respondents in this study might have underreported, misrepresented, or just not responded to questions about their substance use that they felt represented them unfavorably or would negatively reflect on their team or athletic department. Though researchers sought to limit bias and response effect through anonymous design in the study development it still must be considered.

The data analysis of binge drinking with current reported levels of alcohol use showed that student athletes who drink less often are also reporting more incidence of binge drinking. These findings are consistent with data from the National Institute on Alcohol Abuse and Alcoholism (NIAAA). According to the NIAAA (2021), youth ages

12-20 years drink less often than adults, but 90% of alcohol use in youth is through binge drinking. Multiple factors could impact rates of binge drinking in student athletes. The schedules of athletes during the week are time consumed with events which could be reducing their drinking to weekends; these events include classes, practices, conditioning, games, meetings and more. The NAIA nor NCAA survey did not include a specific question about what days student athletes used substances which limits the further analysis of the binge drinking time frames.

There was a large portion (82.8%) of participants attending private universities, but these results aligned with the institutional make up of NAIA member institutions. Religious institutions were also a large portion (76%) of universities that participants attended. The majority of student athletes polled at both private (77.1%) and public (79.3%) universities reported receiving education about banned substances and/or supplements. The NAIA survey did not indicate if banned substance education was the NAIA's program or created by the athletic departments and did not indicate the format of said education i.e., virtual., recorded video, a written document, or in-person training. Nearly 500 participants report not receiving education on banned substances and/or supplements. Efforts to educate these student athletes, either at the institutional level or ensuring that individual athletes are attending these trainings, needs to be increased.

Marijuana laws for the state where participants' institutions are located showed no significant impact on use. Student athletes are subject to drug testing through the NAIA and their universities even if the states have legalized marijuana use. Consumption by student athletes may subsequently increase with continued increasing tolerance if they are under the impression there is more leeway to use in the off-season or during holiday

breaks without fear of exceeding the threshold. The implications could impact use in states with legalized marijuana though data from this study does not show a significant relationship between marijuana laws and increased usage.

Analysis of public and private universities found that participants at public institutions had significantly higher self-reported rates of substance use in the last year compared to those at private institutions. The same results were found between faith-based and non-faith-based institutions, with faith-based institution participants self-reporting significantly lower rates of substance use in the last year compared to their counterparts. Data supports that attending private and/or faith-based universities could be a protective factor for substance use and abuse. Specific to faith-based universities, the current results support previous findings that participants at religious institutions and with religious belief have lower substance use than those attending other types of institutions (Jennings et al., 2018; Moore, 2013).

Analysis of this data was taken further in the evaluation by specifically examining differences in private and public institutions, as well as faith-based and non-faith-based institutions, among Black or African Americans. For Black or African American student-athletes there was no significant difference in substance use between those attending public or private institutions. There was a significant difference in substance use between institutions. Those at faith-based who had lower reported rates of substance use compared to peers at non-faith-based institutions. Regarding faith-based institutions and substance use, the current findings support previous data that attending these institutions and/or personal faith-based beliefs are a protective factor against usage (Barry et al., 2017; Mahony, 2020; McCabe et al., 2007). Though not specifically a limitation, there was

some inconsistencies in the data related to who attended a public/private institution and those reporting attending a faith-based/non-faith-based institution; with some participants reporting attending faith-based public institutions of which there are none. Though the data does support prior research findings, further studies should be conducted on this area of interest and a review of the wording of those specific questions for clarity. There was not a question specific to if participants attended a PWI or PMI/HBCU.

There was a significant difference for individuals attending urban universities who reported lower rates of substance use than those at rural and suburban institutions. Though the findings were significant and suggest that urban settings could be a protective factor for decreased substance use and abuse, there is not enough data to equivocally make that determination. Factors that could be impacting these results that include urban settings having more activities for students to do in the community (stores, shopping, community engagement), law enforcement presence, different groups outside of fellow students to associate with, and more.

When evaluating the impact on with whom a student athlete lives and substance use within the last year, there was significant findings. The highest rate of use was identified as student athletes living with teammates or other student athletes. As discussed previously, peer-pressure and conformity to teammates behaviors can have a significant impact on substance use making living with other athletes a risk factor (Buckman et al., 2011; Graupensperger et al. 2018, Kremer & Levy, 2008; Ring & Kavussanu, 2017; Welsh et al., 2019). On the other hand, the lowest level of use was reported by participants living with parents, family, or a significant other supporting that these living conditions could be a protective factor against substance use and abuse.

The data suggests that living with other athletes and teammates can be a risk factor though current data does not provide enough evidence to make a stronger supportive argument. Data does suggest that athletic departments should work to promote relationships with students outside of athletics and that athlete only dorms, which some schools have, may not be the best environment to combat student-athlete drinking. The data promotes that student-athletes living on campus should house with a mix of athletes and non-athletes or for smaller dorm rooms to have non-athlete roommates.

The participants living with student athletes and teammates do report significantly higher rates of use than those in some other living conditions but there is no question or data points asking with whom the participants use substances. The lack of questions about who participants drink with limits analysis because they may live with one person or group of people, but their substance use is with a separate group. An example of this is that a student athlete may live with teammates but also be part of a fraternity or sorority with whom they attend social functions or parties with.

Analysis of cigarettes found no significant difference between when a participant first use and current usage. There was a significant difference found between individuals first use of ecigs and current usage that individuals who first used before high school had the lowest rates of current usage. That findings for ecigs though could be impacted by the newness of this form of nicotine use. In 2015, when the current study population was in high school or starting college, the Center for Disease Control observed ecigs exceeding reported conventional cigarette use among 8th, 10th, and 12th graders (Center for Disease Control, 2021). Further data collection and analysis among NAIA student athletes over the next few years could find that ecig usage could match other forms of nicotine use.

The final nicotine substance, spit tobacco, found that participants who started using spit tobacco before high school had the highest rates of current use. The findings for spit tobacco support the need for intervention with youth regarding spit tobacco use specifically, though all forms of nicotine use are important to address.

The results of analysis on first use of alcohol and current usage found that participants that started drinking before high school had the highest rates of current usage. The mean score difference between first use of alcohol before high school and for those in college was significant which supports the use of early intervention and education of alcohol use with youth before high school. Studies show that the impact of alcohol on the adolescent brain can cause serious damage to the brain leading to a smaller hippocampus compared to their non-drinking peers with lower levels of attention, language, math ability, and reading comprehension (De Bellis et al., 2019; Queensland Government, 2017). Addressing early alcohol use among athletes could improve brain health and educational attainment.

Marijuana data analysis of first use and current use presented the findings that participants whose first use was before high school had higher rates of current substance use. Though means scores of marijuana use were lower than alcohol use there was still a significant difference between those who first used before high school and college students related to current usage. Marijuana as with alcohol can impair adolescent brain development, reading and language comprehension, math ability, and attention (De Bellis et al., 2019). Early childhood intervention with student athletes could have an impact on use with data suggesting that practices that delay marijuana use till college would potentially decrease rates of current use of college age student athletes.

The impact of adding first usage of specific substances to the model observed prior to these variables being introduced that the model accounted for 17.5% of variation in current substance use but adding first usage significantly increased the overall model accounting for 72.9% of variance current substance use. The findings support that first usage of a substance has a significant impact on current usage and early usage is a risk factor for current substance use in NAIA student athletes. The current results support prior research that the earlier individuals use substances the higher their use in adulthood. The earlier substance use emerges is a strong predictor of later substance dependency that has been found with nicotine, alcohol, cannabis, and other drugs which has also shown a strong correlation with riskier drug behavior in adulthood with potential for the development of substance use disorders (Gil et al., 2004; Tillson et al., 2019). The evidence supports earlier statements about the importance of early substance use intervention with adolescent student athletes, even before high school. Though the most significant risk factor identified, there are other important results to be examined.

The multiple linear regression supported that gender and age had a significant impact on current substance use with males having higher use than females and individuals 21 and over having higher reported use than those 18-20. Academic year was not significantly related to current substance use, and this could be related to factors that were not measured in the current NAIA survey. There is a difference between the findings of the multiple linear regression and previously reported substance use at private vs. public universities which is due to the variable used. The previous test evaluated reported previous substance use in the last year which put individuals who had previously used substances but not in the last year and those who have never used into the same

category against anyone reporting use in the last year. The multiple linear regression utilized the global substance use scale which reported substance use differently than within the last year. Because of the use of a different variable the multiple linear regression presents that public institutions have lower overall current substance use compared to private schools at a significant level. One explanation for this difference is that more students at private universities may have used a substance previously but had not used that substance in over a year which changed the outcomes in the multiple linear regression. The difference between the two statistical tests possibly suggests that participants that had used substances prior to attending private universities stopped their usage but more data that was not collected in the current study is needed.

No significance was found for university location (i.e., rural., suburban, and rural) nor with whom an individual lived on current substance use. The findings in relation to university location could not be compared to previous findings as there was no literature found regarding these variables in relation to college and substance use. In relationship to race, white was the comparison variable for Black, Hispanic, and Other. In relation to current substance use there was not a significant difference between white and Black participants, but there was significance found between Hispanic and Other reporting lower rates of substance use in relation to their white peers. The results in the regression model do not support previous data that Black or African American student-athletes' rates of current substance use are not significantly different than their white peers. One possible explanation for the difference is that other studies break down substance use by type and not as a universal variable of current substance use. These findings could be better analyzed as the NAIA conducts more Substance Use and Abuse Studies within

their population for comparative analysis specific to their student-athlete population. The variables of race/ethnicity make further inferences difficult. Finally, there was a significant difference found between individual sports participants who reported lower levels of current substance use compared to their team sport peers. The results present evidence that individual sports could provide a protective factor in relation to substance use and abuse, but further research is needed to support the findings.

Summary. The research findings bring attention to important information regarding substance use among NAIA student athletes. An important fact in the data analysis was that more information is needed to make more generalizable statements regarding findings and the overall NAIA student athlete population. While early use led to significant increase in current substance use, with the highest increase in variance explanation, there were other factors that inevitably showed evidence of impacts in use. The data supports though that early childhood interventions and education programs, preferably supported by evidence-based practices, would have positive impacts on decreasing substance use in college student athletes.

Even without stronger evidence to generalize findings the data does support the need to review policies on student athlete just housing with other athletes or teammates. Exposing student athletes to a broader portion of the campus student body and promoting involvement outside athletics could have a positive impact on decreasing substance use. Though there is more data needed to further support this concept. Apart from stronger ties to the campus community there potentially needs to be stronger education on substance use incorporated into the current curriculum for banned substances and/or supplements. Noting that the study did not delve into the topic there maybe the need to

educate student athletes on the differences between Hemp and Marijuana products to better inform their choices. This is a two-fold purpose because some student-athletes may think they are using a marijuana product which they fear being caught that is actually a CBD product that is not banned, but also not all hemp-based products are THC free, and a student athlete could think they are using a safe product that causes them to test positive.

Regarding institutional factors the data there are a couple of highlights that should be explored further. The first is the difference between current and past use that appears to arise in the data. More information needs to be gathered on if student athletes at private institutions had higher rates of substance use before arriving at their institutions and if so, what made them stop or decrease use. Building of the previous statement, the data does support that private universities and faith-based institutions have lower rates of current substance use than public institutions. It would benefit universities and athletic organizations to analyze the potential factors influencing the decreased levels of use at private and faith-based institutions to see if policies, education programs, or other factors being employed could benefit public and/or non-faith-based institutions. The survey utilized and method of data collection of the original sample did have several limitations that have been identified.

Limitations

There are several limitations to this study. First, the study depends on participants self-reporting their substance use. Participants' responses to self-reporting should be taken with healthy skepticism because participants may want to present themselves in a favorable manor and provided data should be checked against other data for discrepancies

when possible (Bamberger et al., 2006). The impacts of response bias and respondent effects are hard to quantify but if the NAIA continues in the manner of the NCAA to conduct this study often it could build trust that decreases participants fears or anxieties of answering certain questions. Along with response bias and respondent effect come the utilization of athletic trainers to assist in dissemination the survey. Moore & Abbe (2021) acknowledged that student athletes have a lot of interaction with athletic trainers in the NAIA as they provide care to the athletes which may have impacted responses about substance use.

Another limitation is the restrictions of secondary data analysis. This study is limited to the range of questions created by the NAIA/BSU research team, and as a replication study, is limited to the original questions created by the NCAA. The study would have benefitted from researchers having distinguished race from ethnicity, added questions about negative effects from all substance use and not just alcohol, and made age a continuous variable instead of binary.

There are several limitations to the design of this question but an important one is that included in the BSU research study was competitive cheer and competitive dance which are both co-ed sports. Being there are two co-ed teams and no co-ed option on the team gender question can lead to missing or inaccurate data. The age range question had only two options, "18-20, 21 or older". The use of age ranges was done because for legal substances (alcohol, tobacco) the legal age of purchase is 21 or older and all illegal drugs are banned no matter the participant age. The use of the presented age range question limited the ability to analyze data compared to if an ordinal scale with a larger range of ages such as 18, 19, 20, 21, older than 21. Reviewing studies and literature of college

student athletes the reporting of specific ages or age ranges is uncommon with researchers either not using age as a variable or using class standing instead of age.

The NCAA study, and by extension the NAIA study, did not separate out race from ethnicity. The question is written as, "How do you describe yourself?"; and the responses are American Indian or Alaskan Native, Asian or Asian American, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, White, Multiracial., Other (please specify). Not separating race from ethnicity makes the data limited as individuals may identify as a specific race but also be identify as Hispanic or Latino\a creating a paradox for the participants to have to choose one identity over another.

Comparisons across other race/ethnicity factors between the NAIA study population and NCAA DII population were impacted because without the ability to distinguish those identifying as Hispanic the NCAA population could have reported themselves as white or other making both categories unreliable for comparison. The researcher contacted the NCAA Assistant Director of Research to obtain further data from the NCAA National Study on Substance Use Habits of College Student Athletes for better comparison but did not receive a response. The reporting of race and ethnicity are important factors to know when conducting data analysis. Race and ethnicity are important critical factors that are used to evaluate policies, funding, equality, and monitor compliance to laws and regulations (National Research Council, 2004; United States Census Bureau, 2021). One take away from this data collection, though not related to substance use and abuse directly, was the inconsistency of how data on race and ethnicity was collected at various levels. The lack of collection of racial and/or ethnicity data by

the NAIA on the general student athlete population made it more difficult to generalize findings of this study. The differences between race and ethnicity not being separated by neither the NAIA or NCAA made data analysis difficult as well because there are those that may have identified as both a specific race and ethnicity but because of the method of data collection had to choose one or the other. Though not restricting the other data analysis the race/ethnicity data limitations impacted better application of Critical Race Theory on the results.

Finally, there is a limitation to the study design itself that makes more in-depth analysis of factors impacting substance use and abuse difficult. The NCAA National Study on Substance Use Habits of College Student Athletes and the NAIA Substance Use and Abuse Survey were primarily used to collect descriptive and basic data on substance use habits of student athletes. The survey design does not gather much data for a more in-depth look at history of usage beyond first use, whom participants use with, policy/university factors impacting use, and more. Though this limitation does exist for examining factors influencing substance use the data does give researchers a starting point and inform paths for future research.

Future Research

An important note about the current study and the impact of the COVID-19 pandemic. The original design for the current study was to collect data on NAIA student athlete mental health, adverse childhood experiences, and stressors. Unfortunately, the impact of COVID-19 made the ability of collecting data from student athletes from March of 2020 and past June of 2021 and impossible task. Many of the athletic departments across college campuses in the United States were closed and even those

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participating in sports events their staff was working virtually/remotely with buildings closed. The inability to conduct research with student athletes limited researchers' ability to examine factors impacting the NAIA population. Thankfully there was the NAIA Substance Use and Abuse Survey that had been conducted in the 2019-2020 academic year that BSU and Dr. Matt Moore made available. Utilizing the secondary data set allowed for researcher to be conducted with NAIA student athletes and address a serious area of concern, that of substance use and abuse. This secondary data analysis presented evidence important to begin understanding substance use and abuse in the NAIA, but also exposed several areas for further research.

The topic of substance use and abuse with college student athletes needs to take a step back and apply a fresh look at the topic. This starts with designing and conducting research utilizing grounded constructivist theories of qualitative inquiry. The NCAA survey employed to collect data on substance use has been used for decades and review of older additions show little evolution in the tool (Green et al., 2001; NCAA, 2019; NCAA, 2020C). Utilizing proven methods of qualitative interviews with more generalized question guides around substance use, whom they first and currently use with, history, etc. to develop more refined quantitative surveys grounded in data.

The deployment of qualitative inquiry allows researchers to get a more in-depth and personal story through focused and flexible interviews to provide empirical evidence that can inform future study design (Chamaz, 2014; Creswell & Poth, 2018). Though the NCAA survey, and by extension the NAIA survey, appear to gather data on substance use there are gaps in the instrument that may not reflect or collect data vital to understanding trends or modern influences experiences by student athletes. Investing in qualitative

research could expand the knowledge of researchers, service providers, coaches, trainers, and athletic staff. By conducting qualitative research, the interviews and researchers can develop new survey instruments that reduce limitations existing in current surveys. The qualitative inquiry is an initial step in a larger research plan that would benefit student athletes, athletic organizations, and university athletic departments.

Another step for understanding substance use in student athletes is utilizing existing quantitative surveys to evaluate student-athletes experiences, mental health, and self-esteem. A great place to start would be research with NAIA student athletes utilizing the Adverse Childhood Experiences Survey (ACES). ACES have been linked to a variety of health problems including substance use, physical health issues, and negative mental health outcomes (Kaier et al., 2015; Karatekin, 2016; Zanotti et al., 2018). Student athletes come from a variety of backgrounds to universities which could have exposed them to violence, poverty, discrimination, and other experiences that impact their health (Carswell et al., 2009; Cooper et al., 2017; Gill, 2008). Research utilizing the ACES with NAIA student athletes would provide context for the developmental youth experiences of this population and provide evidence that could inform development of research that can focus on substance use related to youth development and impacts on current usage. Collecting of ACES data has the potential to inform other research into physical and mental health, as well as traumatic experiences.

Research needs to be conducted within the NAIA student athlete population regarding mental health. Mental health and stress have been associated with substance use through self-medication or addictive behaviors (Barry et al., 2015; Cimini et al., 2015; Jennings et al., 2018; Miller et al., 2002; Mousavi et al., 2021). Through studies utilizing mental health screening surveys researchers could identify self-reported rates on a variety of

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psychological disorders using such tools as the Patient Health Questionnaire-9 (major depressive disorder), Generalized Anxiety Disorder Screener, and the Perceived Stress Scale. The results of research using validated screening tools combined with results from ACES studies and qualitative research could potentially inform the creation of an in-depth substance abuse study. The results of such a study, especially if they validate and inform the finding of early substance use and current substance use, would provide support for the development and implementation of early student athlete-based interventions.

Future research and development of materials needs to take a stronger look at the incorporation of more inclusive language. The current surveys and data reporting limits the understanding of gender identity and/or sexual orientation of student-athletes. There needs to be more inclusive language beyond the do you play male sports or female sports. The expansion of questions regarding sexual orientation and gender identity do not just help research be more inclusive but provides more informative data for understanding the experiences of all student-athletes.

Integration of Social Work into Athletics

Social work is an eclectic discipline that incorporates teaching, theories, research methods, and approaches. It is the diversity of knowledge bases that make social work a unique field to integrate into athletics by deploying skills from anthropology, psychology, sociology, and criminal justice. A starting place for social workers in athletics is the study and understanding of athletic culture. As with the military in the United States, athletic teams and athletes share a lot of the same cultural aspects that include their own language/terminology, uniforms, a distrust of outsiders, and a bond between members. Sports and military share a lot of similarities that include training relentlessly, application of strategy, teams, rules, hierarchy, and thriving on aggression (Lawrence, 2017). In relation so substance use and abuse, social workers entering the world of athletics need to

understand the culture and dynamics of relationships that exist. This cannot be done just through researchers or academics showing up to athletic organizations to conduct interviews or collect survey data, but through interaction and participation with athletes. A tool of cultural anthropology, ethnography research involves the researchers to not only observe the behaviors, traditions, culture, and more but to be active participants in activities to build relationships and understanding of different groups (Brown et al., 2020). Social workers must become a common place in athletics and working with athletes to build trust across the athletic community.

One area that has seen an increase of social work around athletics has been with mental health and clinical work. There has been an increase in athletic organizations from college to professional sports hiring social workers to provide mental health services and work on interdisciplinary teams of health professionals. One example is Tish Guerin who was hired in 2018 to be the in-house clinical social worker for the Carolina Panthers (Constantinesco, 2018). The University of Michigan has a long history of incorporation of social workers and social work values in their athletic department that included Associate Athletic Director Greg Harden an MSW (University of Michigan, 2016). The incorporation of social workers into organizations allows the discipline to expand into athletics while promoting what practitioners can provide to athletes. Social workers bring a trauma informed approach to mental health practices and substance use concerns with the application of evidence-based practices that can be beneficial to student athletes. But the incorporation of social workers in clinical roles and access for ethnological research is dependent on the field of social work promoting sports social work.

The field of sports social work is not new in concept, but the creation of a professional organization and growth of practitioners has evolved since 2015. According to Reynolds (2017), Jane Addams was the first sports social worker through Hull House which utilized sports and recreation to participate in constructive activities to keep youth out of street gangs or being involved in inner city troubles. Though Jane Addams founded Hull House in 1889 it would be over 126 years before sports social work would officially have a professional organization. In 2015, the Alliance of Social Workers in Sports (ASWIS) was formed to bring attention to what the discipline of social work could bring to the world of athletics from perspectives based on social and economic justice to the framework of person-in-environment approach (ASWIS, 2021). As Moore (2016) wrote, "the purpose of the social work profession is to promote human and community well-being which would include the student athlete population and the colleges and universities for which they compete". Social work through the National Association of Social Workers (NASW) Code of Ethics provides a blueprint to provide to athletic organization to how social workers treat clients, promote social justice, provide services, and more. It is by the promotion of social work values, code of ethics, core values, education, practice, and policy that college athletics will see the benefit of continued incorporation of sports social workers.

As sports social workers build strong relationships with athletic organizations and athletes than practitioners, along with researchers, can design and incorporate interventions to positively impact substance use and abuse by student athletes. This has already been occurring across the U.S. and Canada with sports social workers finding positions in college sports, professional sports, and youth sports. Sport social workers

have been hired as clinical providers, policy advisors, academic advisors, professors, and so much more. These social workers have been providing trainings, education, and support to athletic organizations at all levels to incorporate social work practices and principles to better athletes' well-being.

The final area for social work integration is in policy design and advocacy. The data shows that a portion of the student athlete population in the study did not receive or participate in education on banned substances and/or supplements. Social workers would be benefit in helping create better policies around the requirements and designs of training around substance use. Many social workers have education in policy development and design that could benefit the study of policies at institutions that present lower cases of substance use to analyze how policies are impacting use while helping institutions with higher use incorporate new policies and procedures to decrease use. Social workers can also inform testing policies through research, evidence-based practices, and trauma informed care. By utilizing concepts promoted through social work education the testing policies could benefit from having social workers inform practices for how to handle if someone tests positive, reviewing policies for student athletes that consider economic and social factors that could impact their ability to show up on short notice for testing (such as transportation, work, or funds for bus), and getting athletes access to effective treatment programs.

Conclusion

College is a time of transition and development where many young individuals learn about the world. Along with the educational aspects of college exists the social and cultural aspects that can include substance use. Student athletes are not immune to

substance use or abuse. The current study shows that student athletes substance use is a complex issue that cannot be simply understood through basic descriptive analysis. Though a descriptive analysis of substance use in the methods deployed for the NCAA and NAIA studies may provide information about current usage, it does little to evaluate the potential causes of use or social influences. Even with these limitations there is vital information that was presented that first usage, institutional factors, living conditions, and more can have an important impact on substance use in student athletes. There also exists the need for further research to better evaluate the root causes and influences on substance use. Though this study was limited to NAIA substance use, the fact it was a replication study presents evidence that a more in-depth analysis would benefit student athletes at all levels. The presentation of what social work offers the athletic community provides a pathway to gaining not only a cultural understanding of athletics and athletes, but a way of earning the trust of student athletes. Trust is the strongest trait that social workers can earn and utilize to gain valuable information about student athlete mental health, substance use, and other important aspects.

Finally, student athletes provide a lot of benefits for the university in the same manner that the universities benefit athletes. Athletics bring attention to their universities through games, tournaments, championships, and campus events that promote community. The universities have an incentive to provide the most inclusive and safe community environment for their student athletes which includes providing education, training, and treatment if needed for substance use and abuse. Through the understanding of the causes and roots of substance use can universities, the NAIA, NCAA, and other athletic organization have a positive impact that sees a decrease in usage. Student athletes

are an amazing community of young men and women, social work is a dedicated

discipline focused on the well-being of individuals and communities, and together with

the support of athletic organizations and universities these two groups can work to create

a safer student athletes experience.

REFERENCES

Adan, A., Navarro, J., & Forero, D. (2016). Personality profile of binge drinking in university students is modulated by sex. A study using Alternative Five Factor Model. *Drug and Alcohol Dependence, 165*, 120-125. doi:10.1016/j.drugalcdep.2016.05.015

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders fifth edition.* Arlington: American Psychiatric Association.

Antonucci, T., Ajrouch, K., & Birditt, K. (2013). The convoy model: explaining social relationships from a multidisciplinary perspective. *The Gerontologist*(54), 82-92. doi:doi.org/10.1093/geront/gnt118

Arria, A. M., Caldeira, K. M., Bugbee, B. A., & Vincent, K. B. (2015). The academic consequences of marijuana use during college. *Psychology of Addictive Behaviors, 29*(3), 564-575. doi:10.1037/adb0000108

Arria, A. M., Garnier-Dykstra, L. M., Cook, E. T., Cladeira, K. M., Vincent, K. B., Baron, R. A., & O'Grady, K. E. (2012). Drug use patterns in young adulthood and post-college employment. *Drug and Alcohol Dependence, 127*, 23-30. doi:10.1016/j.drugalcdep.2012.06.001

Arria, A., Granier-Dykstra, L., Caldeira, K., Vincent, K., Winick, E., & O'Grady, K. (2013). Drug use patterns and continuous enrollment in college: results from a longitudinal study. *Journal of Studies in Alcohol and Drugs, January*, 71-83.

Ashford, J., & Lecroy, C. (2013). *Human behavior in the social environment.* Belmont: Brooks\Cole.

Ashton, L. (2021, 03 06). *CBD oil for skin care: benefits of using hemp facial & beauty products*. Retrieved from CFAH: https://cfah.org/cbd-oil-for-skin-care/

ASWIS. (2021, 05 12). *History*. Retrieved from ASWIS: https://www.aswis.org/history

Bamberger, M., Rugh, J., & Mabry, L. (2006). *Real world evaluation.* Thousand Oaks: Sage Publications Inc.

Bandura, A. (1971). *Social learning theory.* New York : General Learning Press.

Barry, A. E., Jackson, Z., Watkins, D. C., Goodwill, J. R., & Hunte, H. E. (2017). Alcohol use and mental health conditions among black college males: do those attending postsecondaryminority institutions fare better than those at primarily white institutions? *Racial and Ethnic Diversity and Disparity Issues, 11*(4), 962-968. doi:10.1177/1557988316674840

Barry, A., Howell, S., Riplinger, A., & Piazza-Gardner, A. (2015). Alcohol use among college athletes: do intercollegiate, club, or intermural student athletes drink differently? *Substance Use & Misuse, 50*, 302-307. doi:10.3109/10826084.2014.977398

Berry, B., & Smith, E. (2000). Race, sport, and crime: the misrepresentation of African Americans in team sports and crime. *Sociology of Sport Journal, 17*, 171-197.

Berry, M. (2004). Leveling the playing field: African-Americans and collegiate athletics. *Historia, 13*. Retrieved from https://www.eiu.edu/historia/2004issue.php

Bourdieu, P. (1990). *In other words essays towards a reflexive Sociology.* Stanford: Stanford University Press.

Brenner, J., & Swanik, K. (2007). High-risk drinking characteristics in collegiate athletes. *Journal of American College Health, 56*(3), 267-272.

Brown, N., McIlwraith, T., & Gonzalez, L. (2020). *Perspectives: an open introduction to cultural anthropology second edition.* Arlington: American Anthropological Association.

Buckman, J. F., Yusko, D. A., Farris, S. G., White, H. R., & Pandina, R. J. (2011). Risk of marijuana use in male and female college student athletes and nonathletes*. *Journal of Student Alcohol and Drugs, 72*, 2011.

Caldeira, K. M., Kasperski, S. J., Sharma, E., Vincent, K. B., O'Grady, K. E., Wish, E. D., & Arria, A. M. (2009). College students rarely seek help despite serious substance use problems. *Journal of Substance Abuse Treatment, 37*, 368-378. doi:10.1016/j.stat.2009.04.005

Capano, A., Weaver, R., & Burkman, E. (2020). Evaluation of the effects of CBD hemp extract on opioid use and quality of life indicators in chronic pain patients: a prospective cohort study. *Postgraduate Medicine, 132*(1), 56-61. doi:https://doi.org/10.1080/00325481.2019.1685298

Capone, A. (2018). Mental health issues in college athletes. *Kinesiology, Sports Studies, and Physical Education, 41*, 1-44.

Carswell, S., Hanlon, T., O'Grady, K., Watts, A., & Pothong, P. (2009). A preventive intervention program for urban African American youth attending an alternative education program: background, implementation, and feasibility. *Educ Treat Children, 32*(3), 445-469.

Center for Disease Control and Prevention. (2021, 09 21). *Tips from former smokers*. Retrieved from CDC: https://www.cdc.gov/tobacco/campaign/tips/diseases/index.html?s_cid=OSH_tips

_GL0006&utm_source=google&utm_medium=cpc&utm_campaign=TipsRegular

+2021%3BS%3BWL%3BBR%3BIMM%3BDTC%3BCO&utm_content=Effects

+Misspellings_P&utm_term=affects+of+smoking&gclid=CjwKCAjw

Charmaz, K. (2014). *Constructing Grounded Theory 2nd edition.* London: Sage.

Chen, M.-J., Miller, B., Grube, J., & Waiters, E. (2006). Music, substance use, and

aggression. *Journal of Studies on Alcohol, 67*(3), 373-381.

doi:10.15288/jsa.2006.67.373

Chronicles of Higher Education. (2011). Pivotal moments in college sports. *Chronicles of*

Higher Education, 58(17), A6-A7.

Cimini, M. D., Monserrat, J., Sokolowski, K., Dewitt-Parker, J., Rivero, E., & McElroy,

L. (2015). Reducing high-risk drinking among student-athletes: the effects of a

targeted athletic-specific brief intervention. *Journal of American College Health,*

63(6), 343-352.

Collegexpress. (2020, 04 25). *What is the NAIA?* Retrieved from Collegexpress:

https://www.collegexpress.com/articles-and-advice/athletics/blog/what-

naia/#:~:text=About%20the%20NAIA,the%20overall%20college%20educational

%20experience.

Constantinesco, K. (2018, 10 10). *Panthers invest in players' mental health by hiring in-*

house clinician. Retrieved from Purpose 2 Play: https://purpose2play.com/fast-

breaks/panthers-invest-players-mental-health-hiring-house-clinician/

Cooper, J., Davis, T., & Dougherty, S. (2017). Not so black and white: a multi-divisional

exploratory analysis of male student-athletes' experiences at National Collegiate

Athletic Association (NCAA) institutions. *Sociology of Sport Journal, 34*, 59-78.

doi:10.1123/ssj.2016-0015

CORE Instiitute. (2020, 08 06). *Alcohol & Drug Survey for Higher Education.* Retrieved

from Southern Illinois University CORE Institute:

https://core.siu.edu/_common/documents/2013.pdf

Crenshaw, K., Gotanda, N., Peller, G., & Thomas, K. (1995). *Critical Race Theory.* New

York: The New Press.

Creswell, J., & Creswell, J. (2018). *Research design, qualitative, quantitative, and mixed*

methods approaches. Thousand Oaks: Sage.

Creswell, J., & Poth, C. (2018). *Qualitative inquiry & research design.* London: Sage.

Darlington, R., & Hayes, A. (2017). *Regression Analysis and Linear Models: concepts,*

applications, and implementation. New York: Guilford Publications Inc.

Davis, A., Gustavo, C., Hardy, S., Olthuis, J., & Zomboanga, B. (2017). Bidirectional

relations between different forms of prosocial behaviors an substance use among

female college student athletes. *The Journal of Social Psychology, 157*(6), 645-

657. doi:10.1080/00224545.2016.1263596

De Bellils, M., Morey, R., Nooner, K., Woolley, D., Haswell, C., & Hooper, S. (2019). A

pilot study of neurocognitive function and brain structures in adolescents with

alcohol use disorders: does maltreatment history matter? *Child Maltreatment,*

24(2), 374-388. doi:10.1177/1077559518810525

Dennhardt, A., & Murphy, J. (2013). Prevention and treatment of college student drug

use: a review of the literature. *Addictive Behaviors, 38*(10), 2607-2618.

doi:https://doi-org.echo.louisville.edu/10.1016/j.addbeh.2013.06.006

Devash, M. (2019, 04 20). *Everything you need to know about CBD oil in beauty products*. Retrieved from Allure: https://www.allure.com/story/cbd-oil-in-beauty-products

Diacin, M., Parks, J., & Allison, P. (2003). Voices of male athletes on drug use, drug testing, and the existing order in intercollegiate athletics. *Journal of Sport Behavior, 26*(1), 1-10.

Dierker, L., Stolar, M., Lloyd-Richardson, E., Tiffany, S., Flay, B., Collins, L., . . . (TERN), T. T. (2008). Tobacco, alcohol, and marijuana use among first-year U.S. college students: a time series analysis. *Substance Use & Misuse, 43*, 680-699. doi:10.1080/10826080701202684

Dillard, A., Ferrer, R., Bulthuis, K., & Klein, W. (2018). Postitive excessive drinker prototypes predict greater drinking and alcohol problems. *The British Psychological Society, 23*, 1000-1020.

Dills, A., Goffard, S., Miron, J., & Partin, E. (2021, 02 02). *The effects of state marijauna legilization: 2021 update*. Retrieved from CATO Institute: https://www.cato.org/policy-analysis/effect-state-marijuana-legalizations-2021-update

DiSanto, M. (2020, 08 17). *Three Penn State football players charged on drug offenses*. Retrieved from Onward State: https://onwardstate.com/2020/08/17/three-penn-state-football-players-charged-on-drug-offenses/

Dong, Y., & Peng, C.-Y. (2013). Principled missing data methods for research. *Srpingerplus, 14*(2), 222. doi:10.1186/2193-1801-2-222

Education Data. (2020, 09 11). *College enrollment & student demographic statistics*.

Retrieved from EducationData.org: https://educationdata.org/college-enrollment-

statistics/

Elliott, A., & Woodward, W. (2007). *Statistical analysis quick reference guide.* Thousand

Oaks: Sage Publications, Inc.

Encyclopedia.com. (2020, 09 20). *Colleges and universities with religious affiliations*.

Retrieved from Encyclopedia.com:

https://www.encyclopedia.com/education/encyclopedias-almanacs-transcripts-

and-maps/colleges-and-universities-religious-affiliations

Family of Faith Christian University. (2021, 01 03). *Alcohol and drug-free campus

policy*. Retrieved from https://familyoffaith.edu/academic-policies/alcohol-drug-

free-policy/: https://familyoffaith.edu/academic-policies/alcohol-drug-free-policy/

Feltz, D., Schneider, R., Hwang, S., & Skogsberg, N. (2013). Predictors of collegiate

student-athletes' susceptibility to stereotype threat. *Journal of College Student

Development, 54*(2), 184-201. doi:10.1353/csd.2013.0014

Ford, J. (2007). Substance use among college athletes: a comparison based on sport/team

affiliation. *Journal of American College Health, 55*(6), 367-373.

Fuller, R. (2017). Perception or reality: the relationship between stereotypes,

discrimination, and the academic outcomes of African American male college

athletes. *Journal of Sport and Social Issues, 41*(5), 402-424.

doi:10.1177/0193723517719664

G4 Athletics. (2012, 09 26). *Team vs individual sport*. Retrieved from G4Athletics:

https://g4athlete.com/team-vs-individual-sport/

Garthwaite, C., Keener, J., Notowidigdo, M., & Ozminkowski, N. (2020, 10). *Who profits from amateurism? rent-sharing modern college sports.* Retrieved from National Bureau of Economic Research: https://www.nber.org/system/files/working_papers/w27734/w27734.pdf

Geert van den Berg, R. (2020, 12 22). *Creating dummy variables in SPSS*. Retrieved from SPSS Tutorials: https://www.spss-tutorials.com/creating-dummy-variables-in-spss/

Giacobbi, P., Lynn, T., Wetherington, J., Jenkins, J., Bodendorf, M., & Langley, B. (2004). Stress and coping during the transition to university for first-year female athletes. *The Sports Psychologist, 18*(1), 1-20. doi:10.1123/tsp.18.1.1

Gil, A., Wagner, E., & Tubman, J. (2004). Association between early-adolescent substance use and subsequent young-adult substance use disorders and psychiatric disorders among a multiethnic male sample in South Flordia. *Research and Practice, 94*(9), 1603-1609.

Gill, E. (2008). Mental Health in College Athletics: It's Time for Social Work to Get in the Game. *Social Work, 53*(1), 85-88.

Gill, E. (2017). College athletes and crime: the role of race, age, and peers and the implications for social work practice in college sports. *Journal of Issues in Intercollegiate Athletics*(2017 Special Issue), 19-35.

Gill., E. (2014). Integrating Collegiate Sports Into Social Work Education. *Journal of Social Work Education, 50*, 305-321. doi:10.1080/10437797.2014.856245

Ginn, S. R., Walker, K., Poulson, R. L., Singletary, S. K., Cyrus, V. K., & Picarelli, J. A. (1998). Coercive sexual behavior and the influence of alcohol consumption and

religiosity among college students in the bible belt. *Journal of Social Behavior and Personality, 13*(1), 151-165.

Graupensperger, S., Benson, A., & Evans, M. B. (2018). Everyone else is doing it: the association between social identity and susceptibility to peer influence in NCAA athletes. *Journal of Sport and Exercise Psychology, 40*, 117-127. doi:10.1123/jsep.2017-0339

Gray, K., & Squeglia, L. (2018). Research review: what have we learned about adolescent substance use? *The Journal of Child Psychology and Psychiatry, 59*(6), 618-627. doi:10.1111/jcpp.12783

Green, G., Uryasz, F., Petr, T., & Bray, C. (2001). NCAA Study of Substance Use and Abuse Habits of College Student-Athletes. *Clinical Journal of Sport Medicine, 11*, 51-56.

Hanover College. (2018). *Student handbook 2018-2019.* Retrieved from Hanover College: https://vault.hanover.edu/~heckler/18-19%20Student%20handbook%201.0.pdf

Harper, S. (2014). Black men as college athletes: the real win-loss record. *Chronicle of Higher Education, 60*(19), A60-A60.

Hasking, P., Boyes, M., & Mullan, B. (2015). Reward and cognition: integrating reinforcement sensitivity theory and social cognitive theory to predict drinking behavior. *Substance Use & Misuse, 50*, 1316-1324. doi:10.3109/10826084.2015.1005315

Hayden Hurst Foundation. (2020, 12 03). *Hayden Hurst wanted everything to be over. But, he was given a second chance in life.* Retrieved from Atlanta Falcons:

https://www.atlantafalcons.com/video/hayden-hurst-wanted-everything-to-be-over-but-he-was-given-a-second-chance-in-li

Heinrich Heine Universitat Dusseldorf. (2020, 12 05). *G*Power*. Retrieved from Heinrich Heine Universitat Dusseldorf: https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower.html

Hernandez-Serrano, O., Gras, M., & Font-Mayolas, S. (2018). Concurrent and simultaneous use of cannabis and tobacco and its relationship with academic achievement amongst university students. *Behavioral Sciences, 8*(31), 1-11. doi:10.3390/bs8030031

Horn, K., Maniar, S., Dino, G., Gao, X., & Meckstroth, R. (2000). Coaches' attitudes toward smokeless tobacco and intention to invervene with athletes. *Journal of School Health, 70*(3), 89-94.

IU East Athletics. (2020, 12 27). *Drug Testing Policy*. Retrieved from IU East Athletics: https://www.iueredwolves.com/drug-testing-policy

Jennings, R., Henderson, C., Erla, M., Abraham, S., & Gillum, D. (2018). Stress coping behaviors of faith-based college non-student vs. student-athletes. *College Student Journal, 52*(2), 245-257.

Johnson, R., Brooks-Russell, A., Ming, M., Fairman, B., Tolliver Jr., R., & Levinson, A. (2016). Usual modes of marijuana consumption among high school students in Colorado. *Journal of Studies on Alcohol and Drugs, July*, 580-588.

Johnson, T. P. (2014). Sources of error in substance use prevalence surveys. *International Scholarly Research Notices*, 1-21. doi:10.1155/2014/923290

Jones, M., & Gallen, A.-M. (2016). Peer observation, feedback and reflection for

    development of practice in synchronous online teaching. *Innovations in Education*

    and Teaching International, 53(6), 616-626.

    doi:10.1080/14703297.2015.1025808

Kaier, E., Cromer, L., Davis, J., & Strunk, K. (2015). The relationship between Adverse

    Childhood Experiences and subsequent health complaints in elite athletes. *Journal*

    Child Adolecent Trauma, 8, 83-92. doi:10.1007/s40653-015-0041-4

Karatekin, C. (2018). Adverse Childhood Experinces (ACEs), stress and mental health in

    college students. *Stress and Health, 34*, 36-45. doi:10.1002/smi.2761

Keene, D., Fischbein, R., Tan, A., & Banks, M. (2017). The use of substances other than

    nicotine in electronic cigarettes among college students. *Substance Abuse:*

    Research and Treatment, 11, 1-8. doi:10.1177/1178221817733736

Kenney, S. R., DiGuiseppi, G. T., Meisel, M. K., Balestrieri, S. G., & Barnett, N. P.

    (2018). Poor mental health, peer drinking norms, and alcohol risk in a social

    network of first-year college students. *Addictive Behaviors, 84*, 151-159.

    doi:10.1016/j.addbeh.2018.04.012

Kim, J. (2017, 03 20). *19.6 billion EdTech lesson from the NCAA March Madness TV*

    contract. Retrieved from Inside Higher Ed:

    https://www.insidehighered.com/blogs/technology-and-learning/196-billion-

    edtech-lessons-ncaa-march-madness-tv-

    contract#:~:text=%2419.6%20billion%20is%20the%20size,goes%20from%2020

    25%20to%202032.

Kingston, S., Rose, M., Cohen-Serrins, J., & Knight, E. (2017). A qualitative study of the

    context of child and adolescent substance use initiation and patterns of use in the

    first year for early and later initiators. *PLOS One, 12*(1), 1-15. Retrieved from

    https://storage.googleapis.com/plos-corpus-

    prod/10.1371/journal.pone.0170794/1/pone.0170794.pdf?X-Goog-

    Algorithm=GOOG4-RSA-SHA256&X-Goog-Credential=wombat-sa%40plos-

    prod.iam.gserviceaccount.com%2F20210831%2Fauto%2Fstorage%2Fgoog4_req

    uest&X-Goog-Date=20210

Kremer, M., & Levy, D. (2008). Peer effects and alcohol use among college students.

    Journal of Economic Perspectives, 22(3), 189-206.

Kroshus, E. (2021, 01 04). *Mind, body and sport: risk factors in the sport environment.*

    Retrieved from NCAA Sport Science Institute: http://www.ncaa.org/sport-

    science-institute/mind-body-and-sport-risk-factors-sport-environment

Laerd Statistics. (2021, 04 15). *Kruskal-Wallis H test using SPSS statistics*. Retrieved

    from Laerd Statistics: https://statistics.laerd.com/spss-tutorials/kruskal-wallis-h-

    test-using-spss-statistics.php

Lapchick, R. (2021, 02 24). *2020 college racial and gender report card shows

    'insignificant progress'.* Retrieved from ESPN: https://www.espn.com/college-

    sports/story/_/id/30956744/2020-college-racial-gender-report-card-shows-

    insignificant-progress

Lawrence, A. (2017, 01 19). *Patriot games: sports and the military share a powerful

    connection in the U.S.* Retrieved from Sports Illistrated:

    https://www.si.com/more-sports/2017/01/20/sports-us-military-connection

Lawson, T., Faul, A., & Verbist, A. (2019). *Research and statistics for social work.* New
York: Routledge.

Lewis, T. F., Likis-Werle, E., & Fulton, C. L. (2012). Modeling alcohol use intensity
among students at a historically black university: the role of social norms,
perceptions for risk, and selected demographic variables. *Journal of Black
Psychology, 38*(3), 368-390. doi:10.1177/0095798411424745

Linden-Carmichael, A., Mallett, K., Sell, N., & Turrisi, R. (2019). Are co-users of
alcohol and marijuana more willing to experience consequences from drinking? A
longitudinal examination among first-year college students. *Alcoholism: Clinical
and Experimental Research, 43*(7), 1567-1574. doi:10.1111/acer.14075

Lipchick, R. (2019, 02 27). *The 2018 college racial and gender report card*. Retrieved
from ESPN: https://www.espn.com/college-sports/story/_/id/26092749/college-
sport-needs-use-platform-increase-diversity-workforce

Looby, A., DeYoung, K., & Earleywine, M. (2013). Challenging expectancies to prevent
nonmedical prescription stimulant use: a randomized, controlled trial. *Drug and
Alcohol Dependence, 132*(1-2), 362-368.
doi:https://doi.org/10.1016/j.drugalcdep.2013.03.003

Lopez-Felip, M., Davis, T., Frank, T., & Dixon, J. (2018). A cluster phase analysis for
collective behavior in team sports. *Human Movement Science, 59*, 96-111.
doi:10.1016/j.humov.2018.03.013

Luhmann, N. (1995). *Social systems.* (J. Bcdnarz, Trans.) Stanford: Stanford University
Press.

Mahony, C. (2020). Black students at a predominately white institution: alcohol, drugs, and mental health. *Theses and Dissertations*(2781). Retrieved from http://rdw.rowan.edu/etd/2781

Malone, T. (2021, 04 6). *CBD, marijuana, and hemp: what is the difference among these cannabis products, and which are legal?* Retrieved from Michigan State University: https://msutoday.msu.edu/news/2021/cbd-marijuana-and-hemp

Malooley, J. (2019, 07 10). *How a minor league pitcher turned a dugout conversation into Big League Chew*. Retrieved from Esquire: https://www.esquire.com/sports/a28325969/big-league-chew-history/

Marsiglia, F., Kulis, S., Nieri, T., & Parsai, M. (2005). God forbid! Substance use among religious and nonreligious youth. *American Journal of Orthopsychiatry, 75*(4), 585-598. doi:10.1037/0002-9432.75.4.585

Martens, M. P., Pedersen, E. R., Smith, A. E., Stewart, S. H., & O'Brien, K. (2011). Predictors of alcohol-related outcomes in college athletes: the roles of trait urgency and drinking motives. *Addictive Behaviors, 36*, 456-464. doi:10.1016/jaddbeh.2010.12.025

Martinez, A. (2014). Critical Race Theory: its origins, history, and importance to the discourses and rhetorics of race. *Frame, 27*(2), 09-27. Retrieved from https://www.tijdschriftframe.nl/wp-content/uploads/2016/12/Frame-27_2-Critical-Race-Theory.pdf

Mattheis, C. (2012). The system theory of Niklas Luhmann and the constitutionalization of the world society. *Goettingen Journal of International Law 4, 2*, 625-647. doi:10.3249/1868-1581-4-2-mattheis

McCabe, S. E., Morales, M., Cranford, J. A., Delva, J., McPhereson, M. D., & Boyd, C. J. (2007). Race/ethnicity and gender differences in drug use and abuse among college students. *Journal of Ethnic Substance Abuse, 6*(2), 75-95.

McCollum, J. (2018). What does it cost to be competitive? . *NAIA Fall Meeting* (pp. 6-14). Kansas City: NAIA.

Meda, S., Gueorguieva, R., Pittman, B., Rosen, R., Aslanzadeh, F., Tennen, H., . . . Pearlson, G. (2017, 03 8). Longitudinal influences of alcohol and marijuana use on academic performance in college students. *PLOS ONE*, 1-16. doi:10.1371/journal.pone.0172213

Messiah University. (2020, 09 20). *Behavior Policies*. Retrieved from Messiah University: https://www.messiah.edu/info/21460/residence_life/3828/behavior_policies

Meyers, L., Gamst, G., & Guarino, A. J. (2017). *Applied Multivariate Research.* Thousand Oaks: Sage.

Miller, B., Miller, M., Verhegge, R., Linville, H., & Pumariega, A. (2002). Alcohol misuse among college athletes: self-medication for psychiatric symptoms? *Journal of Drug Education, 32*(1), 41-52.

Miller, S. (2012, 10 23). *The NCAA needs to let someone else enforce its rules*. Retrieved from The Atlantic: https://www.theatlantic.com/entertainment/archive/2012/10/the-ncaa-needs-to-let-someone-else-enforce-its-rules/264012/

Monette, D., Sullivan, T., DeJong, C., & Hilton, T. (2014). *Applied Social Research Ninth Edition.* Belmont: Brooks\Cole.

Moody, J. (2019, 02 15). *A guide to the changing number of U.S. universities*. Retrieved from U.S. News & World Report: https://www.usnews.com/education/best-colleges/articles/2019-02-15/how-many-universities-are-in-the-us-and-why-that-number-is-changing

Moore, E., Berkley-Patton, J., & Hawes, S. (2013). Religiosity, alcohol use, and sex behaviors among college student-athletes. *Journal of Religious Health, 52*, 930-940. doi:10.1007/s10943-011-9543-z

Moore, M. (2016). Taking a timeout to ensure well-being: social work involvement in college sports. *National Association of Social Workers, 61*(3), 267-269. doi:10.1093/sw/sww020

Moore, M., & Abbe, A. (2021). The National Association of Intercollegiate Athletics Substance Use and Abuse Survey. *Journal of Issues in Intercollegiate Athletics, 14*, 95-114.

Moore, M., & Gummelt, G. (2019). *Sport social work.* United States of America: Cognella Academic Publishing.

Moreland, J., Coxe, K., & Yang, J. (2017). Collegiate athletes' mental health service utilization: a systematic review of conceptualization, operationalization, facilitators, and barriers. *Journal of Sport and Health Science, 7*(1), 1-12. doi:10.1016/j.jshs.2017.04.009

Mousavi, S., Higgs, P., Piri, N., Ensieh, S., Pourghasem, M., Fakhari, S., . . . Sharhani, A. (2021). Prevalence of substance use among psychotic patients and determining its strongest predictor. *Iran Journal of Psychiatry, 16*(2), 124-130.

NAIA. (2005, 09 09). *History of the NAIA*. Retrieved from NAIA:

https://www.naia.org/general/2005-06/releases/20050909kbmpt

NAIA. (2017A, 05 17). *New legislation: drug testing establishment, penelties, and*

reinstatement. Retrieved from NAIA: https://www.naia.org/legislative/2016-

17/releases/20170522ufkhy#:~:text=Starting%20in%20the%202017%2D2018,an

y%20point%20during%20the%20championship.

NAIA. (2017B, 09 24). *NAIA Council of Presidents Fall 2017*. Retrieved from NAIA:

http://www.naia.org/fls/27900/1NAIA/fall-

meetings/cop17/COP%20Presentation.pdf

NAIA. (2019). *Intercollegiate athletics in the NAIA*. Kansas City: NAIA National Office.

NAIA. (2020A, 09 23). *Landing*. Retrieved from NAIA:

https://www.naia.org/landing/index

NAIA. (2020B, 11 15). *National Administrative Council drug testing policy manual*.

Retrieved from NAIA: https://www.naia.org/student-athlete-wellness-

center/2019-20/files/NATIONAL-ADMINISTRATIVE-COUNCIL-DRUG-

TESTING-POLICY-MANUAL_2018-0801.pdf

NAIA. (2021A, 06 01). *Why choose the NAIA*. Retrieved from NAIA:

https://www.naia.org/why-naia/index

NAIA. (2021B, 09 22). *NAIA Membership Profile*. Retrieved from NAIA:

https://www.naia.org/why-naia/pdf/NAIA_Membership_Profile.pdf

National Center for Education Statistics. (2020, 09 11). *Fast facts: back to school*

statistics. Retrieved from National Center for Education Statistics:

https://nces.ed.gov/fastfacts/display.asp?id=372#College_enrollment

National Center for Education Statistics. (2021, 08 20). *Table 303.90. Fall enrollment and nuber of degree-granting postsecondary institutions, by conrol and religious affiliation of institution: selected years, 1980 to 2015*. Retrieved from National Center for Educational Statistics: https://nces.ed.gov/programs/digest/d16/tables/dt16_303.90.asp

National Institute on Alcohol Abuse and Alcoholism. (2021, 05 18). *Underage Drinking*. Retrieved from National Institute of Health: https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/underage-drinking#:~:text=Young%20people%20often%20binge%20drink&text=Although %20youth%20drink%20less%20often,binge%20drinking%3F%22%20box).

National Institute on Drug Abuse. (2020, 09 12). *National survey of drug use and health*. Retrieved from National Institute on Drug Abuse: https://www.drugabuse.gov/drug-topics/trends-statistics/national-drug-early-warning-system-ndews/national-survey-drug-use-health

National Institute on Drug Abuse. (2021, 09 21). *Vaping devices (electronic cigarettes) drugfacts*. Retrieved from NIH: https://www.drugabuse.gov/publications/drugfacts/vaping-devices-electronic-cigarettes

National Research Council. (2004). *Eliminating Health Disparities.* Washington DC: NAtional Academies Press.

Nattiv, A., & Puffer, J. C. (1991). Lifestyle and health risks of collegiate athletes. *Journal of Family Practice, 33*, 585-590.

NCAA. (2014). *Mind, body, and sport: understanding and supporting student-athlete mental wellness.* Indianapolis: NCAA.

NCAA. (2018, 10 02). *Student-athletes*. Retrieved from NCAA: http://www.ncaa.org/student-athletes

NCAA. (2019, 6 20). *NCAA increase THC testing threshold*. Retrieved from NCAA: http://www.ncaa.org/about/resources/media-center/news/ncaa-increases-thc-testing-threshold

NCAA. (2020A, 12 12). *NCAA Demographic Database*. Retrieved from NCAA: http://www.ncaa.org/about/resources/research/ncaa-demographics-database

NCAA. (2020B, 05 06). *NCAA student-athlete substance use study*. Retrieved from NCAA: http://www.ncaa.org/about/resources/research/ncaa-student-athlete-substance-use-study

NCAA. (2020C, 09 2020). *About the survey*. Retrieved from NCAA: http://www.ncaa.org/about/resources/research/about-survey

NCAA. (2020D, 11 18). *NCAA Drug Testing Program*. Retrieved from NCAA Sport Science Institute: http://www.ncaa.org/sport-science-institute/ncaa-drug-testing-program

NCAA. (2020E, 08 22). *NCAA Student-Athlete Substance Use Study: Executive Summary August 2014*. Retrieved from NCAA: http://www.ncaa.org/about/resources/research/ncaa-student-athlete-substance-use-study-executive-summary-august-2014

NCAA. (2021A, 05 16). *Substance Use.* Retrieved from NCAA: https://files.eric.ed.gov/fulltext/ED503214.pdf

NCAA. (2021B, 04 17). *Doping and substance abuse*. Retrieved from NCAA:

    https://www.ncaa.org/sport-science-institute/doping-and-substance-abuse

NCAA. (2021C, 04 17). *15-year trends in Division I athletic finances.* Retrieved from

    NCAA: https://ncaaorg.s3.amazonaws.com/research/Finances/2020RES_D1-

    RevExp_Report.pdf

NCAA. (2021D, 06 01). *Where does the money go*. Retrieved from NCAA:

    https://www.ncaa.org/about/where-does-money-go

NCAA. (2021E, 04 17). *How we support college athletes*. Retrieved from NCAA:

    https://www.ncaa.org/about/resources/media-center/ncaa-101/how-we-support-

    college-athletes

NCAA. (2021F, 04 17). *About SSI*. Retrieved from NCAA: https://www.ncaa.org/sport-

    science-institute/about-ssi

NCAA. (2021G, 05 22). *Frequently asked questions about drug testing*. Retrieved from

    NCAA: https://www.ncaa.org/sport-science-institute/topics/frequently-asked-

    questions-about-drug-testing

NCJAA. (2019, 05 25). *Student-athlete participation statistics.* Retrieved from NJCAA:

    http://njcaa.org/about/history/SA_Participation/index

Njororai Simiyu, W. (2012). Challenges of being a black student athlete on U.S. college

    campuses. *Journal of Issues in Intercollegiate Athletics, 5*, 40-63.

Nolt, K., Sachs, M., & Brenner, J. (2013). The effects of collegiate head coaches'

    knowledge and attitudes toward alcohol consumption by student-athletes. *Journal

    of Multidisciplinary Research, 5*(3), 7-16.

Orsini, M. M., Milroy, J., Wyrick, D., & Sanders, L. (2018). Polysubstance use among

    first-year NCAA college student-athletes. *Journal of Child & Adolescent*

    Substance Use, 27(3), 189-195. doi:10.1080/1067828X.2018.1444524

Oseguera, L., Merson, D., Harrison, C. K., & Rankin, S. (2018). Beyond the Black\White

    binary: a multi-institutional study of campus climate and the academic success of

    college athletes of different racial backgrounds. *Sociology of Sport Journal, 35*,

    119-131. doi:10.1123/ssj.2016-0175

Ottawa University. (2020, 12 27). *Substance abuse education & testing policy.* Retrieved

    from Ottawa Braves: https://www.ottawabraves.com/d/2019-

    20/TC_SubstanceAbuse_Ath_Docs_201920_Policy.pdf

Park University Athletics. (2020, 12 27). *Drug education and testing program policies*

    and procedures. Retrieved from Park University Athletics:

    http://www.parkathletics.com/d/drug.pdf

Pedhazur, E., & Schmelkin, L. (1991). *Measurement, design, and analysis: an integrated*

    approach. New York: Taylor & Francis Group.

Peralta, R., & Steele, J. (2010). Nonmedical prescription drug use among US college

    students at a midwest university: a partial test of Social Learning Theory.

    Substance Use & Misuse, 45, 865-887. doi:10.3109/10826080903443610

Pitts, M., Chow, G., & Yang, Y. (2018). Athletes' perceptions of their head coach's

    alcohol management strategies and athlete alcohol use. *Adiction Research &*

    Theory, 26(3), 174-182. doi:10.1080/16066359.2017.1341976

Pluhar, E., McCracken, C., Griffith, K., Christino, M., Sugimoto, D., & Meehan III, W.

    (2019). Team sport athletes may be less likely to suffer anxiety or depression than

individual sport athletes. *Journal of Sports Science and Medicine, 18*, 490-496. Retrieved from www.jssm.org

Potuto, J., & O'Hanlon, J. (2007). National Study of Student-Athletes regarding their experiences as college students. *College Student Journal, 41*(4), 947-966.

Preedy, V. (2017). *Handbook of cannabis and related pathologies.* London: Elsevier.

Qualtrics XM. (2020, 11 15). *Research Services.* Retrieved from Qualtrics XM: https://www.qualtrics.com/research-services/

Queensland Government. (2017, 04 20). *The effects of alcohol on the adolescent brain.* Retrieved from Queensland Health: https://www.health.qld.gov.au/news-events/news/the-effects-of-alcohol-on-the-adolescent-brain#:~:text=Alcohol%20can%20damage%20or%20even,damage%20can%20be%20particularly%20dangerous.

Ray, M., Coon, J., & Al-Jumaili, A. (2019). Quantitative and qualitative factors associated with social isolation among graduate and professional health science students. *American Journal of Pharmaceutical Eduction, 83*(7), 1559-1569.

Reynolds, J. (2017). Jane Addams' forgotten legacy: recreation and sport. *Journal of Issues in Intercollegiate Athletics, 2017 Special Edition*, 11-18.

Riciputi, S., & Erdal, K. (2017). The effect of stereotype threat on student-athlete math performance. *Psychology of Sport and Exercise, 32*, 54-57. doi:10.1016/j.psychsport.2017.06.003

Rimsza, M. E., & Moses, K. S. (2005). Substance abuse on the college campus. *Pediatric Clinics of North America, 52*, 307-319. doi:10.1016j.pcl.2004.10.008

Rimsza, M. E., & Moses, K. S. (2005). Substance abuse on the college campus. *Pediatric Clinics of North America, 52*(1), 307-319. doi:10.1016/j.pcl.2004.10.008

Ring, C., & Kavussanu, M. (2017). The role of self-regulatory efficacy, moral disengagement and guilt on doping likelihood: a social cognitive theory perspective. *Journal of Sport Sciences, 36*(5), 578-584. doi:10.1080/02640414.2017.1324206

Ritzer, G., & Stepnisky, J. (2014). *Sociological theory.* New York: McGraw Hill.

Roberts, D., Henriksen, L., & Christenson, P. (1999). *Substance use in popular movies and music.* Washington D.C.: Office of National Drug Control Policy.

Ryan, H., Gayles, J., & Bell, L. (2018). Student-athletes and mental health experiences. *New Directions for Student Services, 163*, 67-79. doi:10.1002/ss.20271

Sack, A. L. (2001). Big-time athletics vs. academic values: it's a rout. *Chronicle of Higher Education, 47*(20), 1-6.

SAMHSA. (2018, 10 01). *Key substance use and mental health indicators in the United States: results from the 2018 National Survey on Drug Use and Health.* Retrieved from SAMHSA: https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.pdf

SAMHSA. (2019). *Behavioral health among college students information & resource kit.* Rockville: Health and Human Services Publication. doi:https://store.samhsa.gov/sites/default/files/d7/priv/sma19-5052.pdf

Sanagavarapu, P., Abraham, J., & Taylor, E. (2019). Development and validation of a scale to measure first year students' transitional challenges, wellbeing, help-

seeking, and adjustments in an Australian university. *Higher Education, 77*, 695-715. doi:10.1007/s10734-018-0298-2

Scheid, T., & Brown, T. (2010). *A handbook for the study of mental health: second edition.* New York: Cambridge University Press.

Schulenberg, J., Johnston, L., O'Malley, P., Bachman, J., Miech, R., & Patrick, M. (2019). *Monitoring the Future: National survey results on drug use 1975-2019.* Ann Arbor: Institute for Social Research.

Schwamberger, B., & Curtner-Smith, M. (2019). Moral development and sporting behavior in sport education: a case study of a preservice teacher with a coaching orientation. *European Physical Education Review, 25*(2), 581-596. doi:10.1177/1356336X17753024

Simons, H., Bosworth, C., Fujita, S., & Jensen, M. (2007). The athlete stigma in higher education. *College Student Journal, 41*(2), 251-273.

SIUC/Core Institute. (2014). *2011-2013 National Data.* Retrieved from Southern Illinois University: https://core.siu.edu/_common/documents/2011-2013.pdf

Skidmore, C., Kaufman, E. A., & Crowell, S. (2016). Substance use among college students. *Child and Adolescent Psychiatric Clinics of North America, 25*, 735-753. doi:10.1016/j.chc.2016.06.004

Smith, H. (2019). Flagrant foul or flagrant fraud? the implications of honest services fraud prosecutions of college basketball coaches on student-athletes. *Alabama Law Review, 70*(3), 813-840.

Stanbra, S. (2020, 05 13). *What is the difference between the NCAA and NAIA*. Retrieved from CSUSA: https://www.collegescholarshipsusa.com/news/what-is-the-difference-between-ncaa-and-naia/

Statistics Solutions. (2021, 04 18). *Kruskal-Wallis test*. Retrieved from Statistics Solutions: https://www.statisticssolutions.com/kruskal-wallis-test/

Stewart, C. (2001). The influence of spirituality on substance use of college students. *Journal of Drug Education, 31*(4), 343-351.

Substance Abuse and Mental Health Services Administation. (2019). *Behavioral health among college students information & resource kit.* Rockville: Substance Abuse and Mental Health Services Administation.

Tabachnick, B., & Fidel, L. (2013). *Using multivariate statistics sith edition.* Boston: Pearson.

The Institute for Diversity and Ethics in Sport. (2021, 01 05). *NCAA college sport association racial & gender report card*. Retrieved from TIDES: https://www.tidesport.org/college

The Princeton Review. (2020, 09 12). *The Princeton Review's College Ranking Methodology*. Retrieved from The Princeton Review: https://www.princetonreview.com/college-rankings/ranking-methodology

Tillson, M., Staton, M., Strickland, J., & Pangburn, K. (2019). An examination of the age of substance use onset and adult severity of use among offenders entering treatment. *Journal of Drug Issues, 49*(2), 238-252. doi:10.1177/0022042618797307

Tricker, R., & Connolly, D. (1997). Drugs and the college athlete: an analysis of the

    attitudes of student athletes at risk. *Journal of Drug Education, 27*(2), 105-119.

Turman, P. (2007). Parental sport involvement: parental influence to encourage young

    athlete continued sport participation. *Journal of Family Communication, 7*(3),

    151-175.

Umberson, D., & Montez, J. (2010). Social relationships and health: a flashpoint for

    health policy. *J Health Soc Behav, 51*, 54-66. doi:10.1177/0022146510383501

United States Census Bureau. (2021, 05 15). *Why we ask questions about race*. Retrieved

    from United States Census Bureau: https://www.census.gov/acs/www/about/why-

    we-ask-each-question/race/

University of Michigan. (2016, 09 19). *Social work and athletics: a winning combination*.

    Retrieved from University of Michigan: https://ssw.umich.edu/stories/51878-

    social-work-and-athletics-a-winning-combination

University of New Mexico. (2020, 12 05). *Fraternity & Sorority Life*. Retrieved from

    University of New Mexico: https://greeks.unm.edu/become-a-

    member/parents/fun-stats.html

USA Today. (2021, 04 16). *NCAA Finances*. Retrieved from USA Today:

    https://sports.usatoday.com/ncaa/finances

Van de Pol, P., Kavussanu, M., & Kompier, M. (2015). Autonomy support and

    motivational responses across training and competition in individual and team

    sports. *Journal of Applied Social Psychology, 45*(12), 697-710.

    doi:10.1111/jasp.12331

Vanderbilt University. (2021, 01 3). *Chapter 6: alcohol and other drugs*. Retrieved from

Vanderbilt University: https://www.vanderbilt.edu/student_handbook/alcoholic-

beverage-and-controlled-substances-policies/

Vest, A., & Simpkins, S. (2013). When is sport participation risky or protective for

alcohol use? the role of teammates, friendships, and popularity. *New Directions*

for Child and Adolescent Development, 140, 37-55. doi:10.1002/cad.20036

Vimpani, G. (2005). Getting the mix right: family, community and social policy

interventions to improve outcomes for young people at risk of substance misuse.

Drug and Alcohol Review, March, 111-125. doi:10.1080/09595230500102210

Wanamarta, I. (2020, 05 06). *Marijuana and student-athletes: 'you just don't see it'.*

Retrieved from The Exponent:

https://www.purdueexponent.org/campus/article_6293a31c-14cb-5192-989d-

33cea61c4e25.html

Ware, M., Jensen, D., Barrette, A., Vernec, A., & Derman, W. (2018). Cannabis and the

health and performance of the elite athlete. *Clinical Journal of Sport Medicine,*

28(5), 480-485. doi:10.1097/jms.0000000000000650

Watkins, J. (2021, 05 13). *Hypothesis testing multiple testing.* Retrieved from The

University of Arizona: https://www.math.arizona.edu/~jwatkins/H6_multiple.pdf

Weaver, R., & Reynolds II, J. (2020). Social work ethics and intercollegiate student-

athlete retention. *Journal of Social Work Values & Ethics, 17*(1), 25-34.

Wechsler, H., & Davenport, A. (1997). Binge drinking, tobacco, and illicit drug use and

involvement in college athletics. *Journal of American College Health, 45*(5), 195-

201. doi:10.1080/07448481.1997.9936884

Welsh, J. W., Shentu, Y., & Sarvey, D. B. (2019). Substance use among college students. *FOCUS: Journal of Lifelong Learning in Psychiatry, 17*(2), 117-127.

Werch, C., Pappas, D., & Castellon-Vogel, E. (1996). Drug use prevention efforts at colleges and universities in the United States. *Substance Use & Misuse, 31*(1), 65-80. doi:https://doi.org/10.3109/10826089609045798

Wilson, G., & Pritchard, M. (2005). Comparing sources of stress in college student athletes and non-athletes. *Athletic Insight, 7*(1), 1-9.

Wininger, S., & White, T. (2015). Stereotype in collegiate student-athletes: a comparison of student versus student-athlete perceptions. *Journal for the Study of Sports and Athletes in Education, 9*(2), 75-85. doi:10.1179/1935739715Z.00000000036

Wolaver, A. (2008). Effects of heavy drinking in college on study efforts, grade point average, and major choice. *Contemporary Economic Policy, 20*(4), 415-428. doi:doi.org/10.1093/cep/20.4.415

Yaeger, J., & Moreno, M. (2017). The role of age and setting in adolescents' first drinking experience for predicting college problem drinking. *Journal of American College Health, 65*(7), 506-512. doi:10.1080/07448481.2017.1341767

Yukhymenko-Lescroart, M., Brown, M., & Paskus, T. (2015). The relationship between ethical and abusive behaviors and student-athlete well-being. *Sports, Exercise, and Performance Psychology, 4*(1), 36-49. doi:10.1037/spy0000023

Yusko, D., Buckman, J., White, H., & Pandina, R. (2008). Alcohol, tobacco, illicit drugs, and performance enhancers: a comparison of use by college student athletes and nonathletes. *Journal of American College Health, 57*(3), 281-289.

Zanotti, D., Kaier, E., Vanasse, R., Davis, J., Strunk, K., & Cromer, L. (2018). An
examination of the test-retest reliability of the ACE-SQ in a sample of college
athletes. *Psychological Trauma, Research, Practice, and Policy, 10*(5), 559-562.
doi:10.1037/tra0000299

Study Title (IRB: 145250-1)

NAIA Substance Use and Abuse Survey

Study Purpose and Rationale

The National Association of Intercollegiate Athletics (NAIA) does not currently have data available on drugs, alcohol, and tobacco use amongst their 65,000 student-athletes competing across their 250 member schools. The NAIA understands there are potential drug, alcohol, and tobacco use challenges impacting the biopsychosocial development of athletes. These are challenges that possibly impact an athlete's ability to see a return on their athletic investment, to carry out the mission of the Champions of Character Program, and to make their own health and safety a top priority.

Inclusion/Exclusion Criteria

To be eligible to participate in this study, you must be a current student-athlete at an NAIA member institution. Participants must also be 18 years old or older. All other individuals are excluded from participation in this study.

Participation Procedures and Duration

For this research project, you will be asked to take a web-based version of the National Study of Substance Use Habits of College Student-Athletes Survey (NCAA, 2016). The survey should take approximately 15-20 minutes to complete.

Data Confidentiality or Anonymity

All data will be maintained as anonymous and no identifying information such as names will appear in any publication or presentation of the data.

Storage of Data

Data will be entered into a software program and stored on the researcher's password-protected computer for three years and then deleted. Only members of the research team will have access to the data.

Risks or Discomforts

The only anticipated risk from participating in this study is that you may not feel comfortable answering some of the questions. You may choose not to answer any question that makes you uncomfortable and you may quit the study at any time.

Benefits

The product of this research will help inform researchers, future athletes, coaches, administrators, and athletic support personnel about the current rates of drug, alcohol, and tobacco use on NAIA campuses.

Voluntary Participation

Your participation in this study is completely voluntary and you are free to withdraw your permission at any time for any reason without penalty or prejudice from the investigator or the NAIA. Please feel free to ask any questions of the investigator before starting the survey and at any time during the study. Furthermore, athletic staff will not know whether you did or did not participate in this study.

IRB Contact Information

For one's rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at orihelp@bsu.edu.

Researcher Contact Information

Principal Investigators:

Matt A. Moore, PhD, MSW
Assistant Professor and Undergraduate Program Director
Department of Social Work
Ball State University
Muncie, IN 47306
mattmoore@bsu.edu
(765)285-1026

Appendix II

NAIA Substance Use and Abuse Survey ⌄   Projects   Contacts   Actions   Library   Help   9+   ⓐ

Survey   Actions   Distributions   Data & Analysis   Reports

You are currently making edits to this survey. Changes won't be live until you publish.   ✕

NAIA Substance Use and Abuse Survey   iQ Score: Fair   ⓘ Draft Version

⌄ SECTION 1: Institutional and Background Information   Block Options ⌄

☐   **INFORMED CONSENT (IRB APPROVAL #)**

⚙   **Study Title**

NAIA Substance Use and Abuse Survey

Study Purpose and Rationale

The National Association of Intercollegiate Athletics (NAIA) does not currently have data available on drugs, alcohol, and tobacco use amongst their 65,000 student-athletes competing across their 250 member schools. The NAIA understands there are potential drug, alcohol, and tobacco use challenges impacting the biopsychosocial development of athletes. These are challenges that possibly impact an athlete's ability to see a return on their athletic investment, to carry out the mission of the Champions of Character Program, and to make their own health and safety a top priority.

Inclusion/Exclusion Criteria

To be eligible to participate in this study, you must be a current student-athlete at an NAIA member institution. Participants must also be 18 years old or older. All other individuals are excluded from participation in this study.

Participation Procedures and Duration

For this research project, you will be asked to take a web-based version of the National Study of Substance Use Habits of College Student-Athletes Survey (NCAA, 2016). The survey should take approximately 15-20 minutes to complete.

Data Confidentiality or Anonymity

All data will be maintained as anonymous and no identifying information will appear in any publication or presentation of the data.

Storage of Data

Data will be entered into a software program and stored on the researcher's password-protected computer for three years and then deleted. Only members of the research team will have access to the data.

Risks or Discomforts

The only anticipated risk from participating in this study is that you may not feel comfortable answering some of the questions. You may choose not to answer any question that makes you uncomfortable and you may quit the study at any time.

Benefits

The product of this research will help inform researchers, future athletes, coaches, administrators

The product of this research will help inform researchers, future athletes, coaches, administrators, and athletic support personnel about the current rates of drug, alcohol, and tobacco use on NAIA campuses.

Voluntary Participation

Your participation in this study is completely voluntary and you are free to withdraw your permission at any time for any reason without penalty or prejudice from the investigator or the NAIA. Please feel free to ask any questions of the investigator before starting the survey and at any time during the study.

IRB Contact Information

For one's rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at orihelp@bsu.edu.

Researcher Contact Information

Principal Investigator:
Matt A. Moore, PhD, MSW
Assistant Professor and Undergraduate Program Director
Department of Social Work
Ball State University
Muncie, IN 47306
mattmoore@bsu.edu

CONSENT

By agreeing to participate in this study, you are confirming your status as a current student-athlete at an NAIA member institution and that you are 18 years old or older.

○ I have read the informed consent and agree to participate in this research study.

- Page Break -

Q1   Are you playing on a men's or women's team(s)? (Mark ONE)

○ Men's

○ Women's

Q2   What is <u>main</u> sport you play? (Mark ONE)

○ Cross Country

○ Football

○ Soccer

○ Volleyball

○ Basketball (DI)

○ Basketball (DII)

○ Bowling

○ Competitive Cheer

○ Competitive Dance

○ Indoor Track & Field

○ Swimming & Diving

○ Wrestling

○ Baseball

○ Golf

○ Outdoor Track & Field

○ Softball

○ Tennis

○ Lacrosse

Q3   What is your current academic standing? (Mark ONE)

○ First Year

○ Sophomore

○ Junior

○ Senior

○ Graduate Student

Q4   How do you describe yourself? (Mark ONE)

○ American Indian or Alaskan Native

○ Asian or Asian American

○ Black or African American

○ Hispanic or Latino

○ Native Hawaiian or Pacific Islander

○ White

○ Multiracial

○ Other (please specify)

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Q5   What is your current age? (Mark ONE)

⚙   ○ 18-20

      ○ 21 or older

Q6   Are you a transfer student? (Mark ONE)

⚙   ○ No

      ○ Yes, from a 2-year college

      ○ Yes, from another 4-year NAIA college

      ○ Yes, from a 4-year NCAA college

      ○ Other (please specify)

----------------------------- Page Break -----------------------------

Q7   Did you receive education regarding NAIA banned drugs and/or supplements before you began
      participating in your sport at your current school?

⚙   ○ No

      ○ Yes

Q8   Do you rely on the following to help pay for college? (Mark ALL that apply)

⚙   ☐ Family contribution

      ☐ Personal contribution

      ☐ Pell Grant

      ☐ Need-based financial aid (including state or institutional grants)

      ☐ Academic scholarship

      ☐ Athletic scholarship

      ☐ Loans

Q9   With whom do you currently live? (Mark ONE)

⚙   ○ I live alone

      ○ With parents, family, or significant other

      ○ With teammates or other student-athletes ONLY

      ○ With a mix of student-athletes and others

      ○ Only with other students who are not athletes

      ○ Only with others who are not students at this school

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Q10 Where do you currently live during the school year? (Mark ONE)

○ Residence hall or other campus housing/apartment

○ Fraternity or Sorority House

○ Off-campus apartment or house

○ Other (please specify)

‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ Page Break ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒ ‒

Q11 How likely do you think it is that you will become a professional and/or Olympic athlete in your sport?

○ Very likely

○ Likely

○ Somewhat likely

○ Somewhat unlikely

○ Unlikely

○ Very unlikely

Q12 Which of the following best describe the college or university you attend?

○ Public Institution

○ Private Institution

Q13 Which of the following best describe the college or university you attend?

○ Faith-based

○ Non Faith-based

Q14 Which of the following best describe the college or university you attend?

○ Rural Setting

○ Urban Setting

○ Suburban Setting

Add Block

▼ SECTION II: Substance Use Experience   Block Options ⌄

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Q15

How often have you used or do you currently use the following products? (Mark ONE for each substance)

	Never Used	Daily	Weekly	Monthly	In the last year	Used, but not in the last year
Cigarettes	○	○	○	○	○	○
Cigars	○	○	○	○	○	○
E-cigarettes	○	○	○	○	○	○
Hookah	○	○	○	○	○	○
Spit tobacco	○	○	○	○	○	○

Q16

How often have you used or do you currently use marijuana by the following methods? (Mark ONE for each substance)

	Never used	Daily	Weekly	Monthly	In the last year	Used, but not in the last year
Inhale (e.g., smoke, vape, dab)	○	○	○	○	○	○
Ingest (e.g., edibles, oils, tinctures)	○	○	○	○	○	○
Apply to skin (e.g., cannabis-infused lotions)	○	○	○	○	○	○
Use synthetic "marijuana" (e.g., K2, Spice, etc.)	○	○	○	○	○	○

Q17

Please indicate the reasons you have used marijuana within the last year: (Mark ALL that apply)

☐ I have not used marijuana within the last year

☐ Social use

☐ To aid sleep

☐ Anxiety or depression

☐ Pain management

☐ Other (please specify)

Q18

At the start of this school year, what were the marijuana laws in your college's state? (Mark ONE)

○ Marijuana was legal for recreational and medical use

○ Marijuana was legal for medical use only

○ Marijuana use was not legal in this state

○ ✕ I don't know the law in my college's state

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Q19 How often have you used or do you currently use the following substances? (Mark ONE for each substance)

	Never used	Daily	Weekly	Monthly	In the last year	Used, but not in the last year
Alcohol	○	○	○	○	○	○
LSD	○	○	○	○	○	○
Methamphetamine	○	○	○	○	○	○
Heroin	○	○	○	○	○	○
Amphetamines	○	○	○	○	○	○
Cocaine	○	○	○	○	○	○
Ecstasy / Molly	○	○	○	○	○	○
Anabolic steroids (e.g., testosterone)	○	○	○	○	○	○
Human growth hormone (HGH)	○	○	○	○	○	○
Non-steroidal anti-inflammatory drugs (e.g., ibuprofen, naproxen, aspirin, etc.)	○	○	○	○	○	○
Injectable Toradol (ketorolac)	○	○	○	○	○	○
Tylenol or acetaminophen	○	○	○	○	○	○
ADHD stimulants (e.g., Adderall, Ritalin, Concerta, Vyvanse, etc.)	○	○	○	○	○	○
Narcotic pain medication (e.g., Vicodin, Oxycontin, Percocet, Dilaudid, Morphine, Tylenol with Codeine, etc.)	○	○	○	○	○	○
Ultracet, Ultram, or Tramadol	○	○	○	○	○	○

---------------------------- Page Break ----------------------------

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Q20

When did you _first use_ the following substances? (Mark ONE for each substance)

	Never used	Before High School	High School	College
Alcohol	○	○	○	○
Cigarettes	○	○	○	○
E-cigarettes	○	○	○	○
Spit tobacco	○	○	○	○
Marijuana	○	○	○	○
Synthetic marijuana	○	○	○	○
LSD	○	○	○	○
Methamphetamine	○	○	○	○
Heroin	○	○	○	○
Amphetamines	○	○	○	○
Cocaine	○	○	○	○
Ecstacy / Molly	○	○	○	○
Anabolic steroids	○	○	○	○
Human growth hormone (HGH)	○	○	○	○
ADHD stimulants (e.g., Adderall, Ritalin, Concerta, Vyvanse, etc.)	○	○	○	○
Narcotic pain medication (e.g., Vicodin, Oxycontin, Percocet, Dilaudid, Morphine, Tylenol with Codeine, etc.)	○	○	○	○

Q21

Within the last year, when have you used the following substances _in relation to your competitive season_? (Mark ONE for each substance)

	Not used in the last year	Only during the competitive season	Only during the off season	During BOTH the off season and competitive season
Alcohol	○	○	○	○
Cigarettes	○	○	○	○
E-cigarettes	○	○	○	○
Spit tobacco	○	○	○	○
Marijuana	○	○	○	○
Synthetic marijuana	○	○	○	○
LSD	○	○	○	○
Methamphetamine	○	○	○	○
Heroin	○	○	○	○
Amphetamines	○	○	○	○
Cocaine	○	○	○	○
Ecstasy / Molly	○	○	○	○

Q22

Within the last year, have you used the following substances specifically to prepare for a practice or competition? (Mark ONE for each substance)

	Yes	No
Spit tobacco	○	○
Marijuana	○	○
Amphetamines	○	○
Cocaine	○	○
Anabolic steroids (e.g. testosterone)	○	○
Human Growth Hormone (HGH)	○	○
ADHD stimulants (e.g. Adderall, Ritalin, Concerta, Vyvanse, etc.)	○	○
Narcotic pain medication (e.g. Vicodin, Oxycontin, Percocet, Dilaudid, Morphine or Tylenol with Codeine, etc.)	○	○

Q23

Please indicate why you have never used or have stopped using the following substances (Mark ALL that apply for each substance):

	I still use the substance	Concerned about what it might do to my health	Against my beliefs	No desire to experience the effects	Hurt my athletic performance	Hurt personal relationships	Afraid of becoming addicted	Fear of getting drug tested
Alcohol	☐	☐	☐	☐	☐	☐	☐	☐
Cigarettes	☐	☐	☐	☐	☐	☐	☐	☐
E-cigarettes	☐	☐	☐	☐	☐	☐	☐	☐
Spit tobacco	☐	☐	☐	☐	☐	☐	☐	☐
Marijuana	☐	☐	☐	☐	☐	☐	☐	☐
Other illicit drugs (e.g., LSD, Heroin, Cocaine, etc.)	☐	☐	☐	☐	☐	☐	☐	☐
Performance enhancing drugs	☐	☐	☐	☐	☐	☐	☐	☐

------ Page Break ------

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Q24

If you drink alcohol, typically how many drinks do you have in one sitting? (Mark ONE)

One Drink =
One 12oz beer
One 4oz glass of wine
One 12oz wine cooler
One mixed drink (w/ 1 shot)
One shot glass of liquor

○ 1

○ 2

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ 11+

Q25

One average, how many times _per week_ do you drink more than 5 drinks in one sitting (if you identify as male) or more than 4 drinks in one sitting (if you identify as female)? (Mark ONE)

○ I do not drink alcohol

○ I drink alcohol but never more than 5 drinks (male) or 4 drinks (female)

○ 1 day a week

○ 2 days a week

○ 3-4 days a week

○ 5-6 days a week

○ Everyday

Q26 Within the last year, have you experienced any of the following as a consequence of drinking alcohol? (Mark ONE for each experience)

	I did not drink alcohol in the last year	Yes	No
Experienced interrupted sleep or sleep loss	○	○	○
Had a hangover	○	○	○
Performed poorly on a test or important project	○	○	○
Missed a class	○	○	○
Showed up late or missed practice or a game	○	○	○
Performed poorly in practice or a game	○	○	○
Physically injured yourself	○	○	○
Got into an argument/fight	○	○	○
Forgot where you were or what you did	○	○	○
Done something you later regretted	○	○	○
Been criticized by someone you know	○	○	○
Thought you might have a drinking or other drug problem	○	○	○
Had feelings of depression, feeling sad for two weeks or longer	○	○	○
Tried unsuccessfully to stop drinking	○	○	○
Damaged property, pulled fire alarm, etc.	○	○	○
Been in trouble with the police or other college authorities	○	○	○
Drove a car while under the influence	○	○	○
Rode in a car with a driver who was under the influence	○	○	○
Had unprotected sex	○	○	○

159

Q27 ▢ Within the last year, under what conditions have you taken the following medications? (Mark ALL that apply)

⚙

☐ ADHD stimulants (e.g., Adderall, Ritalin, Concerta, Vyvanse, etc.) WITH a prescription

☐ ADHD stimulants (e.g., Adderall, Ritalin, Concerta, Vyvanse, etc.) WITHOUT a prescription

☐ Narcotic pain medication (e.g., Vicodin, Oxycontin, Percocet, Dilaudid, Morphine or Tylenol with Codeine, etc.) WITH a prescription

☐ Narcotic pain medication (e.g., Vicodin, Oxycontin, Percocet, Dilaudid, Morphine or Tylenol with Codeine, etc.) WITHOUT a prescription

☐ I have not taken any of the medications listed

Q28 ▢ Within the last year, have you taken any of the following medications outside of their intended use, taking a dosage different from or taking it longer than what was prescribed or recommended? (Mark ALL that apply)

⚙

☐ Ibuprofen, naproxen, aspirin or other nonsteroidal anti-inflammatory drugs

☐ Tylenol or acetaminophen

☐ Adderall, Ritalin, Concerta, or Vyvanse

☐ Vicodin, Oxycontin, Percocet, Dilaudid, Morphine or Tylenol with Codeine

☐ Ultracet, Ultram or Tramadol

☐ Injectable Toradol or Ketorolac

☐ I have not used pain management medications beyond their intended use within the last year

- Page Break -

Add Block

▼ SECTION III: Performance Enhancers and Dietary Supplements   Block Options ⌄

Q29

Within the last year, have you taken any of the following performance enhancers? (Mark ALL that apply)

- [ ] Andro or norandro
- [ ] Hydroxy methylbutyrate (HMB)``
- [ ] Clenbuterol
- [ ] Dehydroepiandrosterone (DHEA)
- [ ] Epitestosterone
- [ ] Erythropoietin (EPO)
- [ ] Gamma hydroxbutyrate (GHB)
- [ ] Human chorionic gonadotrophin (HCG)
- [ ] Human growth hormone (HGH) - Injected form
- [ ] Human growth hormone (HGH) - Oral form
- [ ] Insulin
- [ ] Prohormones
- [ ] Testosterone boosters
- [ ] Other anabolic agents
- [ ] I have not taken any of the items listed

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Q30   Within the last year, have you taken any of the following? (Mark ALL that apply)

☐ General multivitamin

☐ Multivitamin and mineral with other additives (e.g. caffeine, probiotics, herbal ingredients, etc.)

☐ Calcium

☐ Iron

☐ Probiotic

☐ Fish oil

☐ Glucosamine and/or chondroitin

☐ Amino acids (e.g., BCAAs, L-arginine, L-carnitine, beta-Alanine, etc.)

☐ Protein products (e.g., whey, casein, soy, etc.)

☐ Creatine

☐ Energy drinks (e.g., Red Bull, Monster, 5-Hour Energy, etc.)

☐ Pre-workout products

☐ Brain/memory enhancer (e.g., nootropics)

☐ Diuretics (e.g., water pills)

☐ Prescription sleep aid (e.g., Ambien, Xanax, Ativan)

☐ Non-prescription sleep aid (e.g., Benadryl, diphenhydramine, melatonin)

☐ Herbal supplements (e.g., turmeric, milk thistle, Echinacea, fenugreek, garcinia cambogia, etc.)

☐ Weight gain products

☐ Thermogenic/fat burners/weight loss producs

☐ I have not taken any of the items listed

- Page Break -

Add Block

▼ SECTION IV: Drug Testing Beliefs   Block Options ∨

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Q31

There has been a lot of discussion about whether athletes should be tested for use. Please indicate your level of agreement with the following statements: (Mark ONE for each line)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
If I use a banned substance in the next year, I am likely to get caught	○	○	○	○	○
All college athletes should be tested for **performance enhancing drugs** (e.g., steroids) by their SCHOOL	○	○	○	○	○
All college athletes should be tested for **marijuana** by their SCHOOL	○	○	○	○	○
All college athletes should be tested for **performance enhancing drugs** (e.g., steroids) by the NAIA	○	○	○	○	○
All college athletes should be tested for **marijuana** by the NAIA	○	○	○	○	○
Drug testing by individual colleges has deterred college athletes from using drugs	○	○	○	○	○
Drug testing by NAIA has deterred college athletes from using drugs	○	○	○	○	○
Imposing team penalties (such as disqualification of the team when a member tests positive for banned drugs) would be fair and appropriate	○	○	○	○	○

Add Block

⚠ End of Survey   Survey Termination Options...

BALL STATE UNIVERSITY

Qualtrics.com   Contact Information   Legal

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CURRICULUM VITAE
Richard D. Weaver Jr.

8003 Maple Grove Dr., Georgetown, IN, 47122
(317) 840-8666 – richard.weaverjr@louisville.edu

Education

PhD in Social Work   2017-Present
University of Louisville

MS in Social Work   2017
University of Louisville

BS in Psychology   2013
Indiana University

Teaching

Adjunct Faculty
Policy in Master's Program Online, Social Work, University of Louisville (2020-Present)
- Conduct lectures and class development for online course and in-person classes
- Planned at taught introduction to social welfare policy and institution class sessions
- Assisted students with course work and group projects
- Grade individual and group assignments

Graduate Teaching Assistant
Policy in Social Work, University of Louisville (2019)
- Assisted with lectures and class development
- Planned and taught two class sessions
- Assisted students with course work and group projects
- Implemented student visit to Kentucky Legislature and meeting with representatives

Research Experience

Research Assistant
Research, Indiana University Southeast (2019-Present)
- Recruit research participants into study
- Conduct data collection and database entry
- Work with YMCA, fellow researchers, and company staff to ensure study completion

Research Associate
Field Data Collector, ANANDA Hemp (2018-2019)
- Recruit research participants into study
- Conduct data collection and database entry
- Work with medical providers, fellow researchers, and company staff to ensure study completion
- Distribute and document compensation to participants

Other Work Experience

Consultant,
Private Sector, Louisville, Kentucky (2021-Present)
- Work with local government leaders and organizations to promote legislation.
- Research background on policies and data to create documents to discriminate information.
- Meet with organizations and community leaders to garner feedback about policies.

Academic Tutor
Tutor, University of Louisville Athletics (2019-Present)

- Work with student-athletes on academic course material
- Design and implement tutoring materials to increase student learning
- Obtained tutoring certification and attended continuing education courses.

HIV Services
Community Outreach and Testing, Volunteers of America (2017-2018)
- Conduct testing for HIV throughout the community
- Support individuals testing positive through the continued care system
- Develop relationships with community organizations and partners to expand testing locations
- Work with community and political leaders to inform policy decisions that affect HIV services and clients

Substance Use Therapeutic Services
Practicum Student Therapy Services, Volunteers of America (2016-2017)
- Conduct individual and group therapy sessions for in-patient services for veterans with substance use disorder
- Attend professional interagency meeting to coordinate addiction services for veterans
- Develop and implement therapy plans for client
- Work with outside organization to help clients find housing and support services upon discharge
- Conduct intake assessment of new clients

Supportive Services for Veteran Families
Practicum Student Case Manager, Volunteers of America (2015-2016)
- Provided case management and housing assistance for homeless military veterans
- Attend professional interagency meeting to coordinate social services for veterans
- Performed street level outreach to identify homeless veterans then guide them to services
- Helped veterans suffering from substance abuse, mental health issues, and financial instability using the housing first model to assist in finding sustainable housing
- Worked with multiple grants, grant financials, and grant compliance

Law Enforcement
Police Officer, Indiana University Southeast (2008-2009)
- Performed criminal investigations including writing search warrants, executing warrants, collecting evidence, writing reports, and arresting suspects
- Conducted Community Policing activities working with students, faculty, and community advisors
- Develop relationships with community organizations, leaders, and citizens to increase relationships
- Complete trainings in criminal investigations, arson, homicide investigations, and community policing to enhance skills

Law Enforcement
Police Officer, Topeka Police Department (2006-2007)
- Performed criminal investigations including writing search warrants, executing warrants, collecting evidence, writing reports, and arresting suspects
- Develop relationships with community organizations, leaders, and citizens to increase relationships
- Complete trainings in criminal investigations, arson, homicide investigations, and community policing to enhance skills
- Spent time doing plain clothes operations for narcotic surveillance, warrants and sting operations
- Spent a few months working with community policing going to neighborhood associations, planning community functions with police department participation

Law Enforcement
Corporal., Marion County Sheriff's Department (2005-2006)
- Supervise third shift deputies, complete paperwork, and submit reports to supervisors
- Provided security to the City-County building in Indianapolis including political officials, courtrooms, judges, lawyers, criminal offenders, victims, and community members

- Complete training for in law enforcement through the law enforcement training academy

Military Service

Petty Officer, United States Navy (1997-2009)
- Served Active Duty from July/97 to July/00 as a Boatswain's Mate achieving the rank of Petty Officer Third Class in Aviation Electronics being Honorably Discharged upon completion of contractual obligation
- Completed two military deployments to the Middle East in support of continued combat operations 1998 and 2000
- Served Active Reserves from July/00 to Feb/09, Joined the Great Lakes Operational Hospital Support Unit as a Hospital Corpsman Third Class in 2003

Volunteer Work

Hosparus of Southern Indiana, New Albany, Indiana
- Volunteered from September 2012 to June 2015.
- Provide support and resources for patients and families.
- Have attended training sessions on grief counseling, bereavement, patient care, and volunteer training.

Membership and Awards

Military Awards

- Two Sea Service awards, Two Good Conduct Awards, Armed Forces Expeditionary Medal., Two Battle "E" Awards, Navy Meritorious Unit Award.

Dean's List

- Indiana University Southeast academic recognition (GPA: 3.5-3.9)

- Awarded: Fall 2011, Fall 2012, Spring 2013

Chancellor's List

- Indiana University Southeast academic recognition (GPA: 4.0)

- Awarded: Fall 2013

National Association of Social Worker

- Since 2015

Alliance of Social Workers in Sports

- Since 2017

Council on Social Work Education

- Since 2018

Publications

Tredinnick, L., Newman, T., Dillard, R., Coxe, K., and Reynolds, J., and **Weaver, R.** "Conformity to masculine norms, and attitudes toward sexual behavior" Under review

Archuleta, A., Nunez, S., **Weaver, R.** "Support networks among college enrolled Latina/os: Using ego networks to examine gender differences in network language use and experiences of discrimination" International Journal of Intercultural Relations, Vol. 80, 2021

Weaver, R., & Reynolds, J. "Social work ethics and intercollegiate student-athlete retention" The Journal of Social Work Values and Ethics, Vol. 17, IS. 1, 2020

Capano, A., **Weaver, R.,** & Burkman, E. "Evaluation of the effects of cbd hemp extract on opioid use and quality of life indicators in chronic pain patients: a prospective cohort study" Postgraduate Medicine, Fall, 2019

Conference Presentations

"Examining sport participation, hegemonic masculinity, and college student attitudes toward sexual relationships," Alliance of Social Workers in Sports Fifth Annual Conference, Denver, CO, October 2019.

"A theoretical model of anxiety development in female student-athletes," Alliance of Social Workers in Sports Fifth Annual Conference, poster presentation, Denver, CO, October 2019.

"The experience of coping with psychological and emotional stressors for female collegiate athletes," Alliance of Social Workers in Sports Fifth Annual Conference, Denver, CO, October 2019.

"Establishing boundaries and social work ethics in sport," Homecoming 2019: Sport Social Work, Ball State University, October 2019.

"Conflicts of athletic identity: examining intercollegiate female athletic identity and developmental transitions," 15th International Congress of Qualitative Inquiry, University of Illinois at Urbana-Champaign, May 2019.

"Sustaining professional boundaries in college athletics," National Association of Intercollegiate Athletics National Convention, presenter, West Palm Beach, FL, March 2019.

"Social work informed theoretical model of student-athlete retention," Alliance of Social Work in Sports Fourth Annual Conference, poster presentation, Orlando, FL, November 2018.